Knowledge, attitudes and behaviour towards snus by its users in Finland, Norway and Sweden

Health and lifestyle, 15 credits

Halmstad 2018-06-03
Jessi Hietanen
Knowledge, attitudes and behaviour towards snus by its users in Finland, Norway and Sweden

Jessi Hietanen
Halmstad University
Master's thesis
Health and lifestyle V2182
Spring, 2018, Halmstad

Supervisor: Kristina Ziegert
Examiner: Henrik Stenberg
Abstract

This study sets out to identify the knowledge base of snus users from Finland, Norway and Sweden on using snus and its effect on health, and also explores their existing attitudes and behaviour towards snus use. The purpose of the study is to broaden views on the knowledge base of snus users, their attitudes towards use of snus and to understand their snus behaviour.

This research used the quantitative method. The data was collected by an online questionnaire in two periods. The first data collection period was carried out between 13th of April and 22nd of April and the another one from the 29th of April to 8th of May. Participants were made up from snus users in Finland, Norway and Sweden. Virtual snowball sampling method helped to collect data. Quantitative analysis and SPSS analyzing programme were used in the current research. The analysis was descriptive in establishing existing trends of the knowledge base, attitudes and behaviour by snus users from Finland, Norway and Sweden.

The research consisted of 142 participants with an age range from 15 to 60 years old. The survey included both genders. The results indicated that the participants’ knowledge about health effects of snus were relatively high. Negative health effects of snus did not impact on the use of snus, according to the attitude of majority of the participants. The research revealed that use of snus was a widespread popular lifestyle in Norway, Finland and Sweden. Almost 88 % of the research participants have six or more friends who use snus as well.

The findings of this study illustrate that snus use is an addictive habit. The attitude towards the use of snus and behaviour among snus users in Finland, Norway and Sweden are careless regarding to health. Snus users’ knowledge, attitude and behaviour are inconsistent, and there is uncertainty about the way snus influences the Nordic people’s well-being and health. The results of this study show that the health promotion, education and future research are needed to give precise information.

Keywords
Attitude, behaviour, knowledge, Nordic, snus
# Table of contents

ABSTRACT
TABLE OF CONTENTS
LIST OF TABLES AND CHARTS

## 1 Introduction

## 2 Background

### 2.1 What is snus?
- 2.1.1 History of snus in the Nordic countries
- 2.1.2 What does snus consist of?
- 2.1.3 Health effects of snus

### 2.2 Nordic lifestyle and prevalence of snus
- 2.2.1 Using and legislation of snus in Finland
- 2.2.2 Snus in Norway
- 2.2.3 Sweden as a leader of snus market and consumer

## 3 Theoretical framework

### 3.1 Debate about health threat of snus
### 3.2 Attitude and behaviour - how do we create it?
- 3.2.1 Behaviour theories
- 3.2.2 Theory of reasoned action and planned behaviour
- 3.2.3 Dissonance theory
### 3.3 The stages of change model

## 4 Problem definition and aims

## 5 Implementation of the research

### 5.1 Research method
### 5.2 Data collection and sampling frame
### 5.3 Data analysis

## 6 Results

### 6.1 Demographics
### 6.2 Knowledge about health effects of snus
### 6.3 Attitude and behaviour
### 6.4 Snus as a Nordic lifestyle
- 6.4.1 Snus use now and in the past in Finland, Norway and Sweden
- 6.4.2 Variation between genders
- 6.4.3 Country specific opinion
### 6.5 Summary

## 7 Research quality and limitations

## 8 Discussion and study findings

### 8.1 Unsteady consequences for health
### 8.2 Stressful Nordic lifestyle
### 8.3 Nordic future

## 9 Conclusion

REFERENCE LIST
APPENDICES
TABLES

Table 1. Participants of the survey about knowledge, attitude and behaviour of snus users by age 15–60 years old and nationality (%)………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………
1 Introduction

The term smokeless tobacco for oral use, named snuff, implies the use of unburned tobacco. In the Nordic countries use of snuff is based on a traditional product called Swedish moist snus. In the Nordic countries, the name of snuff was changed to snus in order to perceive the disparity between American snuff and Swedish moist snus. This research mainly focuses on this traditional Swedish snus product, which has infiltrated into the Nordic lifestyle.

In the Nordic countries, the most used tobacco product, Swedish moist snus, is different from other smokeless products and snuff forms by the way it is consumed, and what ingredients it contains. Sweden has the highest number of snus users in Europe (International Agency for Research on Cancer [IARC], 2012, pp. 265-276; The Snus Commission, 2016, pp.8-19.) Snus consumption has increased significantly among men during the last 20 years and among women during the last 10 years in Finland, Norway and Sweden. The increase of snus use is the most common among the younger age groups, 16 to 34-year olds. Men use more snus than women in Nordic countries (Norwegian Institute of Public Health, 2014, p. 16.)

Health risks are varied by snus product ingredients and method of use. All tobacco products which include nicotine are addictive and not carcinogen-free (Leon et al., 2016, p.821; National Cancer Institute [NIH], 2014, p.119.) This research focuses on snus users in Finland, Norway and Sweden. The aim is to investigate the knowledge base of snus users, and to describe existing attitudes and behaviour towards snus use. The use of snus is popular also among women, especially in Norway, thus the research focuses on both sexes without restrictions as the informant group (Statistics Norway, 2018).

Knowledge base, information and behaviour together with own feelings construct the attitude. Different attitude and behaviour theories are popular among healthcare workers to reinforce promotion of health, and to enrich education as well. By exploring health behaviours, it offers a chance to affect the well-being of the population (Glanz, Rimer & Viswanath, 2015, pp.36-37; Fink, 2003, pp.67-69.) The aims of the present study were to increase knowledge about the phenomenon, and attitudes and behaviour behind it. The researcher became interested in finding out different views about snus use due to the significant increase in use of snus in the few Nordic countries. By exploring the respondents’ knowledge about risks of snus as well as possible risk belief errors, it gives important data to the researches, health- and education providers in the future. The gathered information of this study could be used to promote health by affecting to the knowledge base, attitudes and behaviour.
2 Background

2.1 What is snus?

People’s use of snus is popular in the Nordic countries especially in Finland, Norway and Sweden. It is not so commonly used outside of the Nordic countries and therefore is seen to be a Nordic lifestyle. Snus originated in Sweden (Maki, 2015, p. 570.) In Finland, Norway and Sweden moist snus is the most used smokeless tobacco product (Frederiksen, 2018, p.12).

Swedish snuff called snus is seen mainly in two different conformations in Nordic countries; loose snus and portion snus. Loose snus needs to be formed by hand into the chosen portion size and preferred shape. The portion of snus varies when compared between loose snus which requires to be moistened and that available in ready-packed in pouches. The most common way to use snus in the Nordic countries is by setting moist snus under the upper lip giving intense flavour and nicotine release (Swedish Match, n.d.)

2.1.1 History of snus in the Nordic countries

Snus use is seen as a long-standing cultural tradition in the Nordic countries (Gartner, Hall, Chapman, & Freeman, 2007, p.1140). Cultural factors are related to usage patterns of snus as well (Ruthqvist, Curvall, Hassler, Ringberger & Wahlberg, 2011, p.1). In 1560s, a Frenchman called Jean Nicot explored tobacco plant by growing it at home. Inhalable version of tobacco was noticed to reduce headaches and snus become popular among the French court. Snus spread out to the rest of Europe and appeared in Sweden through to Finland and to the town of Porvoo in 1637. In the 1700s snus become much used among the aristocracy in Sweden. After this, Swedish snus breakthrough happened, and farming of tobacco started in dozens of cities in Sweden. In 1800s and 1900s snus was an identity for Swedes. Snus regained popularity in Sweden again during the 1970s when the first portion-packed snus was launched. After this Swedish snus industry reached the broader public (Swedish Match, n.d.; IACR, 2007, p.44.)

Loose snus has been a foundation of Swedish snus over 200 years. Use of original portion snus increased in the 1970s by offering an option for the traditional loose snus. In the 1990s, original portion snus had developed further and white portion snus with a drier surface which gives a longer-lasting flavour and less drip was launched. Portion snus was a better option in comparison to loose snus as it was less messy and was seen as an easier way of using snus. During the same decade, snus manufacturers created snus which consisted of low-nitrosamine. This snus came to the nicotine market and started significant increase in use of snus (Lund & Lund, 2014, p.11713; Swedish Match, n.d.) Nowadays there are multiple snus manufacturers in Sweden (Ruthqvist et al., 2011, p.2). Swedish snus manufacturers produce snus in different portion sizes, types, flavours, strengths of nicotine content and brands by also offering a tobacco free-snus option. Snus production is a massive business in Sweden and developed into being a part of the lifestyle related products in the Nordic countries (Swedish Match, n.d.)
2.1.2 What does snus consist of?

This research focuses only on traditional Swedish moist snus. However, much of the published literature reporting the chemical composition of Swedish snus, also includes data on American type oral moist snuff. By describing the ingredients of the American type snus, it gives a comparable and clearer understanding about Swedish moist snus’ structure, strength, and impacts on health.

Swedish snus produce is different than other smokeless tobacco products all over the world. The Swedish oral tobacco product called snus is a type of moist snus. Moist snus is manufactured to have more fine particles and incorporates diverse aromas like salt, giving a moist texture in comparison to other types of snus. Low-nitrosamine snus called Swedish moist snus came to public market in the 1990s (Lund & Lund, 2014, p. 11713.) Swedish moist snus manufacturers limit most of the toxic substances during the production process resulting in a reduced content of carcinogens and toxicants compared to cigarettes and other types of snus (IARC, 2007, p.52.) Nitrosamine is the main risk in the product which causes increased risk of cancer (IARC, 2012, p. 268).

