

**HEALTH, USE OF HEALTH CARE SERVICES AND HEALTH-
RELATED BEHAVIOURS AMONG INTERNATIONAL
EXCHANGE STUDENTS IN FINLAND**

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Thesis, Spring 2018

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Degree Program in Global Health Care

Master of Health Care

ABSTRACT

Huuskonen, Elina. Health, use of health care services and health-related behaviours among international exchange students in Finland. 65p., 3 appendices. Language: English. Helsinki, Spring 2018.

Diaconia University of Applied Sciences. Degree program in global health care. Master of health care (Sairaanhoitaja YAMK).

Background: As international student exchange grows more popular among University students globally, so does the need for studies regarding their health. More than 10,000 international exchange students come to Finland every year. The health of Finnish students in Universities and Universities of Applied Sciences is being thoroughly studied every four years, while the health of the exchange students remains unknown.

Purpose: This study seeks to illustrate the health status, use of health care services, and health-related behaviours that affect the health of the exchange students in Finland.

Methods: A self-administered on-line questionnaire was sent to all Finnish Universities and UASs through a mailing list. The survey was open for six weeks during spring term 2017. Out of the total of 346 responses 318 were included in the analysis. Data analyses were carried out by using MS Excel. The data were described with frequency tables, cross-tabulation and descriptive statistics.

Results: Approximately two-thirds of the respondents were female. Most were between 20 and 24 years old and of European origin. The exchange students experienced mostly good health and few symptoms, though one-third of female students had problems with sleep. Women more often reported poorer health and more symptoms than men. Anxiety was common in respondents who experienced frequent feelings of loneliness or homesickness. Approximately 20% of the respondents used health care services while in Finland, while another 20% failed to seek health care despite the need for it due to feeling it was too expensive or too complicated. AUDIT survey showed that most exchange students used alcohol moderately. Most respondents brushed their teeth twice a day, but using tooth paste containing fluorine, dental floss or products sweetened with xylitol was rarer.

Discussion: The results showed that, for the most part, the health status of exchange students was fairly similar to that of Finnish students. Further studies and possible interventions could be beneficial based on findings regarding problems with sleep among female students, dental care practices, rates of anxiety in certain groups, lacking condom use, rates of free-time physical exercise, and inability to seek health care services while in Finland.

Key words: health, exchange students, health care use, health behaviour

CONTENT

1	INTRODUCTION	6
2	BACKGROUND	7
2.1	Insight on health globally and in relation to travel.....	7
2.2	Health among Finnish students and exchange students	9
2.3	Use of health care services among exchange students and migrants.....	11
2.4	Health-related behaviours	12
3	PURPOSE AND OBJECTIVES OF THE STUDY	15
4	METHODS	16
4.1	Preparations for the study	16
4.2	Research instrument and data collection	16
4.3	Sample.....	20
4.4	Data analysis	21
4.5	Ethical considerations	22
5	RESULTS.....	24
5.1	Demographic characteristics of respondents	24
5.2	Health of the exchange students	25
5.3	Use of health care services before and while in Finland	29
5.4	Health-related behaviours among exchange students.....	30
6	DISCUSSION.....	32
6.1	Discussion on the results	32
6.2	Conclusions	34
7	VALIDITY AND RELIABILITY OF THE STUDY.....	36
7.1	Validity and reliability of the research instrument and method	36
7.2	Discussion on sample size	39
7.3	Data analyses and results.....	40
	REFERENCES	42

TABLES

Table 1. Structure and creator of each question of the questionnaire	19
Table 2. Material inclusion for data analysis	21
Table 3. Baseline characteristics of the respondents	25
Table 4. Cross tabulation of the BMIs of the respondents, and their own perceptions of the weight (n)	27

FIGURES

Figure 1. The exchange students' perception on their well-being (%)	26
Figure 2. Rates of symptoms viewed in males and females (%)	26
Figure 4. Health care services used by exchange students (%).....	29
Figure 5. Dental care practices among exchange students (%).....	30
Figure 6. The respondents' perception of how their drinking had changed since coming to Finland (%)	31

APPENDICES

Appendix 1. Cover letter	49
Appendix 2. The questionnaire	50
Appendix 3. WHO regions	65

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AUDIT	Alcohol Use Disorders Identification Test
BMI	Body Mass Index
FSHS	Finnish Student Health Service
GP	General Practitioner
HIV	Human Immunodeficiency Virus
ISTM	International Society of Travel Medicine
SD	Standard Deviation
THL	Finnish National Institute for Health and Welfare
UAS	University of Applied Sciences
UTH	Survey on Work and Well-being Among People of Foreign Origin
WHO	World Health Organization

1 INTRODUCTION

As international travel becomes more popular each year, the need for studies about health related issues among travellers increases (Schlagenhauf, Santos-O'Connor, & Parola, 2010). There is a great number of studies dealing with people travelling to the developing countries but little focus has been put on travel to developed countries and its consequences. International exchange students represent an ever growing group of travellers, as international student exchange is a popular phenomenon among students in higher education. More than 10,000 international exchange students spend three to 12 months studying in Finland every year (CIMO, 2013; Vipunen, 2017). In 2013, it was estimated that approximately 10% of all students in Finnish Universities and Universities of Applied Sciences (later UAS) were either international exchange students or international degree students (CIMO, 2013). The health of these students remains rather unknown.

Finnish Student Health Survey 2016 (Kunttu, Pesonen, & Saari, 2017) describes the health of Finnish students in higher education, the Maamu study by the National Institute for Health and Welfare (THL) (Castaneda et al., 2012) the health, well-being and health care use by some migrant groups in Finland, and a study called *Survey of work and well-being among people of foreign origin* (Nieminen, Sutela, & Hannula, 2015) offer some insight on the health status of people with foreign background in Finland and the students in Universities and UASs. The results from these studies offer a glimpse on how people of foreign origin in general perceive their health while living in Finland. Further, international studies on the health of exchange students were examined in order to get familiarized in the health topics most accurate regarding exchange students in Finland.

The purpose of this study is to describe the health and health-related behaviours, as well as use of health care services among exchange students staying in Finland. The results of the present study can be used by health care providers in improving the health of exchange students in Finland. Knowledge on exchange students' health-related behaviours can help Finnish institutions to provide their exchange students with measures to maintain and promote good health and beneficial health-related behaviours.

2 BACKGROUND

2.1 Insight on health globally and in relation to travel

Health, as was described by the World Health Organization (WHO) in 1948, is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” The definition further states that the right to health is a human right that should not be dependent on one’s race, religion, political belief, economic or social condition. (WHO, n.d. [a]) Public health, on the other hand, aims to provide health to all by preventing diseases through improvements in sanitation and education, by organising efforts towards early diagnosis and treatment of diseases, and by promoting healthy behaviours. Public health works on population level in order to ensure that peoples everywhere can gain health, as is their right. (Skolnik, 2016)

Global health, though sometimes difficult to define (Koplan et al., 2009; Skolnik, 2016), can be described as a field of science that promotes health globally and prevents illness and inequity (Koplan et al., 2009). It is practiced both in research and practice, and it emphasizes transnational health issues and solutions. The main weight is on prevention, but curative and rehabilitative aspects are, too, included. Some of the global health issues accurate today are control of HIV/AIDS epidemic, reduction of tobacco consumption, injury prevention, health of migrant-workers, and control of influenza. Cooperation beyond borders is needed in order to accomplish common goals, such as fighting emerging and re-emerging diseases or antimicrobial resistance (Koplan et al., 2009; Skolnik, 2016). Decisions are often based on statistics on disease outbreaks or mortality rates, as the intention is to work on population level rather than individual level, and eventually fight health inequities. (Koplan et al., 2009)

During the past 50 years the world has witnessed significant progress in global health. Life expectancy has grown from 48 years in 1950 to 68 years in 2010 on a global level. Smallpox has been eradicated and polio eliminated from almost all countries. Under five mortality, that is children who die before their fifth birthday, has decreased significantly. Yet, great international disparities exist. There are vast differences in life expectancy, and some of the life-saving technologies, such as vaccination against Hepatitis B, that are

available for the western people, are not offered to the people in the third world. Access to health care differs greatly among different countries. (Skolnik, 2016)

Diseases have always spread due to human mobility. Europe has, due to its location and active trade, encountered travellers for centuries, which enabled the spread of infectious diseases, such as the plague in the 14th century and the syphilis in the 16th century. Quarantine was invented in Italy in the 14th century and was widely practiced in its ports in order to prevent the spread of communicable diseases. (Schlagenhauf et al., 2010)

Travel medicine was first practiced during colonial time when ill travellers returning from the tropics were treated for tropical diseases, such as malaria. Travelling became more popular in the 20th century when cheap airline possibilities enabled people to travel far and fairly fast. As it became a part of modern lifestyle, the need for travel medicine expanded. (Schlagenhauf et al., 2010) The main goal of travel medicine is to ensure that the travellers maintain healthy during their travel (Angelin, Evengård, & Palmgren, 2014).

As the number of international travel is growing and expected to reach 1,6 billion in 2020 (WHO, 2012), it is important to look at the consequences of travel and mobility on global health. Travel to countries where circumstances are different from what one is used to may lead to an increased risk for illness through a variety of factors such as lacking hygiene, differences in temperature, traffic and bacterial flora. Also, it is possible that one brings infectious diseases to or from one's country of origin while travelling. (WHO, 2015)

Travel health advice is a measure in making travelling more safe as travel is never without a risk. Outbreaks of emerging or re-emerging diseases have shown that infections can be transmitted within Europe, too. (Field et al., 2010; Leder et al., 2013) Travel safety advice has shown to be somewhat ineffective though, especially in young travellers, who, in a Swedish study by Angelin et al. (2014) were shown to be likely to fall ill during their travels, and took risks leading to accidents, despite pre-travel counselling. According to a study by Aro et al. (2009), young travellers were more likely to take health related risks on their travels. Unsafe sex and sexual encounters with new partners were common in travellers, especially in the younger age groups.

Geosentinel is an international database hosted by the International Society of Travel Medicine (ISTM) that provides data on travel related morbidity. In ISTM publication

GeoSentinel Surveillance of Illness in Returned Travelers, 2007–2011 (Leder et al., 2013), different diagnosis in international travellers were analysed, including more than 40,000 subjects. The most common health issues among travellers were diarrhoea, fever, dermatological problems, respiratory illnesses and in some cases vaccine-preventable diseases. Most ill travellers had travelled to developing countries.

