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Forgoing Healthcare in Switzerland

Prevalence, determinants and consequences

Report 2022

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Abbreviations

BMI	Body Mass Index
CMD	Cardiometabolic disease
CVD	Cardiovascular disease
CoLaus	Cohorte Lausannoise
ESEC	European Socioeconomic Classification
FDC	Forgoing dental care
FHC	Forgoing healthcare
FSO	Federal Statistical Office
HDL	High-density lipoprotein
ISCED	International Standard Classification of Education
IHP	International Health Policy Survey
OECD	Organization for Economic Co-operation and Development
OR	Odds ratio
SHP	Swiss Household Panel
SILC	Statistics on Income and Living Conditions
SKIPOGH	Swiss Kidney Project on Genes in Hypertension

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Executive summary

Introduction

The ability to access healthcare when necessary is intrinsic to improving and maintaining good health and quality of life. In Switzerland, the mandatory health insurance law aims to ensure universal healthcare coverage for all residents. A recent systematic analysis of universal health coverage rated Switzerland among the highest worldwide in terms of non-communicable disease treatment access, namely in diagnosis and treatment of leukemia, breast, uterine, colon and rectum cancer [1]. However, the healthcare system requires individuals to pay out-of-pocket for their health insurance premium, as well as deductibles and co-pays when accessing healthcare services. This system may generate inequalities in accessing healthcare according to individuals' socioeconomic conditions—even though health insurance subsidies are available for eligible individuals [2–7]. Similarly, given that dental care is mostly excluded from the mandatory health insurance coverage, and because of their high-costs, inequalities in accessing dental care may also exist [4,7,8].

The Federal Office of Public Health (FOPH) aims to improve healthcare equity by shedding light on equity-related issues in access to and quality of the healthcare system in Switzerland. To date, few studies have examined these issues in the Swiss population, mostly using regional data. One such study found that in a representative sample of the adult population of canton Geneva for the years 2007-2010, 13.1% of participants reported having forgone healthcare for economic reasons, while the percentage varied from 3.7% among individuals with a monthly income ≥13000 CHF to 30.9% among individuals with a monthly income <3000 CHF [3]. No previous report has assessed trends in forgoing healthcare or dental care in the entire Swiss population from multiple sources with a focus on demographic, socioeconomic and health-related determinants.

To fill this gap, the FOPH commissioned the HUG to use data from several regional and national population-based surveys to examine the trends in prevalence of forgoing healthcare and dental care in the Swiss population. The way through which surveys measured forgoing health or dental care differed widely, although in most surveys it was assessed as whether the participant had renounced any type of healthcare because of cost during the previous twelve months.

We examined trends overall, as well as according to several demographic, socioeconomic and health-related indicators. We also assessed the cross-sectional and longitudinal associations of demographic, socioeconomic and health-related indicators with subsequent forgoing healthcare and dental care. Additionally, we explored the reasons for forgoing care according to demographic, socioeconomic and health-related indicators. Finally, we examined the effect of forgoing healthcare at baseline on subsequent objective and subjective health outcomes.

KEY FINDINGS

The prevalence of forgoing healthcare and dental care varied across surveys

The methodological differences in measuring forgoing healthcare and dental care across surveys prevented us from estimating a national prevalence. Because of a different definition, the prevalence of forgoing healthcare varied considerably across national surveys, ranging from 2.1% in the Statistics on Income and Living Conditions (SILC) to 20.2% in the International Health Policy Survey (IHP) in 2016.[1] Among the regional surveys, in 2015, the prevalence of forgoing healthcare ranged from 11.2% in the Swiss Kidney Project on Genes and Hypertension (SKIPOGH) to 14.3% in Bus Santé.

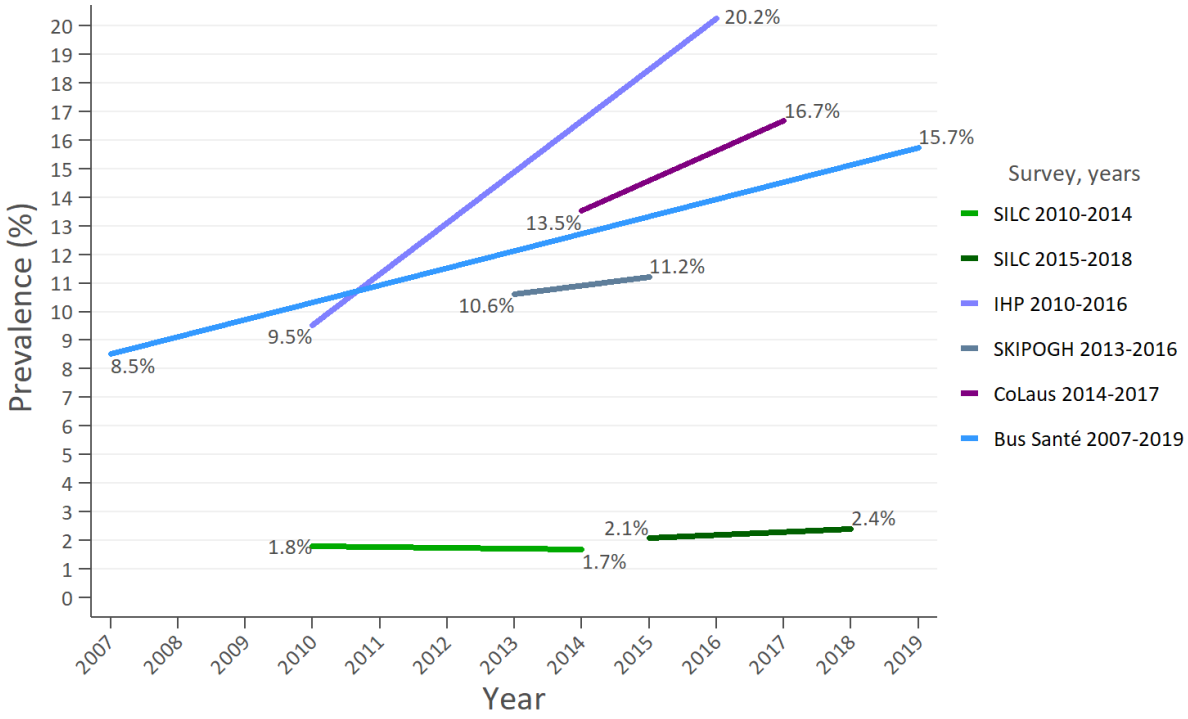
Overall, only two datasets showed a statistically significant increasing trend in prevalence of forgoing healthcare over time. In Bus Santé, the prevalence increased over a 13-year period from 8.5% in 2007 to 15.7% in 2019. In IHP, the prevalence of forgoing healthcare increased dramatically over a seven-year period, from 9.5% in 2010 to 20.2% in 2016.

Similarly, the prevalence of forgoing dental care also varied widely across surveys. In 2013, the prevalence of forgoing dental care was 2.5% in the Swiss Household Panel (SHP), 5.5% in SILC, and 9.7% in IHP. In Bus Santé, the only regional survey with available forgoing dental care data, the prevalence was 6.2% in the same year. Overall, the prevalence of forgoing dental care remained relatively stable over time in all cohorts except IHP, where it increased from 9.7% in 2013 to 21.9% in 2016.

Importantly, while we present the variation in prevalence across studies, it is not possible to properly compare this variation due to studies' methodological differences in measuring forgoing care.

[1] Due to different calculation methods, deviations from previously published data are possible

Figure 1. Trends in forgoing healthcare in Switzerland



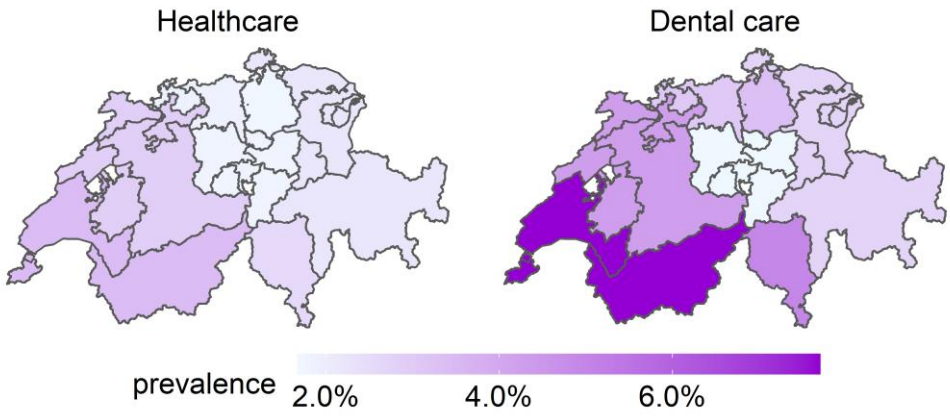
Note: Prevalence (%) are from logistic regression models, adjusted for age, sex, and (in SILC) for region. Due to different calculation methods, deviations from previously published data are possible. *This Figure is created for descriptive purposes; the definition of foregoing healthcare varies across surveys and data is not directly comparable.*

GEOGRAPHICAL OBSERVATIONS

The prevalence of forgoing healthcare and dental care was higher in the Lake Geneva region

Individuals living in the Lake Geneva region, comprising the cantons of Valais, Vaud, and Geneva, tended to have higher prevalence of forgoing healthcare and dental care than those living elsewhere.

Figure 2. Prevalence of forgoing healthcare and dental care, SILC 2018



Note: Prevalence (%) are from logistic regression models, adjusted for age, sex, and for region.

FORGOING HEALTHCARE AND DENTAL CARE: KEY OBSERVATIONS

1. Age differences: younger individuals reported forgoing healthcare more than older individuals

In general, the prevalence of forgoing healthcare was higher among younger individuals compared with older individuals. This was observed in all datasets and across time. For instance, in SILC 2018, the prevalence of forgoing healthcare was 3.2% among individuals aged 18-34 years, while it was 1.3% among those aged ≥65. In Bus Santé 2019, the prevalence was 20.5% among individuals aged 18-34 years, and 7.1% among individuals aged ≥65 years. These findings may reflect the fact that older people tend to choose health insurance plans with a lower deductible. Unfortunately, we were unable to assess this in the available data.

In most surveys, there were no major differences in prevalence of forgoing healthcare or dental care between men and women.

2. Nationality/place of birth: the prevalence of forgoing healthcare and dental care was higher among non-Swiss or foreign-born people

In general, the prevalence of forgoing healthcare was higher among non-Swiss nationals than among Swiss nationals across most years in all surveys. In SILC, highest prevalence was observed among individuals who were neither Swiss nor European Union (EU) nationals, followed by EU nationals, and the lowest prevalence was observed among Swiss nationals. The same pattern was observed for forgoing dental care. Importantly, these observations exclude asylum seekers, refugees, and undocumented immigrants who were not included in the surveys.

In IHP 2016, the prevalence of forgoing healthcare was 23.6% among foreign-born individuals, while it was 18.6% among Swiss-born individuals. The same pattern was observed for forgoing dental care.

In Bus Santé, a similar pattern of non-Swiss nationals having a higher prevalence of forgoing healthcare than Swiss nationals across all survey years was observed. In 2018-2019, the prevalence of forgoing healthcare among "other" nationals was 24.3% compared with 14.2% among Swiss nationals and 17.0% among EU nationals. The prevalence tended to increase overtime among Swiss nationals and EU nationals. The same pattern was observed for forgoing dental care.

3. Household income: the prevalence of forgoing healthcare and dental care varied widely by household income level

The prevalence of forgoing healthcare varied according to household income level in every survey and across time; a clear gradient was evident whereby individuals with monthly household incomes <5000 CHF had higher prevalence—sometimes two or three times higher—than individuals with incomes between 5000-9499 CHF, who in turn had higher prevalence than those with incomes ≥9500 CHF. Similar patterns were found for forgoing dental care.

In SILC 2018, the prevalence of forgoing healthcare was 2.7% among individuals with the lowest income level, compared with 1.7% among those with the highest income level. In Bus Santé, in 2018-2019, the prevalence of forgoing healthcare was 27.4% among individuals with incomes <5000 CHF, compared with 16.9% and 8.3% among those in the middle (5000-9499 CHF) and highest (≥9500 CHF) income levels.

FORGOING HEALTHCARE: KEY DETERMINANTS

1. Socioeconomic and demographic factors

In meta-analyses of the association between forgoing healthcare and demographic, socioeconomic and health-related indicators, most indicators were associated with forgoing healthcare. Overall, the pooled estimate found that individuals with a lower **educational level** were 51% more likely to forgo healthcare than individuals with a higher educational level.

Household income had the strongest and most consistent association with forgoing healthcare among all socioeconomic indicators. The pooled estimate revealed that individuals with lower monthly household income (<5000 CHF) were more than four times more likely to forgo healthcare than individuals with higher household income (≥9500 CHF).

As evidenced in descriptive analyses, there was also an association between **nationality/birth country** and forgoing healthcare. The pooled estimate showed that non-Swiss nationals or people born outside of Switzerland were 35% more likely to forgo healthcare. Importantly, this association remained even after controlling for household income level.

2. Cardiometabolic conditions

Having **chronic conditions** was also associated with forgoing healthcare in the meta-analyses. Individuals with **obesity** were overall 66% more likely to forgo healthcare than non-obese individuals. Similarly, compared with individuals without diabetes, individuals with **diabetes** were overall 53% more likely to forgo healthcare.

Additionally, individuals who had any **cardiovascular disease** were 55% more likely to forgo healthcare compared with those without any cardiovascular condition. This association was present in all surveys except one. There was no association with having hypertension and forgoing healthcare.

FORGOING DENTAL CARE: KEY DETERMINANTS

1. Socioeconomic and demographic factors

In general, the same pattern of associations were observed with forgoing dental care in most surveys and across survey years. For instance, the meta-analysis revealed that individuals with a lower **educational level** were 96% more likely to forgo dental care than individuals with higher educational level. Individuals with a lower **occupational position** were overall twice more likely to forgo dental care compared with individuals in a higher occupational position.

Individuals with lower **household incomes** were almost eight times more likely to forgo dental care than individuals with higher incomes. **Non-Swiss or foreign-born individuals** were 90% more likely to forgo dental care than Swiss or Swiss-born individuals.

2. Health-related factors

The meta-analyses also found that individuals with “poor/very poor” **self-rated health** were almost four times more likely to forgo dental care compared with individuals in “very good/good” self-rated health. Individuals with **obesity** were 80% more likely to forgo dental care than individuals without obesity.

Individuals with **diabetes** were 54% more likely to forgo dental care compared with individuals without diabetes. Similarly, individuals who had any **cardiovascular disease** were overall 36% more likely to forgo dental care compared with those without any cardiovascular condition.

ADDITIONAL AND GENERAL KEY OBSERVATIONS

1. The predictors of both forgoing healthcare and dental care: demographic, socioeconomic and health-related factors

In order to examine whether a specific individual factor was associated with forgoing healthcare in the future, we conducted longitudinal analyses using the SILC dataset. In meta-analyses of these longitudinal associations, even after accounting for educational level, nationality, and self-rated health, individuals with **lower household income** at baseline were overall 90% more likely to forgo healthcare than their counterparts with higher income over the course of the follow-up. **Non-Swiss nationals** were 58% more likely to forgo healthcare at follow-up than Swiss nationals, even after considering the effect of income, education, and self-rated health.

Individuals with **lower educational level** were 34% more likely to forgo dental care, and those with monthly household income levels below 5000 CHF were approximately 10 times more likely to forgo dental care at follow-up, compared with their more socioeconomically privileged counterparts. Non-Swiss nationals were 2.3 times more likely to forgo dental care than Swiss nationals, even after accounting for income and education.

2. The main reasons for forgoing healthcare : finances & wait-and-see attitude

While all surveys except SILC measured forgoing healthcare exclusively for financial reasons, SILC collected information on other reasons for forgoing healthcare. In 2018, the most frequent reasons for forgoing healthcare were wait and see if problem resolves or improves on its own (34.9%), other (21.4%), financial (20.5%), and lacking time (16.3%); while the remaining reasons were much less common.

In general, older individuals tended to forgo healthcare due to other reasons more frequently than younger individuals. At the same time, younger individuals tended to forgo healthcare more frequently due to lacking time; in 2018, for instance, 24.1% of individuals aged <50 years who reported forgoing healthcare did so because of lacking time, compared with only 6.6% of individuals aged ≥50 years.

3. Forgoing healthcare can lead to deleterious health consequences

In order to determine whether forgoing healthcare at one point has any consequences in future health outcomes, we conducted longitudinal analyses using data from the ReBus study. Adjusting for age, sex, educational level, household income, and occupational position, forgoing healthcare for economic reasons at baseline was associated with an increase in blood glucose at follow-up. This association diminished only slightly after accounting for cardiometabolic conditions and self-rated health. Forgoing healthcare at baseline was also associated with a decrease in HDL cholesterol. This association remained after accounting for cardiometabolic conditions and self-rated health at baseline.