Swedish moist snus is mostly air- or sun-cured tobacco with stem and seeds. Traditional Swedish snus product is heat-treated. This type moist snus consists of ground dry tobacco with aromatic substances, salts, water, moisture agents and chemical buffering influences (IARC, 2007, p.52.) Salt, in addition to adding flavour, also has a preserving effect, sodium carbonate is an agent which regulates pH, substance like glycerol preserves moisture, and flavouring which differs in various brands (Swedish Match, n.d; Ruthqvist et al., 2011, p. 4). Tobacco varies by its growing, processing and storage methods. It is aggregated to reach the correct pH and nicotine contents in a product (IARC, 2012, p. 265).

American version of moist snus is mostly dark fire-cured tobacco product going through fermentation during the process. American variety of snus includes 10-20 % moisture content, whereas Swedish moist snus is much more moisturised (from 20 % up to 50 %). American and Swedish moist snus differ significantly starting from the production technology to composition (IARC, 2007, pp.52-82.) In Swedish moist snus brands median pH is 8,7 in comparison to American moist snus brands with 6,5. Low pH product absorbs slower. Slow absorption and elimination increases the time for the ingredients to peak (Fumagalli & Clementi, 2015, pp.74, 679.)

Total nicotine levels are remarkably higher among American moist snus brands, 12mg/g, in comparison to Swedish moist snus with 8mg/g. The difference can be seen in the unionized nicotine level, which is significantly higher among Swedish moist snus in comparison to American moist snus brands. American version of moist snus includes at the most 3mg/portition of nicotine whereas Swedish moist snus consists of 3mg/portition to 22mg/portition of nicotine. The weight of a snus can is about 17g, whereas one portion weights at around 1g (Seidenberg, Ayo- Yusuf & Rees, 2018, pp. 263-266; Swedish Match, n.d.) Texture of snus and the regularity of use affect its’ strength. About 10-20 % of nicotine amount of snus pouch is absorbed when using snus (Swedish Match, n.d). Typically, snus users hold the portion or loose snus in their mouth for approximately 13-15 hours per day (Gartner et al., 2007, p. 1140).

2.1.3 Health effects of snus

Snus industry promotion and escalated use of snus increase the threat to public health. All snus and smokeless tobacco forms affect health. Health risks are varied by snus product ingredients
and way of use. All tobacco products which include nicotine are addictive, and mainly not carcinogen-free (NIH, 2014, pp.10, 119-139; Leon et al., 2016, p.821). Snus can be kept in the mouth for many hours and it is addictive due to its nicotine substance (Leon et al., 2016, p.817). Nicotine has an acute impact on cognition by enhancing attention and mental load. These cognitive effects lead to dependence of tobacco products such as snus. Nicotine creates a relaxed feeling and euphoria in low doses (Heishman, Kleykamp & Singleton, 2010, p.468; Finkel, Cubeddu & Clark, 2009, p.118.)

Nervous system and mental health

During recent years use of nicotine products has increased among athletes and during sporting events. Long term use of snus causes neuroadaptive changes in behaviour and results in tolerance rather than giving benefits for sport performance. Use of snus causes sweating, recovery problems, headaches and sleep disorders (Zandonai, Chiamulera, Mancabelli, Falconieri & Diana, 2018, pp. 4-5.) Snus marketing has been connected to sporting activities. Snus is imported from the Nordic countries into other European countries, thus snus use has increased among team sports, for instance, in Switzerland (Henninger, Fischer, Cornuz, Studer & Gimmel, 2015, p.7197). In Finland use of snus has strongly been associated to ice hockey or other team sports. Athletes assume snus not to be harmful for oxygen uptake (Mattila, Raisamo, Pihlajamäki, Mäntysaari & Rimpelä, 2012, pp.5-6; Pesta, Angadi, Burtscher & Roberts, 2013, p.4) Tobacco industry has focused on smokeless tobacco because of changing tobacco use patterns which do not prefer cigarettes. Smokeless tobacco, such as snus, usually has a much higher nicotine level in comparison to regular cigarettes. Snus has been an option for athletes who presume snus not to affect the respiratory system (Pesta et al., 2013, pp.4-11.)

Addictive potential of the product is always a negative health effect (Pesta et al., 2013, p.11). Nicotine has toxic effects which create fast increasing tolerance and physical dependence. Withdrawal of snus manifests itself as irritability, anxiety, headaches and insomnia. Psychological and physical withdrawals are commonly caused by nicotine. Lack of concentration is also often seen to be a part of snus use withdrawals (Finkel et al., 2009, pp.118-119.)

Cardiovascular effects

Depending on the nicotine dose of snus, its effects vary from person to person. It affects both sympathetic and parasympathetic systems. In theory, acute effects of nicotine are increased heart rate and blood pressure giving better blood flow to the muscles. Regardless, research supports that this effect is not beneficial even in a low dose or short-term use for athletes. Nicotine has a strong effect on the cardiovascular system. Increases in the heart rate and blood pressure have an impact on the demand of nutrients and oxygen for the heart. Nicotine causes respiratory problems such as hypotension (Heishman et al., pp. 2010,468; Finkel et al., 2009, p.118.) Nicotine is a poison which causes non-advisable effects by being harmful for health. Snus causes the risk for cancers and cardiovascular disease (Finkel et al., 2009, pp. 59-60; Pesta et al., 2013, pp.4-11, Norwegian Institute for Public Health, 2014, p.19.)

Cancer

Swedish moist snus contains carcinogenic nitrosamines which may formulate cancer. Pancreatic cancer has been associated with high consumption of snus as has the cancer of the oral cavity.
Also, oesophageal cancer risk is significantly increased among snus users (Norwegian Institute of Public Health, 2014, p.18; IARC, 2012, pp.295-309.)

Oral health

Use of snus leads to oral cavity damage. These changes in the mouth have been associated with pre-cancer. The smallest damages may heal and recover back to normal after snus use is stopped. Especially the places of the gum where snus is placed suffer the most, including neck of the tooth. Lesions in the mouth are typical among snus users. The prevalence of the lesions depend on duration and amount of snus used (Norwegian Institute of Public Health, 2014, p.19; IARC, 2012, p. 295.)

Other health effects

Snus use during pregnancy is not recommended. Premature birth, reduced birth weight and for instance, respiratory problems for the new-born babies, have been associated with use of snus during pregnancy. Diabetes mellitus type 2 has been connected to high snus consumption. Snus use impacts on production of insulin (Norwegian Institute of Public Health, 2014, p.18.)

2.2 Nordic lifestyle and prevalence of snus

The Nordic countries consist of the Nordic Region in northern Europe including Finland, Sweden, Norway, Denmark and Iceland. Also, territories of Greenland, the Faroe Islands and the Åland Islands are part of the Nordic countries. These countries share similar institutions, norms and traditions. Nordic welfare state model has been recognized all over the world as a beneficial, safe and successful for the citizens and state. The Nordic countries are defined as a developed world with healthy, high living standards, and well-educated citizens. Although lifestyle changes produce new challenges for health care all the time (Magnussen, Vrangbak & Saltman, 2009, pp.3-7.)

Outside the Nordic countries use of snus, tobacco control policies and snus trends are distinct from the Nordic countries such as Finland, Norway and Sweden (Maki, 2015, p.571). All three countries follow the Tobacco Product Directive 2014/40/EU on manufacturing, sales and advertising of tobacco and related products (European Commission, 2014). In Finland, the preventive action aims at decreasing the use of tobacco and nicotine products, whereas in Sweden the focus is on the numbers of people smoking (Frederiksen, 2018, p. 17).

2.2.1 Using and legislation of snus in Finland

European Commission instituted a mandatory ban in 1992 concerning tobacco products. Snus sale has been banned in the EU since 1992 (besides in Sweden) (Council of the European Communities, 1992.) Snus sale was legal in Finland until the country joined the European Union in 1995 (European Union, 2018). In Finland, the sales and supply of snus are prohibited (Ministry of Social Affairs and Health, 2016, p. 22). The purpose of the ban is to protect public health by creating limits (European Commission, 2012, p.3). Age limit for import and use of tobacco products such as snus is 18 years (National Public Health Organisation [ASH], n.d).
“The import of smokeless tobacco products is prohibited. The import ban also applies to the acquisition and reception of smokeless tobacco products by mail or other comparable means from countries outside Finland. Notwithstanding the provisions of subsection 1, private persons may import for their personal use a maximum of 1,000 grams of smokeless tobacco products within a calendar day”, based on legislation on import of smokeless tobacco products in Finland, the import of smokeless tobacco products is mainly prohibited (Ministry of Social Affairs and Health, 2016, p.24.) Illegal imports and sales are typical and organized between Finland and Sweden (European Commission, 2010, p.4.) Illegal snus imports have increased during last five years. From 2015 to 2016, the quantity of seized snus tripled, snus was mainly imported from Sweden to Finland. Customs of Finland seized 1204 kg of snus in 2015, whereas the amount increased to 3442 kg in 2016 (Hirvonen & Rakshit, 2016, p. 20.)

European Union member status affects the use and sale of snus in Finland (Maki, 2015, p.571). However, the sales ban of snus did not decrease level of snus use in Finland. Increase in the habit of snus use has continued during the last decades. Controlling snus use in Finland is difficult as long snus is available through the traffic from Sweden (Huhtala, Rainio & Rimpelä, 2006, p.396.) In 2014, 5 % of men and 0,2% of women were moist snus users. In 2016, 3,2 % of men aged 20-74, 20 % of men aged 18, and 12 % of men aged 16 years were snus users. Additionally, in Åland Island as a part of Finland, 13 % of men and 1 % of women used moist snus daily, in 2016 (Frederiksen, 2018, p. 13.)

The use of snus has increased rapidly among younger age groups during the last 5 years. Younger age groups make up the majority of snus users, particularly the men. Almost every fourth of male (22 %) aged 18 used snus in Finland 2017. In 2015, 18 % of males aged 18 used snus daily or occasionally. In comparison, during the years 1996-2003, when the number was just 9 % (Chart 1).