2.2 Health among Finnish students and exchange students

Since 2000, The Finnish Student Health Services (FSHS) has produced a vast study on the health of Finnish students in Universities, and since 2008 also in UASs. The study is conducted every four years, and it comprises of both physiological, psychological and social health aspects, and the health-related behaviours regarding for example exercise, nutrition, use of intoxicating agents, and other aspects that might affect the health of the people under 30 years of age studying in Finnish Universities and UASs. The population of the *Finnish Student Health Survey* exceeds 200,000 and more than 3,000 Finnish students participated in the latest study in 2016. (Kunttu et al., 2017)

According to the *Finnish Student Health Survey 2016* the overall health of students in Finland was quite good. Most Finnish students perceived their physical, mental, social and overall health as good. Men experienced better health than women. (Kunttu et al., 2017) The respondents in the *Survey of Work and Well-being Among People of Foreign Origin* (later UTH study) (Nieminen et al., 2015) perceived in general their health as better than the Finnish control group. This can be due to the fact that often the people who migrate to other countries are of better health than the ones who stay behind. (Koponen, Jokela, et al., 2015)

Finnish Student Health Survey 2016 (Kunttu et al., 2017) examined which symptoms the respondents had experienced during the past month. Women generally experienced symptoms to higher extent compared to men. More than half of the women experienced some symptoms on a daily basis, whereas only one third of the men responded having some symptoms daily. General symptoms, such as headache, dizziness and tiredness were reported by more than half of the women at least on weekly basis. Psychological and stomach symptoms were rarer in both women and men. When examining the symptoms individually, only tinnitus was more common in men than women. (Kunttu et al., 2017)

In Australia, the health and well-being of international students was found to be either good or excellent, and only a small proportion of respondents claimed to have poor health (Rosenthal, Russell & Thomson, 2008; Russell, Rosenthal & Thomson, 2010). Previous studies (Angelin, Evengård, & Palmgren, 2015; Hartjes, Baumann, & Henriques, 2009) have shown that up to half of the students fell ill during their student exchange. Most illnesses were gastrointestinal, respiratory and skin infections, or vector-borne diseases such as dengue and malaria. Risk for diarrhoea was strongly associated with travel to developing countries. (Angelin et al., 2015)

Despite mental stress related to studying in a foreign country, mental health was experienced as good by most students, even though one third experienced being excluded (Rosenthal et al., 2008; Russell et al., 2010). Among American study abroad students, health problems relating to psychological distress, such as loneliness and depression were, too, quite rare (Hartjes et al., 2009). An American study called *Measuring sojourner adjustment among American students studying abroad* (Pedersen, Neighbors, Larimer, & Lee, 2011) found a strong positive correlation between social interaction with students from one's country of origin and feelings of homesickness and being out of place. Among Finnish students, between 4 and 10 percent of the respondents felt themselves lonely. Women were more likely to have someone to talk to, and a sense of connectedness was reported by most students. (Kunttu et al., 2017)

Weight is an important criterion in defining health and health-related risks. Weight is often examined in relation to one's height. Body Mass Index (BMI) is a tool created for this purpose. It is defined as one's weight in kilograms divided by the square of one's height in meters ($BMI = \text{kg}/\text{m}^2$). It was first created as a risk indicator for certain diseases. As the BMI rises, so does the risk for illnesses such as cardiovascular diseases, high blood pressure and diabetes. (WHO, n.d. [b])

Among Finnish students, overweight ($BMI >25\text{kg}/\text{m}^2$) was more common in men than women, and obesity ($BMI >30\text{kg}/\text{m}^2$) was reported by less than ten percent of the respondents in both sexes. Overall, overweight had become more common. Even though men were more often overweight, their own perception of their weight did not correlate with the actual situation. Women tended to feel themselves as overweight even though being of normal weight. Unhealthy relationship towards food was reported by few, among women more often than men. (Kunttu et al., 2017) The UTH survey (Koponen, Jokela, et

al., 2015) showed that overall overweight was less common in people of foreign origin compared to Finnish controls, but great geographical differences exist. Asians were much slimmer than other groups, whereas women of African origin were more often heavier than average.

2.3 Use of health care services among exchange students and migrants

Of the exchange students included in the study by Angelin et al. (2015), one in five sought local health care services during their exchange. It is noteworthy that 12% of all the students participating in student exchange felt the need for health care, but decided not to seek it due to not knowing where to go, not trusting the local health care, being afraid of being exposed to other illnesses and not wanting to burden the local health system. (Angelin et al., 2015) An Australian study on international students (Russell, Thomson & Rosenthal, 2008) showed that just over half of the students in need of health care services had actually sought university health care services. The students who decided not to seek help despite the need felt their problems were not important enough or they were afraid they would be misunderstood. Some were unaware of the existing services. Most of the students who did take advantage of university health care services were satisfied with the help they had received.

In Finland, University students are offered health care by FSHS. At the time of the study, the students in UASs were not yet entitled to FSHS, which was shown in the results, too, as the UAS student went to more high extent to the municipal health care providers. Nurses and general practitioners (GP), as well as dentists and dental hygienists were seen most often. Psychiatric services were used by few. A vast majority of the respondents were satisfied with the FSHS and felt they had been helped and heard while treated there. (Kunttu et al., 2017) Among the Finnish Maamu study participants, including respondents of Somali, Russian and Kurdish backgrounds now staying in Finland, a vast majority of the respondents felt they were listened to and that the personnel had shown interest in their problems while visiting dental care units (Suominen, & Suontausta, 2012).

Exchange students' tendency to seek pre-travel health counselling has been a subject of study (Angelin et al., 2015; Hartjes et al., 2009; Heywood, Zhang, MacIntyre, & Seale, 2012; Pedersen, Cruz, LaBrie, & Hummer, 2011). The sources of travel-related health

and other information varied from guidebooks, travel health clinics and Internet to friends and family. An Australian study (Heywood et al., 2012) found international students to have low travel risk perceptions which resulted in low pre-travel consultation.

2.4 Health-related behaviours

Alcohol consumption during student exchange is a topic vastly studied. Previous studies on alcohol consumption have shown raised alcohol intake during student exchange among Swedish, Korean and American exchange students (Angelin et al., 2015; Hummer, Pedersen, Mirza, & LaBrie, 2010; Mitchell, Poyrazli, & Broyles, 2016; Pedersen, Cruz, et al., 2011; Pedersen et al., 2014; Sa, Seo, Nelson, Lohrmann, & Ellis, 2015). Mitchell et al. (2016) expressed a worry of students continuing such drinking habits after the study abroad program. Reasons behind risky alcohol consumption have shown to be young age, sensation seeking and conducting student exchange program in Europe (Pedersen et al., 2014), as well as the student expecting alcohol consumption being high in their host country (Hummer et al., 2010; Pedersen, Cruz, et al., 2011). In Australia, on the other hand, Rosenthal et al. (2008) saw that alcohol consumption had not changed significantly among international students since conducting their studies in Australia. Among the respondents in Finnish Student Health Survey 2016 (Kunttu et al., 2017), approximately one in ten students never used alcohol, and of the ones who did, the majority used it moderately. Very risky alcohol habits were reported by 24% of the men and 14% of the women.

The UTH survey showed that there are great differences in alcohol consumption within migrants from different backgrounds. Migrants from Africa and Middle East rarely used alcohol. Out of the respondents in the UTH study more than 30% responded never drinking alcohol. In the Finnish population 12% claim to never drink. In general, Finns drink more than the foreigners in Finland. (Koponen, Skogberg, et al., 2015)

Drug use or testing was reported by a quarter of the Finnish students, and students mostly uttered using marijuana. Drug use was seen to have remained on the same level as in previous studies on Finnish students, though there has been a slight decrease in men who

have used drugs. (Kunttu et al., 2017) Drug use among international students in Australia had increased, but was still very rare (Rosenthal et al., 2008).

Smoking was not described in detail in any of the studies found regarding the health of exchange students. In Finland, however, statistics on tobacco smoking among students does exist. According to *Finnish Student Health Survey 2016* (Kunttu et al., 2017) smoking among Finnish students is decreasing. Smoking is much rarer among University students compared to the ones studying in UASs. Today, approximately 10% of students in UASs smoke on a daily basis. Smoking in the UTH study (Koponen, Skogberg, et al., 2015) was seen to differ greatly according to where the migrants came from. All in all, men smoked more often compared to women.

Risky behaviour in the form of sexual risk taking was found in several studies (Angelin et al., 2015; Hummer et al., 2010; Marcantonio, Angelone, & Sledjeski, 2015; Rosenthal et al., 2008; Russell et al., 2010). Some reported one in five, or even more, students having sex with a new partner during study abroad programs (Angelin et al., 2015; Marcantonio et al., 2015) and sex without condom was found in five studies (Angelin et al., 2015; Hummer et al., 2010; Marcantonio et al., 2015; Rosenthal et al., 2008; Russell et al., 2010). Sometimes alcohol was mentioned as cause for unsafe sex habits (Hummer et al., 2010). Historical experiences from condom use did also predict risky sexual behaviour (Marcantonio et al., 2015). Angelin et al. (2015) found most exchange students to have sex with a partner either from the destination country or with another traveller.

Regular physical exercise was reported by more than half of the students in *Finnish Student Health Survey 2016* (Kunttu et al., 2017), whereas 11% claimed to exercise never or on very rare occasions. Approximately same proportion of students stated being physically active in the form of walking or cycling at least half an hour a day. Women were seen to be more active than men. Healthy nutrition habits were measured when the students were asked whether they thought about the healthiness of food while purchasing it. Most women and approximately half of the men reported thinking about the healthiness of the food they purchased. (Kunttu et al., 2017)

Among people participating in the UTH survey it could be seen that people of foreign origin who reside in Finland in general exercise in similar numbers as the Finns. Approximately 30% of men and 20% women exercised on regular basis. Yet, women from Middle East, Africa and Asia exercised rarely. (Koponen, Skogberg, et al., 2015)

Dental care was seen to differ greatly among different demographic groups of students in *Finnish Student Health Survey 2016* (Kunttu et al., 2017). Especially women studying in Universities took excellent care of their teeth. Excellent dental care was achieved when teeth were brushed more than once a day, one used tooth paste including fluorine, and dental floss was used on a daily basis. Poor dental care, on the other hand, included brushing teeth less than once a day, using tooth paste with fluorine less than once a day and never using dental floss. Men studying in UASs were seen to be the ones taking least care of their teeth. Still, more than half of them brushed their teeth twice a day. Chewing gum or other products containing xylitol were used on a daily basis by one third of the males and half of the females. (Kunttu et al., 2017)

3 PURPOSE AND OBJECTIVES OF THE STUDY

This study seeks to describe how the international exchange students in Finland perceive their health, to what extent they use health care services before and while in Finland, and illustrate some of the behaviours affecting their health. According to thorough literature search by the researcher, these subjects have not been studied before. The Universities and UASs receiving these students might find the information regarding health-related behaviours useful, and the health care professionals that are dealing with foreign exchange students can take advantage of the results regarding the exchange students' health and their use of health care services. The results can be used in mitigating unhealthy behaviours and in improving the health of exchange students in Finland.