In addition, adjusting for age, sex, and socioeconomic factors, forgoing healthcare at baseline was strongly associated with all eight SF-36 scores which assess physical, mental, and social functional and health. Individuals who reported forgoing healthcare at baseline systematically scored lower (7% to 17% average lower scores) than individuals who did not report forgoing healthcare at baseline. These associations attenuated but remained significant after accounting for self-rated health at baseline.

Strengths of the report from a research perspective

The main strengths of this report include:

- The comprehensive examination of the prevalence (and trends) of forgoing healthcare and dental care in the Swiss population.
- The inclusion of several large samples that are representative of the general resident population of Switzerland.
- The inclusion of essential information regarding demographic, socioeconomic and health-related indicators, which enabled us to conduct stratified analyses, and explore patterns of inequalities. Importantly, this also allowed us to determine whether some observed associations could be explained by household income or other factors.

- The inclusion of longitudinal data, which allowed us to assess longitudinal associations between demographic, socioeconomic and health-related indicators at baseline, and subsequent occurrence of forgoing healthcare while accounting for important demographic, socioeconomic, and health-related factors.
- Finally, we were able to assess the longitudinal association of forgoing healthcare at baseline with subsequent health outcomes using objectively measured biomarkers and extensively validated mental and physical health scores, while accounting for demographic, socioeconomic, and health-related indicators at baseline. These findings provide important novel evidence linking forgoing healthcare with subsequent detrimental effects on physical and mental health.

Limitations of the report from a research perspective

This report includes important limitations to acknowledge:

- First, although most surveys were based on random samples of the general population, asylum seekers and undocumented immigrants are not listed in resident lists and were thus not included in the surveys; these are populations that face significant barriers in accessing healthcare.
- Second, the heterogeneity in the ways surveys measured forgoing care prevented us from estimating a national prevalence in forgoing healthcare and dental care.
- Third, as in virtually all population-based studies, in Switzerland and elsewhere, despite participants being sampled randomly from the general population, socioeconomically advantaged individuals are more likely to participate in surveys. This may have led to underestimation of prevalence and strength of associations in our results.
- Fourth, the sample size presented limitations in our analyses. Although the national datasets SILC contained thousands of participants per survey year, the prevalence of forgoing healthcare was quite low due to its restrictive definition, which led to reduced statistical power in stratified analyses and multivariable regression analyses. In the regional surveys, even though the prevalence of forgoing healthcare was much higher because of a different definition, the small sample size likely lead to statistical power issues that may have resulted in undetected associations. This was particularly the case in the analyses of reasons for forgoing healthcare, as well as in the longitudinal analyses using ReBus data.
- Fifth, in SILC, participants could only report one reason for forgoing healthcare. This methodological approach, while standard practice in most surveys, introduced a limitation in the collected data, which likely provided only a partial picture of the reasons for forgoing healthcare.
- Finally, the way questions were posed in all surveys relied and assumed the participant's full understanding of the phenomenon of forgoing healthcare, and may not have been interpreted uniformly across participants, particularly given the extensively reported socioeconomic and demographic inequalities in health literacy observed in Switzerland and other countries. This may have led to an underestimation or overestimation of the prevalence of forgoing care and of the strength of associations.

LEARNINGS AND CHALLENGES

The findings in this report show that forgoing healthcare and dental care is a present and persistent phenomenon in the Swiss population. Importantly, the patterns of demographic, socioeconomic and health-related inequalities were consistently present across all national and regional surveys. These findings reflect extensive evidence from other countries that links socioeconomic disadvantage with forgoing healthcare and dental care.

In particular, our findings consistently show that individuals with lower household incomes were disproportionally more likely to forgo healthcare, as well as individuals with non-Swiss nationality/foreign country of birth, and with chronic conditions (i.e., obesity, diabetes, cardiovascular disease).

Although cantonal governmental measures exist to assist individuals and families who are unable to cover their healthcare coverage, these measures only apply under specific conditions, and vary considerably across cantons [6,9,10]. Therefore, it is likely that some individuals and families who do not meet the requirement for subsidies may in fact be in financially vulnerable situations where healthcare is deprioritized over other household expenses [11–16].

While the findings in the report highlight the need for further research to better understand the phenomenon of forgoing care, this should not distract from the fact that, as consistently demonstrated in the findings, there are inequalities in accessing healthcare for which specific solutions can already be implemented. We summarize the most important findings, their implications, and recommendations in the key messages below.

- Socioeconomically disadvantaged individuals are especially at risk of forgoing care. Knowing this, the relevant authorities and decision makers at the federal, cantonal, regional or local level should carefully evaluate individuals' socioeconomic conditions (i.e., assessing difficulty paying utility bills, food insecurity, risk of catastrophic health expenditure, etc.) and consider if appropriate expanding eligibility for existing social measures (e.g., health insurance premium subsidies, disability insurance, and social assistance). In addition, authorities on all levels could consider and explore alternative measures to overcome socioeconomically-related barriers to healthcare access.

- Non-Swiss and foreign-born individuals are significantly more likely to forgo care, even after accounting for socioeconomic factors. Further research is needed to understand the reasons behind this link, collecting and analyzing detailed information on immigration history and current status (i.e., type of residence permit), language proficiency, level of assimilation and acculturation, health literacy, and healthcare access history in country of origin.

- Individuals with a chronic condition (obesity, diabetes, cardiovascular disease) are more likely to forgo healthcare. Given the importance of chronic disease management in improving prognosis and preventing adverse health outcomes, healthcare providers should more systematically identify the work and living

conditions of their patients in order to adapt healthcare to patients' needs, increase patients' compliance as well as their continuous access to care.

- Forgoing healthcare likely leads to adverse mental and physical health outcomes in the future. Thus, it is key that public health stakeholders at both cantonal and federal levels consider strategies to enable and empower individuals to access the healthcare needed, particularly socioeconomically disadvantaged individuals, those with a migration background, as well as individuals with chronic conditions.
- Given the extensive evidence linking health literacy with socioeconomic conditions, it is likely that health literacy plays a role in forgoing healthcare in Switzerland. Efforts to increase health literacy could contribute to decreasing the prevalence of forgoing healthcare and dental care by allowing individuals to make better informed decisions on whether to seek a specific healthcare service. Interventions to increase health literacy in the population must be tailored according to the specific needs of different demographic and socioeconomic groups.
- Future research as well as national and cantonal health monitoring need to collect more detailed information about individuals' social, economic, cultural, environmental, family and work characteristics to better understand factors leading individuals to forgo healthcare.
- Future research and national and cantonal health monitoring need to better assess the indicator of forgoing healthcare and dental care as well as the reasons behind it, systematically collecting more comparable information at the individual and family/household level. This should include information about more than one occurrence of forgoing care, whether healthcare was subsequently accessed or permanently forgone, the underlying condition for which healthcare was needed, and what service/expense may have taken priority over the forgone healthcare (e.g., paying monthly rent or utility bills, food purchase, etc.).
- Improvements in work-life balance can enable individuals to have more time devoted to healthcare seeking behavior. Greater flexibility in working hours, as well as expanded provision of childcare services, may help improving healthcare access.
- Forgoing dental care remains a problem in Switzerland. To improve access to dental care, including preventive and basic dental care in the mandatory health insurance coverage should be considered, either at the federal level or at the cantonal level.

Background, purpose, and overview

Being in optimal health enables individuals to access and pursue better opportunities in life, to participate in sports, leisure, cultural and social activities, and to enjoy an overall better quality of life. At the population level, maximizing optimal health in individuals promotes and facilitates a healthy, happy, productive participating civil society, which in turn translates into better social and economic development.

Switzerland is a wealthy country that offers high-quality services in its healthcare system, and its population, in general, enjoy a high-quality of life, which is reflected in one of the highest life expectancies worldwide. Yet, several studies have found persistent, and even increasing, socioeconomic inequalities in access to healthcare [3–5,17], health outcomes [18–21], and mortality [22–25]. For instance, a recent study commissioned by the Federal Office of Public Health (FOPH) on indicators related to healthcare equity found a robust relationship between socioeconomic deprivation and potentially avoidable hospitalisations for chronic conditions that could have been treated in a community-based ambulatory setting. Financial barriers to accessing timely and adequate care were discussed as one of the main explanations [26].

To date, however, no report has systematically examined the prevalence of forgoing healthcare and dental care in the Swiss population using data from multiple surveys while also exploring trends and associations with individual and household sociodemographic and health-related factors.

To fill this important gap, the FOPH has commissioned the HUG to conduct the present research. The main objective of this report was to examine the prevalence of forgoing healthcare and dental care in the Swiss population using multiple national and regional surveys with samples that are considered representative of the population and covering several years. Further, we aimed to examine trends according to demographic, socioeconomic and health-related factors, and to assess the cross-sectional and longitudinal association of forgoing healthcare with demographic, socioeconomic and health-related indicators.

This report is structured into six chapters. Chapter 1 presents a detailed description of the surveys included in the analyses, their methodological differences in measuring forgoing healthcare, and all other variables included in the analyses, as well as a general description of statistical methods.

Chapter 2 provides an overview of the current healthcare system in Switzerland, highlighting particular gaps in coverage in terms of healthcare services as well as vulnerable population groups. Chapter 3 shows the results of the analyses of trends in prevalence of forgoing health care and dental care and the stratified analyses according to demographic, socioeconomic and health-related indicators.

Chapter 4 presents the results of the cross-sectional and longitudinal associations between forgoing care and demographic, socioeconomic and health-related indicators, and the meta-analysis pooling the different results from each survey and survey period. Chapter 5 shows the results of the analyses of reasons for forgoing healthcare and dental care.

Chapter 6 presents the results of the longitudinal analyses of the consequences of forgoing healthcare. Chapter 7 discusses the main strengths and limitations of our report overall, the methodological approaches of included studies, and our analyses. Chapter 8 provides a

discussion of policy implications and recommendations based on our main findings and drawing from the empirical literature.

Investigators of the project

Carlos de Mestral, PhD

Dr. de Mestral obtained his PhD in epidemiology from the University of Lausanne, where his research focused on socioeconomic inequalities in healthy eating and their contribution to cardiometabolic disorders socioeconomic disparities. He received a Master of Science in epidemiology from the University of Basel, and a Bachelor of Science in Human Evolutionary Biology from Harvard University. His postdoctoral research was focused on socioeconomic inequalities in diabetes, socioeconomic inequalities in eating patterns, and the COVID-19 pandemic. He has previously worked at the World Health Organization Pacific Western Regional Headquarters in Manila, Philippines, on gender, equity, and human rights in health. As an undergraduate, he was a member of Health Leads at Boston Medical Center, MA, USA, addressing patients' socioeconomic determinants of health to improve health outcomes. He is currently pursuing medical studies at the University of Lausanne.

Dusan Petrovic, PhD

Dr. Petrovic obtained his PhD in epidemiology and a Master of Science in medical biology from the University of Lausanne. Biologist by training, his research interests focus on the role of intermediate mechanisms in socioeconomic differences in health. In his doctoral dissertation, he investigated the role of health behaviors in the socioeconomic gradient in cardiometabolic disorders, as well as the role of sleep duration as another underexplored mediator. Dr. Petrovic also explored the associations between life-course socioeconomic factors and epigenomic modifications.

Kailing Marcus, MA MSc

Ms. Marcus holds a Master of Science in global health from the University of Geneva and a Bachelor's with a specialization in neuropsychology from Concordia University (Canada). From 2010 to 2015, she served as a consultant to several ministries of Foreign Affairs, designing health coverage plans in Middle East conflict zones. In 2017, she worked at the World Health Organization on socioeconomic status and health behaviors in low-and middle-income countries. She is a PhD candidate in biomedical sciences at the Institute of Global Health, focusing on healthcare access barriers and Universal Health Coverage in China.

Richard Dubos, MSc

Mr Dubos holds a Master in Applied Statistics from Oakland University (USA) and a Bachelor's in Economics from the University of Orleans, France. His master thesis was about inequalities in accessing loans in the USA, using data from the US census. Since 2014, he has worked extensively with data, statistics and visualization techniques, applied to various domains such as the health industry. After working in the insurance industry, specializing in bodily injuries, he joined in 2016 the National Institute for Cardiovascular Outcomes Research (NICOR) in London, where he was in charge of statistics for the Myocardial Ischemia National Audit Project (MINAP) for their annual report. He came to Switzerland four years ago working in the private industry before joining the UEP in November 2016.

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Professor Guessous is the head of Primary Care Medicine Division at the University Hospitals of Geneva. He holds a medical degree from the University of Lausanne and a PhD in epidemiology from Emory University, USA. Author of more than 200 peer-reviewed scientific articles, Professor Guessous is the co-founder of the Geographic Information for Research and Analysis in Population Health Group (GIRAPH, www.giraph.org), integrating spatial analysis in biomedical research and population health.

He is one of the 7 members of the Executive Committee of the Swiss Society of General Internal medicine and the President of the Health and Happiness Foundation.

Professor Silvia Stringhini, PhD

Professor Stringhini is the head of the Population Epidemiology Unit at the Primary Care Medicine Division of Geneva University Hospitals. She holds a PhD in epidemiology and public health from Université Paris-Sud, France, and University College London, UK. She also obtained a Master in global health from Trinity College Dublin, Ireland, and a Master in international economics from University Pavia, Italy. Professor Stringhini has extensive knowledge dealing with large national data from multiple countries, including Switzerland. She has authored several highly internationally influential peer-reviewed articles focusing on socioeconomic inequalities in health. She is one of the principle investigators of the Bus Santé study in Geneva, and a member of the scientific committee of the SKIPOGH study. Professor Stringhini specializes in the research of social disparities and their biological consequences in countries of all income levels.

Objectives

1. Determine feasibility of inclusion and harmonize data from the following sources:

   Bus Santé study
   ReBus study
   The Cohorte Lausannoise (CoLaus)
   The Swiss Kidney Project on Genes and Hypertension (SKIPOGH)
   International Health Policy Survey of the Commonwealth Fund Foundation (IHP)
   Statistics on Income and Living Conditions (SILC)
   Swiss Household Panel (SHP)

2. Estimate prevalence of forgoing healthcare and dental care, overall and stratifying by demographic, socioeconomic and health-related indicators.

3. Assess the cross-sectional and longitudinal association between forgoing care and demographic, socioeconomic, and health-related indicators.

4. Explore the reasons for forgoing healthcare and dental care.

5. Assess the longitudinal association between forgoing healthcare and several objective and subjective health outcomes.

CHAPTER 1 – Description of methods and data

Methods

This project took advantage of the available data from population-based observational studies conducted at the regional and national level in the Swiss population. We included three regional-level surveys: the Swiss Kidney Project on Genes and Hypertension (SKIPOGH), the Cohorte Lausannois (CoLaus), and the Bus Santé study; and three national-level surveys: the Statistics on Income and Living Conditions (SILC), the International Health Policy Survey (IHP), and the Swiss Household Panel (SHP). While these surveys differed in their sampling structure, frequency of follow-ups, and scope of data collected, they all contained information regarding forgoing healthcare and/or dental care. In consideration of such variation in inter-study characteristics, we defined the participant inclusion criteria for our analyses as having complete information on sex, age, and forgoing healthcare or dental care, and being at least 18 years of age. Table 1 provides an overview of the main characteristics of the included surveys, while Figure 3 shows the years per included survey which comprised our main analytical sample.

Description of included surveys

The Bus Santé study

The Bus Santé study is a repeated, cross-sectional population-based health examination survey conducted annually since 1993 in the canton of Geneva [18,27]. Its main aim is to measure and track cardiovascular risk factors in the general population of Geneva. Participants are invited from independent samples of the non-institutionalized resident adult population; random sampling in age and sex-specific strata matches the corresponding age and sex distribution of the general population. Until 2011, only adults aged 35-74 years were invited; thereafter, adults aged 20-74 years have been invited to participate.

Each participant received three self-administered, standardized questionnaires covering a series of risk factors for lifestyle-related chronic conditions, demographic and socioeconomic characteristics, diet, and physical activity. Each participant also received a health examination, during which a nurse measured body weight and height, and blood pressure, from which body mass index (BMI) is calculated, and collected a fasting plasma blood sample. This blood sample is used to measure glucose, total plasma cholesterol, high-density lipoprotein (HDL), and triglycerides. For a more detailed description of the study methodology, please refer to the published literature [18,27,28]. Data on forgoing healthcare and dental care were available for the years 2007 to 2019.

The ReBus study

The ReBus study was a prospective study within the main Bus Santé study. In order to assess the health consequences of forgoing healthcare, 400 previous participants who had answered the question about forgoing healthcare between 2008 and 2013 were invited for a follow-up health examination between 2014 and 2016. During this visit, participants provided a fasting plasma blood sample and completed a questionnaire about self-rated health and forgoing healthcare, using the 36-Item Short Form Survey (SF-36) [29].