![Chart 1. Percentage of 18 years old Finnish, who used snus daily in 1996-2017 by gender](image)

During the last 7 years, the amount of male snus users aged 18 has increased 10 %. Among adolescents aged 16, 12 % of males used snus, in 2017. The number of female users is relatively low. 4 % of females, aged 18, used snus based on numbers from last year (National Institute for Health and Welfare, 2016; ASH, n.d.; Kinnunen et al., 2017, pp. 19-23.) Kinnunen et al. (2017)
research, The Adolescent Health and Lifestyle 2017, revealed that snus users (n=523) get snus from friends (73 %), trips abroad (12 %) and from the Finland- Sweden ferry (3 %) (p.20).

### 2.2.2 Snus in Norway

Age limit for buying tobacco products such as snus is 18 years in Norway. Although Norway is not a part of the European Union (European Union, 2018), the national tobacco product legislation on manufacture, sales and presentation is based on the EU Directive 2014/40/EU (European Commission, 2014). Norway will be one of the several countries in the world to implement full standardisation of snus packaging. The new regulation about plain packing of tobacco products is integrated to the legislation of Norway and from first of July 2018, all tobacco products which are sold inside the country, must not have a logo, graphics and colours of manufacture. The reason for the change is a significant increase in use of snus among young people during last decade. At the same time snus manufacturers have made multiple new snus products with differential designs on market. The authorities goal is to reduce the number of snus users by making tobacco products less attractive and to increase knowledge about health hindrances. Norway has an exception from the ban on the sale of moist snus like Sweden although they do not either include to European Union (Norwegian Directorate of Health, 2018.)  

The data, collected on commission from the Norwegian Institute of Public Health, shows that the year 2017 was the first year when the number of daily snus users was higher than daily smokers. In Norway, snus users are mainly 25-34 old men, 32 % of them use snus (Chart 2, Statistics Norway, 2018.)

**Chart 2.** Share of the population which use snus daily, by sex and age (%), in Norway, 2017 (Statistics Norway, 2018).

![Chart 2](image-url)

According to statistics (Chart 2, Statistics Norway, 2018), among males aged 16-24 years, 25 % used snus daily. Females who use snus the most are aged 16-24 years, 14 % of them use snus daily. In 2017, 22 % of people aged 25-34 used snus daily, including both sexes, whereas the same number was 13 % in 2012. In 2016, 13 % of males used snus daily in Norway. One year later, in 2017, the number had increased to 17 % of males. In 2017, 6 % of women used snus daily. The difference between genders is much smaller every year (Statistics Norway, 2018.)
The use of Swedish moist snus has increased significantly in Norway. Only Sweden has the same level of snus use (Lund & Scheffels, 2016, p. 646.) During the period 2003-2015 in Norway tobacco user status has changed from cigarettes to snus. The majority of snus users are former or current smokers. Even though the number of smokers has declined rapidly, the number of never-smokers among snus-users has significantly increased. Norway has a growing snus market (Lund et al., 2017, p.341.) The reasons for the expanded use of snus in Norway are the perceived reduction of harm as well as the ease of use in smoke-free areas. The snus consumption often depends on the market regulation (Lund & Lund, 2014, p. 1174-11715.)

2.2.3 Sweden as a leader of snus market and consumer

Sales of snus is illegal in European Union countries, besides Sweden, who applied for an exception to the directive that bans the sale of smokeless tobacco products such as snus (European Commission, 2014; Lund & Scheffels, 2016, p.646). Sweden joined the EU in 1995 and was granted a permission to manufacture and sell snus in their country. Under the Swedish law, marketing and sale of snus is prohibited through the internet to another European countries. Many European member states have noted the control to be difficult. Swedish law has also prohibited exportation of snus to other European countries with permission for personal use when traveling to other EU countries (European Commission, 2010, pp.4-5.)

Snus has a long history in Sweden. Swedes have mentioned it to be in a significant role for tobacco addiction by offering less harmful form of nicotine product named snus. Snus has been seen as a lifestyle product, which helps to stop smoking (Ramström & Foulds, 2006, p. 214; Finkel et al., 2009, p.118.) Associated to the latest statistic about individuals who currently smoke, Sweden has one of the lowest numbers of smoking (7 % of the population) among Europe. Compared to Finland (20 % of the population), the number is much lower in Sweden (European Commission, 2017).

At the end of the 1990s, 27 % of men were daily snus users in Sweden. Relatively the number of women was 5 %. In 2004, 20 % of men and 4 % of women used snus daily (CAN, 2017, p.44.) In 2010, in Sweden 20,7 % of men and 3,5 % of women used snus compared to other European countries where the number was 1,2 % among men and 1,1 % in women. In Sweden the use of snus is higher among men than women. 42 % of snus users in Sweden were no smokers in 2010 (Leon et al., 2016, pp. 820-821.) In 2015, 25 % of men and 7 % of women were snus users (WHO, 2017, p. 2). The number of moist snus users dropped to 18 % of men and 4 % of women in 2016 still staying the highest among Nordic countries (CAN, 2017, p.44; Frederiksen, 2018, p.13). Chart 3 below, presents the number of snus users in Sweden between years 2000-2015 by gender.
Swedish Match

Swedish Match is the largest manufacturer in the Scandinavian snus market. In 2001, the company developed a quality standard system for snus called GOTHIATEK. The system guarantees that the product goes through controls regarding safety and consumer protection as a main target. Snus of Swedish Match need to adhere to the Swedish Food Act hygienic requirements. The company produces, sells and develops snus, moist snus, and other tobacco products through production units in seven countries. Scandinavia and the US are the biggest market areas for the company. Swedish Match has four stores in Sweden located in Stockholm, Gothenburg, Strömstad and Åre. The first permanent Swedish Match snus store was opened in Stockholm in 2012. In September 2017, Swedish Match opened Norway’s first snus store in Oslo. The age limit is 18 years to buy snus (Swedish Match, n.d.)

GothiaTek as an influencer for harm reduction of snus

Nowadays, Swedish snus has been associated to include less substances which increase health risks than before. Selection of materials and production techniques together with quality control have been under focus. Chemical properties of snus are the main concern among researchers and health professionals. After snus regained popularity in Sweden in 1960s and 1970s, it was included under the Swedish Food Act jurisdiction in 1971. Swedish snus manufacturer Swedish Match together with Swedish Food authority produced quality controls and standards for Swedish snus, and later formed and named GothiaTek (Ruthqvist et al., 2011, p.1.) GothiaTek is accepted by the World Health Organisation (WHO) on Tobacco Product Regulation and Swedish National Food Agency directives LIVSFS 2012:6, 2013:7 and 2016:3 (Swedish Match, n.d).
Attempt to extent the snus market

Even though, Swedish Match created GothiaTek, a quality control system, The Centre for Tobacco Products of the U.S. Food and Drug Administration (FDA) gave a warning letter for them in 2013. The company received notification about lack of warning label statements and advertisement of products through sponsored events (FDA, 2014.) Swedish Match snus company sells and distributes snus to customers in the United States (Swedish Match, n.d). FDA requires standards for smokeless tobacco products for the protection of public health (FDA, 2018).

After warnings and creation of GothiaTek, a quality control system, Swedish snus producer Swedish Match together with Snus Commission (2017) have unsuccessfully tried to achieve changes to the legislation banning the sales of oral tobacco products in the European Union. They have argued that snus saves lives and should be faced with the same rules and bans than cigarettes. They have based the argument on the World Health Organisation’s research which has estimated death rates caused by tobacco (WHO 2012; Snus Commission, 2017.)
3 Theoretical framework

3.1 Debate about health threat of snus

Snus harm reduction opponents are trying to open snus market to Europe. Debate about health risks of snus use has for a long time been a popular topic among researchers and authorities. Some of them strongly argue snus to be hazardous and a problem especially in the Nordic countries (Gartner et al., 2007, p. 1139; Norwegian Institute of Public Health, 2014.) Whereas some researchers and companies have determined that use of snus creates a faster demise for cigarette smoking and increases public health gain. They base their arguments to defend use of snus by defining snus as harmful, but not to the same extent as smoking cigarettes (Gartner et al., 2007, p. 1140; Swedish March, n.d.) Like, Lund & Scheffels (2016) presumed, long term health effects of snus have been debated and scientific evidence has found snus use to be less dangerous than cigarettes (p.646). For instance, Scandinavia’s largest snus company Swedish Match’s goal is to eliminate cigarette use and to offer an option such as Swedish snus (Swedish Match, n.d). Smoking has decreased due to the availability of snus in Norway and Sweden and, also smoke-free laws have been a part of the increase in use of snus (Lund & Scheffels, 2016, p.646).

Sweden has had a low amount of oral cavity cancer among males and females over years compared to other European countries. In Sweden, among females, annual change has been +3 % during the last 10 years, whereas the increase among males has been +0,9 % (NordCan, 2018, Chart 2). Oral cancer is not more common in Sweden and Norway than in other European countries. Even though the numbers of snus use are the highest among all European countries in Sweden and Norway (IARC, 2012, p. 274; WHO, 2018.) The chart 4, below, presents the numbers of oral cavity cancer in Sweden.

Chart 4. Sweden, oral cavity cancer incidence over years. New cases or deaths per 100 000 persons per year (NordCan, 2018, p.1).

In 2012, lip and oral cavity cancer, according to a 5-year prevalence for the adult population, was 1,3 % in Sweden, whereas the same number was 1,4 % in Norway. When the lip and oral cavity cancer was compared to other European countries such as Germany (1,8 %) or Spain (2,0 %), there can be seen lower prevalence of lip and oral cavity cancer in specific Nordic countries.
Overall, in European countries the number of lip and oral cavity cancer was 1.8%, according to statistics in 2012 (WHO, 2018.)