The findings provide valuable information to the student affairs professionals when developing resources and preventive measures in risky health behaviour and guides for the exchange students, both inbound and outbound.

The aim of this study is to describe the health, use of health care services, and health-related behaviours of exchange students staying in Finland.

The research questions are as follows:

1. How do the exchange students in Finland experience their health?
2. What health care services the exchange students use before and while in Finland?
3. What health-related behaviours affect the health of exchange students?

4 METHODS

4.1 Preparations for the study

The topic for the present study came from personal interest in travel and health, and after severe consideration and research on previous studies, the scope was narrowed down to the present topic. Previous data on the subject at hand was sought in a thorough manner in order to gain full understanding on what was known about the subject since before. As the health of exchange students in Finland had not been studied before, it was seen to be a topic that would benefit a larger audience.

The research questions were determined in an early phase of the study after familiarization on the subject. According to the literature searches performed while familiarizing in the subject, there were only a limited number of studies regarding the health and health-related behaviours of exchange students found. After thorough reading the themes of interest emerged and research questions were formed.

A quantitative method was chosen as most useful for the study. According to Hirsjärvi, Remes and Sajavaara (1998) researchers should choose a research method that they believe will produce most accurate information to the aim of the research and in the case of this study this was seen to be the best way to collect data. No hypotheses were set.

4.2 Research instrument and data collection

This is a descriptive cross-sectional study, meaning the exchange students' health was being studied on one point in time from different points of view. The study was carried out in a quantitative manner, which is often a useful method when prevalence needs to be documented. (Bowling, 2014) The data were collected using a self-administered on-line questionnaire during academic spring term 2017. The questionnaire was open for six weeks from early April to mid-May. An on-line survey was found suitable, as it is often a good tool when examining potentially delicate subjects such as health. In this way an estimate of the health status of the exchange students in Finland could be derived.

(Bowling, 2014) The questions were standardized, which means that all respondents were asked the exact same questions in the exact same order and in the same way (Vilkka, 2007).

The Finnish Student Health Service (FSHS) conducts and publishes an extensive study on the health of Finnish students in higher education every four years. *The Finnish Student Health Survey* (Kunttu et al., 2017) focuses on Finnish students only. As the intent of the present study was to examine the health status of foreign exchange students in Finland, it was seen beneficial to use tools that create results comparable to the ones in the *Finnish Student Health Survey*. Hence, Kristina Kunttu, the main researcher of that study was contacted in order to obtain permission to use parts of the questionnaire originally created for *Finnish Student Health Survey*.

The study is conducted in Finnish and Swedish only, but translation in English was made for the 2012 version. The English versions of the 2016 questions were not yet published at the time of creating the questionnaire for the present study, so the 2012 English version was used as the basis of this questionnaire. The questions included in the present study were kept as similar to the original as possible, in order to allow comparison. In some cases, the questions needed to be altered to better fit the scope of this study.

Illness and risk behavior in health care students studying abroad by Angelin et al. (2015) examined, to a great extent, the same subjects as the present study, for which researcher Martin Angelin was contacted, and consent was given to take advantage of the questionnaire used in the study by Angelin et al. (2015). By combining questions from the studies by Angelin et al. (2015) and Kunttu et al. (2017), the themes of this study could be examined from the point of view of the exchange students in Finland.

Alcohol Use Disorders Identification Test, generally called AUDIT was included in the present study to measure alcohol use among the exchange students. It is a tool created by WHO as a simple method for screening alcohol use and identifying risky drinking behaviours by focusing on recent alcohol consumption. It was first created in 1989 and has thereafter been taken to common use by health care workers and alcohol researchers worldwide. It comprises of ten individual questions that map out hazardous alcohol use, dependence symptoms and harmful alcohol use. Each questions yields scores between zero and four, where higher points indicate higher risks. The sum of all questions is calculated to find out the final result. The cut-off points are determined nationally and the

Finnish limits will be used in this study. (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) Scores between zero and seven indicate low alcohol-related risks, scores between eight and ten potentially elevated risks, and respondents scoring 11 or more points are seen to have significantly elevated risks for alcohol-related problems, such as tiredness, depression, accidents, high blood pressure and problems in human relations. (päihdelinkki.fi, n.d.)

The questions of the questionnaire are presented in Table 1. The questions are structured according to the main themes, and the original creator of each question is indicated. Most questions were formed by Kunttu et al. (2017) or Angelin et al. (2015). The questions used were kept similar to the original ones to the extent possible but in some cases they were altered in order to fit the scope of this study. The questions provided by Kunttu et al. (2017) were taken from the 2012 English version, whenever possible. Some questions that were not available in English were translated from Finnish to English. The questions from Angelin et al. (2015) were originally provided in Swedish, from where they were translated to English by the researcher of the present study. Permission to use and alter the questions by Kunttu and Angelin was obtained. Questions created by others than Kunttu et al. (2017) in the *Finnish Student Health Survey 2016* were excluded apart from the AUDIT survey.

The questionnaire was pre-tested by eight students on the researcher's course, after which some of the questions were altered due to obscurity or misspellings. The pre-testers were asked to evaluate the length, clarity and consistency of the study. At the same time the functioning of the on-line questionnaire could be tested. The group of students who pre-tested the questionnaire reported the survey taking approximately 10 minutes to complete.

Most questions in the questionnaire were closed, which means the response possibilities were pre-defined. Age, on the other hand, was asked in an open way, that is the informants were asked about their age, and the response was then written below in a box. The definition "years" was written next to the box. (Vehkalahti, 2014)

The questionnaire included 44 questions in total. First eight mapped the demographic characteristics of the respondents, such as age, gender, city of stay and country of origin. Questions 9 to 16 aimed to answer the first research question regarding the health and perceptions of health among the respondents. The second research question concerning use of health care services was examined in questions 18 to 22, and the last research

question regarding health-related behaviours was inspected through questions 23 to 44. Questions regarding health-related behaviours address consumption of alcohol and other intoxicating agents, sex and condom use, dental care practices, and physical activity. (Table 1.)

Table 1. Structure and creator of each question of the questionnaire

Question	Included in the section	Created by	Research question being answered
2-3,7	Background	Kunttu et al.	Demographic characteristics
4-6	Background	Huuskonen	
8	Background	Angelin et al.	
9-14, 17	Well-being	Kunttu et al.	How do the exchange students in Finland experience their health?
15-16	Well-being	Angelin et al.	
18, 20	Health care services	Kunttu et al.	What health care services the exchange students use before and while in Finland?
19, 21-22	Health care services	Angelin et al.	
23-28	Health behaviors	Kunttu et al.	What health-related behaviours affect the health of exchange students?
29-31	Health behaviors	Angelin et al.	
32-33	Tobacco, drugs and alcohol	Kunttu et al.	
34-43	Tobacco, drugs and alcohol	AUDIT/WHO	
44	Tobacco, drugs and alcohol	Angelin et al.	

The data were collected by using an online questionnaire applying Webropol as the platform. The Finnish National Agency for Education has contacts to the Finnish institutions of higher education through mailing lists, and they agreed to forward the questionnaire to all Universities and UASs. An e-mail containing a cover letter, followed by a link to the questionnaire, was sent to all Finnish Universities and UASs through the mailing list. This was perceived to be an effective method of distributing the survey to all Finnish Universities and UASs. A preliminary inspection on the research plan was

performed by a representative at the Finnish National Agency for Education prior to sending the questionnaire to the institutions. Some of the Universities and UASs required a research permit which was in those cases sought and granted.

4.3 Sample

International student exchange is a popular phenomenon among university students globally. Erasmus exchange program provides students in higher education an opportunity to conduct a part of their studies in another country and institution. Since its launch in 1987 over 3 million students have participated in the program. (European commission, 2014) *Exchange student* was defined as an international student in higher education conducting between three to 12 months of their studies in Finland. The same definition was used by Education Statistics Finland. (Vipunen, 2017)

In total, there were 10,059 exchange students in Finland during 2016 (Vipunen, 2017). The statistics on 2017 were not available at the time of writing, but the number of exchange students coming to Finland has been somewhat similar during the past six years with a slight increase every year (Vipunen, 2017). The statistic by Education Statistics Finland do not state at which point of the year the students are in Finland. In order to gain information on how many exchange students each University and UAS in Finland had specifically during the spring term 2017, all these institutions were contacted. Not all institutions responded to the inquiry, but by combining information from the ones responding and the data from Education Statistics Finland (Vipunen, 2017), it could be calculated, regarding those institutions, that approximately 43% of all exchange students during the academic year 2016-2017 were in Finland during spring term. Therefore, it could be computed, assumed that the number of exchange students coming to Finland has remained on previous level and that same percentage applies to all Finnish Universities and UASs, that in total there were approximately 4,280 exchange students in Finland during spring term 2017.

The group of international exchange students in Finland formed the population of this study. All exchange students staying in Finland during spring term 2017 were included in the sample of the present study. The questionnaire was sent to all Universities and UASs through the Finnish National Agency for Education's mailing list, from where it

was further sent to the students, though it is uncertain how many of the Universities and UASs did, in fact, forward it to their students because no confirmation to the researcher was required. In total six UASs required a research permit, which was sought and granted. Due to uncertainty regarding the final sample size, response rate is impossible to count.

After the data collection phase, it could be noted that the questionnaire had been opened without submitting responses 468 times in total. Finally, the questionnaire yielded 346 responses, and 318 responses were included in the study. As was done in the *Finnish Student Health Survey 2016* (Kunttu et al., 2017) responses lacking either gender or age information were excluded due to the fact that a lot of the data analyses bases on division between age or gender. Further, responses from informants who were not identifiable as exchange students were excluded, as was one response from a person who failed to give their informed consent. Decision to exclude the latter informant was based on a will to ensure that all informants had acquainted themselves with the instructions. The inclusion process is presented in Table 2.