The Cohorte Lausannois (CoLaus) study

The CoLaus study is a population-based, prospective annual cohort study conducted since 2003 in Lausanne [30]. Participants are randomly selected and invited from age- and sex-stratified samples drawn from non-institutionalized resident adults aged 35-74 years in the city of Lausanne. Participants filled a self-administered questionnaire prior to the health examination and a second questionnaire at the clinical visit, during which a nurse conducted clinical measurements and collected a venous blood sample. For a more detailed description of the study methodology, please refer to the published literature [20,30,31]. Information on forgoing healthcare was only collected during the second follow-up which took place between 2014 and 2017.

The Swiss Kidney Project on Genes in Hypertension (SKIPOGH)

The SKIPOGH study is a multicenter family-based population study initiated in 2009 to explore the genetic and environmental determinants of blood pressure [32]. Participants were recruited in the cantons of Bern and Geneva, and the city of Lausanne. In Geneva and Lausanne, participants were randomly invited from the Bus Santé and CoLaus samples, respectively. In Bern, participants were randomly invited from the phone directory. Participants attended a health examination, during which they provided a fasting plasma blood sample, and completed a questionnaire on health behaviors, risk factors, and demographic and socioeconomic characteristics. For a more detailed description of the study methodology, please refer to the published literature [32,33]. Data on forgoing healthcare were available from the first follow-up survey that took place between 2013 and 2017.

The International Health Policy Survey (IHP)

The IHP of the Commonwealth Fund Foundation is an annual international cross-sectional survey conducted at the national level within each country in an alternating alternatingly targeting three population groups: the residential population aged over 18 years, the older residential population aged 65 years, and the primary care doctor population [34,35]. Data collection takes place via a structured phone interview survey with each participant. Information on forgoing healthcare was available for the years 2010, 2013 and 2016, during which the sample population was the residential population aged over 18 years. To facilitate comparison and trend analysis, we chose to exclude the survey years which sampled only the older residential population and the 2011 survey which sampled the adult population with illnesses.

The Statistics on Income and Living Conditions (SILC)

SILC is an annual representative survey of households in Switzerland conducted since 2007 [36]. Participants and households are randomly selected from the Swiss Federal Office of Statistics' sample register, which in turn is based primarily on the official communal and cantonal population registers. The sampling methodology of the survey enables data collection that is both cross-sectional and longitudinal at the individual level, observed over a period of up to four years; roughly 25% of the previous year's participants take part in the following year's survey. Data collection takes place via a structured phone interview with each participant. Information on forgoing healthcare and dental care was available from the years 2010 to 2018. In 2015, the way forgoing healthcare was assessed changed, thereby preventing

any proper comparison with the preceding survey years. More information about the change in the assessment of forgoing healthcare is provided below in the presentation of variables harmonization.

The Swiss Household Panel (SHP)

SHP is a longitudinal survey conducted annually by the Swiss Federal Office of Statistics. It aims to assess social change, and to assess the evolution of living conditions and the well-being of the Swiss population [37]. Participants and households are randomly selected from the Swiss Federal Office of Statistics' population register. Participants complete three types of questionnaires, which contain yearly rotating questions arranged in modules. SHP data only contains information on forgoing dental care, for the years 2013 to 2018.

Figure 3. Included surveys and years

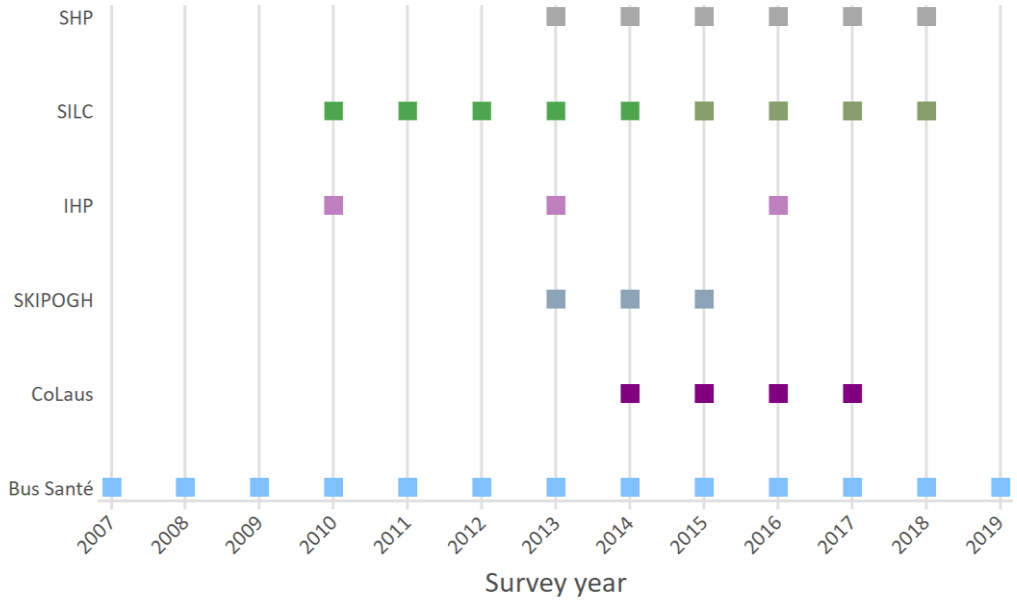


Table 1. Overview of included surveys

Survey name (area coverage)	Type of care assessed	Sample size	Dataset (years)	Data collection method	Socioeconomic indicators	Health-related outcomes and behavior
Bus Santé (Geneva)	✓ Healthcare ✓ Dental care	12 491	Repeated cross-sectional (2007-2018)	In-person interviews; biomarker assessments	Education, occupation, income	CMD[a], BMI[b], standard biomarkers[c], self-rated health, smoking, hazardous alcohol intake, low physical activity
CoLaus (Lausanne)	✓ Healthcare	4 315	Wave 3 (2014-2017)	In-person interviews; biomarker assessments	Education, occupation, income, father's occupation	CMD, BMI, standard biomarkers, self-rated health, smoking, hazardous alcohol intake
SKIPOGH (Geneva, Lausanne, Bern)	✓ Healthcare	892	Wave 2 (2013-2016)	In-person interviews; biomarker assessments	Education, occupation, income, experienced financial difficulties, father's occupation	CMD, BMI, standard biomarkers, self-rated health, smoking, hazardous alcohol intake, low physical activity
IHP (Switzerland)	✓ Healthcare	3 927	Repeated cross-sectional (2010, 2013, 2016)	Telephone survey	Education, income	CMD, BMI, self-rated health
SILC (Switzerland)	✓ Healthcare ✓ Dental care	110 857	Longitudinal (2010-2014, 2015-2018)	Telephone survey	Education, occupation, income	BMI, self-rated health
SHP (Switzerland)	✓ Dental care	37 872	Longitudinal (2013-2018)	Telephone survey, some in-person interviews	Education, occupation, income, welfare	BMI, self-rated health, smoking, physical activity

a: CMD: self-reported cardiometabolic disorders, including hypertension, diabetes, cardiovascular disease (infarction, angina pectoris) and obesity
b: Standard biomarkers, Fasting Plasma Glucose (FPG), cholesterol, triglycerides measured from blood sample collected.
c: Body mass index (BMI) calculated based on height and weight.

Variable selection and harmonization

Demographic variables

The demographic variables we included were age, sex, region of residence (available in SILC and SHP only), and nationality or country of birth. Nationality information was available in Bus Santé, CoLaus, SKIPOGH, SILC, and SHP. In the Bus Santé and SILC datasets, nationality data was categorized as "Swiss," "EU," and "other." We used these nationality categories in the trends in prevalence assessment. In the IHP dataset, the only available information was about whether participant was born in Switzerland or elsewhere, from which we dichotomized "Swiss-born" and "Foreign-born." In all datasets, to maximize statistical power for cross-sectional and longitudinal analyses, we used "Swiss/Swiss-born" versus "Non-Swiss/Foreign-born" as dichotomous variable.

We used age and sex as provided in all datasets. For trends in prevalence analyses, we categorized age into four groups: 18-34 years, 35-49 years, 50-64 years, and ≥65 years.

Socioeconomic indicators

The variables we used as markers of socioeconomic condition were monthly household income, highest education level attained, and occupational position (see Table 1). All included cohorts collected participant data on at least two of the indicators, which are among the most often measured indicators in epidemiological observational studies to portray the socioeconomic circumstances that influence a person's living conditions, behavioral choices, and ultimately physical and mental health [38,39]. In assessing the association between each of these socioeconomic indicators and different health-related behaviors and health outcomes, observational studies are able to illuminate the existence of socioeconomic inequalities in the population [23,40].

Household income

Household income is an important marker of a person and household's purchasing power, the capacity to afford goods and services in order to meet specific needs [38,39]. Income also determines the ability to pay for unexpected health expenditures without causing financial hardship [38,39].

All cohorts measured monthly household income in Swiss Francs (CHF), based on which we calculated, except in the IHP dataset, the Organization for Economic Cooperation and Development (OECD) equivalized disposable income scale (see Box 1). In IHP, household income was assessed on a 5-point scale, based on a given national average (7,800 CHF in 2010; 8,500 CHF in 2013 and 2016), 5 being "much above average" and 1 being "much below average", upon which we could not apply the income weight adjustment. In all other datasets, national data contained household composition that classified members as adults (aged ≥18 years) or children (aged <18 years), and regional datasets provided information on children aged ≤15 years. We then categorize this adjusted household income into three levels: "higher" level included incomes ≥9500 CHF; "middle" level included incomes between 5000 CHF and 9499 CHF; "lower" level included incomes below 5000 CHF.

Box 1. OECD Equivalized disposable income scale

For income to be comparable across households, we need to assume that the household income is being distributed according to the needs of family members living together. To do so, the "income" variable needs to be equivalized by applying a weight based on participants' household composition. In this study, we applied OECD's equivalized income scale using the following formula:

$$1 + 0.5 \times (number\ of\ adults - 1) + 0.3 \times number\ of\ children$$

Source : https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Equivalised_disposable_income

Educational level

An individual's years spent in schooling and learning, most often leading to a formal diploma, certificate or degree, is an important marker of the capacity to absorb and process information, and to think analytically and make informed decisions on a daily basis that have an impact of physical and mental health [38,39].

All cohorts measured the participant's highest attained education level, which we harmonized into three categories using the International Classification of Education (ISCED) [41] (see Box 2): "lower" education level included participants ranging between having no formal education to having attained a lower vocational school degree (ISCED levels 0-2); "middle" education level included participants who completed up to post-secondary vocational trainings (ISCED levels 3-5); "higher" education level included participants who attained up to post-secondary education, including specialized school and university degrees (ISCED 6-8).

Occupational position

Occupational position, determined by the type of employment, is an important marker of socioeconomic circumstances, and it is often reflects the individual educational level, and determines the income level [23,38,39]. It is also a marker of the social prestige that society assigns to different professions. In addition, occupational position often indicates the level of effort-reward balance and decision-making control that the individual has, which in turn have been extensively associated with health-related and health outcomes [42,43].

All cohorts, except IHP, collected information on the participant's occupation. We used the European Socioeconomic Classification (ESEC) to categorize occupational positions into three groups: "higher" occupational position included participants who held high managerial, supervisory positions or were higher-grade white-collar workers (ESEC class 1-3); "middle" occupational position included small employers such as farmers, and those with lower supervisory positions, such as higher-grade blue-collar workers (ESEC class 4-6); "lower" occupational position included non-skilled and skilled technical workers, lower-grade white collar workers, including those working in service, sales or cleric positions (ESEC class 7-9).

Box 2 provides an overview of the classification of educational level and occupational position

Box 2. Overview of educational level and occupational position classification

	Education (ISCED)	Occupation (ESEC)
Higher	Secondary school diploma *plus* 2-3 years of additional training University diploma	Large employer, high administrative and managerial positions, lower professional or managerial grades with supervisory functions
Middle	Secondary school diploma Apprenticeship (3-year CFC)	Small employer, self-employed, agriculturist, lower-level supervisor, technician
Lower	Attended mandatory school without obtaining diploma Mandatory school diploma Post-mandatory vocational school diploma	Lower clerical position, salesperson, skilled or unskilled manual workers

Health-related risk factors

The health-related risk factors we included were smoking and BMI, whenever available. Smoking was available from all datasets except IHP and SILC, which we dichotomized as "current" versus "non-smoker". Body Mass Index (BMI) was available in all cohorts except IHP, and was calculated based on weight (kg) and height (m) = weight / height^2, which was subsequently used to create a binary variable for obesity ("obese" if ≥30 BMI; "not obese" otherwise).

Health outcomes

We included hypertension, diabetes, self-rated health, and cardiovascular disease. Hypertension and diabetes information was available in all datasets except SILC and SHP; in IHP, participants were asked whether they had any of a set of health conditions, from which they could choose hypertension and/or diabetes. In Bus Santé, CoLaus, and SKIPOGH, the presence of hypertension and diabetes was assessed by participants declaring a previous medical diagnosis or currently taking antihypertensive or antidiabetic medications.

Cardiovascular disease information was available in all datasets except SILC and SHP. In IHP, participants could select "heart disease, including angina or heart attack," as part of the same question that measured hypertension and diabetes. In Bus Santé, CoLaus, and SKIPOGH, participants indicated whether had ever had a cardiovascular disease event or a medical diagnosis, or were currently taking any medications to treat cardiovascular disease.

We dichotomized all these health outcomes as "yes" versus "no." Additionally, all datasets contained information on self-rated health. In all datasets, participants were asked "how would you rate your current health status?" but the answer options given varied slightly across surveys. In SILC, the options from which participants could choose were "very good," "good," "fair," "poor," and "very poor." In Bus Santé, CoLaus, and SKIPOGH, participants could choose from "excellent," "very good," "good," "poor," and "very poor." In SHP, participants could choose from "very well," "well," "average," "not very well," and "not well at all." Finally, in IHP, participants could select from "excellent," "very good," "good," "fair," and "poor." Due to very low frequencies of the lowest self-rated health group in all datasets, and to maximize statistical power, we grouped the lowest two categories in all cohorts except IHP.

In addition, SILC contained information on whether the participant had "limited health that affects normal daily activities," which we dichotomized as "yes" versus "no."

Assessment of forgoing care

The way in which forgoing healthcare and/or dental care was assessed in the included surveys varied slightly across different studies, as well as across survey years within the same study. All surveys, except SILC, exclusively inquired about forgoing care due to financial reasons.

In Bus Santé, the variable derived from the question: "During the past 12 months, have you renounced certain types of healthcare because of the cost?" If participants responded "yes," a follow-up question collected specific information about the type of forgone care, as shown in Figure 4. We defined "forgoing dental care" as choosing "dental care" as the healthcare service forgone, and "forgoing healthcare" as answering "yes" to the main question.

Figure 4. Assessment of forgoing healthcare and dental care in Bus Santé

Bus Santé questionnaire 2007-2019

Question: During the past 12 months, have you renounced certain types of healthcare because of the cost?

Yes | No

↓

Follow-up question: Which healthcare type you renounced because of the cost? (Several responses possible)

Choices:

1 Surgery
2 General and internal medicine
3 Specialist (cardiology, gastroenterology, gynecology, ophthalmology, dermatology, urology, ORL, etc.)
4 Medications
5 Dental care
6 In-patient rehabilitation
7 Ambulatory rehabilitation
8 Medical devices (hearing aid, glasses, walking aid, etc.)
9 Medical center
10 At-home nursing services
11 At-home assistance
12 Other types of healthcare

Source: Bus Santé questionnaire 2007-2019.
Available from authors.

In CoLaus, the corresponding question was: "During the previous 12 months, have you forgone certain types of healthcare services due to financial difficulties?"

In SKIPOGH, the question was: "During the previous 12 months, have you, your partner/spouse, or your children renounced certain healthcare services because of financial reasons?" These two surveys included no follow-up questions, and did not assess forgoing dental care.

In IHP, forgoing healthcare was assessed by asking participants about specific healthcare types they may have forgone because of the cost, as illustrated in Figure 5. The question format and placement varied across survey years. In 2010, there was no "dental care" option. In 2013, forgoing dental care was assessed as part of a specific dental care section of the questionnaire. In 2016, dental care was assessed as part of the general healthcare questionnaire—nevertheless, we considered forgoing healthcare separately from forgoing dental care. For

each survey year, forgoing healthcare was considered as having chosen at least one of the available choices.