**Information about health consequences**

Some researchers have noticed that advertising and information have led to misunderstandings among the Nordic population about snus being harmless rather than causing less harm. The majority of people have limited amount of knowledge about negative health effects of snus (Savitz et al., 2006, p.1937; Huhtala et al., 2006, p.396.) Depending on risk information, individual’s risk beliefs are varied. Comparing snus’ health risks to cigarette smoking may lead to underestimated risks of snus. Also, media and professionals have an effect to the picture by lack of quality information about topic. Health risk debate is seen to be in a significant role to increase uncertainty about information of possible health threats of snus among its users (Bergsvik & Rogeberg, 2018, pp. 53-57.)

**Previous researches and parallel attitudes**

There has been seen to be a lack of research regarding the attitudes of snus users in Finland, Norway and Sweden on snus use. Especially, factors and causes behind the existing attitude and behaviour should get more explanation and facts to set out prevalent snus use habit. Anyway, previous research on snus use attitude revealed dominant, parallel existing behaviour from all those three countries, where snus users prefer snus to control their smoking and regulate mood. Snus use is understood to give mood regulatory benefits and, also being harmless to health. Particularly, adolescents were not able to perceive health risks, symptoms and problems of snus, and when the addiction was developed, it was difficult to stop use snus. Snus was seen a healthy alternative to smoking as well. Research among snus users in Finland, Norway and Sweden showed that snus use was perceived as trendy which affected young people to start using snus. Snus use was seen more attractive than smoking especially among males (Wiium & Aaro, 2011; Edvardsson, Troein, Ejlertsson & Lendahls, 2012; Wiium, Aaro & Hetland, 2009.)

3.2 **Attitude and behaviour- How do we create it?**

Attitude is seen as a way of thinking by individuals. Attitudes can change and become affected by outside or inside factors such as social pressure or emotions. Opinion, beliefs, values or feelings are associated to the term of attitude. There is no logic between attitude and behaviour which are both inconsistent. Sometimes a changed attitude may cause a modification in behaviour or vice versa. Knowledge and information together with own feelings construct the attitude. The rooted attitude may change by impacting on feelings and to reach more information (Fink, 2003, p.67-69; Naidoo & Wills, 2009, pp.138-139.)

3.2.1 **Behaviour theories**

Treated process of knowing, affect and directed effort are the three main dimensions for construction of attitude. Belief is seen to create attitude which leads to specific behaviour. Theory of reasoned action and theory of planned behaviour models explain a behaviour. Former was developed further to planned behaviour model after it was realized that control and intention together
have a direct influence on behaviour (Ajzen, 2005, p.29; Glanz et al., 2015, pp.97-98.) Also, cognitive dissonance model explains this mental process from the different perspective. The model is based on dissonance between knowledge and behaviour. The model is often used to investigate a substance addiction (Naidoo & Wills, 2009, pp. 138-139).

3.2.2 Theory of reasoned action and planned behaviour

Theory of reasoned action is based on two main characteristics created by psychologists Ajzen & Fishbein’s (1980) explanation (Ajzen, 1991, p.181; Ajzen, 2005, p. 117). The first one, attitude, is composed from beliefs about behaviour outcomes followed by evaluating these consequences. Positive and negative things are many times taken into consideration when making a possible change. Stability of a person’s beliefs has an effect on the decision to behave in a certain way. The other one, subjective norms, determine part of the action. Beliefs about attitudes of people who mean a lot for a person, and motivation to adapt those people’s attitudes are focused on when the individual formulates behavioural intention. Also, societal norms, family and parents may affect the behaviour in terms of social pressure. Reason for specific action sometimes appears if individual wants to be a part of the group or wants to compete, like younger people are used to doing nowadays, in this powerful media rich world. Importance of the social pressure for the individual and the motivation to act by these demanding norms define the specific outcome (Naidoo & Wills, 2009, pp. 143-144.)

Theory of planned behaviour, developed in the 1980s by social psychologist Icek Ajzen (1991), is similar to reasoned action model, but with added behavioural control factors (p.182). This factor may be internal control which includes the individual’s own beliefs about being responsible for healthier behaviour and attitude. Other factor to control consists of external dimensions which means that the individual believes in the strong social influence of others. This theory model presupposes that people collect the available information and indirectly or distinctly act based on this. Subjective norms about social effects, perceived control and personal attitude toward behaviour are the forms of planned behaviour, and together create an individual’s behavioural intentions and behaviour. Those people, who have a strong internal control are assumed to be more likely to change their behaviour to healthier action (Ajzen, 2005, pp.117-118; Naidoo & Wills, 2009, pp. 143-146.)

Beliefs are created from behavioural, normative and control beliefs. After this, beliefs lead to attitude toward the behaviour, subjective norms and identified behavioural control. Role of beliefs is significant to determine the plan to act a certain performance. Many background things may have an impact on beliefs as well, such as age, personality, gender, mood, past experiences, social support and media exposure influence action in some ways. These models help to understand action and behaviour tendencies (Ajzen, 2005, pp. 125-134.)

3.2.3 Dissonance theory

Theory of cognitive dissonance (by Festinger, 1957) is formed from two different beliefs creating inconsistency in a behaviour. Depending on the motivation of the individual, there is either a strong consistency between beliefs, actions and feelings, or the desire to change the attitude. A dissonance is constituted by difference between knowledge and attitude. Mind is then forced to create new beliefs and thoughts so to decrease dissonance. People’s minds try to look for consistency between knowledge, attitude and behaviour (Ajzen, 2005, p.26; Egger, Spark & Donovan, 2005, p.33.) Dissonance is created in a human’s brain and thus can sometimes be judged
by ourselves. Dissonance is described with a difference between happening and telling (Aldama, 2010, p.29.)

According to cognitive dissonance theory people defy the information or either some people may change their behaviour after being shown information about health hazards. People try to decrease dissonance with new beliefs, alternative beliefs or changing the most remarkable beliefs. Mainly, this theory consists of information and feelings together on a mental level (Naidoo & Wills, 2009, pp.138-139; Egger et al., 2005, p.33.)

3.3 The stages of Change model

Theories above are popular among healthcare workers in order to understand the specific behaviour and to find a target where the promotion of health and preventive action should be focused. By exploring health behaviours, it offers a chance to affect to the well-being of the population (Glanz et al., 2015, pp.36-37) The stages of change model, created by Prochaska & DiClemente (1984), is a way to change health-related behaviour and solve complex human social behaviour. It includes information about effects, own experience, beliefs about benefits leading to motivation and attitude. This motivation is also affected by social norms and environment. Also, it seems to be beneficial if the individual receives some reason to act in a specific way like a threat to lose a relationship. These stages are especially created for change in addictive behaviour. Individuals compare advantages of behaviour to disadvantages, before change of action. When the person has gained enough information about benefits of change, and the change is worthwhile, the next stage is to maintain it. The change of lifestyle and becoming aware of health risks of the behaviour are the main goals of this model and revealed in the latest part of process (Naidoo & Wills, 2009, pp. 148-150.)

The stages of change model are one of the ways to modify the mind of snus users towards healthier lifestyle. Behaviour theories above are shown to explain the specific attitudes and behaviour of snus users. This research focuses on attitudes and behaviour by snus users on using snus, thus the behaviour theories were chosen to increase knowledge and understanding on snus use habit. By using cognitive dissonance, the reasoned action and planned behaviour theories to explore attitudes and behaviour behind the snus use, dimensions which possibly impact on action and beliefs on using snus can be found. The questionnaire in this research is created based on those three theories to investigate the most prominent factors on using snus by its users in Norway, Finland and Sweden. Theories motivate to find out reasons and factors that strongly influence on thinking and behaviour processes. Cognitive dissonance, reasoned action and planned behaviour theories were chosen because they are often used on health promotion by giving an explanation, for the specific behaviour and habit.
4 Problem definition and aims

Snus consumption has increased significantly among men during last 20 years and among women during last 10 years in the Nordic countries especially in Finland, Norway and Sweden (Norwegian Institute of Public Health, 2014, p.16). This study about snus users’ attitudes and behaviour increases knowledge about the phenomena. The aim of the research is to survey existing attitudes and behaviour of snus use, and to explore the knowledge base about health effects of snus by snus users from the latter three countries. The research problem describes attitudes and behaviour of snus users as a part of the Nordic lifestyle. This problem was chosen because snus is a health threatening and an increasing problem in Finland, Norway and Sweden (Frederiksen, 2018, p.12). This lifestyle related snus habit affects the Nordic people’s health. Where will this lifestyle related habit and these attitudes lead Nordic citizens?

This thesis aims to answer the following research questions:

1. What is the knowledge base about health effects of snus by snus users in Finland, Norway and Sweden?
2. How social and lifestyle related behaviours and attitudes are shown among snus users in Finland, Norway and Sweden?
3. What are the opinions about use of snus in the Nordic countries by Finnish, Norwegian and Swedish snus users?

Research questions have been created to explore and describe collective knowledge base, attitudes and behaviour of snus users based on situations of snus use in the Nordic countries. The researcher hoped to find out what the dimensions behind the spread of increased snus use are? By finding out the amount of knowledge about health effects of snus by snus users and followed by the attitude to the snus popularity, the dominating pattern could be changed by authorities.
5 Implementation of the research

5.1 Research method

This thesis’s research methodology is based on a quantitative method to measure collective attitudes and behaviour by collecting data as accurately and precisely as possible. Quantitative method elicits detailed information through statistics. This study is conducted by using a questionnaire (Appendix 1). By using a questionnaire, it guarantees the questions to be asked in the same order and in the same way thus increasing reliability of research (Bryman, 2016, p. 222).