Table 2. Material inclusion for data analysis

Original study material	n=346
No consent given (n=1)	n=345
Missing gender data (n=3)	n=342
Missing age data (n=3)	n=339
Invalid time frame of exchange (n=21)	n=318

4.4 Data analysis

The data were collected in the Webropol database, from where the raw data were transferred to Microsoft® Excel for Mac (version 15.27). Preliminary inspection was done and invalid responses excluded according to the criteria presented in Table 2.

The raw data were then browsed through in order to find invalid and lacking responses. Item nonresponse, that is empty responses by one single informant within larger entities (Vehkalahti, 2014), such as the AUDIT questionnaire were identified. Missing value

imputation was carried out by using gender-specific means. For example, if a woman failed to report their weight, the mean weight of all women was used. In the same manner empty cells were filled if a man did not answer a question about alcohol consumption. Then the mean value of all men was used as a substitute.

In the evaluation phase, the data were analysed within each group of questions. Body Mass Indexes (BMI) were calculated based on the weights and heights of each respondent, the overall AUDIT scores were computed from the ten individual questions belonging to the questionnaire. Descriptive statistics, that is frequencies, means and medians, as well as standard deviations (SD) were calculated when found necessary and tables and figures created when it was found to illustrate the results. No weighing was performed due to the researcher's scarce knowledge in the measure. (Vehkalahti, 2014)

The results were examined within the whole group of respondents, and often between men and women. In some cases, they were looked at between different age groups or by comparing the respondents according to which continent they came from. The decision was made to use the continent division defined by WHO (see Appendix 3).

4.5 Ethical considerations

The researcher of this study is committed to follow the ethical guidelines provided by the National Advisory Board on Ethics (Finnish Advisory Board on Research Integrity, n.d.). Both the working methods and the analyses of data were conducted in an ethical manner, and the study subject was seen to be beneficial and by no means harmful either to the society or the people participating in it (Bowling, 2014). An ethical mind set was kept throughout the research process.

The researcher of this study takes full responsibility of protecting the rights and privacy of all respondents. Only relevant data about the respondents were gathered (Pietarinen, 2002). Informed consent was obtained from all participants, meaning that the informants were well informed on the scope and measures of the study before agreeing on participating by ticking a box stating as follows: "I have read the instructions and I voluntarily participate in this study" (Dawson, 2011). One of the respondents failed to tick that box and therefor their responses were disregarded. The informants were allowed

to withdraw from the study at any point if they so wished. (World Medical Journal, 2017) The survey included questions about delicate subjects, such as health and sexual habits, and therefore it was of outmost importance to make sure that the informants were clearly explained the content of the study (Vilkka, 2007). The content of the cover letter can be viewed in Appendix 1.

The data were presented in a way no individual informants can be recognised. The data analyses were performed honestly, with precision, and by applying best possible measures known to the researcher. New means of research were acquainted with in order to gain knowledge on research methods. The researcher assures that all results are being published with honesty.

5 RESULTS

5.1 Demographic characteristics of respondents

As can be seen on Table 3., two-thirds of the respondents were female. Most were between 20 and 24 years old (mean 22 years, SD 3.3), with very few respondents below 20 or over 30 years of age. The median length of the whole exchange was 6 months (SD 2.3). The respondents stayed in 30 Finnish towns, with Tampere, Turku, Joensuu, Helsinki and Lappeenranta being the five most often named. Almost one-third of the respondents stayed in towns other than the ones listed above. (Table 3.)

There were students from more than 40 countries, while Germany, France and Spain were the three most common countries of origin with more than 30 exchange students coming from each of them. The majority came from Europe (87%) and a small proportion from the Americas (7%) or Western Pacific region (7%), while respondents from South-East Asia were few (1%). None of the respondents came from Africa or Eastern Mediterranean region. China, Mexico and United States of America were the three countries outside Europe with most respondents, between eight and ten from each of them. (Table 3.)

Table 3. Baseline characteristics of the respondents

Gender	n	%	Length of exchange (months)	mean	SD
Male	103	32 %	At the time of the questionnaire	4	2.2
Female	215	68 %	Total length of exchange	6	2.3
Total	318	100 %	Continent of origin	n	%
Country of origin	n	%	Africa region	0	0%
Germany	40	13%	Region of the Americas	23	7%
France	39	12%	South-East Asia region	4	1%
Spain	33	10%	European region	276	87%
Russia	21	7%	Eastern Mediterranean region	0	0%
Italy	17	5%	Western Pacific region	13	4%
The Netherlands	16	5%	Total (missing data = 2)	316	100%
Other countries	152	48 %	City of stay	n	%
Total	318	100%	Tampere	84	26%
Age (years)	n	%	Turku	66	21%
Under 20	13	4 %	Joensuu	32	10%
20 to 24	267	84 %	Helsinki	21	7%
25 to 29	29	9 %	Lappeenranta	16	5%
30 or over	9	3 %	Other cities	99	31 %
Total	318	100 %	Total	318	100%

5.2 Health of the exchange students

Overall, the exchange students experienced their overall, physical, mental and social well-being as *quite good* or *good*, while *poor* or *quite poor* well-being was reported by few. Men tended to rate their physical and mental well-being slightly higher than women. (Figure 1.)

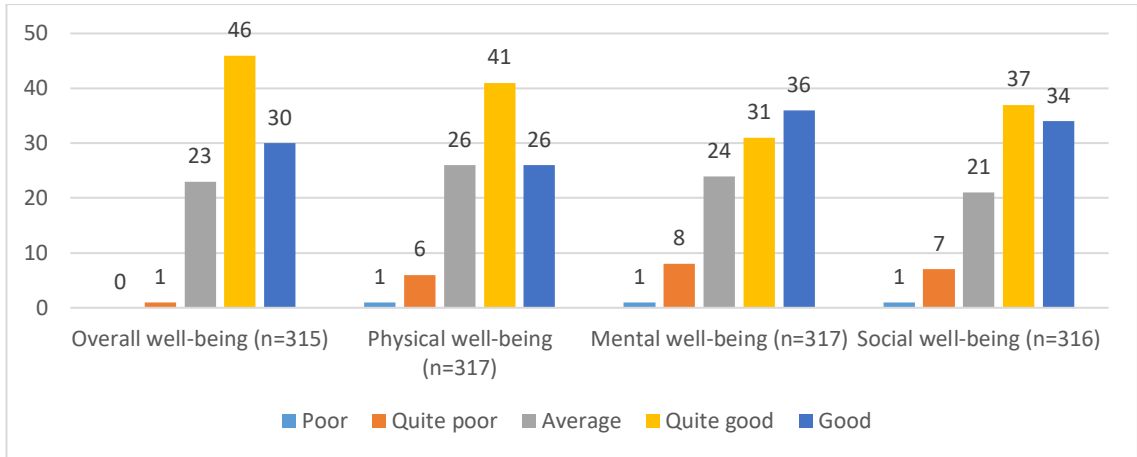


Figure 1. The exchange students’ perception on their well-being (%)

There were great differences in how much the female and male exchange students experienced certain symptoms listed in the questionnaire. Generally, men tended to experience any of the symptoms less than women. While more than one-third of females had had problems falling asleep or tiredness or fatigue during the past month, the rates among males were much lower. The symptoms that were most common, that is the ones with more than 15% prevalence in the whole sample, are presented in Figure 2. The responses were examined between men and women. Overall, most symptoms were experienced by less than one-fifth of the respondents. (Figure 2.)

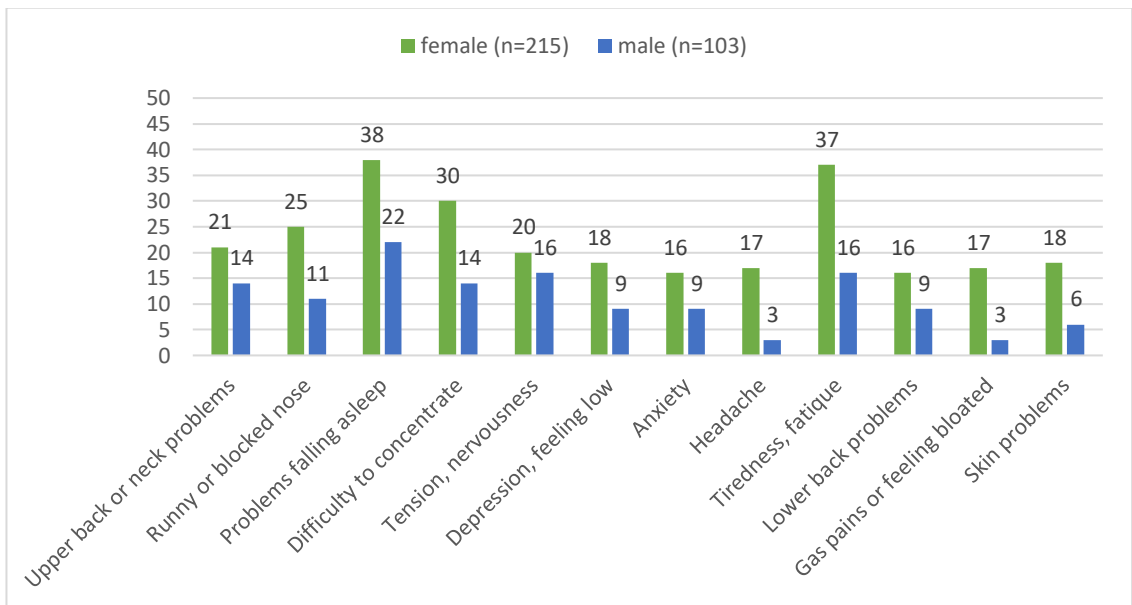


Figure 2. Rates of symptoms viewed in males and females (%)

Median weight among female students was 60kg (SD 12.00), and 74kg (SD 14.09) among male students. Median height, on the other hand, was 168cm (SD 6.23) in women and 179cm (SD 8.27) in men. A vast majority of the exchange students had a normal Body Mass Index (BMI), the median being 21,2kg/m² for women and 23,1kg/m² for men. Overweight was more common in men than women.

Women tended to experience themselves as overweight more often than men. Approximately half of both women and men experienced being of *ok* weight. Table 4 shows cross tabulation on the actual BMIs and the students' own perceptions of their weight. Most students identified themselves in the weight group that corresponded their actual weight. (Table 4.)