Figure 5. Assessment of forgoing healthcare and dental care in IHP 2010, 2013, 2016

IHP 2010	IHP 2013	IHP 2016
Question: In the past year, was there a time when you… 1 did not fill a prescription for medicine or skipped doses… 2 had a specific medical problem but did not visit a doctor… 3 skipped or did not get a medical test, treatment, or follow-up that was recommended by a doctor… … because of the cost?	**Question**: In the past year, was there a time when you… 1 had a specific medical problem but did not visit a doctor… 2 skipped or did not get a medical test, treatment, or follow-up that was recommended by a doctor… 3 did not fill a prescription for medicine or skipped doses… … because of the cost?	**Question**: In the past year, was there a time when you… 1 had a specific medical problem but did not visit a doctor… 2 skipped or did not get a medical test, treatment, or follow-up that was recommended by a doctor… 3 did not fill a prescription for medicine or skipped doses… 4 skipped dental care or dental checkups… … because of the cost?
No assessment of forgoing dental care.	Forgoing dental care assessed in *separate* dental care section.	Forgoing dental care assessed *with* forgoing healthcare.
	Question: In the past year, was there a time when you skipped dental care of dental checkups because of the cost?	

Source: 2010, 2013 and 2016 Commonwealth Fund International Health Policy Survey.
Available from: https://www.commonwealthfund.org/series/international-health-policy-surveys

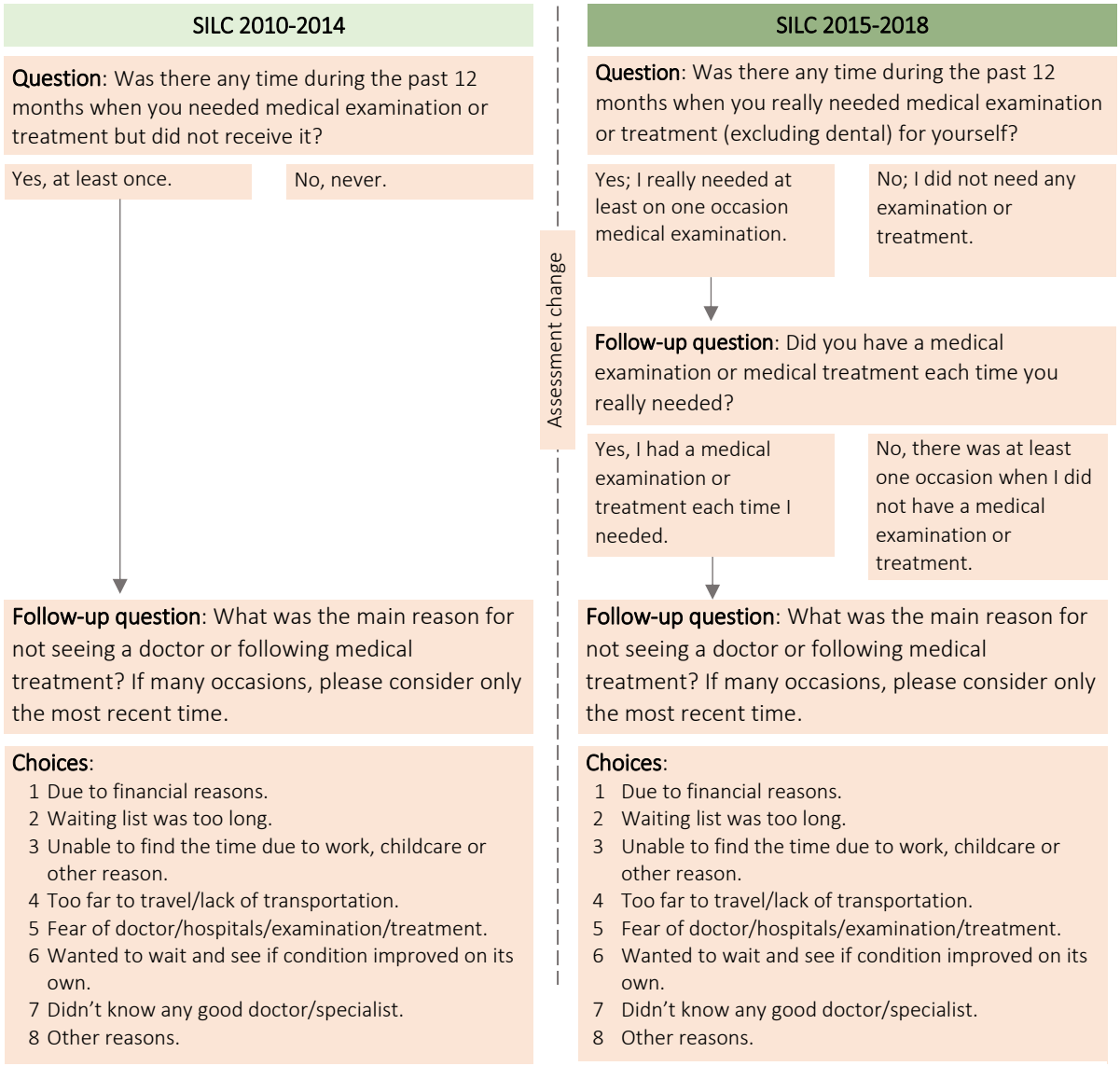
In SILC, the framing of the question that assessed forgoing healthcare and dental care changed in 2015, as illustrated in Figure 6 for forgoing healthcare—the same question format and subsequent change applied to the assessment of forgoing dental care.

From 2010 until 2014, participants reported whether they ever needed to see a doctor (or dentist) but then did not during the preceding 12 months. We considered those who answered "yes, at least once" as having forgone healthcare (or dental care). From 2015 onwards, the question changed to: *"In the past 12 months, did you ever truly need a medical examination or medical treatment?"* Participants who responded "yes" were then inquired whether they got the medical examination or followed the medical treatment that was needed. We considered those who answered "no" to this follow-up question as having forgone healthcare.

Before and after 2015, another question assessed the most recent reason for forgoing healthcare (or dental care), with participants selecting one choice from a list of eight predefined choices (Figure 6). The "other reasons" option was coded as such when participants gave an answer that was not listed as an option. Due to the change in the assessment of forgoing care from 2015 onwards, we split survey years into a 2010-2014 period and a 2015-2018 period. Forgoing care data are not comparable between these two survey periods, and were treated separately in all analyses.

In SHP, the only collected information was about forgoing dental care. Participants answered the question: “Are you or any other member of your household able to go to the dentist if needed?” Participants who responded “no” were then asked to specify if their inability to go to the dentist was due to financial reasons or for another reason. We considered those who answered “no” to former question as having forgone dental care.

Figure 6. Assessment of forgoing healthcare in SILC 2010-2014, and 2015-2018



Source: Statistics on Income and Living Conditions Questionnaires from 2007 to 2018.
Available from: https://www.bfs.admin.ch/bfs/fr/home/statistiques/situation-economique-sociale-population/enquetes/silc.html

Summary of statistical analyses

In order to meet the research objectives of this project, we used a series of statistical approaches according to each specific research question at hand and the specificities of the available data. In choosing a statistical method, we relied on the published epidemiological literature and our own knowledge and experience. The specific statistical method applied for each research question is described in its corresponding report chapter. For all statistical analyses, we considered statistical significance at a p-value <0.05, double-sized, unless specifically stated otherwise. We used Stata version 15 (Stata Corp, College Station, TX, USA) for all data compilation, data cleaning, statistical analyses, and creation of figures.

CHAPTER 2 – Health insurance and healthcare coverage in Switzerland

Health insurance legislation

Under the Swiss Federal Law on Health Insurance (LAMal)[44], health insurance is compulsory for all persons living in the country. The law dictates that all persons who reside in Switzerland must possess a health insurance plan within three months of taking up residence or being born. The law's intended purpose is to financially secure individuals in case of sickness, and in theory, to ensure healthcare access to the entire population.

While an in-depth description and analysis of the Swiss healthcare system remains outside the scope of this project,[2] a general overview of how it works enables a better understanding of the phenomenon of forgoing healthcare in the population.

Briefly, individuals choose and buy a health insurance plan from a number of federally approved not-for-profit insurance companies. Individuals enter a health insurance contract, most often on a yearly basis, that covers the basic mandatory health insurance coverage as specified by law. Insured individuals pay a premium set by the insurance company, but subject to governmental review.

Several factors determine the premium amount, including age (0-18, 19-25, or ≥26 years), geographical location, the health insurance model (e.g., Health Maintenance Organization (HMO), Family Doctor, and TelMed models), and—for adults only—the annual deductible selected by the insured person (ranging from 300 CHF to 2500 CHF) [6]. The deductible corresponds to the flat annual amount that the insured individual must pay as part of the cost of accessed healthcare services. The lower the deductible amount selected, the higher the premium, and vice versa. In addition, insured adults also pay a 10% co-pay of the costs up to a stop-loss annual amount of 700 CHF.

Importantly, premiums for the mandatory health insurance coverage are independent of an individuals' income or pre-existing health conditions. As shown in Figure 7, between 2009 and 2019, the average annual health insurance premium per person aged ≥19 years in Switzerland increased by 43.0%, from 3050 CHF to 4360 CHF [46], before taking health insurance premium subsidies. On average, Swiss residents spend 12% of their income on healthcare services [47].[3]

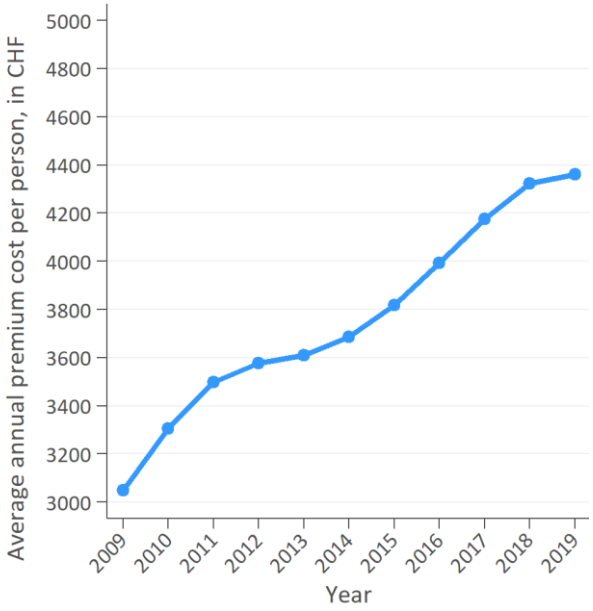
It is important to distinguish the Swiss healthcare system model of compulsory health insurance coverage from a healthcare system that guarantees universal healthcare coverage. The latter means that all persons, regardless of legal residency status and financial resources, have access to the healthcare services they need at all times and without risking financial hardship [48]. In universal healthcare coverage, individuals generally have access to a full range of essential healthcare services, from health promotion to prevention, treatment, rehabilitation, and palliative care, although the range of included services may vary country to country and setting to setting, as well as change over time [1,49].

In contrast, in the Swiss healthcare system, individuals are required by law to purchase a health insurance plan, and additionally pay a deductible and any co-payment described in the insurance plan.

[2] See Colombo 2001 [45], and Kreier & Zweifel, 2010 [6].

[3] that is before taking health insurance premium subsidies into account

Figure 7. Average annual premium cost per person*, 2009-2019



* Before taking health insurance premium subsidies into account. Source: Swiss Federal Office of Public Health. https://www.bag.admin.ch/bag/fr/home/zahlen-und-statistiken/statistiken-zur-krankenversicherung/monitoring-zur-krankenkassenkostenentwicklung.html

Furthermore, only healthcare services specified by law are covered under the mandatory health insurance plan. This excludes, among others, preventive dental care—except the treatment of certain systemic dental illnesses or diseases of the masticatory system [6,8,50]. For specific dental conditions covered by basic health insurance, please see document from the Swiss Association of Cantonal Chief Dental Officers [50]. Among European countries, dental care costs are fully covered in the health insurance schemes in Austria, Poland, and Spain, and are 76-99% covered in Belgium, Finland, Germany, Iceland, and the UK [51].

Screening tests for sexually transmitted infections (STIs) are also excluded from the basic compulsory healthcare coverage—except screening tests for the Human Papilloma Virus (HPV) among women. Across European countries, STI screening costs in Switzerland are disproportionally more expensive, and remain the main barrier preventing individuals from accessing STI testing [52].

At the same time, mandatory health insurance plans in Switzerland cover a range of services that are excluded or non-existent in other European countries with universal healthcare schemes; a recent systematic analysis of universal health coverage rated Switzerland among the highest worldwide in terms of non-communicable disease treatment access, namely in diagnosis and treatment of leukemia, breast, uterine, colon and rectum cancer [1].

In both models, individuals who wish to cover healthcare services excluded from the mandatory healthcare coverage need to take out supplementary health insurance, for which health insurance companies can lawfully deny coverage for persons with pre-existing conditions [6].

Asylum seekers, estimated to be approximately 120’000 persons in Switzerland, are subject to the mandatory health insurance coverage [53]. At cantonal and federal asylum centers, asylum seekers are provided a range of healthcare services that predominantly focus on

infectious disease prevention, as well as access to emergency medical and dental care if deemed necessary [54]. Previous studies have identified barriers to healthcare access among refugees and asylum seekers in Switzerland [54–56]. Importantly, while this population has disproportionally higher prevalence of mental disorders compared with the general Swiss population, basic health insurance did until this day not cover psychotherapy—unless provided or delegated by a psychiatrist[4]. In addition, intercultural interpretation services are not generally covered for out-patient services, which likely limits access to the necessary mental healthcare for this vulnerable population [55–58].

Undocumented immigrants, estimated to be between 50'000 and 100'000 persons in Switzerland, have limited access to healthcare services [59,60]. Previous studies have found disproportionally higher prevalence of chronic conditions and mental disorders among undocumented immigrants in Switzerland [59,61,62]. While undocumented immigrants are subject to mandatory health insurance coverage, yearly premium cost averages above 6000 CHF and thus likely remain inaccessible for most [61]. As such, undocumented immigrants in Switzerland have limited to no access to preventive healthcare, and predominantly rely on emergency medical care at a few public hospitals [17,59,61]. Consequently, access to basic health insurance, and thus access to basic health care, for undocumented migrants is not ensured in the same way in all Swiss cantons.

Government subsidies and social assistance programs

Given the need for individuals to cover the costs of health insurance premiums, deductible, and co-pays, financially disadvantaged individuals and households are inevitably susceptible to facing barriers to healthcare services, as has been extensively reported in other countries, even in countries with universal healthcare schemes [63–67]. To account for this, the Swiss Federal Law on Health Insurance dictates that cantonal governments, with the support of the federal government, must provide subsidies to cover compulsory health insurance for legal residents with limited financial resources (LAMal, art. 65) [68].

Cantonal governments are granted certain degrees of freedom in applying this requirement. As such, specific requirements for the right to receive health insurance subsidies—primarily based on an individual's income and wealth—vary considerably across cantons. Cantons also differ in the maximum subsidy amount that can be allocated and in the method the subsidy is granted (automatically, upon request, subject to deadlines, etc.).

At the same time, all cantons are required to provide at least 50% reduction in premiums of children and young adults pursuing an education in families with low and middle incomes [68]. Additional social assistance programs exist at the cantonal level, including reimbursement of healthcare expenses. Notably, dental insurance and other supplementary health insurance are excluded from most social assistance programs (outside disability insurance), with the exception of charity programs.

[4] From July 2022 the services of psychologically-trained psychotherapists will be covered by basic health insurance if prescribed by a medical doctor. See https://www.bag.admin.ch/bag/fr/home/versicherungen/krankenversicherung/krankenversicherung-leistungen-tarife/Nicht-aerztliche-Leistungen/neuregelung-der-psychologischen-psychotherapie-ab-1-juli-2022.html

CHAPTER 3 – Trends in forgoing care in Switzerland: 2007-2019

Background

A systematic search of the published literature of peer-reviewed papers and official reports was carried out (see Box 3). Using representative data for all of Switzerland (2010, 2016 and 2020 IHP surveys), an Obsan report found that the proportion of the Swiss population forgoing healthcare for financial reasons increased strongly between 2010 and 2016, then stabilizing until 2020 [69].[5]

At the regional level, two papers have used data from the Bus Santé survey to report on trends in prevalence of forgoing healthcare [3] and dental care [4], respectively, in the adult population of Geneva. The first paper found stable overall prevalence of forgoing healthcare from 2007 (13.0%) to 2010 (14.0%). The second paper also revealed stable overall prevalence of forgoing dental care from 2007 (10.6%) to 2012 (11.6%). Both papers found pronounced inequalities in forgoing care across household income levels, and an increasing trend in the prevalence of forgoing care that was limited to individuals with household income <3000 CHF [3,4].

In this chapter, we examined the trends in prevalence of forgoing care in Switzerland over a thirteen-year period from 2007 to 2019. Based on the previously published demographic, socioeconomic, and behavioral patterning of forgoing care in Switzerland and elsewhere, we assessed trends in the overall sample, as well as stratified according to region, age, sex, income, nationality, smoking behavior, and self-rated health.

[5] In addition, forgoing healthcare or dental care for financial reasons also serves as a legislation indicator to assess access to healthcare in the Swiss population. It is systematically reported by the Federal Statistical Office for the share of the population with the lowest income (1st quintile) using SILC data. The trends are increasing between 2007 and 2013, as well as between 2015 and 2019. The percentage of people who forgo medical or dental care is lower in the total population compared to the 1st quintile.