The questionnaire was designed in English. The questionnaire included 25 closed-ended questions in nominal, ordinal, rating scale and multiple choices forms. Respondents had to fill nominal questions, so the researcher received specific information. For instance, gender and geographic variation were investigated by using nominal question type. The participants’ highest completed education level was explored by using an ordinal question type. Rating scales and multiple choices forms were mostly used in the questionnaire. Rating scales were created with four alternatives for response to avoid neutral opinion in the middle. Multiple choice questions were either single or multiple answer questions. Some questions demanded a choice to be made, some had alternatives before moving forward in the questionnaire. Closed ended questions accomplish standardized data and can be analysed statistically. Also, it helps being consistent, efficient and reliable over time (Fink, 2003, p.35.)

Questions were formulated based on the research topic, research problem and questions, and the data collection method. Questions were created to survey knowledge base of respondents about health effects of snus and then asking questions which found out the attitude and behaviour of snus users towards snus. The questionnaire was based on a literature view, and the questions consisted of health, social and Nordic lifestyle categories. Knowledge base part was based on the main health threats of snus, which were verified and researched by health care professionals. The questionnaire was tested by randomly chosen 15 non-snus user respondents as a pilot study to be sure that the questions were easily read and understood correctly to avoid misunderstandings, and error of research. The researcher needed to be sure that the questionnaire explored specific research questions and is valid as measurement for the research problem. One question was added after the pilot study, and few language corrections were demanded. When questions are simple and instructed clearly, participants complete questionnaires properly and response rates increase (Bowling, 2014, p. 277). Also, the time to fill in the questionnaire was tested. Anonymity of the respondents was ensured by not having any names on the questionnaires.

5.2 Data collection and sampling frame

Data collection strategy was to implement it on the Internet, using an online survey technique. The online questionnaire included a cover letter (Appendix 2). The cover letter was short and presented only the introduction and information required to take part in the research. The questionnaire was carried out online not only, because it seems to be the most successful way of reaching respondents nowadays, but also because it is cost- and time-effective. Everyday an amount of actions take place in Facebook where people share thoughts about events that happen. Internet provides a chance for non-random survey data (Bryman, 2016, p.191.) Additionally, the online questionnaire gives time for respondents to think about their answer. The online ques-
The questionnaire included a feature which required respondents to complete the answers before they could move forward to the next page in order to avoid missing data (Fink, 2003, p. 112.)

Sampling frame was created from snus users in Finland, Norway and Sweden. Data was collected by using non-probability, and virtual snowball sampling method help to find snus users. The researcher made contact with people by using Facebook. Respondents who were relevant to the research were asked to recruit others (Bryman, 2016, p. 188.) Snowball sampling is used, when it is hard to find specific respondents for the research from the population, or there is no list of people with the relevant habit. Participants of the research were performed as “a specialist group”, which presented the existing trend. Survey provides a directional summary about respondents’ behaviour models and strategies, and specifies to detect patterns of association (Bowling, 2014, pp.209-215).

The researcher sent the questionnaire link to 24 Finnish, Norwegian or Swedish snus users on Facebook. The researcher knew dozens of snus users from latter three countries, thus participants were easier to find. The researcher chose 24 snus users randomly for the research. The questionnaire link was sent to people aged between 15-45 years of age to get the largest possible age variations to present the existing trend. Those willing filled in the questionnaire by themselves and returned them to the researcher by KyselyNetti®-programme on the Internet. This data collection programme is often used among Finnish students in Finland. The link to the questionnaire was spread out through Facebook in order to share the questionnaire easily. Respondents had a permission to send the questionnaire link forward to other snus users. An online questionnaire offers a chance for large geographically spread population to be reached (Bowling, 2014, p. 278). The researcher’s goal was to get as many answers as possible to decrease sampling error.

5.3 Data analysis

The survey was conducted in two periods of time. The first period was carried out from the 13th April to the 22nd of April and the second was carried out between the 29th of April and 8th of May, to increase the number of completed questionnaires. After the first period, the researcher had received 82 completed questionnaires. After the both time periods, there were 142 completed forms by respondents, which were analysed in this research. Participants were snus users from Finland, Norway and Sweden. The snus user participants were asked to respond to a series of questions about their current knowledge base, attitudes to, and experiences of, the Nordic snus use situation. The data was analysed by using quantitative analysis and SPSS analysing program. This study was based on descriptive statistics which are calculated from the data and aimed to summarize a sample. The standard deviation (±) and range (r) were used to measure variability, whereas the arithmetic mean (Ø) described central tendency for interval and ratio variables. Descriptive, social surveys explore an existing knowledge, attitude and behaviour by finding a prevalence trend among respondents.
6 Results

The results are reported in four parts: The first part describes demographic data of the research. The second part describes participants’ knowledge base about snus use, and the amount of information provided about health threats of snus. The third part focuses on exploring the attitudes and behaviour among snus users from the social and lifestyle aspects. The fourth part investigates the prevalence of snus use in the Nordic countries, and its’ impact on Nordic people’s health and well-being.

6.1 Demographics

Data was collected from snus users with participation from three Nordic countries: Sweden (23.9 %, n=34), Norway (28.2 %, n=40) and Finland (47.9 %, n=68). Table 1, below, demonstrates that Finnish participants were majority of the all participants of the survey. The final sample size was made up of 142 snus users in total. The study included both male and female snus users without age restriction. Women accounted for 33.8 % (n=48) and men for 66.2 % (n=94) of the participants of the survey. Female respondents were mainly from Sweden and Norway, 41.7 % and 50 % respectively. Majority of male respondents were from Finland, 69.1 %.

Table 1. Participants of the survey about knowledge, attitude and behaviour of snus users in age groups 15–60 years old and nationality (%), (n=142)

<table>
<thead>
<tr>
<th>Nationality</th>
<th>15–24 years</th>
<th>25–34 years</th>
<th>35-60 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finnish</td>
<td>48</td>
<td>31</td>
<td>13</td>
</tr>
<tr>
<td>Norwegian</td>
<td>28</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>Swedish</td>
<td>24</td>
<td>33</td>
<td>26</td>
</tr>
</tbody>
</table>

The mean age of the participants was 28 years (range (r) 15-60). About 59.3 % of the people who answered the questionnaire were aged between 25-34. Based on that, they seem to be the main snus user group (Table 1). Age of participants varied from the youngest being 15 years of age and the oldest 60 years old. It was important to ask the age question to ascertain what age group’s attitudes, behaviour and knowledge this research mainly describes. Over half of the participants (52.8 %) had completed college or university. Over 90 % of the respondents had received at least high school education, and 5.6 % had completed elementary school. According to this question, respondents were highly educated.

The question about how often participants of the research use snus resulted in that 81 % (n=115) of total respondents were daily snus users, 5.6 % (n=8) weekly and 13.4 % (n=19) used snus rarely. Most of the participants used snus every day assimilated to everyday life. Female respondents used snus more rarely than male respondents, but still preferred daily snus use the most. Among male participants, 87.2 % used snus daily and 8.5 % rarely. Weekly snus users were 4.3 % of male respondents. The majority of females used snus daily by 68.8 % of respondents. Female respondents used snus rarely by 22.9 % of answers. Based on responses of female participants, 8.3 % used snus weekly.
6.2 Knowledge about health effects of snus

Four knowledge based questions about nicotine amount of snus compared to cigarettes, snus use resulting in an increased risk of developing cancer, and snus’ impact on physical capacity and dental health were all questions answered correctly by at least 70 % of respondents. From the total amount of respondents, the most correctly answered was the question about snus having a negative affect on dental health with 88 % correct answers. Also, 91,5 % said to recognize health risks of using snus. The questions revealed that respondents know the main health hazards of using snus well.

After taking a closer look at the answers, female respondents didn’t recognize health risks as well as men. Many female respondents thought that cigarettes contain more nicotine than snus (43,8 %) and that physical capacity increases after using snus (41,7 %). The question regarding snus including ingredients, which can lead to cancer was answered by 81,3 % of female correctly, and the question about snus having a negative affect on dental health was correctly answered by 87,5 % of respondents. Half of female respondents wanted more information about negative health risks of snus, even though 89,6 % of them said to know negative health effects of snus use.

Knowledge based questions among male respondents were answered in the following way; cigarettes includes more nicotine than snus with 77,7 % correct answers. The question about ingredients of snus increasing the probability of cancer was answered correctly by 66 % of respondents. The knowledge of male participants about snus use health threats was most adequate in issues concerning snus to increase physical capacity, answered correctly by 78,7 % of respondents, and the question about snus having a negative affect on dental health by 88,3 % of respondents. Consequently, 92,6 % of males said to know health effects of snus, and 81,9 % of them agreed that enough information is available about health threats of snus use. Information seems to be readily available and majority of snus users (71,1 %), who participated in the research, did not think that there is a lack of information. However, almost a third of the participants (28,9 %) considered that they had not had the chance of receiving enough health risk information due to its’ availability.

6.3 Attitude and behaviour

The role of health and social factors

The role of negative health effects of snus for snus users was explored through the next question focused on attitude. Negative health effects of snus use did not affect at all or just slightly on the attitude towards snus use among 81 % (n=115) of respondents, according to Table 2, which presents the distribution. Among female respondents the number decreased to 70 % but still being the prevalent attitude.
Table 2. In what extent, the negative health effects of snus impact on use of snus by participants (%), n=142

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>n %</td>
<td>n %</td>
<td>n %</td>
<td>n %</td>
</tr>
<tr>
<td></td>
<td>50 35</td>
<td>65 46</td>
<td>19 13</td>
<td>8 6</td>
</tr>
</tbody>
</table>

Table 2, above, reveals the attitude towards careless behaviour, according to the opinion of participants with arithmetic mean(Ø) 1,89 in the question (1=not at all, 4=really much). Standard deviation (±) in the question was 0,84, which indicated that the participants of the research did not differ from the mean value significantly.