Table 4. Cross tabulation of the BMIs of the respondents, and their own perceptions of the weight (n)

The students' perceptions of their weight	The BMI of the respondents					Total (n)
	Severe thinness (BMI <16)	Underweight (BMI 16-18.49)	Normal range (BMI 18.5-24.99)	Overweight (BMI 25-29.99)	Obese (BMI ≥30)	
Clearly underweight	1	2	0	0	0	3
Somewhat underweight	0	7	17	0	0	24
OK	1	9	146	10	0	166
Somewhat overweight	0	1	68	22	6	97
Clearly overweight	0	0	3	12	13	28
Total (n)	2	19	234	44	19	318

Most men (82%) responded having a *normal* attitude towards food, whereas 67% of women felt that way. Women were more prone to have either unhealthy attitudes towards food or not really knowing what their attitude was. When it comes to the healthiness of food purchased, most (89%) students considered it at least some times, and more than

half of them regularly. Women were somewhat more prone to thinking about the healthiness of food.

The exchange students were seen to mostly (88%) spend their free time with other exchange students from either their home countries or other countries. Spending time with Finnish people was very rare (4%). About half of the students had sometimes felt loneliness while being in Finland. Frequent feelings of loneliness were reported by one out of ten students. Approximately the same number of students had missed home at some occasions, women to more frequent extent – 56% of women and 42% of men had had feelings of homesickness.

Most students (78%) said they had not experienced a panic attack or a sudden feel of fear or panic during the past month. Of those who did, women tended to have anxiety more often than men (27% vs. 13%). Anxiety was seen to be common in respondents who responded having frequent feelings of loneliness and home-sickness as well as feelings of not having anyone to turn to in case of problems. The exchange students who never experienced such feelings were rarely experiencing feelings of anxiety or panic. (Figure 3.)

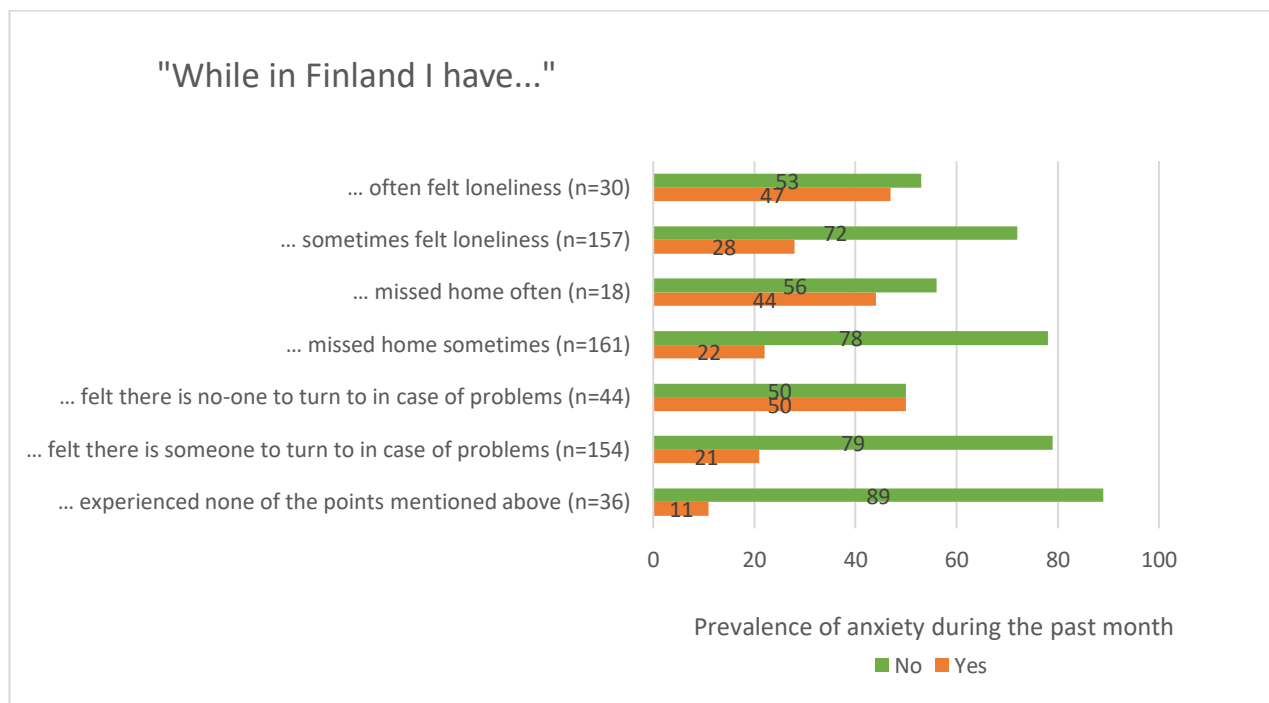


Figure 3. Rates of anxiety experienced during the past four weeks calculated in comparison with some psychosocial experiences (%)

5.3 Use of health care services before and while in Finland

Overall, most exchange students never used Finnish health care services. Nurse was the health care service provider that was seen most often by the exchange students in Finland, 24% of the students had been to a nurse, mostly at the FSHS. Five percent of all the students had been to a nurse more than once. General practitioners (GP) were seen by few (7%). Dentists and dental hygienists were seen by some occasional students. Other health care professionals were seen by almost no respondents. (Figure 4.)

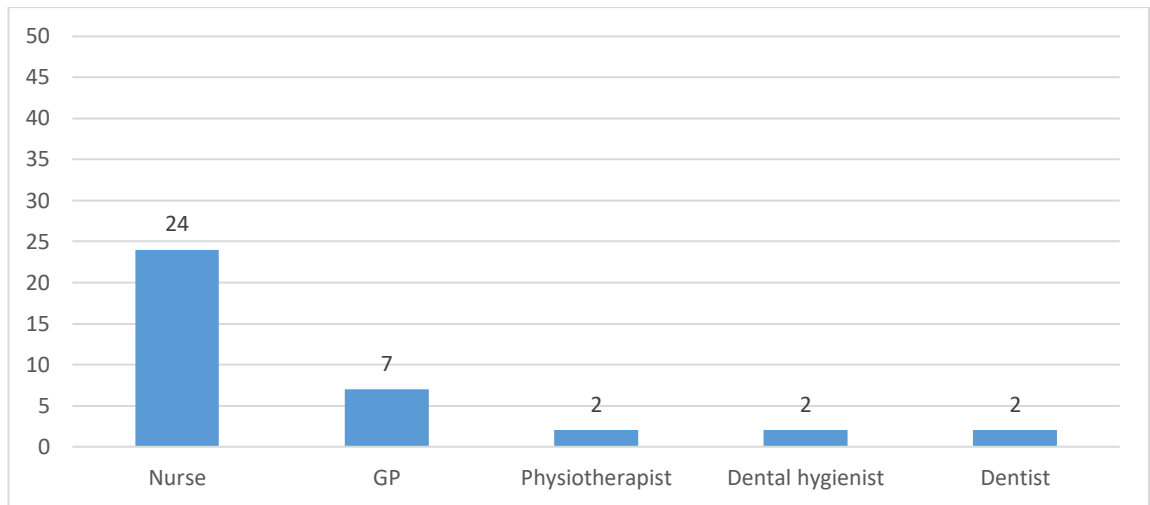


Figure 3. Health care services used by exchange students (%)

Most students (79%) had sought health care services when they felt the need for that. Reasons for not doing so were students feeling it was either too complicated or expensive. Some of the students claimed they did not know where to go. None of the students claimed not trusting the local health care or being afraid of contracting another disease as a reason for not seeking health care services. Most (87%) exchange students were satisfied with the answers they had received from health care service providers. When asked about the students' perceptions of being listened to and understood by the health care providers, nearly 80% stated being happy with the service.

Pre-travel health care services were sought by less than one-third of the respondents. One in five students had been to the university or student health facility prior to the departure. Some of the students also stated going to their GP or relatives who could help them with health issues. When it comes to travel-related information about Finland, most students looked it up on Internet. Friends were the second most used source of information. Travel books and health care professionals were used to much lower extent.

5.4 Health-related behaviours among exchange students

In general, the exchange students brushed their teeth twice a day, and most (81%) used tooth paste containing fluorine at least once a day. Brushing teeth less than once a day was seen to be very rare (2%). In general, women took better care of their teeth than men. It was seen that men more commonly brushed their teeth only once a day. Using dental floss containing fluorine on a daily basis was very rare among the exchange students. Also, products sweetened with xylitol were used by few, as only 10% of the respondents used claimed using xylitol daily. Women used xylitol products to somewhat higher extent than men. (Figure 5.)

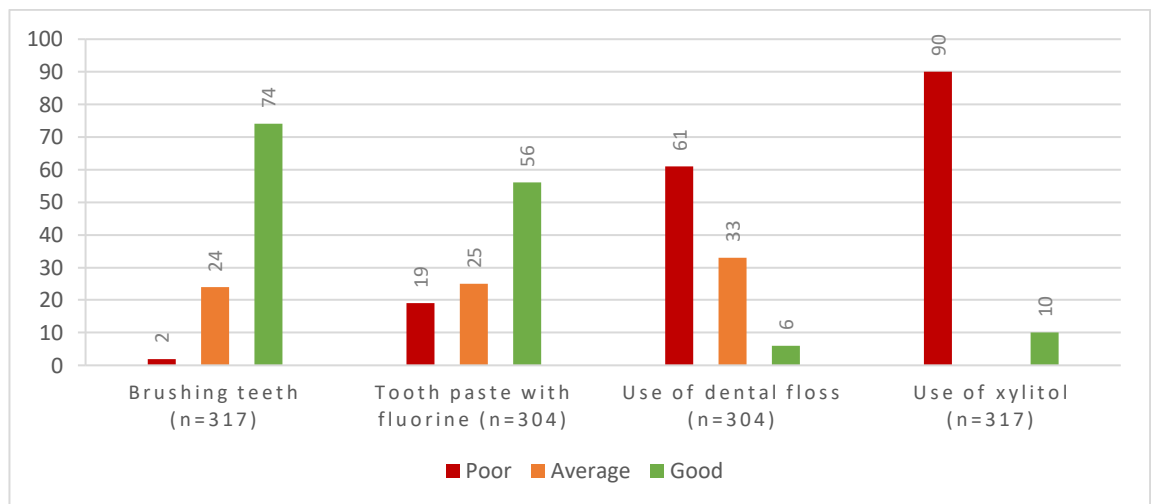


Figure 4. Dental care practices among exchange students (%)

Physical activity, in the form of walking and cycling as a part of everyday activities, as well as free-time physical activities were performed by women and men in similar amounts. More than half of both men and women reported walking or cycling more than

half an hour a day. Men seemed to be slightly more eager to exercise more than four times a week compared to women. It is noteworthy that more than 30% of both women and men exercised very rarely, that is less than once a week.