Box 3. Systematic literature search

We searched PubMed for peer-reviewed articles and Google Scholar for research reports on prevalence of forgoing healthcare and/or dental care in representative samples of the general adult Swiss population, written in English, French, or Italian.

We used the following search queries: ["forgoing" OR "renouncing" OR "renunciation"] AND ["health care" OR "health care" OR "care"].

The search yielded 52 articles and reports, of which five reported a measure of forgoing healthcare or dental care from population-based surveys in the Swiss population. All, except two, used data from the Bus Santé, SILC, and IHP surveys, and thus overlap with this project's dataset—their findings are reported in the main text.

The two other papers reported findings derived from non-representative samples of the general population. The first study recruited 2026 participants from a random sample of patients attending 47 general practitioners in the French-speaking region of Switzerland, finding that 10.7% of patients had a member of their household who had forgone healthcare during the previous 12 months (Bodenmann et al. 2014). The second study, conducted after the COVID-19 pandemic began, recruited 1167 participants from out-patients in Geneva University Hospital in Geneva, Switzerland, finding that 38.5% of patients had forgone healthcare because of the pandemic (Baggio et al. 2021).

Methods

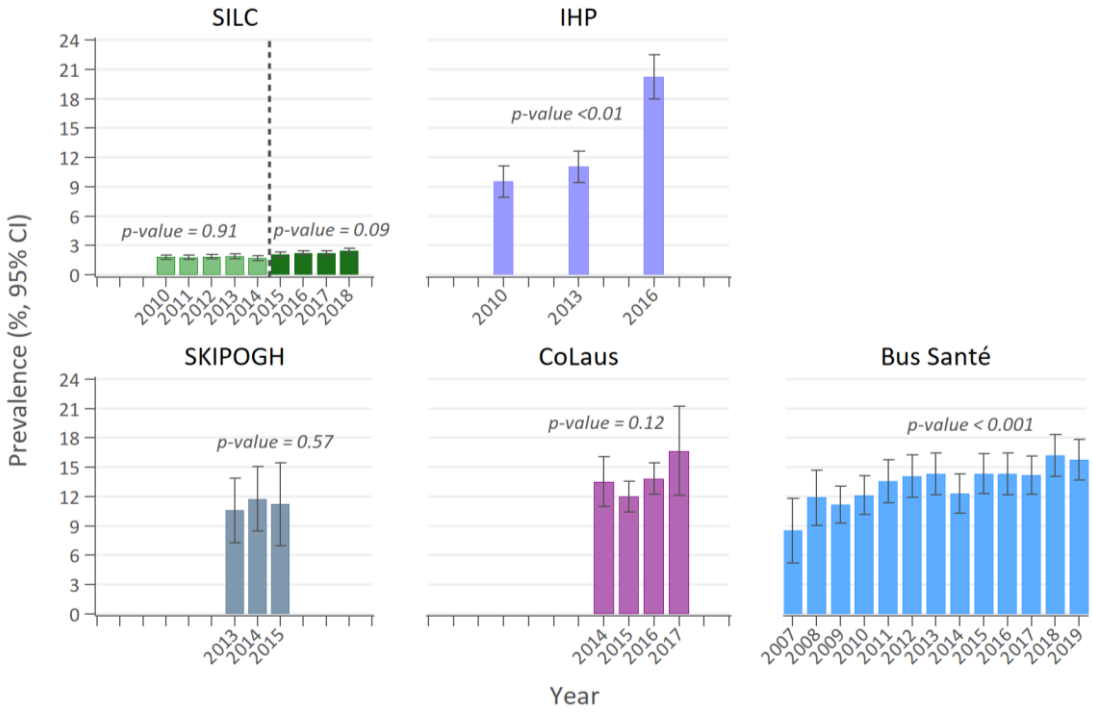
To estimate the overall prevalence (%) and 95% confidence intervals (CI) of forgoing care in each dataset, we used logistic regression, adjusting the estimates for age and sex. In SILC and SHP analyses, we further adjusted the estimates for region. Thereafter, we use "prevalence" instead of "age- and sex-adjusted" prevalence. The prevalence of forgoing care was estimated per each survey year. However, for some stratified analyses of the Bus Santé dataset, due to the small number of participants, and to maximize statistical power, we calculated prevalence per survey period (e.g., 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2019).

To assess temporal (linear and quadratic) trends in the prevalence of forgoing care, and calculate a corresponding p-value, we used orthogonal polynomials contrasts [18,70,71]. As previously described, due to the methodological change in the assessment of forgoing care in SILC from 2015 onwards, we separated the survey periods into two periods, 2010-2014 and 2015-2018, and we assessed the temporal trends separately within each period.

Prevalence and trends in forgoing healthcare

The prevalence of forgoing healthcare varied widely across surveys (Figure 7 and Supplementary table 7 in the Annex), although it is impossible to meaningfully compare absolute prevalence of forgoing healthcare across surveys given the different assessment method used in each survey. Nevertheless, temporal trends in prevalence within each survey remains possible.

Figure 7. Trends in prevalence of forgoing healthcare in Switzerland, 2007-2019



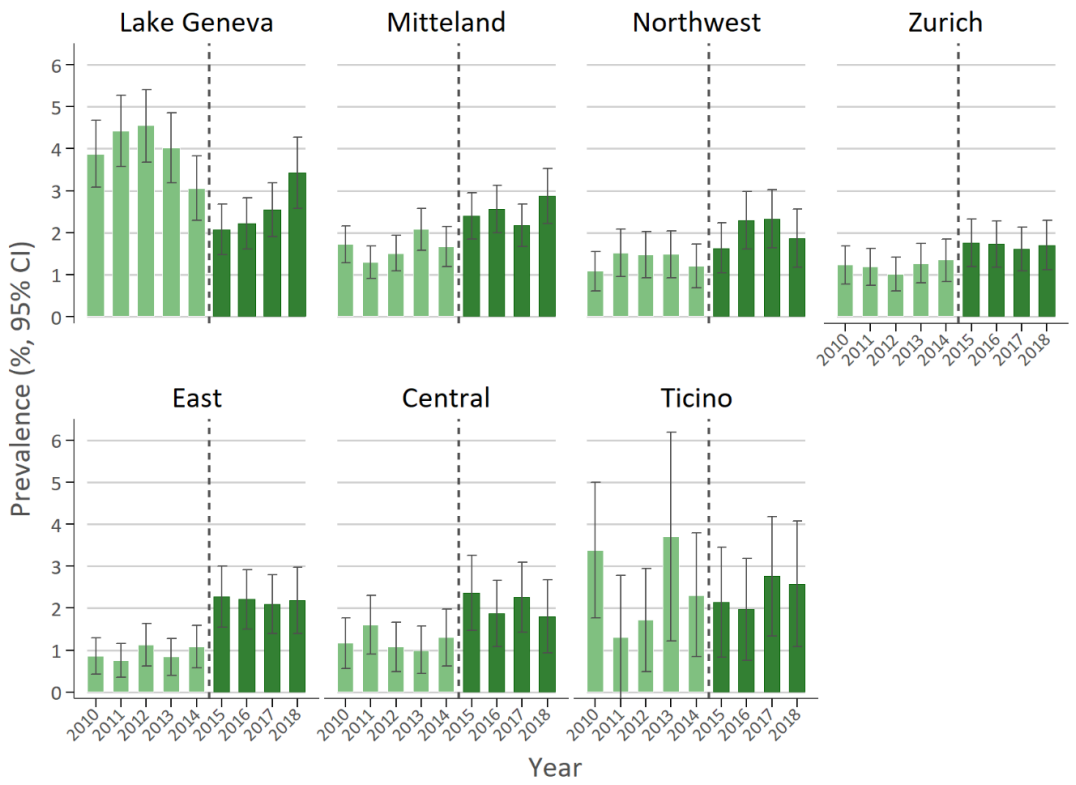
Note: Prevalence and 95% confidence interval are from logistic regression models, and adjusted for age and sex, and in SILC, additionally for region. For methodological reasons, deviations from previously published data are possible. P-values for linear trend are from orthogonal polynomial contrasts across survey years. Dashed vertical line in SILC graph represents the change in assessment of forgoing healthcare from 2015 onwards.

In 2016, the prevalence of forgoing healthcare ranged from 2.1% in SILC to 20.2% in IHP.[6] Among the regional surveys, in 2015, the prevalence of forgoing healthcare ranged from 11.2% in SKIPOGH to 14.3% in Bus Santé.

Overall, only two datasets showed an increasing trend in prevalence of forgoing healthcare over time. In the Bus Santé samples, the prevalence increased over a 13-year period from 8.5% in 2007 to 15.7% in 2019 (p-value for linear trend <0.001). In the IHP samples, the prevalence of forgoing healthcare increased dramatically over a seven-year period, from 9.5% in 2010 to 20.2% in 2016 (p-value for linear trend <0.01) (Figure 7 and Supplementary table 7). This significant increase in IHP may partially be due to the fact that forgoing healthcare was assessed together with forgoing dental care in 2016—unlike in previous years. While we separated forgoing healthcare from dental care, the way the question was presented may have influenced participants' responses.

Regional data from SILC revealed that from 2010 to 2014, the Lake Geneva region tended to have higher prevalence of forgoing healthcare compared with other Swiss regions (Figure 8 and Supplementary table 8). For instance, in 2012, the prevalence of forgoing healthcare in the Lake Geneva region was 4.6%, triple the prevalence in the Zurich and Mitteland regions (1.5%). Within each region, the prevalence remained relatively constant from 2010 to 2014 (p-value >0.10 for all regions; see Supplementary table 8).

Figure 8. Trends in prevalence of forgoing healthcare stratified by region, SILC 2010-2018



Note: Prevalence and 95% confidence interval are from logistic regression models, and adjusted for age and sex. P-values for linear trend are from orthogonal polynomial contrasts. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards. P-value >0.10 for all regions in 2010-2014 period and 2015-2018 period, except Lake Geneva, p<0.01 for 2015-2018 period.

[6] Due to different calculation methods, deviations from previously published data are possible.

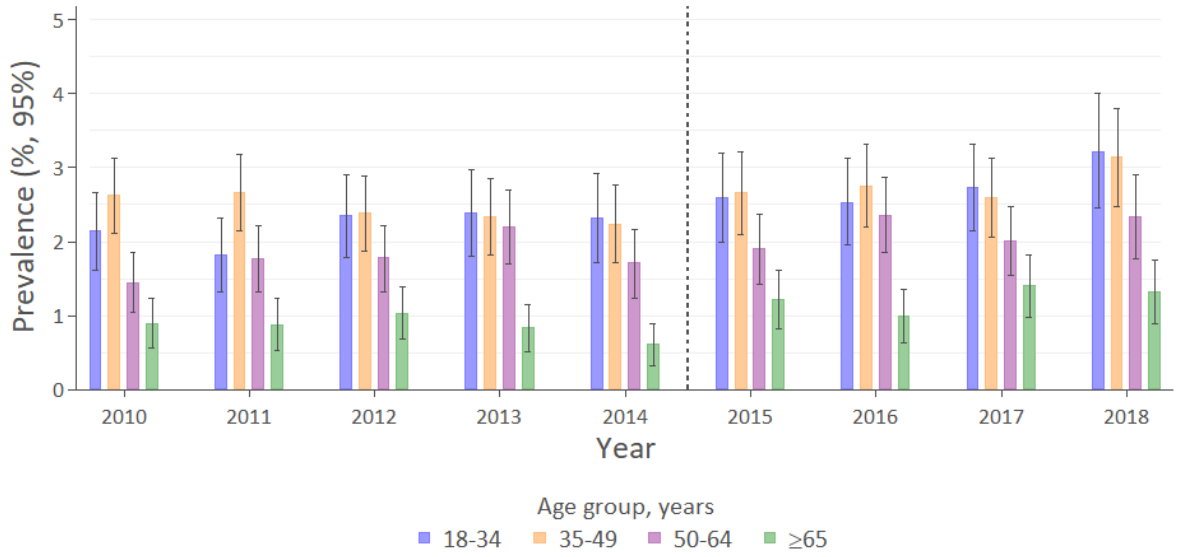
From 2015 onwards, the prevalence of forgoing healthcare was relatively similar across regions. While the prevalence in most regions showed no appreciable change from 2015 to 2018, the prevalence in the Lake Geneva region increased slightly (p-value <0.01). As such, by 2018, the prevalence of forgoing healthcare in the Lake Geneva region (3.4%) was higher than the prevalence in the Zurich (1.7%) and Northwest (1.9%) regions.

Age differences and age-stratified trends in prevalence of forgoing healthcare

Overall, the prevalence of forgoing healthcare tended to be higher in younger people in all datasets and across time (Supplementary tables 9-14, Supplementary figures 2-4). For instance, in the SILC 2018 sample, the prevalence of forgoing healthcare was 3.2% among individuals aged 18-34 years, while it was 1.3% among those aged ≥65 years (Figure 9, Supplementary table 9, Supplementary figure 1). In the Bus Santé 2019 sample, the prevalence was 20.5% among individuals aged 18-34 years, and 7.1% among individuals aged ≥65 years (Figure 10, Supplementary table 10, and Supplementary figure 2).

These findings may reflect the fact that older people tend to choose health insurance plans with a lower deductible, thereby decreasing the total out-of-pocket fees required to pay themselves before the fees are covered by the health insurance. Unfortunately, we were unable to test this assumption in the available data.

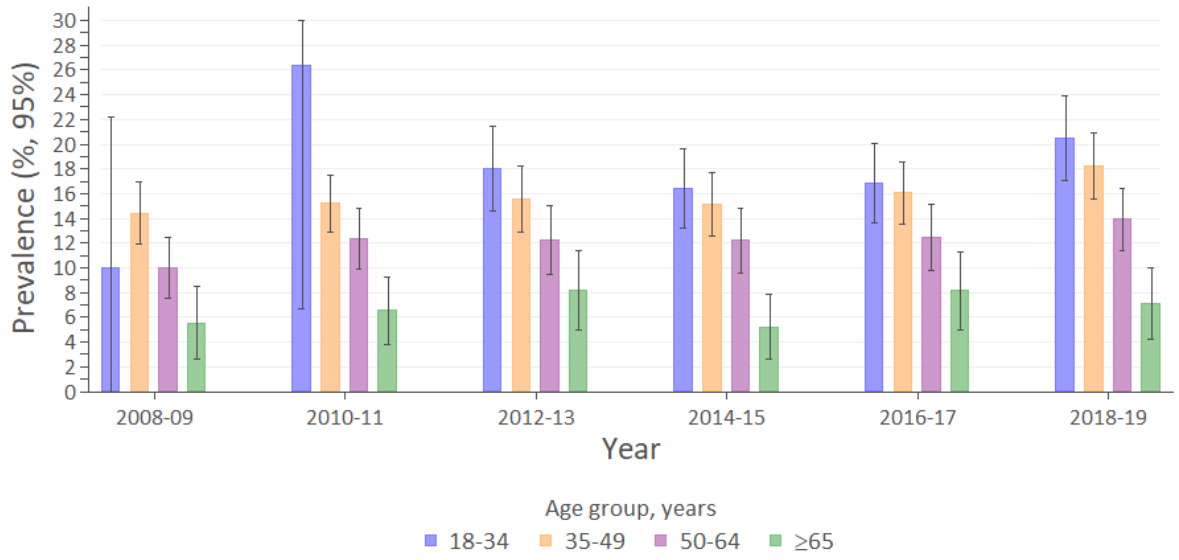
Figure 9. Trends in prevalence of forgoing healthcare stratified by age, SILC 2010-2018



Note: Prevalence and 95% confidence interval are from logistic regression models, and adjusted for age, sex and region. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

In all surveys, the prevalence of forgoing healthcare remained relatively stable over time within each age group, with two exceptions. In the Bus Santé sample, the prevalence appeared to have increased over time among individuals aged 35-49 years, from 14.4% in 2007-2009 to 18.2% in 2019 (p-value = 0.04). In the IHP samples, the prevalence of forgoing healthcare increased in all age groups (p-value <0.001), and the increase appeared to have been greater in the younger age groups (Supplementary table 11, Supplementary Figure 4).