Half of the total respondents (49,7 %) will use snus even though it has ingredients that have negative effects on health. Over a third of participants (38,5 %) said to use snus, because there are not many threats for health, when using snus. Just 12 % answered that they don’t care about the health effects of snus use, so majority of snus use respondents think about health effects to some extent. Almost two out of three (62,5 %), thought that snus is healthier than other drugs to use. One out of three (29,6 %) considered snus use to be easier than other drugs to use. Under 10 % of participants use snus, because it is cool, or it gives a stronger feeling than other drugs. They did not seem to be the most popular reasons to use snus among snus users from Finland, Norway and Sweden.

The participants were asked to describe their feelings when using snus. Clearly the most common feelings to get from snus were feeling relaxed and focused. Almost one out of five said snus use gives them a feeling of energy. Feeling confident, cool, strong or social was given as an answer by just a few percent of the respondents. Whereas the taste of snus was the most popular thing to consider when buying snus by slightly over half of responses, according to snus users’ opinion. Brand was the second most important thing to consider when buying snus. Nicotine amount, price and availability of snus were given as an answer by 10 % percent of the respondents. Among Finnish respondents, availability of snus was significantly more of an important consideration when buying snus, compared to Norwegian and Swedish respondents. 18,3 % Finnish respondents thought it to be the most important thing to consider when buying snus. Just about 5 % from Norwegian and Swedish respondents chose it as the most important thing to consider. Accordingly, availability of snus is easier in Norway and Sweden.

Party/alcohol, and school or workplace were the most common situations which result in the use of snus, one out of three responses for both. Being at home was the third general place which resulted in the use of snus with 19 % of answers. Sporting events and using together with friends were less popular as a most affecting situation to use snus but still reached about 8 % of answers in both. Work and school places were the most common situations, where the relaxed and focused feelings were needed by snus use.

The attitudes and behaviour part examined factors, which might affect the snus use of participants. The results presented that for 43,9 % of respondents nothing from friends, family, girlfriend or boyfriend affect the use of snus. Friends as an answer alternative reached 33,8 % of selections being second popular factor to affect the use of snus. Girlfriend/boyfriend got 12,9 % of answers, and family was less often the factor affecting use of snus with 9.4 % of respondents.
Just friends of snus user have a chance to affect use snus, according to attitudes and behaviour of snus users.

Snus use was a common habit among friends of snus users. Majority of participants (67.6%) answered to have over 10 friends who use snus. Every participants of the research have at least one friend, who uses snus, (Chart 5.)

**Chart 5.** The amount of snus user’s friends, who use snus as well (%).

Based on the research, the numbers about friends of participants who also use snus, were enormous. About 87% of participants have six or more friends, who use snus. Snus use was popular among friend groups.

### 6.4 Snus as a Nordic lifestyle

#### 6.4.1 Snus use now and in the past in Finland, Norway and Sweden

The next questions inquiring about the content of attitude were similar for both genders. Majority of the participants in the survey were not ready to change to nicotine-free snus products. From the participants, 74.6% did not want to start to using nicotine-free snus. One out of four were ready to start to using nicotine-free snus. Participants were not enthusiastic to stop using snus with 59.7%, who said no for stopping. 30% were willing to stop snus use without help and 10.3% wanted to stop using snus with help.

The specific alternatives were given to investigate what would affect snus use of participants the most. The knowledge about health effects of snus would affect the use of snus products for 27% of total respondents. Among female snus users, 45.5% said that increased information about health effects of snus would have an impact on their snus use. Higher price would affect to cut down their use of snus among 24.2% respondents including both sexes. For 8.6% of respondents, environment would be the significant factor to impact on cutting down their snus use. From total respondents, 40.2% said none of the reasons suggested would cut down their snus use.
Half of the respondents of snus users (47 %) from Finland, Norway and Sweden thought that use of snus is not a problem at all in the Nordic countries. According to the question with four alternatives, 27 % of the participants said, that it is not a problem, 19 % of the respondents said that it is a problem and just 5 % answered that use of snus is a big problem in the Nordic countries. Arithmetic mean (Ø) in the question was 1,82 by producing a prevalent opinion that snus was not a problem in the Nordic countries. Standard deviation (±) was 0,93, thus, the most of the participants considered snus as a product without problems.

Female snus users considered use of snus as more of a problem in the Nordic countries than the males. From the female respondents, 31 % said snus use is not a problem at all, 27 % answered that snus use is not a problem, 33 % thought use of snus to be a problem and 9 % said it to be a big problem in the Nordic countries. Among the male respondents the answers were turned to the side of the scale, which presented snus use not to be a problem in the Nordic countries. Over half of the male respondents (56 %) said that snus is not a problem at all, 27 % of the males said that snus use is not a problem, 11 % answered snus to be a problem and 4 % of the male respondents said that snus use is a problem in the Nordic countries.

6.4.2 Variation between male and female respondents

Among the total responses, and both sexes, the opinion about snus affecting negatively or positively to the Nordic well-being, opinion was not turned to either side staying in the middle. Arithmetic mean(Ø) described the latter well with number 2,54. Also, standard deviation (±) stayed quite stable by 0,82. The question about snus use having a negative or positive impact on Nordic well-being shared the opinions between genders. Table 3 signifies opinions about how participants think snus use affecting Nordic well-being. Divergence of opinions between genders is presented in the below (Table 3).

Table 3. Opinion about snus using impact on Nordic well-being by gender (%) n=142

<table>
<thead>
<tr>
<th></th>
<th>Female (n=48)</th>
<th>Male (n=94)</th>
<th>Both sexes (n=142)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negatively</td>
<td>22%</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>More negatively than positively</td>
<td>29%</td>
<td>33%</td>
<td>30%</td>
</tr>
<tr>
<td>More positively than negatively</td>
<td>39%</td>
<td>54%</td>
<td>47%</td>
</tr>
<tr>
<td>Positively</td>
<td>10%</td>
<td>2%</td>
<td>6%</td>
</tr>
</tbody>
</table>

In reference to Table 3, half of the male respondents thought that snus affects negatively to Nordic well-being and half of them said it affects well-being more positively. From the male re-
respondents 10% answered snus use affecting clearly negatively to the Nordic well-being, whereas 21% of the male respondents said snus affecting clearly positively to the Nordic well-being.

Among the female respondents the opinion of snus as a negatively impacting product to the well-being of Nordic people was about 70%, whereas about 30% of the female respondents said snus affected more positively to Nordic well-being. None of the female respondents answered snus to affect clearly just positively to the Nordic well-being. All 30% of females, who answered snus to affect positively to the Nordic well-being, had chosen the positive in some extent as an answer. Snus use having a clearly negative impact on Nordic well-being got just 2% of responses from female participants. The latter was also seen in standard deviation (±) by 0.5. Among the male respondents, standard deviation (±) was 0.92 by meaning that opinions were more spread than responses by females.

There was seen to be a distinction between the male and female responses with the question about how legalising snus sales in all the Nordic countries would affect the health of Nordic people. About one out of three of males said it to affect clearly just positively the health of Nordic people (32%). The same opinion was given just by 6% of the female respondents. Also double the female respondents in comparison to the male respondents said that the legalising snus clearly affected negatively on the health of Nordic people, by 17% of the female respondents, and 9% of the male respondents. Majority of the female respondents, 73%, said legalising snus to affect negatively the health of Nordic people. The same opinion was given by 41% of the male respondents. The male respondents thought snus use as having a positive impact on the Nordic people’s health by 59% of respondents. Among the female respondents, 27% said snus use affecting more positively than negatively to the health of Nordic people.

### 6.4.3 Country specific opinion about use of snus in the Nordic countries

When comparing Norwegian snus users’ opinions to Finnish snus user users’ opinions about situation of snus use in the Nordic countries there can be seen a distinction. 26% of Norwegians answered use of snus to be a problem in the Nordic countries, whereas the same opinion was answered by 14% of Finnish snus users. Over half of the Finnish snus users, 52%, were of the opinion that use of snus is not at all a problem in the Nordic countries. From Norwegian respondents, 38% said that use of snus is not at all a problem in the Nordic countries. Swedish respondents’ opinion was in between the Norwegian and Finnish respondents. 48% of Swedish respondents said that use of snus is not a problem at all in the Nordic countries. The most common opinion among participants of the research was that snus is not a problem at all in Nordic countries.

Norwegian respondents supported the most among all three countries the statement that snus has a positive influence on the Nordic well-being. 65% of Norwegian opinion was that snus impacts positively on the well-being of Nordic citizens. The same opinion was answered by 41% of Finnish respondents and 35% of Swedish respondents. Half of the Finnish participants said the legalising affected negatively and half of them said it to affect positively to the health of Nordic citizens. Just 7% of Finnish respondents said it to affect clearly negatively to the health of Nordic citizens. 31% of Finnish respondents’ opinions were that it would clearly affect positively to the health of the Nordic people. Half of the Norwegian snus user participants also shared the opinion about legalising being a negative or positive influencer to the health of the Nordic people. 13% of Norwegian respondents answered legalising to be a clearly negative influencer and 23% of Norwegian respondents said that it would be a clearly positive dimension for Nordic people’s health. Generally, legalising snus sales in all the Nordic countries was seen slightly more as a positive than negative thing by Norwegian respondents.
Swedish snus user participants considered use of snus to be more of a negative product with regards to the health of the Nordic people if it would be legalised in all Nordic countries. Three out of four of the Swedish respondents had the opinion about legalising of snus sales to be a negative thing for Nordic health. 21% of Swedish respondents said the legalising of snus sales in all the Nordic countries would affect clearly negatively the health of the Nordic people. Just 5% of Swedish respondents’ opinion was that legalised snus sales in all Nordic countries would have a positive impact on health.