About 25% of the exchange students had had a new sexual partner during their time in Finland. In most cases the sexual partner was either another exchange student from the same country of origin (21%) or from some other country (61%). About one in four had had sexual relations with a Finn. Most (75%) reported always using a condom with a new partner. Men were more active in protecting themselves, as 81% of the men and 72% of women always used a condom.

Smoking on a daily basis was rare (11%). A vast majority (70%) never smoked. Men smoked more often than women (men 15%, women 10%). Other tobacco products, such as snuff or chewing tobacco, were very rarely used. Cannabis was used by less than three percent of the students, and other drugs by some single respondents.

About ten percent of the exchange students never used alcohol, and the majority (68%) scored seven or less points in the AUDIT test. Risky drinking habits, that is AUDIT scores of 11 and above, were reported by 16% of all respondents. One-third of the exchange students responded having their drinking remain unchanged since coming to Finland. Approximately the same number of respondents said they drank more than back at home. Some had reduced their drinking since coming to Finland. (Figure 6.)

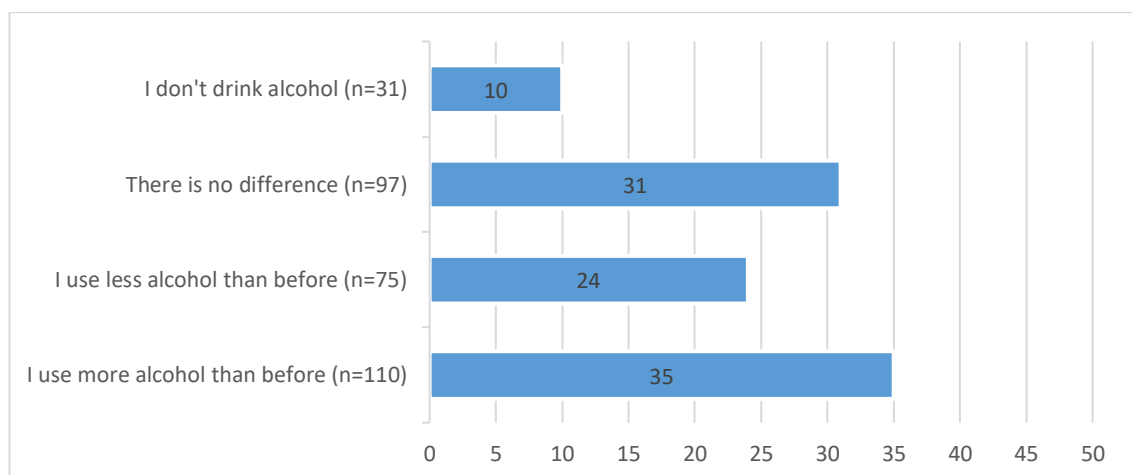


Figure 5. The respondents' perception of how their drinking had changed since coming to Finland (%)

6 DISCUSSION

6.1 Discussion on the results

Overall, the exchange students participating in this study perceived their physical, mental, social and overall well-being as good, as did both the Finnish and Australian students in previous studies (Kunttu et al., 2017; Rosenthal et al., 2008; Russell et al., 2010). Perceived health is always affected by one's background as well as cultural and social expectations. International studies have shown migrants in general to have lower perceived health than the original population. This, however, is often connected to the fact that migrants are more often overrepresented in the lower socioeconomic populations. The health of migrants is often affected by their background, which might include taking refuge from one's home, and being exposed to torture and fear. (Koskinen, Castaneda, Solovieva, & Laatikainen, 2012) The respondents in the present study were all in Finland participating in a study abroad program. This probably has great impact on their overall high perceptions of health. Also, most of them were of European origin, whereas the migrants studied in Finland were mostly from other parts of the world where unstable circumstances, war even, affected the health of these people (Koskinen et al., 2012).

Most respondents had a normal BMI. Overweight was less common in the exchange students compared to the Finnish students. While 15% of women and 29% of men in the present study had a BMI of 25 or above, the corresponding figures in Finnish students were 26% and 36% (Kunttu et al., 2017). Attitudes about food and thinking about healthiness of food were in line with the responses among Finnish students, as were the responses regarding physical activity in the form of walking or cycling as a part of everyday activities. However, the exchange students did engage in free-time physical activities, such as jogging, gymnastics or swimming, more rarely than their Finnish counterparts. Where more than 60% of the Finnish students exercised between two to seven times a week, less than half of the exchange students did so. Also, more than one-third of the exchange students exercised very rarely, that is less than once a week, whereas one-fourth of the Finnish students did so. (Kunttu et al., 2017) Cultural habits relating to

food and possibilities to exercise affect the results regarding weight and exercise (Laatikainen, Solovieva, Lundqvist, & Vartiainen, 2012).

Regarding symptoms that the respondents had experienced during the past month, it was obvious that women experienced symptoms more often than men. The most frequent symptoms among the exchange students were mostly prominent in the Finnish students as well (Kunttu et al., 2017). The two single symptoms that were most common in the present study were *tiredness/fatigue* and *problems falling asleep, waking up at night*. More than one in three women had had these problems during the past month, which means that a significant number of exchange students in Finland suffer from problems relating to sleep.

A vast majority of the exchange students never used health care services while in Finland. However, approximately 20% of the exchange students did not see a health care professional despite they felt a need for that, which is more than in the Swedish study by Angelin et al. (2015) but less than in the Australian study by Russell et al. (2008). As was the case in previous studies, many felt it was too complicated or expensive. It is possible the exchange students do not get access to relevant information about health care services when they face health problems. Yet, printed information regarding health care services is available to the exchange students. According to guide books for exchange students by University of Turku (2017) and University of Tampere (2016), the exchange students can get access to FSHS if they pay the voluntary University Union membership fee, which is approximately 55€/semester. The guides clearly explain what kinds of health care services that are at hand when a student is entitled to student health care services. Also, the handbooks explain that European students can get municipal health care services if they have a European health insurance card. The students are encouraged to take a health insurance before coming to Finland. According to these guides, the information about health care services is provided to the exchange students in a clear form, yet some of the respondents claimed not knowing where to go and finding it complicated or too expensive.

Sufficient dental care is crucial to one's overall health, whereas it is of utmost importance to promote and maintain good dental care practices (Suominen, & Suontausta, 2012). Dental care among exchange students was seen to be poorer than that of the Finnish students, though most students did brush their teeth twice a day. Using tooth paste

containing fluorine, using dental floss or consuming products sweetened with xylitol were significantly rarer among the exchange students compared to the Finnish students (Kunttu et al., 2017). Previous studies have shown that migrants in Finland tend to use less tooth paste with fluorine compared to the original population (Suominen, & Suontausta, 2012).

Alcohol consumption among exchange students was seen to be fairly moderate in the present study with most students scoring less than 11 points in the AUDIT survey, indicating very low or only slightly elevated risks regarding alcohol use (päihdelinkki.fi, n.d.). There were no significant differences in AUDIT scores in people from different countries. The results were to a great extent very similar to the ones from *Finnish Student Health Survey 2016* (Kunttu et al., 2017). This despite the fact that many previous studies (Angelin et al., 2015; Hummer et al., 2010; Mitchell et al., 2016; Pedersen, Cruz, et al., 2011; Pedersen et al., 2014; Sa et al., 2015) have found exchange students to consume more alcohol during study abroad programs than in their home countries. In the present study, 35% of the respondents answered using more alcohol while in Finland, and 24% said they used less alcohol than before. The results indicate that there is no significant problem related to alcohol use among exchange students in Finland.

Most students spent their time with other exchange students. Some said they mostly spent their time alone. More than half of the students reported having occasional feelings of home-sickness and loneliness. Frequent feelings of loneliness and homesickness, as well as feeling there is no-one to turn to in case of problems, were not very common in the respondents, as was the case in an American study by Hartjes et al. (2009). However, it is noteworthy that anxiety and feelings of fear or panic were quite common in this small group of students.

6.2 Conclusions

This study showed that exchange students in Finland experience to a great extent same levels of health as do the Finnish students (Kunttu et al., 2017). Symptoms, too, are in line with what Finnish students often experience. The results that stand out and could be subject to further studies or interventions are listed below. Student affair professionals could take advantage of these findings in planning activities for their exchange students,

and health care professionals might find these result useful when planning measures for better health among exchange students.

Cultural habits have great importance in all health practices (Suominen, & Suontausta, 2012). Behavioural habits often change in the course of several generations, but can in some cases change fast due to for example colder climate or food offered in supermarkets. Due to language barriers, people from other countries might not be reached by health promotion (Koponen, Skogberg, et al., 2015). This needs to be taken into account when international exchange students are targeted with health promotion or prevention. Addressing problems listed below could have substantial advantages in how exchange students in Finland experience their student exchange, and contribute to better health practices during and after their exchange.

- Anxiety was common in students who experienced loneliness, home-sickness and having no-one to turn to in case of problems
- More than one-third of female exchange students experienced problems with sleep
- Not all exchange students knew how and where to seek health care services in case of illness
- Dental care practices among exchange students were insufficient
- Some of the students never used a condom when having sex with a new partner
- One-third of the exchange students seldom engaged in free-time physical activities

7 VALIDITY AND RELIABILITY OF THE STUDY

As it is scientifically right to honestly go through the weaknesses and limitations of a study (Heikkilä, 2004), this chapter looks into those matters regarding this present study. It is more valuable to openly explain the weaknesses, rather than to try to hide them (Heikkilä, 2004). The methods and decisions used in the study process are being critically analysed.

Throughout the study, plagiarism was never performed as it is against good scientific practice to present someone else's work as your own. When using material or information created by others, clear referencing was used. (Pietarinen, 2002)

7.1 Validity and reliability of the research instrument and method

The theoretical premises that set the research problems, were built on previous studies that were conducted by several different researchers from different universities, and published in academic journals. The *Finnish Student Health Survey* (Kunttu et al., 2017) was accomplished by FSHS, and the Maamu study (Castaneda et al., 2012), as well as the UTH study (Nieminen et al., 2015) were conducted by Finnish National Institute for Health and Welfare (THL). Both FSHS and THL are big and trustworthy actors in Finland. The ethical and academic quality of all studies was being critically examined.