Figure 10. Trends in prevalence of forgoing healthcare stratified by age, Bus Santé 2007-2019

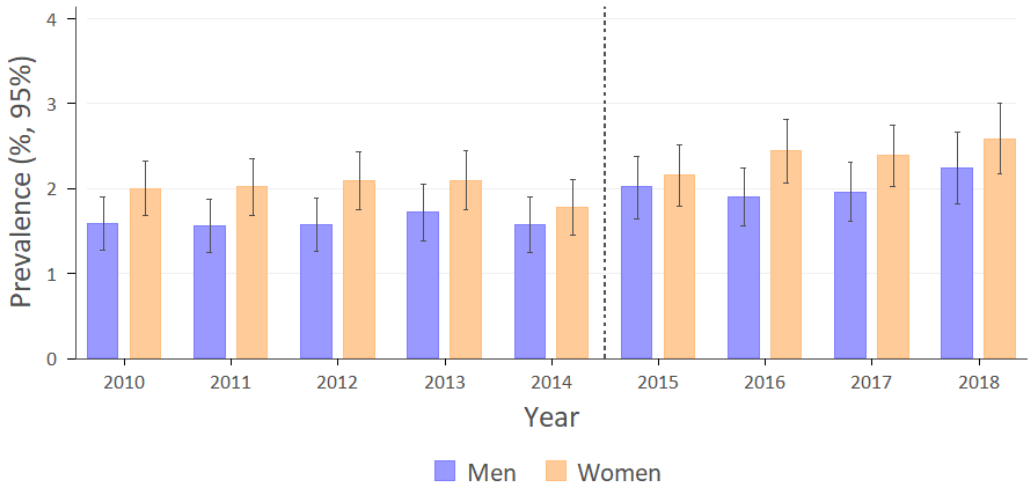


Note: Prevalence and 95% confidence interval are from logistic regression models stratified by age group, and adjusted for sex.

Sex differences and sex-stratified trends in prevalence of forgoing healthcare

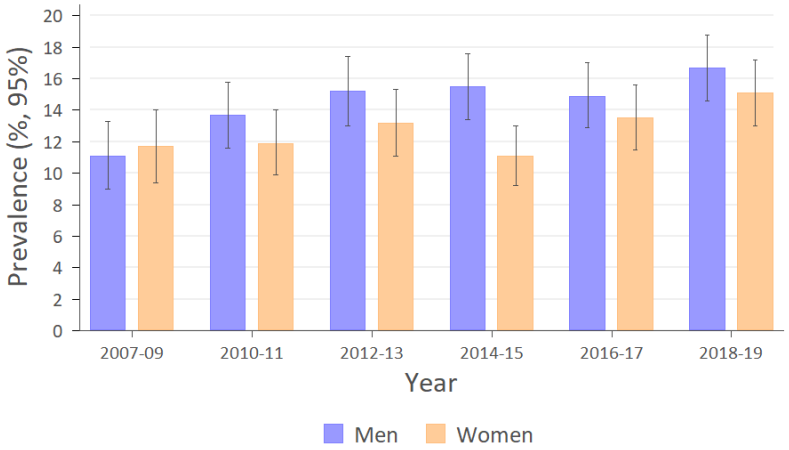
In most surveys, there were no major differences in prevalence of forgoing healthcare between men and women over time. In SILC, women tended to have higher prevalence than men (Figure 11, Supplementary table 12), while in Bus Santé, men tended to have higher prevalence than women (Figure 12, Supplementary table 13), although this difference was never statistically significant.

Figure 11. Trends in prevalence of forgoing healthcare stratified by sex, SILC 2010-2018



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by sex, and adjusted for age and region. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

Figure 12. Trends in prevalence of forgoing healthcare stratified by sex, Bus Santé 2007-2019



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by sex, and adjusted for age.

The prevalence of forgoing healthcare remained relatively constant over time among men and women in all surveys except IHP and Bus Santé. In IHP, the prevalence of forgoing healthcare increased significantly between 2013 and 2016 ($p<0.01$ for both sexes; Supplementary table 14). In Bus Santé, the prevalence among both men and women followed an upward trend between 2007 and 2019 (linear trend $p = 0.04$ and $p = 0.03$, respectively) (Figure 12, Supplementary table 13).

Nationality differences and nationality-stratified trends in prevalence of forgoing healthcare

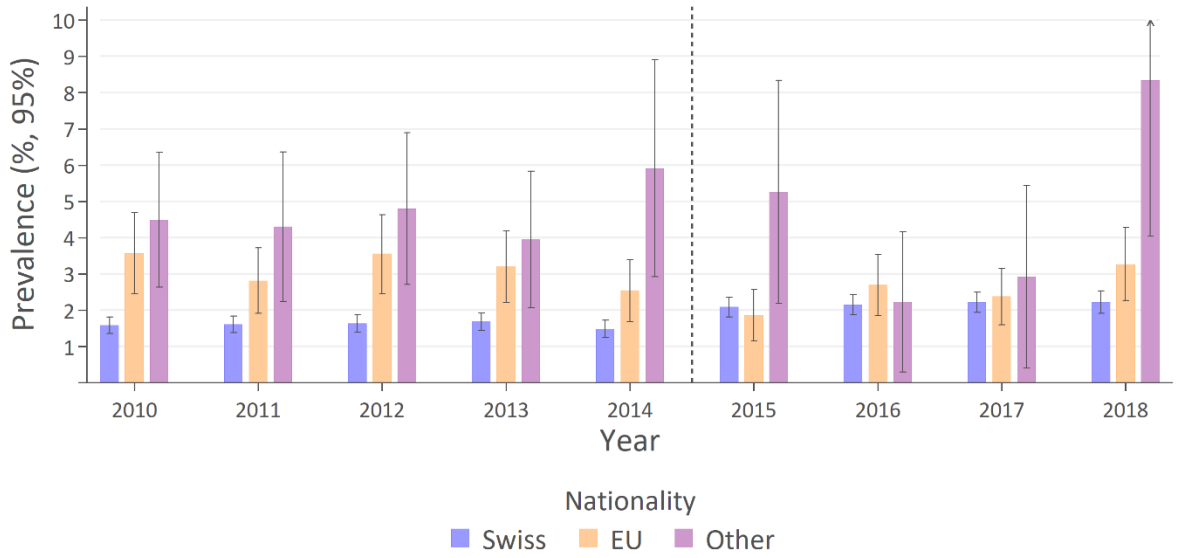
In general, the prevalence of forgoing healthcare was higher among non-Swiss nationals than among Swiss nationals across most years in all surveys (Figure 13-14, Supplementary table 15-17).

In SILC, a pattern emerged whereby the highest prevalence of forgoing healthcare was observed among individuals who were neither Swiss nor European Union (EU) nationals ("Other" in Figure 12), followed by EU nationals, and the lowest prevalence was observed among Swiss nationals. This pattern was present in both 2010-2014 and 2015-2018 periods.

In Bus Santé, a similar pattern of non-Swiss nationals having a higher prevalence of forgoing healthcare than Swiss nationals across all survey years (Figure 14; Supplementary table 16). The prevalence tended to increase overtime among Swiss nationals and EU nationals. Still, in 2018-2019, the prevalence of forgoing healthcare among "other" nationals was 24.3% compared with 14.2% among Swiss nationals and 17.0% among EU nationals.

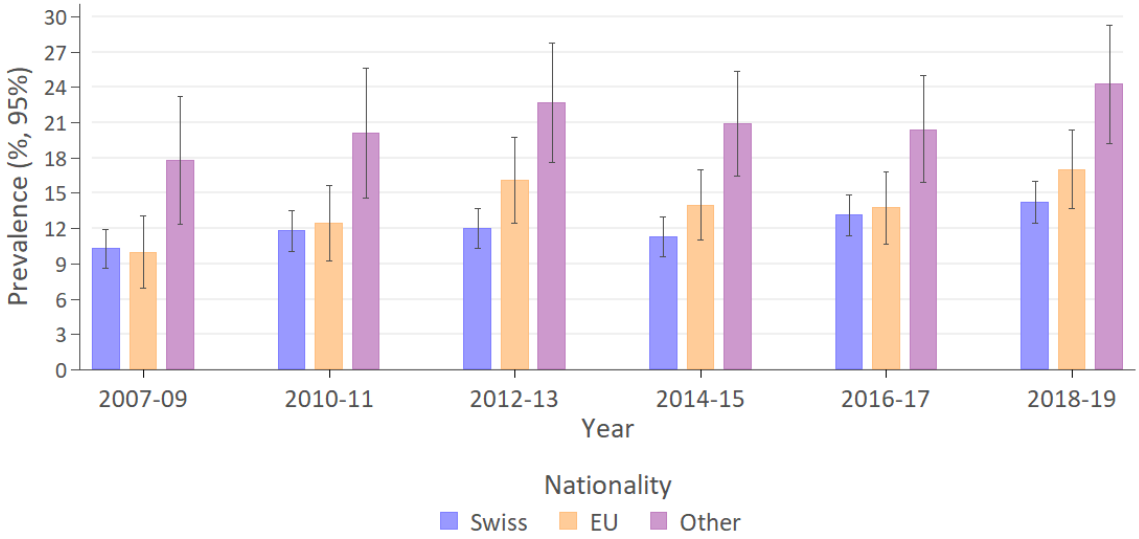
In IHP 2010, 26.2% of individuals born abroad had forgone healthcare, compared with only 9.2% of individuals born in Switzerland. However, while the prevalence of forgoing healthcare in 2016 did not significantly change among foreign-born persons, it increased significantly among Swiss-born persons to 18.6% ($p<0.01$; Supplementary table 17).

Figure 13. Trends in prevalence of forgoing healthcare stratified by nationality, SILC 2010-2018



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by nationality, and adjusted for sex, age and region. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

Figure 14. Trends in prevalence of forgoing healthcare stratified by nationality, Bus Santé 2007-2019



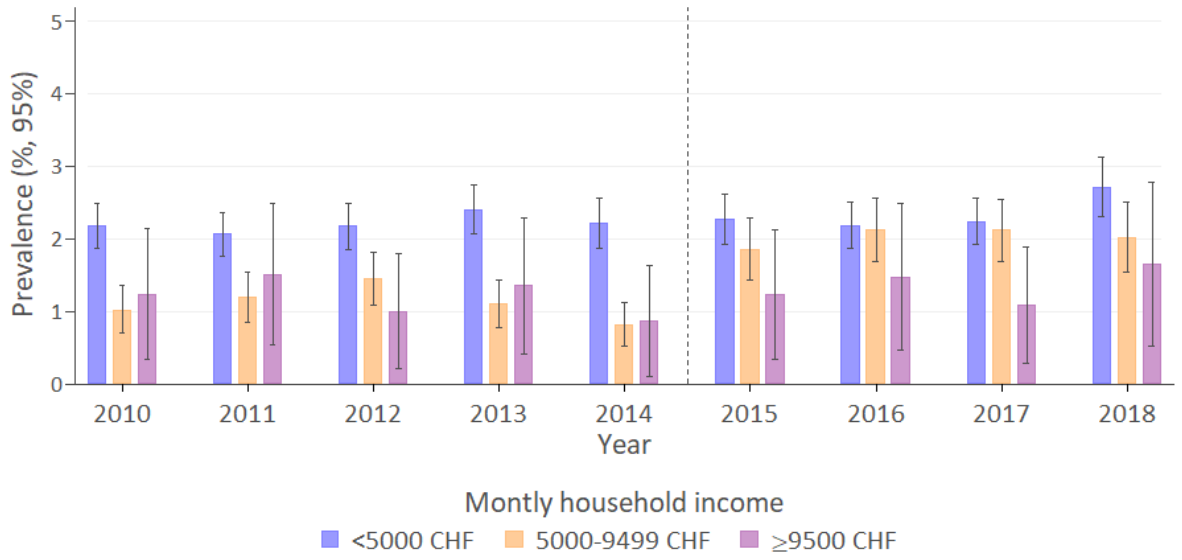
Note: Prevalence and 95% confidence interval are from logistic regression models stratified by nationality, and adjusted for sex and age.

Income differences and income-stratified trends in prevalence of forgoing healthcare

The prevalence of forgoing healthcare varied according to household income level in every survey and across time; a clear gradient was evident whereby individuals with monthly household incomes <5000 CHF had higher prevalence—sometimes two or three times higher—than individuals with incomes between 5000-9499 CHF, who in turn had higher prevalence than those with incomes ≥9500 CHF (Supplementary tables 18-20).

In SILC, the prevalence did not significantly change over time in any income group in the 2010-2014 and 2015-2018 periods. It was 2.2% among individuals with the lowest income level in 2010, compared with 1.2% among those with the highest income level (Figure 15, Supplementary table 18). In 2018, it was 2.7% among individuals with the lowest income level, compared with 1.7% among those with the highest income level.

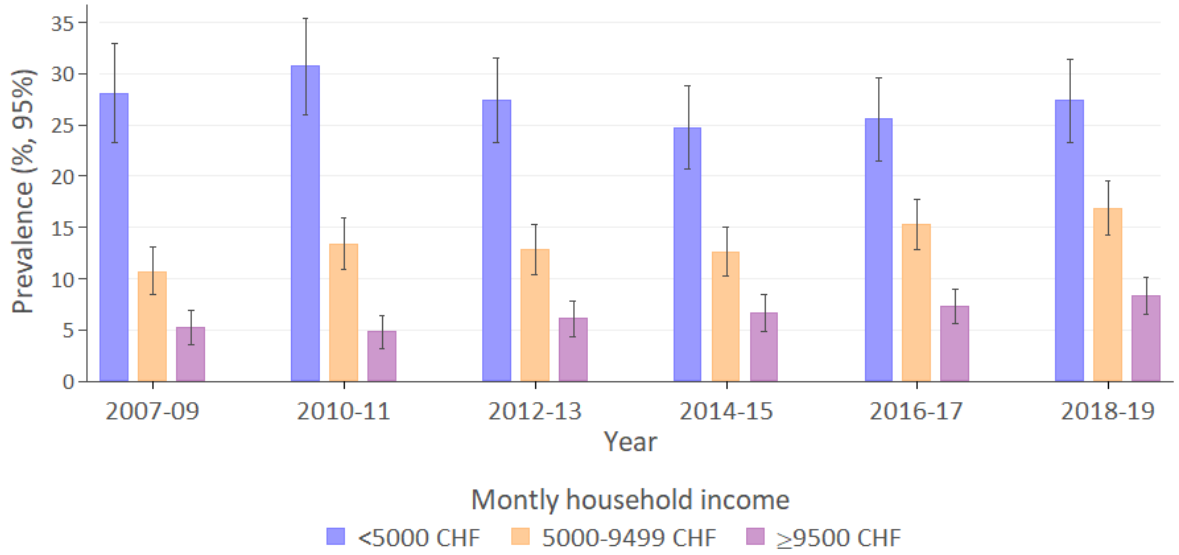
Figure 15. Trends in prevalence of forgoing healthcare stratified by income, SILC 2010-2018



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by nationality, and adjusted for sex, age and region. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

In Bus Santé, in 2007-2009, the prevalence of forgoing healthcare was 28.1% among individuals with incomes <5000 CHF, compared with 10.7% and 5.2% among those in the middle and highest income levels (Figure 16, Supplementary table 19). While the prevalence remained stable over time among individuals with the lowest income, it significantly increased among individuals in the middle and highest income groups. Despite this increase, income-related differences remained clear across all survey years, such that by 2018-2019, the lowest income group had a prevalence of 27.4%, while the middle and highest income groups had a prevalence of 16.9% and 8.3%, respectively.

Figure 16. Trends in prevalence of forgoing healthcare stratified by income, Bus Santé 2007-2019



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by nationality, and adjusted for sex and age.

In IHP, which measured income data differently than other surveys, differences were also present. In 2010, individuals with incomes that were “somewhat or much above” the average income (7800 CHF) had a prevalence of forgoing healthcare of 14.0%, compared with 8.1% among individuals who had incomes “somewhat or much above” the average. While the prevalence of forgoing healthcare remained relatively stable in the highest income group over time, it increased in the middle and lowest income groups. By 2016, a clear gradient was present, with the prevalence of forgoing healthcare being 28.4%, 17.1%, and 12.3% among the lowest, middle, and highest income groups, respectively (Supplementary table 20).

The same pattern of socioeconomic inequalities was evident with both education level and occupational position. The prevalence of forgoing healthcare tended to be higher among individuals with primary/lower secondary education compared with individuals who had attained a higher education level (Supplementary tables 21-23). Similarly, individuals with lower occupational positions tended to have higher prevalence of forgoing healthcare relative to individuals with middle or higher occupational positions (Supplementary tables 24-26).

Differences and trends in prevalence of forgoing healthcare according to self-rated health

The prevalence of forgoing healthcare differed according to self-rated health in all studies and across time; a clear gradient was present with individuals who self-rated their health as "poor" or "very poor" generally having the highest prevalence, followed by those with "fair/average" self-rated health, and the lowest prevalence among those with "very good" or "good" self-rated health (Supplementary table 27-29).