6.5 Summary

Knowledge base of health risks of snus were high among the total participants. The participants said to know the health effects of snus use well enough, and they did not need more information according to the majority participants’ opinion. Knowledge base about snus’ negative health effects was differential when compared between the male and the female participants. The female participants had a worse knowledge base about the negative health effects of snus, but they also wanted more information about snus use and its’ risks. Almost all the female respondents said to recognise the negative health effects of snus. One out of three said that more knowledge about the health effects of snus could cut down their snus use.

Participants did not give attention to the health effects of snus. The negative health effects of snus did not impact on use of snus, according to the attitude of majority of the participants. The attitude of the participants is impassive towards health. Majority of the participants thought snus to be healthier than other drugs to use. Also, observing the attitude and behaviour in the future, the participants did not want to stop using snus, and neither were they enthusiastic to change to a nicotine-free snus. The participants said to get a relaxed and focused feeling from snus use. The taste and brand were their main consideration when buying snus. The finnish participants of the survey said availability of snus is one of the most important considerations when buying snus together with taste of snus. School, workplace and parties were the most typical places, which impact on snus usage among the participants. For every third participant, friends influence their use of snus the most, but almost half of the participants said that nothing from friends, family or boyfriend/girlfriend have influence on their snus use. Also, almost half of the participants said that nothing from higher price of snus to more information about negative health effects or environment would cut down their snus use.

From the total participants of the survey, 87.3% have six or more friends who use snus. Almost 70% said to have over 10 friends who use snus. Snus use seems to be a widespread among friend groups. All the participants have at least one friend who uses snus. The participants of the survey did not think snus to be a problem in the Nordic countries. As many as 50% of the participants said that use of snus is not a problem at all in Nordic countries. The female participants saw use of snus more as a problem in the Nordic countries than men, but still clearly staying behind the opinion that snus use is not a problem. Half of the male respondents thought snus to affect negatively and half of them positively to the Nordic well-being. The female participants considered snus use to influence negatively the Nordic well-being by 70% of respondents.

The question about how legalising of snus sales would affect the health of the Nordic citizens revealed that the Swedish respondents were the most against legalising snus sales. Three out of four Swedish respondents said that it would have a negative impact on the Nordic people’s health. The Norwegian and Finnish respondents’ opinions shared 50-50 both. The female respondents gave 15% more support for legalisation having a negative effect in change for the health situa-
tion in the Nordic countries than the males did. 41% of the male respondents said that legalising snus sales would impact negatively the health of the Nordic people, 59% thought it to be a positive impact on health. Generally, including both sexes, 52% said that the legalisation of snus sales could have a negative impact on the Nordic people’s health, whereas 48% considered it having a positive impact on health.
7 Research quality and limitations

Anonymity of respondents was observed, and the questionnaire did not contain any personal identifiable information. Participation to the research was voluntary. By using an online questionnaire, it gives a chance for respondents to fill it not depending on time or place, and increases the number of participants (Bowling, 2014, p.278.) This way of collecting data was also less social decreasing bias, easy to fill and took relatively little time to complete by participants, thus growing the response rate. After summarization of results the data was destroyed.

The content validity of the questionnaire was based on a review of the literature on snus, health and behaviour theories. The validity of the questionnaire depends on the understanding of the questions by respondents. The questionnaire was carried out in English, and written instructions for answering the questions were provided. English is not the main language of any of the countries or respondents involved. Three of the Nordic countries, where the research was implemented, have a great level of standards of living and they are highly educated so language was not considered to be a problem. The questionnaire was pre-tested by randomly chosen 15 non- snus users as a pilot study to decrease misunderstandings of the questions and to increases validity. The measure of the concept was consistent and stable over time, and the questions gave an answer for the research problem. The measurement concepts of validity spoke to the integrity of the instrument.

Every participant got exactly the same cover letter and questionnaire. The same questionnaire has not been used in previous studies; more testing is therefore needed. The participants of the survey could not complete the questionnaire before all the questions were answered, thus the issue of missing data was eliminated. Non-responses and uncompleted questionnaires were impossible to consider in this research therefore no conclusions were drawn from these rates of participation. The researcher kept in mind during the process that further questions were not possible to ask from participants after the data had been collected (Bryman, 2016, p. 230). Restricted options offer a possibility for a knowledge - based survey, and to discover dominant attitudes and behaviours from common alternatives towards use of snus and snus as a Nordic related habit (Bowling, 2014, pp. 278-292.) Although, for the researcher, it was impossible to be sure if the participants had filled the questionnaire in honestly, and without distractions. By using an online survey questionnaire, there can be seen to be difficulty in regulating trustworthy of responses, because the researcher does not see when and where the respondent fills in the questionnaire.

This research used snowball sampling to collect data, and to find relevant respondents for the research. By using snowball sampling method, it may impact on results of the research. When the researcher sent the questionnaire for the 24 snus users, the fact of the recipients’ education backgrounds and age had to be taken into consideration. If the chosen 24 respondents are high-educated or age range is quite narrow, it affects the results and may turn answers to a specific direction. The researcher recognized disadvantages and problems of the snowball sampling and thus, conducted the online survey carefully. The researcher sent the questionnaire link to snus users of various ages, and nationality and gender were observed as well. Overall, selection bias is a concern with this type of sampling. The sample composition depends on the choice of the initial participants. Representativeness and the selection bias limit the external validity of the sample. Results cannot be generalised to the population, because the unit of survey is not randomly selected (Bryman,2016, p.188.)
Due to the researcher being Finnish, the researcher had more connections to Finnish people than Norwegian and Swedish people, which might affect the sampling frame. When using snowball sampling connections to the relevant participants are important (Bowling, 2014, p.210). The researcher chose the same number of participants from each country, but it was impossible to reach exactly as much responses, because the participants were allowed to recruit others. The number of participants from Finland, Norway and Sweden were different as was the number of male and female participants by country.
8 Discussion and study findings

8.1 Unsteady consequences for health

The factors behind the current trend of snus use could be low numbers of cancer caused by it, reducing lung cancer by swapping cigarettes to snus, and the increased health of the population due to minimized passive smoking as well as snus’s positive effect on the mental health of people who have a stressful lifestyle. This study considered the meaning of information, health debate of snus by professionals and social pressure, norms and traditions through the Nordic lifestyle and behaviour theories. Findings show that each of these factors have an impact on use of snus by unstabilizing decision making. Therefore, consistent, trustworthy strategy is needed to change this dynamic attribute.

In this research, the snus users’ behaviour revealed to be similar with cognitive dissonance theory. Snus users from Finland, Norway and Sweden have a dissonance between knowledge of health risks and behaviour on snus use. Snus users recognised the health threats of snus and majority of respondents realized snus to be a negatively health influencing product, but nevertheless they use snus. Dissonance is described with a difference between happening and telling, which can clearly be seen from the results of the research. This theory also includes a manner in which to create new beliefs and thoughts to decrease inconsistency. Results of this research showed a strong support for the alternative, which describes snus to be healthier than other drugs to use. It seems to be a way of explaining their own behaviour by new beliefs and thoughts, hence reducing dissonance, and achieving encouragement to continue snus use. Cognitive dissonance theory supports and sets out the way of an action in this research.

Also, reasoned action and planned behaviour theories are parallel with an existing snus use trend. Those theories consist of beliefs, where negative and positive effects on snus use are contrasted creating a specific belief about outcomes and attitude to the behaviour. Snus is seen to be a product giving more positive effects rather than causing negative hindrances on health based on the opinion of this research. If stronger evidence-about harmful snus use could be reached, the direction of snus use as an increasing habit could be changed. Snus users seem to have knowledge on the health threats of snus, but the hazardous consequences are not so remarkable and powerful that snus user seize to prefer snus. Behaviour theories revealed significant factors behind the existing attitude and behaviour, therefore it is easier to focus on the health promotion action to the right sections.

Almost 88% of the research participants have six or more friends, who use snus. Whereas, 67.6% answered to have over 10 friends, who are snus users. It is an enormous number of users, which proves that snus use is a wide-spread lifestyle in Finland, Norway and Sweden. Snus is a popular and trendy product among friend groups based on this research. The result revealed presence of reasoned action and planned behaviour theories, where a person wants to be like others and snus use is an agreed habit among friends. The intention to impact on the snus trend has started to get motions from government, professionals and media during the last years and months especially, in Finland and Norway. Today, snus has reached counteraction from the government level, which is employed publicly. The strict legislation about fully standardized snus packages without logos and colours, added with warnings about health threats are demanded during the year 2018 in Norway. Authorities have noticed the phenomenon of the Nordic people, who perceive snus to be a non-problematic product which does not cause prominent danger for health.
Health professionals have emphasized an addictive dimension of snus and tried to warn especially young people about that. Snus includes nicotine in a wide extent, and much more than cigarettes. The evidence supports the future fact about the continuing lifestyle related habit. This study explores nicotine content in snus, and its’ impact on human beings. When a snus user achieves a high nicotine level from snus, they get a relaxed feeling. It is not the snus itself, which creates the feeling, but if actually helps with withdrawal symptoms. The use of an addictive snus product may also cause phenomenon that nothing can affect the snus use, because an addiction is already so dominating. Nicotine is not the only dangerous ingredient in snus products. Snus is preferred as a pleasure, which impacts on health negatively, despite being a prevalent way of enjoying life. Based on this study, many ingredients of snus have an impact on people particularly in long-term use. Health problems prevalence affected by snus may be revealed after a few decades, if the snus consumption keeps going as a common lifestyle choice. Thus, long term health effects of snus would be important to explore in future studies after all snus prevalence has stayed on high level a while, in order to produce new findings for snus users, and health care professionals.