The data collection method of choice in the present study was an online questionnaire. By using a questionnaire, it was possible to gather a large amount of data, a big sample size could be included, multiple questions could be asked and it was an economical method as it is efficient by saving the researcher's time and effort. Also, the researcher usually will not meet the informant in person, which might be an advantage as the informants might alter their responses when interfering face-to-face with the researcher (Hirsjärvi et al., 1998; Vilkkä, 2007). The study could have been conducted in other ways, too. Interviews, for example, could have given a deeper understanding in the health situation of *certain* exchange students.

The informants remaining anonymous throughout the process might be a negative aspect as well, as you can never know whether the informants are being serious and honest. Also, pre-defined responses may limit the replies, it is difficult to control misunderstandings and impossible to know if the informants are aware of the things that are being asked (Hirsjärvi et al., 1998).

Sometimes the problem with studies is that the informants might answer according to what they feel they should, not how they really feel. These behavioural habits are strongly culturally dependent. As this study included participants from a number of different countries, using interviews might have caused biased results based on the countries people come from. (Hirsjärvi et al., 1998) The questionnaire also included questions regarding matters such as sexuality and alcohol use, which could have been found as difficult topics for some informants. Hence, the anonymous questionnaire causes less unease (Paunonen, & Vehviläinen-Julkunen, 2006).

As stated previously in the chapter that explains the formation of the questionnaire, the questionnaire used in the present study was formed using questions from previous studies. Some of the questions used in *Finnish Student Health Survey* were created by other researchers and were not freely accessible. Due to time limitations, those question sets were excluded from the present study and only the ones created by Kunttu et al. (2017) themselves were considered to be in this study. This, on the other hand might have limited the results yielded from this study.

Apart from the *Finnish Student Health Survey*, the questions from the study by Angelin et al. (2015) were also used which means that most of the questions included in the questionnaire were pre-used in other studies. Some of the questions were originally in Finnish and Swedish, from where they were translated to English. The English versions had never been used in the original study, though. Some questions were originally used in a Swedish study from where the researcher of the present study translated them into English. This might cause them to alter in the meaning and content.

The final questionnaire was pre-tested by a group of students studying in the same program as the researcher of this study. The other students were all accustomed to working in English, but most of them were of Finnish origin which might cause them to think similarly to the researcher, who is a Finn herself. The respondents in this study were all from other countries linguistically and culturally which might cause them to not

understand all things in the same way as Finnish people, as different terms and concepts might have different meanings in other cultures (Vehkalahti, 2014). Most questions had been pre-used in other, bigger studies and therefore were proven to be relevant and working. Yet, it is not obvious that a research instrument that has been used before and proven to be a suitable instrument for one study, is a valid and working instrument in another study (Vehkalahti, 2014). In this case the sample consisted of a group of people who were of the same age as the ones who participated in the studies by Angelin et al. (2015) and Kunttu et al. (2017). Both studies included students in higher degree, as did the present study, and further, the study by Angelin et al. (2015) examined Swedish students who participated in international student exchange, as does this study.

The questionnaire included questions that were rather personal in nature, such as sexual habits, mental problems, and alcohol use. None of the questions were mandatory, so it was possible to leave questions unanswered. This way the respondents were able to avoid questions they did not want respond to. This might cause bias as the ones experiencing problems with for example mental health could choose not to answer those questions. Also, one might ask who are the ones who decided to participate in this study. It is possible that the ones who were more eager to take care of themselves, and experience good overall well-being were the ones who are more likely to participate in a study like this.

Despite most questions in the questionnaire being closed, age was asked in an open way, meaning that the informants were asked about their age, and the response was then written below in a box. The definition *years* was written next to the box. Despite this, not all were able to fill in an answer corresponding a possible age in years. One of the respondents wrote in a four-digit figure that seemed to be a year, rather than the actual age. Also, the definition of age might be different in different countries. A closed question, with pre-defined age groups might have been a better way of asking the age (Vehkalahti, 2014).

The advantage in multiple choice questions is that the results are comparable (Hirsjärvi et al., 1998). Some questions, on the other hand, measured the respondents own perceptions of for example their health status and weight. The way the students from different countries experience such matters could have had some impact on the results. Also, as the students come from different backgrounds, they might not be familiar with for example the metric system. As the questionnaire included questions about height (in

centimetres) and weight (in kilograms) it is possible that some of the students did not know the answers to those questions or might have answered according to the units they are accustomed to. It could have been beneficial to offer the respondents the possibility to choose the units they want to use and transfer the units into metric system in the analysis phase.

It turned out in an early stage after the questionnaire had been published that it should have been more clearly explained what was meant by the term *exchange student*, as some of the responses came from students who had been studying in Finland for up to several years. All in all, more than 20 responses had to be excluded due to the fact that the respondents were international degree students, not exchange students.

Quantitative research is always limited in the amount of questions devoted to a specific topic (Yin, 2011). The questionnaire was quite lengthy, including 44 questions in total, out of which many were long ones, which could have affected some of the respondents. The on-line questionnaire had been opened without submission 468 times and 346 responses were submitted. This probably means that many possible respondents decided not to fill in the questionnaire after opening the link. The reason remains unknown.

7.2 Discussion on sample size

A weakness in quantitative research is the difficulty in collecting a sufficient range of recipients and have a sufficient response rate (Yin, 2011). Only a sufficient data can provide statistically significant results (Vilkka, 2007). As the intention of the present study was to describe the health status of a group of people exceeding 4,000, a quantitative questionnaire was found to be a suitable tool for data gathering. Finally, this study yielded 346 responses, out of which 318 were eligible for the study.

Due to the great number of Universities and UASs in Finland, the researcher presumed it would be easiest to reach all these institutions through one single connection. The Finnish National Agency for Education was contacted, their representative evaluated the research plan, and finally agreed to forward the study to all the Universities and UAS through a mailing list. This, however turned out to be an insufficient method to reach the informants, as some of the institutions still required a research permit, and it was

impossible to know which institutions decided to send the questionnaire to their students. A more reliable and effective method would have been to communicate directly with each University and UAS.

The plan was to include all exchange students who were in Finland during the academic spring term 2017. The researcher, after realizing the method of recruiting the informants, had been somewhat insufficient, tried to contact the Universities and UASs in order to gain information on how many exchange students were present during the spring term, and had therefor received the study. This turned out to be difficult, as not all institutions responded to inquiries, and furthermore, it was still impossible to know how many of the Universities and UASs actually sent the study to their students. Therefore, it is impossible to know exactly how many individuals the study reached in the end. Response rate is an important criterion when determining the validity of a study (Vehkalahti, 2014), but in this case it was impossible to calculate. The lacking information on the final sample size and response rate might have affected the reliability of the results.

The questionnaire was open for six weeks from early April to mid-May. The time of the year might have affected the response rate as some of the possible respondents had possibly already left back to their home countries and many were possibly busy with end-of-the-year activities and packing.

7.3 Data analyses and results

The data were analysed using Microsoft® Excel for Mac (version 15.27). This software was chosen due to the fact that the author had access to it easily and was familiar with it since before. Other data analysis programs, such as SPSS, would have needed excessive studying in order to be at use. The data analysis tool might have had some role in the final results presented in the study. The data were turned into tables and figures in order to visualize the results. The researcher's limited knowledge of data analysis tools and methods could have affected the final results and data interpretation. The researcher acknowledged this risk throughout the analysing process and familiarised herself with relevant literature during data analysis process in order to minimise the errors.

As none of the questions were mandatory, missing data in the form of unanswered questions was seen at points of the questionnaire. No analyses on which questions were left unanswered or due to which reasons were executed.

In some cases, the results were studied according to gender or age. As women and young adults were mostly presented in the study and the number of respondents in these groups was the highest, their results are probably most accurate. When looking at the results divided by age group, one must remember that there were only 13 (4%) informants who were younger than 20 years, and nine (3%) those who were older than 30 years. The group of people between 25 and 29 years represented less than 10% of the whole sample. When examining small groups, it is scientifically honest to present actual numbers instead of percentages because it gives a false impression (Heikkilä, 2004).

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APPENDIX 1. COVER LETTER

Dear exchange student,

You are about to participate in a study that examines the health, well-being and health habits of exchange students in Finland. This study is a part of my Master's studies in Global Health Care at Diaconia University of Applied Sciences. Such study has not been done before, whereas it is of great interest to know more about Your health. This information can be used later in order to improve the health and well-being of the ones coming after You.

The questions deal with subjects related to Your current and previous health and some behavioral aspects related to health. Some of the questions are rather personal so bear in mind that all responses will be dealt with confidentiality and no responses can or will be connected back to You. The material will be only dealt by Yours truly and only in this study.

The study takes approximately 10 minutes to complete. I hope that You can find the time to fill in this questionnaire as it is of great importance for the sake of my study. Remember that You can at any point withdraw from the study if You so wish.

Should You have any questions regarding this study, feel free to contact me on elina.huuskonen@student.diak.fi.

With gratitude,

Elina Huuskonen

Diaconia University of Applied Sciences

The questionnaire can be accessed through this link:

<https://www.webropolsurveys.com/S/0106F546F4ED74FF.par>

APPENDIX 2. THE QUESTIONNAIRE

Health and health related behaviors among international exchange students in Finland

You are about to participate in a study that examines the health, well-being and health habits of exchange students in Finland.