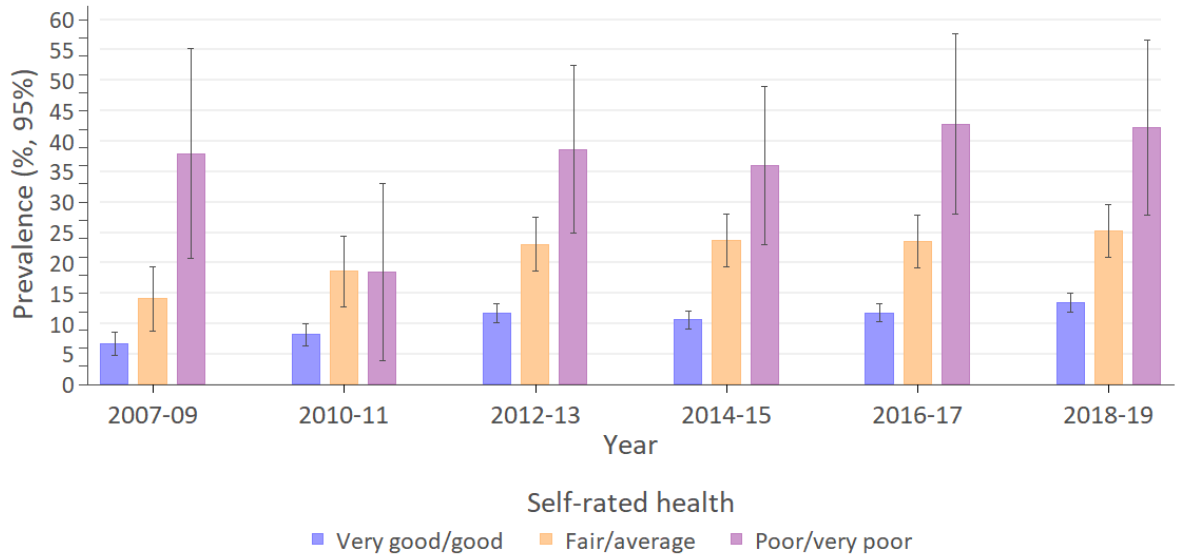
In SILC, the prevalence remained relatively unchanged over time across both 2010-2014 and 2015-2018 periods. It was 1.4% among individuals with "very good/good" self-rated health in 2010, compared with 4.8% among those with the "poor/very poor" self-rated health (Figure 17, Supplementary table 27). In 2018, it was 2.1% among individuals with "very good/good" self-rated health, while it was 5.4% among those with the "poor/very poor" self-rated health.

Figure 17. Trends in prevalence of forgoing healthcare stratified by self-rated health, SILC 2010-2018

Note: Prevalence and 95% confidence interval are from logistic regression models stratified by self-rated health, and adjusted for sex, age, and region. Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

In Bus Santé, in 2007-2009, the prevalence of forgoing healthcare was 37.9% among individuals with "poor/very poor" self-rated health, compared with 14.1% and 6.7% among those with "fair/average" and "very good/good" self-rated health (Figure 18, Supplementary table 28). While the prevalence remained stable over time in the "poor/very poor" and "fair/average" self-rated health categories, it significantly increased among individuals with "very good/good" self-rated health. Despite this increase, differences remained across all survey years, such that by 2018-2019, the "poor/very poor" self-rated health group had a prevalence of 42.2%, while the "fair/average" and "very good/good" groups had a prevalence of 25.3% and 13.5%, respectively.

Figure 18. Trends in prevalence of forgoing healthcare stratified by self-rated health, Bus Santé 2007-2019



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by self-rated health, and adjusted for sex, and age.

In IHP, differences were also present. In 2010, individuals with "very good/good" self-rated health had a prevalence of forgoing healthcare of 7.9%, compared with 17.1% among individuals with "poor/very good" self-rated health. The prevalence increased significantly in the next two surveys in all groups, and inequalities remained. By 2016, the prevalence of forgoing healthcare was 16.2% among individuals with "very good/good" self-rated health, 26.6% among individuals with "fair/average" self-rated health, and 47.2% among individuals with "poor/very poor" self-rated healthcare (Supplementary table 29).

In summary, the prevalence of forgoing healthcare has remained higher among non-Swiss nationals relative to Swiss nationals, as well as among individuals with lower household income relative to individuals with middle and higher household incomes. At the same time, two studies (Bus Santé and IHP) revealed that the prevalence of forgoing healthcare has increased among individuals with middle and higher incomes.

Comparison to the literature

A large body of empirical literature has been devoted to examining forgoing healthcare, but most have been focused on non-representative samples of the population, including patients with specific health conditions, or specific population subgroups such as homeless individuals, refuges, or immigrants. To date, a limited number of studies conducted in representative samples of the general adult population have examined trends in the prevalence of forgoing healthcare.

In European countries, almost all studies have used data from SILC [7,72–74]. For instance, one study using SILC 2009 data from 29 European countries found the prevalence of forgoing healthcare ranged from <1% in Slovenia to 16.5% in Bulgaria [7]—though no trends were assessed in this study. Trends were assessed in another study, using SILC data from 2008 to 2013 from 30 European countries [74]. Similarly to the previous report, this study found wide

variation in the prevalence of forgoing healthcare across countries. In addition, this study found that the prevalence of forgoing healthcare increased in most countries between 2008 and 2013. This study, however, did not report the prevalence of forgoing healthcare overall in the sample, but instead among the 'disadvantaged' and 'other' populations. In addition, no adjustments were made for age, sex, and within country regional variation.

A study using SILC data from 2004 to 2015 from Italy found that the prevalence of forgoing healthcare increased slightly from 6.6% in 2004 to 7.4% in 2015 in the general population [75]. Similarly to our findings in the SILC dataset, the prevalence of forgoing healthcare remained relatively stable across time. Also similarly to our findings using SILC data, this study found that across most years, the prevalence of forgoing healthcare was slightly higher among women, among individuals with lower income, with lower educational level, with non-Italian citizenship, with a chronic condition, with 'poor' self-rated health. In addition, the study found wide variations in prevalence of forgoing healthcare across Italian regions. However, differently from our findings in all datasets, this study found that the prevalence of forgoing healthcare increased in older age groups.

A study in Greece that used nationwide representative data found that the prevalence of forgoing healthcare increased from 10.0% in 2010 to 21.9% in 2015 [76]. This study, however, did not report on trends stratified by other demographic, socioeconomic and health-related indicators.

In the United States, a study found that the prevalence of forgoing healthcare (specifically for physician services) in the adult population increased from 11.4% in 1998 to 15.7% in 2017 [11]. In South Korea, the prevalence of forgoing healthcare in the general adult population was found to relatively stable at around 25% between 2007 and 2016 [77,78].

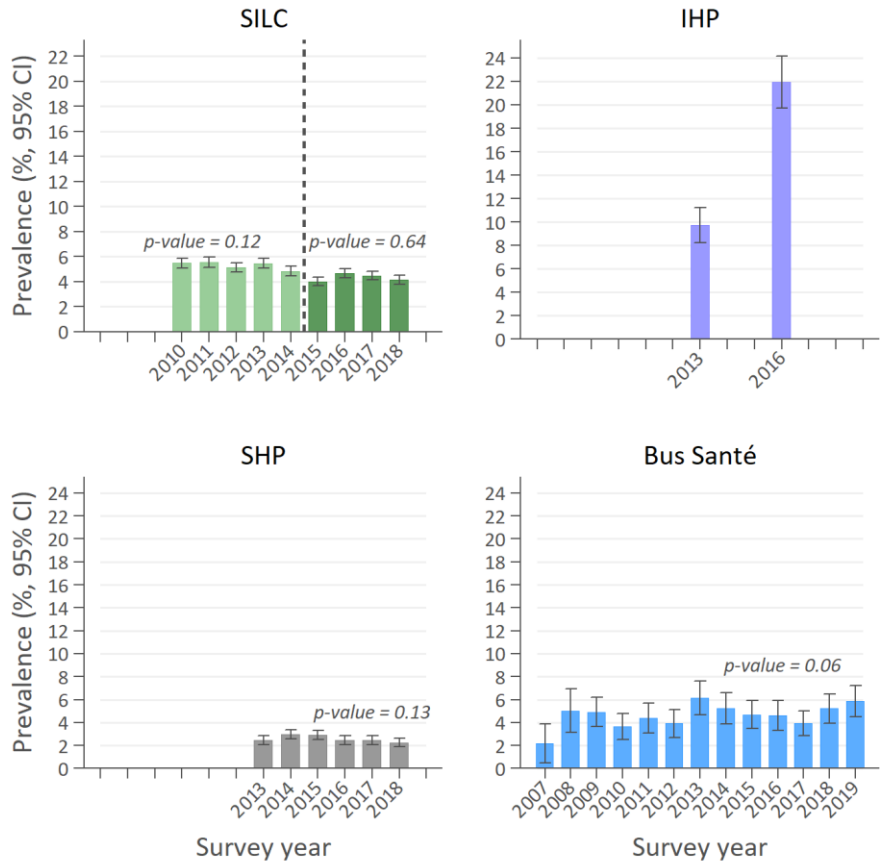
Prevalence and trends in forgoing dental care

The prevalence of forgoing dental care also varied across surveys (Figure 19 and Supplementary table 30), although a meaningful comparison of absolute prevalence across surveys remains impossible due to the different ways by which forgoing care was assessed (see Methods).

In 2013, the prevalence of forgoing dental care was 2.5% in SHP, 5.5% in SILC, and 9.7% in IHP.[7] In Bus Santé, the only regional survey with available forgoing dental care data, the prevalence was 6.2% in the same year.

Overall, the prevalence of forgoing dental care remained relatively stable over time in all cohorts except IHP, where it increased from 9.7% in 2013 to 21.9% in 2016. This may partially be due to the fact that forgoing dental care was assessed as part of the general forgoing healthcare question in 2016, while in 2013, it was assessed in a different section (see Figure 5, Chapter 1). In general, the trends in prevalence of forgoing dental care was similar to those of forgoing healthcare when stratified by demographic, socioeconomic and self-rated health indicators.

Figure 19. Trends in prevalence of forgoing dental care



Note: Prevalence and 95% confidence interval are from logistic regression models stratified by self-rated health, and adjusted for sex, and age. For methodological reasons, deviations from previously published data are possible. In SILC, Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

[7] Due to different calculation methods, deviations from previously published data are possible.

Regional data from SILC revealed that from 2010 to 2014, the Lake Geneva region and Ticino had higher prevalence of forgoing dental care compared with other Swiss regions (Supplementary table 31). For instance, in 2013, the prevalence in the Lake Geneva and Ticino regions was 8.9%, almost triple the prevalence in the Central region (3.1%).

Within each region, the prevalence remained relatively stable from 2010 to 2014, except for the Central region, where it decreased from 4.3% in 2010 to 2.4% in 2014 (p-value <0.001).

From 2015 onwards, the prevalence of forgoing dental care remained stable in most regions. The prevalence in the Lake Geneva region increased from 5.4% in 2015 to 7.7% in 2018 (p-value = 0.01). The prevalence in the Central region decreased from 3.7% in 2015 to 1.7% in 2017 (p-value <0.01). By 2018, the prevalence of forgoing dental care in the Lake Geneva region (7.7%) was higher than every other region except Ticino (4.9%) (Supplementary table 31).

The prevalence of forgoing dental care was higher among younger individuals than among older individuals in all studies and over time, except in SHP (Supplemental table 32-34). In 2018, for instance, the prevalence was 4.5% among individuals aged 18-34 years, but only 2.2% among individuals aged 65 years or older in SILC (Supplemental table 32). In IHP 2016, the prevalence was 23.9% among individuals aged 18-34 years, more than double the 9.8% prevalence observed among individuals aged ≥65 years (Supplemental table 34). In SHP, no clear differences were observed in the prevalence of forgoing dental care across age groups (Supplemental table 34).

The prevalence of forgoing dental care was similar between men and women in every study and remained stable across time (Supplementary table 35-37). As observed with the prevalence of forgoing healthcare, the only exception was in IHP, where the prevalence increased sharply between 2013 and 2016 (Supplementary table 37).

The prevalence of forgoing dental care varied by nationality or birth country in all studies except SHP (Supplementary table 38-40). In general, Swiss nationals had lower prevalence of forgoing dental care than non-Swiss nationals; in SILC 2018, for instance, the prevalence was 3.9% among Swiss nationals, 5.8% among EU nationals, and 8.1% among “other” nationals (Supplementary table 38).

In Bus Santé, the same pattern was generally present, although not for every survey period; in 2018-2019, Swiss nationals had a prevalence of 5.1%, while “other” nationals had a prevalence of 8.9% (Supplementary table 39). In SHP, there were no differences in prevalence between Swiss and non-Swiss nationals. In IHP, individuals born in Switzerland had approximately half the prevalence observed among individuals born outside Switzerland; for instance, in 2018, Swiss-born individuals had a prevalence of 17.6% while foreign-born individuals had a prevalence of 33.7% (Supplementary table 40).

The prevalence of forgoing dental care differed by income level, educational level, and occupational position, reflecting the same patterns observed with the prevalence of forgoing healthcare (Supplementary table 41-49). Within each socioeconomic group, the prevalence generally remained stable over time, except in IHP where the prevalence increased significantly between 2013 and 2016 in all groups (Supplementary table 40, 43, 46).

The prevalence of forgoing dental care varied significantly by self-rated health in all studies, while the prevalence remained stable within groups over time—except in IHP (Supplementary

table 50-52). In SILC, the prevalence in 2018 was 3.5% among individuals with “very good/good” self-rated health, while it was 11.9% among individuals with “poor/very poor” self-rated health” (Supplementary table 50). For the same year, the prevalence in SHP was 1.8% in the “very good/good” self-rated health group and 11.3% in the “poor/very poor” self-rated health group (Supplementary table 52). In Bus Santé, the prevalence tended to be higher in the “fair/average” self-rated health group (Supplementary table 51).

Comparison to the literature

To date, few studies have examined trends in the prevalence of forgoing dental care in representative samples of the general population. Most of the existing empirical literature focuses on children and adolescents.

A study from Spain found that the prevalence of forgoing dental care increased slightly from 6.2% in 2007 to 7.2% in 2011 among adults aged <65 years. Reflecting our findings, this study found that forgoing dental care was associated with socioeconomic indicators [79].

A study in the United States found that the proportion of individuals needing dental care and using it remained relatively stable across years between 1997 and 2007 [80], but there were marked socioeconomic inequalities that seemed to widen over time.

A study from South Korea found that between 2006 and 2019, the prevalence of forgoing dental care was relatively stable at 35%, but with wide differences across income levels [81,82], similar to our findings across all surveys.

CHAPTER 4 — Demographic, socioeconomic and health-related indicators associated with forgoing healthcare in Switzerland

Background

In the previous chapter, we showed the age- and sex-adjusted prevalence of forgoing healthcare in the five included datasets. Although the data showed no differences between men and women, it revealed differences in the prevalence of forgoing healthcare according to age, nationality or country of birth, household income level, education level, and occupational position, as well as by self-rated health.

In this chapter, we assessed the association between each of these demographic and socioeconomic indicators and the likelihood of forgoing healthcare and—separately—dental care. We additionally examined the association between health-related indicators (obesity, hypertension, diabetes, cardiovascular disease, and self-rated health, whenever available from each dataset) and the likelihood of forgoing healthcare and—separately—dental care.

We assessed these associations both cross-sectionally in all cohorts, and longitudinally using the SILC dataset and additionally, for dental care only, using the SHP dataset.

Methods

Meta-analysis of cross-sectional associations

To assess the association of demographic, socioeconomic and health-related indicators with forgoing healthcare or dental care, we estimated the odds ratios (OR) and 95% confidence intervals (CI) using logistic regression models, adjusting the estimates for age and sex in all datasets—and additionally for region in SILC and SHP.

To maximize statistical power, we clustered survey years into periods in the Bus Santé, SHP, and SILC datasets; we grouped all survey years together for SKIPOGH and CoLaus, and thus adjusted all estimates for survey year in these datasets. Each association was assessed separately in each dataset.

Subsequently, we conducted a meta-analysis of the separate estimates, and calculated an overall pooled estimate. For this, we used a random-effects inverse-variance model in order to account for both within-study and between-study variance, as recommended [83]. This method uses the DerSimonian estimate of tau, and calculates the I^2 statistic, which can be interpreted as the percentage of variation across studies that is due to heterogeneity rather than chance [84,85]. Results are presented in forest plots.

Meta-analysis of longitudinal associations

To determine new cases of forgoing healthcare and dental care, we focused only on participants who answered “no” to forgoing care at baseline years. To assess the association of demographic, socioeconomic and health-related indicators at baseline with forgoing care at follow-up, we used logistic regression models to calculate odds ratios and 95% confidence intervals. In the first model, the estimates were adjusted for age, sex, and region. In the second model, the estimates were additionally adjusted for income, education, and occupation. In the third model, the estimates were additionally adjusted for self-rated health.

Subsequently, we again conducted a meta-analysis of the separate estimates, and calculated an overall pooled estimate. For this, we used a random-effects inverse-variance model in order to account for both within-study and between-study variance, as recommended [83]. This method uses the DerSimonian estimate of tau, and calculates the I^2 statistic, which can be interpreted as the percentage of variation across studies that is due to heterogeneity rather than chance [84,85]. Results are presented in forest plots.