8.2 Stressful Nordic lifestyle

This research revealed that team sports do not affect significantly with increasing of snus use. The result gives a contradiction to previous research and studies. School and workplace were clearly triggers for use of snus, and together with parties and alcohol, these were the popular situations to look for a relaxed feeling. In schools and workplaces, the social pressure, friends and necessity to be a part of the group are showed in a wider extent, especially in the beginning of snus use. Addictive dimension of snus leads to long-term use of snus, associated together with the stressful Nordic lifestyle, where the requirement for success in life is relatively demanding. Although, the social pressure would not be so powerful, a wide spread habit gives an impression about norm, which accepts snus use and decreases the intention and motivation to stop snus use. The results of this research demonstrate a lack of motivation among respondents to change their existing behaviour and attitude. Therefore, new procedures to promote health are needed to help people survive through stressful life without snus use, and also giving a possibility to change the direction of the prevalent snus use norm.

Relaxed and focused feelings were the most searched for implications for its users. Therefore, the Nordic lifestyle seems to be too stressful, especially for younger age groups, who are the majority of the snus users among all three Nordic countries involved in this study. The most prevalent use of snus age group is males aged 16-34 years old, according to statistics by authorities, previous research and this study. What leads to this age group to use snus the most? What are the dimensions behind males aged 16-34 who use snus? For the future of Nordic welfare, it could be important to survey particularly males aged between 16-34, which is the main snus user group. Where do the factors that form their attitude and behaviour modes come from? By conducting future research on this, it could reveal new knowledge and understanding about patterns, thus offering a chance to target preventive action more precisely.

8.3 Nordic future

Use of snus was seen as a high-class habit among the royals, according to the history of snus. By connecting the history of snus to use of snus nowadays, snus is used among well-educated people
with a high level of living standards which is how the Nordic region is classified all over the world. Nordic citizens may prefer snus to be a graceful habit, and Nordic people to be slightly more intelligent than the rest of the world where cigarettes are the most commonly used tobacco products. Although, the research showed ambivalences of snus users towards snus’ effects on well-being and health of the Nordic people, giving a doubt if the use snus is a wise habit after all.

After all, health and well-being sector is an important field for the Nordic people, so further research, education and health promotion are needed. The opinion survey from all the Nordic populations would reveal a wider perspective about snus using problem, if it is perceived to exist. Especially, by approaching non-snus users’ attitude and standpoint to the lifestyle related habit would get opinions from the other side as well.

Legalising snus sales in all Nordic countries might expand snus sales and consumption to enormous levels without limits to control it at all by authorities, especially in Finland. If snus sales would be legalized in all the Nordic countries, it might be interesting to see the impact on health of the Nordic people, particularly after some decades. Although, legalising snus sales would be greatly beneficial for Swedish snus manufacturers. Swedish respondents’ opinion was the most turned to negative effect if snus sales were legalized in the Nordic countries. There is knowledge and long-term experience about health consequences, including the addictive dimension of snus behind this specific opinion, because use of snus has been popular over a time in this specific country. The research was conducted in Finland, Norway and Sweden, because they have the most snus users in the Nordic countries. For future research, findings could be regarded as well in Iceland and Denmark as a part of Nordic countries. What kind of attitude and behaviour of snus use is prevalent in Iceland and Denmark?
9 Conclusion

This descriptive research explored snus users from Finland, Norway and Sweden by studying knowledge, attitude and behaviour trends behind the snus using habit. The context of the research discussed health, social and the Nordic lifestyle perspectives of this Nordic megatrend which has multiplied during the last decades. Although the health effects of snus have been documented during the last years, use of snus still requires more study about this habit. Use of snus is the most prevalent in Finland, Norway and Sweden from all the Nordic countries, therefore, this study focused more on these specific countries. Sweden is the mother of snus due to its biggest snus manufactures and consumption numbers in Europe (IARC, 2012, pp.269-276; The Snus Commission, 2016, pp.8-19). This study aimed to survey features behind the knowledge base, attitude and behaviour of snus users giving a framework for health promotion, and for understanding this prevalent phenomenon.

This study found that use of snus was significantly increasing, wide spread and addictive lifestyle habit in Finland, Norway and Sweden. The research revealed a deeply rooted negative attitude and behaviour among snus users in Finland, Norway and Sweden, which was careless towards health consequences of snus. Opinion and attitude of snus users were similar with the cognitive dissonance, reasoned action and planned behaviour theories, which can be seen in beliefs about outcomes of snus use, and as a dissonance between knowledge of health threats on snus use and a way of behaviour. Snus users, who took part in this research had a high knowledge base about the health effects, particularly among men, but snus users still demonstrated an unconcerned attitude and behaviour regarding their use of snus. The knowledge base part of the questionnaire could have consisted of dozens of questions and therefore being more comprehensive. Snus was not categorised as a problematic product by its’ users in Finland, Norway and Sweden. The research verified strong negative attitudes and behaviours demonstrated by the evidence that knowledge of health threats, opinions of other people, the environment, availability or price of snus had no significance as influences on snus use. Although, there can be seen uncertainty about the way snus influences the Nordic people’s well-being and health in general.

This research produced factors and trends, which exist among snus users in Finland, Norway and Sweden. The research gave perspective about extensive dimensions of snus use in the specific Nordic countries. The research could not collect additional data as the method of research was a questionnaire with close-ended questions. Pre-coded questions limit finding new existing attitudes and dimensions. Wider sampling size and use of probability sampling would offer more reliable data. Interviews of snus users could give a deeper understanding of the habit after the existing knowledge, attitudes and behaviours of phenomenon have been found. Comparative research between the Nordic countries may be profitable as well. For future studies, long-term health threats of snus use, research about the main snus user group, and spreading the survey to all the Nordic countries might provide significant knowledge and specific information to ensure well-being and health for the Nordic population.
Reference list


Mäki, J. (2015). The incentives created by a harm reduction approach to smoking cessation: Snus and smoking in Sweden and Finland. *International Journal of Drug Policy, 26*(6), 569-574. Doi: 10.1016/j.drugpo.2014.08.003


Appendix 1.

Questionnaire

Knowledge, attitude and behaviour towards snus by its users in Finland, Norway and Sweden

1. Gender *
   - Female
   - Male

2. How old are you? *
   - years
3. What is your nationality? *
   - Finland
   - Norway
   - Sweden

4. What is your highest completed education level? Choose one (1) alternative. *
   - Elementary school
   - High school
   - College/University

5. How often do you use snus? *
   - Daily
   - Weekly
   - Rarely

Which of the following best describes your opinion? Answer yes OR no for questions 6-11.

6. Tobacco includes more nicotine than snus *

7. Snus includes ingredients which can lead to cancer *

Please choose...
8. Snus increases physical capacity *

Please choose...

9. Snus affects dental health *

Please choose...

10. Do you know the health risks of snus use? *

Please choose...

11. Do you think that you have enough information available about the negative health effects of snus? *

Please choose...

12. How much do the negative health effects of snus influence your attitude towards snus use? *

Not at all

[ ] [ ] [ ] [ ]

Really much

13. Which of the following best describes you?

Choose one (1) alternative. *

I use snus...

[ ] even though it causes negative health effects

[ ] because there are not so many negative health effects

[ ] because I don’t care about any health effects
14. Which of the following best describes your opinion?

Choose one (1) alternative. *

☐ Snus is healthier than other drugs
☐ Snus is easier to use than other drugs
☐ Snus is cooler than other drugs
☐ Snus gives a stronger feeling than other drugs

15. Which of the following best describes your feeling when you use snus?

Choose two (2) alternatives. *

☐ feeling confident
☐ feeling relaxed
☐ feeling energetic
☐ feeling focused
☐ feeling cool
☐ feeling strong
☐ feeling social

16. What is the most important thing to consider when you are buying snus?

Choose one (1) alternative. *

☐ Taste
☐ Price
☐ Nicotine amount
☐ Brand
☐ Availability
17. Which situations lead you to use snus the most?

Choose one (1) alternative. *

☐ Sports events
☐ Parties/ alcohol
☐ With friends
☐ School/workplace
☐ At home

18. Who affects you attitude towards snus use the most?

Choose one (1) alternative.

☐ Friends
☐ Family
☐ Girlfriend/boyfriend
☐ None of the above

19. How many snus using friends do you have?

Choose one (1) alternative. *

☐ None
☐ 1-5
☐ 6-10
☐ Over 10

20. Are you ready to change to a nicotine free snus? Answer yes OR no. *

Please choose...
21. Do you want to stop snus use?

Choose one (1) alternative. *

☐ Yes, without help
☐ Yes, with help
☐ I don't want to stop

22. What would affect the most to you making the decision to cut down snus use?

Choose one (1) alternative. *

☐ Higher price
☐ More knowledge about negative health effects
☐ Environment
☐ None of the above

23. What do you think about the situation of snus use in the Nordic countries? *

It is...

not a problem at all ☐ ☐ ☐ ☐ a big problem

24. Do you think snus use affects the Nordic well-being? *

Negatively ☐ ☐ ☐ ☐ Positively
25. How does legalizing snus sales in all Nordic countries would affect the health of Nordic people? *

Negatively

Positively
Appendix 2.

Cover letter

Hey!

I am currently studying at the Halmstad University, Sweden, doing a Master’s degree programme on Nordic Welfare. I am doing my research project about the knowledge, behaviour and attitude towards snus by its users in Finland, Norway and Sweden. I am collecting data by using online questionnaire. The only requirements are that participant need to be snus users, and either Finnish, Norwegian or Swedish citizens. Anonymity is guaranteed, and all data will be destroyed after data analysis.

I would really appreciate it if you could find 5 minutes to answer the questionnaire and give your opinion! Every answer is important! Here is the link to the questionnaire: [LINK]

Thank you very much for your participation!

Best regards
Jessi Hietanen
I am 26 years old nurse from Finland. I am positive and always ready to help others. I prefer a healthy lifestyle and my future goal is to promote health, and to help people to achieve a healthier, happier life.