The questions deal with subjects related to Your health and well-being and some behavioral aspects related to health. Some of the questions are rather personal so bear in mind that all responses will be dealt with confidentiality and no responses can or will be connected back to You. The material will be only dealt by Yours truly and only in this study. The study takes approximately 10 minutes to complete. I hope that You can find the time to fill in this questionnaire as it is of great importance for the sake of my study. Remember that You can at any point withdraw from the study if You so wish

1. I have read the instructions and I voluntarily participate in this study.
 Yes

BACKGROUND

2. Age
_____ years
3. Gender
 Female
 Male
 Other
4. In which country were you born?
 United Kingdom
 France
 Germany
 Spain
 The Netherlands
 Other: _____
5. For how long have you been in Finland so far?
_____ months
6. What is the total length of your stay in Finland?
_____ months

7. In which town do you study during your exchange?
 Espoo
 Hämeenlinna
 Helsinki
 Joensuu
 Jyväskylä
 Kajaani
 Kemi
 Kokkola
 Kouvola
 Kuopio
 Lahti
 Lappeenranta
 Mikkeli
 Oulu
 Pori
 Rauma
 Rovaniemi
 Savonlinna
 Seinäjoki
 Tampere
 Tornio
 Turku
 Vaasa
 Vantaa
 Other, specify: _____

8. Where do you live while in Finland?
- In a student apartment
 - In a private apartment
 - In a hotel
 - At friends/relatives
 - Other, specify: _____

WELL-BEING

9. How would you rate your own health?

	Poor	Quite poor	Average	Quite good	Good
Physical well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mental well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Your height

_____ cm

11. Your weight

_____ kg

12. What do you think about your weight?

- Clearly underweight
- Somewhat underweight
- OK
- Somewhat overweight
- Clearly overweight

13. Is your attitude to food normal?

- No
- Yes
- I don't know

14. Under the past four weeks, have you had an anxiety attack or a sudden feeling of fear or panic?

- No
- Yes

15. With whom do you mainly spend your free time?

- Other students from your country of origin
- Other exchange students
- Finnish students
- Other Finnish people
- Other, specify:

16. While in Finland...

(You can choose multiple options.)

- ...often felt loneliness?
- ...sometimes felt loneliness?
- ...missed home often?
- ...missed home sometimes?
- ...felt that there is someone to turn to in case of problems?
- ...felt that there is no-one to turn to in case of problems?
- ...experienced none of the points mentioned above?

17. Have you had any of the following symptoms over the past month (30 days)?

	Not at all	Every now and then	Weekly	Daily or almost daily
Headache	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dizziness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tiredness/fatigue or loss of strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heart murmur, uneven heart beat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upper back or neck problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower back problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain in limbs or joints	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stomach ache, heartburn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nausea or vomiting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gas pains or feeling bloated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Constipation or diarrhea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Binge eating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Runny or blocked nose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Persistent cough or shortness of breath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Throat problems (pain, phlegm)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling a lump in the throat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voice problems, difficulty using voice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ringing in the ears (tinnitus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skin problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bleeding from the gums or other gum problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tooth problems (shooting pain, toothache)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problems with wisdom teeth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental occlusion problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problems in falling asleep, or waking up often at night	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty to concentrate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tension or nervousness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Depression or feeling low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxiety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, specify: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

HEALTH CARE SERVICES

18. Have you seen a doctor, a nurse or some other health care professional listed below while staying in Finland?

By **Municipal Health Center** we mean service provided by other than Student Health Services, such as municipal health centers or emergency rooms.

By **Other service provider** we mean for example private clinics.

	No	Once	2-5 times	More than 5 times
Nurse				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General practitioner (GP)				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist physician				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental hygienist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dentist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental specialist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social worker				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist				
Finnish Student Health Service/municipal student health clinic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Municipal Health Center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other service provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Did you fail to seek health care services despite you felt the need for that?

- No.
 Yes, I didn't know where to go.
 Yes, it felt complicated.
 Yes, I was afraid of contracting a disease.
 Yes, I didn't trust the local health care.
 Yes, other reason: _____

20. If you have used the health services in Finland, how did you experience their services?

	Fully agree	Agree to some extent	Disagree to some extent	Fully disagree
I got answers to the matters I was concerned about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was listened to and I felt that I was understood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Before coming to Finland, did you seek travel-related health advice?

No

Yes, from the university or student health facility

Yes, from a travel clinic

Yes, other:

22. What was your main source of travel information prior your trip to Finland?

Internet

Friends

Travel books

Health care professionals

Other, specify:

HEALTH BEHAVIORS

23. When buying food, do you consider its healthiness?

- Never or very seldom
- Every now and then
- Often

24. How many times a day do you walk or cycle as part of your daily activities?

(E.g. trip to and from university, hobbies, work, running errands, cleaning etc.)

- Less than 15 minutes a day.
- 15-30 minutes a day.
- 30-60 minutes a day.
- Over an hour a day.

25. How often do you engage in freetime physical activity for a minimum of half an hour so that you sweat and become at least slightly short of breath?

(E.g. jogging, cycling, gymnastics, swimming, ball games)

- Never or very seldom.
- 1-3 times a month.
- About once a week.
- 2-3 time a week.
- 4-6 times a week.
- Daily.

26. Dental care

	Less than once a day	Once a day	More than once a day
How often do you brush your teeth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you use toothpaste that contains fluorine?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. Do you use dental floss?
- Never
 - Every now and then
 - 2-3 times a week
 - Daily
28. Do you use xylitol chewing gum or other products sweetened with xylitol?
- Not at all or occasionally
 - At least once a day
29. Have you had a new sexual partner while in Finland?
- Yes
 - No
30. If you have had a new sexual partner, who was it?
(You can choose multiple options)
- Another student/person from your country of origin
 - An exchange student from another country
 - A Finn
 - A prostitute
 - I don't know
31. If you've had a new sexual partner, did you use a condom?
- Yes
 - No
 - Sometimes

TOBACCO, DRUGS AND ALCOHOL

32. How would you rate your use of various intoxicating agents? In your opinion, do you use the following intoxicating agents...

	Not at all	Moderately	Slightly too much	Much too much/I'm addicted
Tobacco products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cannabis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other drugs (narcotics)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intoxicating medicines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Do you use or have you previously used tobacco products?

	Not at all	Previously yes, but I've quit	Yes, less than once a week	Yes, weekly but not daily	Yes, daily
Do you smoke?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you use snuff (dipping/chewing tobacco)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other tobacco products, specify: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. How often do you use alcohol?
O Never (if you've never used alcohol, continue to question 44)
O About once a month or less
O 2-4 times a month
O 2-3 times a week
O 4 times a week or more often
35. When you're drinking, how many portions do you have on a typical day?
One standard portion:
One medium beer, cider, long drink = 33cl
Table wine = 12cl
Fortified wine = 8cl
Spirits, liquor = 4cl
O 1-2 portions
O 3-4 portions
O 5-6 portions
O 7-9 portions
O 10 portions or more
36. How often do you have 6 or more portions on an occasion when you are drinking?
O Never
O Less than monthly
O Monthly
O Weekly
O Daily or almost daily
37. How often, during the past year, have you found that you were not able to stop drinking once you had started?
O I can always stop
O Less than monthly
O Monthly
O Weekly
O Daily or almost daily
38. How often, during the past year, have you failed to do what you intended to do, because of drinking?
O Drinking never prevents me from doing what I've planned
O Less than monthly
O Monthly
O Weekly
O Daily or almost daily
39. How often, during the past year, have you needed a drink in the morning after a heavy drinking session?
O Never
O Less than monthly
O Monthly
O Weekly

Daily or almost daily

40. How often, during the past year, have you had a feeling of guilt or remorse after drinking?

Never

Less than monthly

Monthly

Weekly

Daily or almost daily

41. How often, during the past year, have you been unable to remember what happened the night before, because you had been drinking?

I always remember what happened

Less than monthly

Monthly

Weekly

Daily or almost daily

42. Have you or has someone else been injured as a result of your drinking?

No

Yes, but not in the past year

Yes, during the past year

43. Has a relative, friend, doctor or other person been concerned about your drinking or suggested you cut down?

No

Yes, but not in the past year

Yes, during the past year

44. Has your alcohol consumption changed while in Finland?

I use more alcohol than before

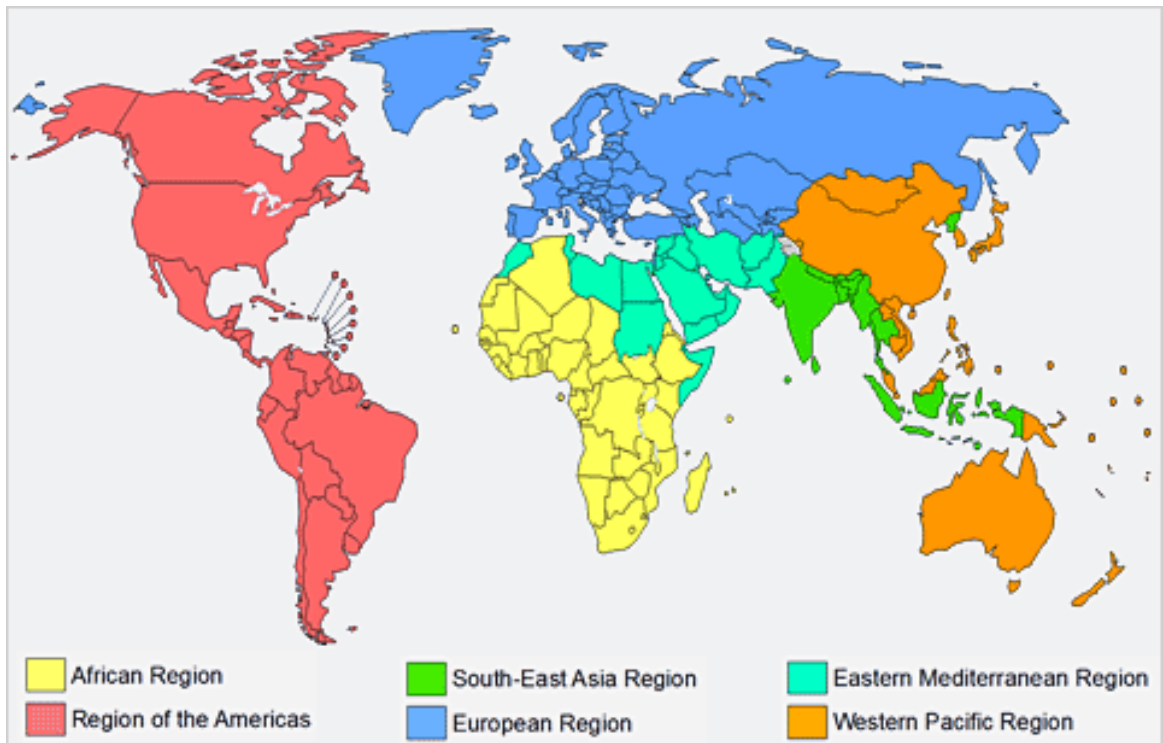
I use less alcohol than before

There is no difference

I don't drink alcohol

45. Thank you for your participation! Should you have anything to add, please feel free to write your thoughts here.

APPENDIX 3. WHO REGIONS



Map credit: WHO (n.d. [c]). WHO regional offices. Retrieved from:
<http://www.who.int/about/regions/en/>