Cross-sectional associations with forgoing healthcare

Forgoing healthcare is associated with demographic and socioeconomic indicators

In cross-sectional analyses, all demographic and socioeconomic indicators were generally associated with forgoing healthcare (Figure 20).

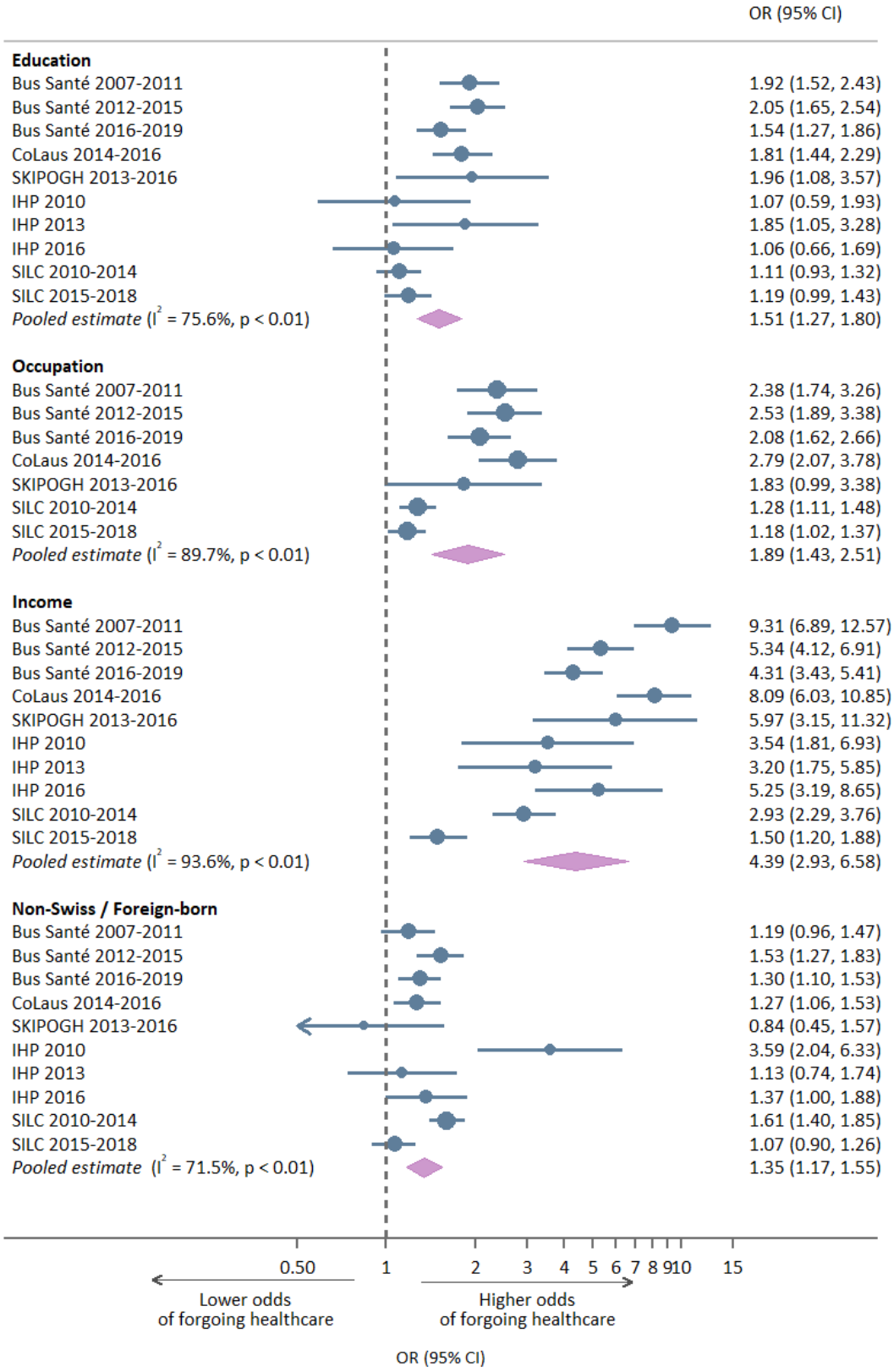
Overall, the pooled estimate found that individuals with a lower educational level were 51% more likely to forgo healthcare than individuals with a higher educational level. This association was strongest in the regional surveys Bus Santé, CoLaus, and SKIPOGH, and weaker or absent in IHP and SILC.

Similarly, the pooled estimate showed that individuals with a lower occupational position were 89% more likely to forgo healthcare than individuals in a higher occupational position. This association was present in all regional and national surveys, although it was stronger in the regional surveys. For instance, in the regional surveys, individuals with a lower occupational position were approximately two times more likely to forgo healthcare. In SILC, however, individuals with a lower occupational position were between 18% and 28% more likely to forgo healthcare than their more privileged counterparts.

Household income had the strongest and most consistent association with forgoing healthcare among all socioeconomic indicators. The pooled estimate revealed that individuals with lower household income were more than four times more likely to forgo healthcare than individuals with higher household income. This association was again generally stronger in regional surveys than in national surveys. For instance, in Bus Santé for the 2016-2019 period, the strength of the association was almost three times higher than that found in SILC for the 2015-2018 period.

There was also an association between nationality/birth country and forgoing healthcare. The pooled estimate showed that non-Swiss nationals or born outside of Switzerland were 35% more likely to forgo healthcare. This association was not present in SKIPOGH and in SILC for the 2015-2018 period.

Figure 20. Associations of demographic and socioeconomic indicators with forgoing healthcare



Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the lower socioeconomic group relative to the highest group (e.g. lower educational level relative to higher educational level).

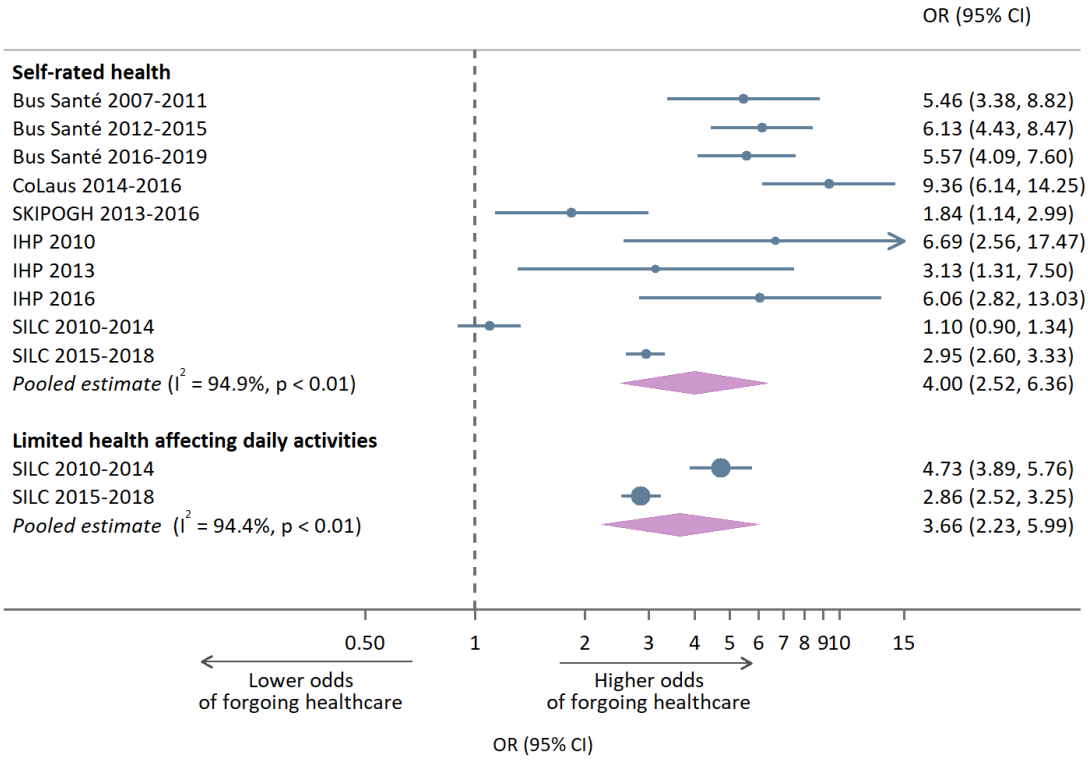
To further explore this association between nationality/birth country and forgoing healthcare, we additionally adjusted the estimates for household income, separately for each survey and period, and reran the meta-analysis (Supplementary figure 7). This approach showed that while household income attenuated the association between nationality/birth country and forgoing healthcare by approximately 30%, the association remained: non-Swiss/foreign-born individuals were still 28% more likely to forgo healthcare. This indicates that inequalities in forgoing healthcare between Swiss and non-Swiss nationals (and between Switzerland-born and foreign-born individuals) can only partially be explained by household income differences.

Forgoing healthcare is associated with several health-related indicators

Overall, the pooled estimate in the meta-analysis revealed that individuals with "poor/very poor" self-rated health were four times more likely to forgo healthcare than individuals with "very good/good" self-rated health (Figure 12). This association was present in all studies and periods except one. Estimates (odd ratios) varied widely across studies, ranging from 1.84 in SKIPOGH to 9.36 in Bus Santé for the 2016-2019 period.

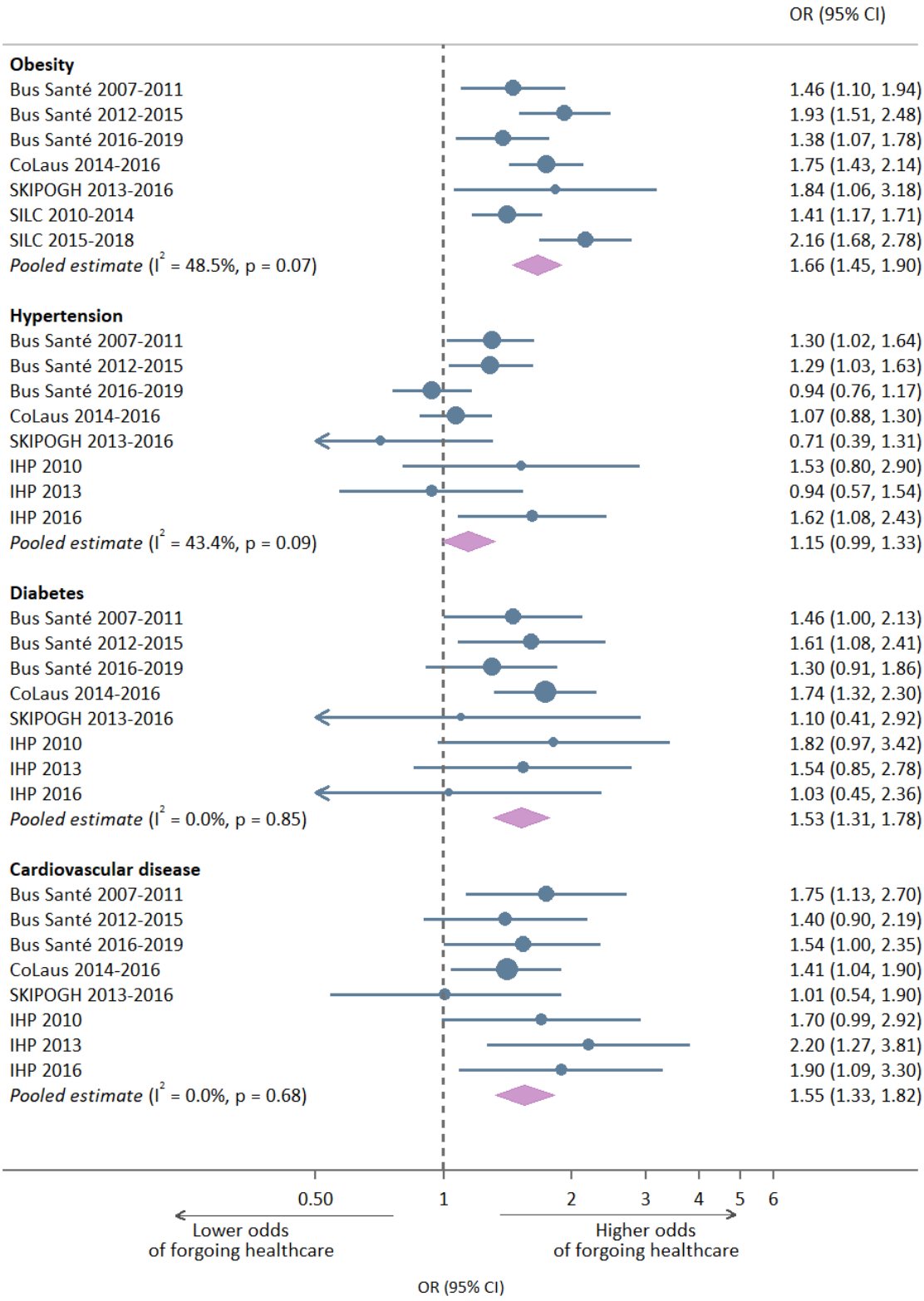
An additional measure of self-rated health was available in SILC, where overall, individuals reporting to have limited health that affects their daily activities were more than three times more likely to forgo healthcare, compared with individuals who did not report experiencing this health limitation.

Figure 21. Association between self-assessed health indicators and forgoing healthcare



Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the lower socioeconomic group relative to the highest group (e.g. "poor/very poor" self-rated health compared with "very good/good" self-rated health).

Figure 22. Association of health-related indicators and forgoing healthcare



Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the group having the condition relative the group without (e.g. obese relative to non-obese individuals).

In every study and period, forgoing healthcare was consistently associated with having obesity. The pooled estimate revealed that individuals with obesity were 66% more likely to forgo healthcare than individuals without obesity.

There was an association between forgoing healthcare and having hypertension, although not statistically significant in the pooled estimate. Individuals with hypertension were 15% more likely to forgo healthcare compared with individuals without hypertension. This association, however, was neither consistent nor present in all studies and periods. Although the first two survey periods of Bus Santé showed an association, for the most recent study it did not reach statistical significance. Similarly, while IHP 2013 showed no association, IHP 2016 showed the strongest associations across all studies.

There was also an association between forgoing healthcare and having diabetes. Individuals with diabetes were 53% more likely to forgo healthcare compared with individuals without diabetes. This association was generally present and consistent across studies.

Finally, there was an association between forgoing healthcare and having any cardiovascular disease. Individuals who had any cardiovascular disease were 55% more likely to forgo healthcare compared with those without any cardiovascular condition. This association was generally consistent across studies and periods.

Comparison to the literature

The pattern of associations between forgoing healthcare and demographic, socioeconomic, and health-related indicators have been extensively reported in the empirical literature using cross-sectional data.

The association between forgoing healthcare and nationality and household income level have been consistently found in SILC surveys over time and across countries [7,12,75,86–88], and in other surveys [3,11,76,82,89–91].

The association between forgoing healthcare and self-rated health have also been consistently reported in most surveys [7,11–13,75,76,86,88–90].

Longitudinal associations with forgoing healthcare

In longitudinal analyses based on the SILC datasets, some of the cross-sectional associations remained while others were absent (Figure 23). There was variation between the SILC 2010-2014 and the SILC 2015-2018 survey periods.

Neither survey period showed an association between educational level at baseline and subsequently forgoing healthcare. However, after accounting for income and nationality, and then self-rated health, an association became apparent in SILC 2010-2014; individuals with a lower educational level appeared to be less likely to forgo healthcare than individuals with higher educational level (Figure 23). Upon closer inspection, there appeared to be an interaction such that individuals with higher educational level but household income <5000 CHF were more likely to forgo healthcare than individuals with lower educational level and the same household income level (Supplementary table 53).

In both survey periods, individuals with a lower occupational position were approximately 23% more likely to forgo healthcare at follow-up than individuals with a higher occupational

position. After taking household income, educational level and nationality, and subsequently, self-rated health into account, this association no longer remained (Figure 23).

Individuals with monthly household incomes below 5000 CHF at baseline were overall two times more likely to forgo healthcare at follow-up compared with individuals with monthly household incomes above 9500 CHF. Even after accounting for educational level, nationality, and self-rated health, individuals with lower income were overall 90% more likely to forgo healthcare than their counterparts with higher income (Figure 23).

Nationality at baseline was associated with forgoing healthcare at follow-up only in SILC 2010-2014. In this sample, non-Swiss nationals were 58% more likely to forgo healthcare at follow-up than Swiss nationals, even after considering the effect of income, education, and self-rated health (Figure 23).

Similarly, obesity at baseline was associated with subsequently forgoing healthcare only in SILC 2010-2014. This association also attenuated, particularly after accounting for self-rated health, yet remained significant. Individuals with obesity at baseline were 30% more likely to forgo healthcare at follow-up than individuals without obesity (Figure 23).

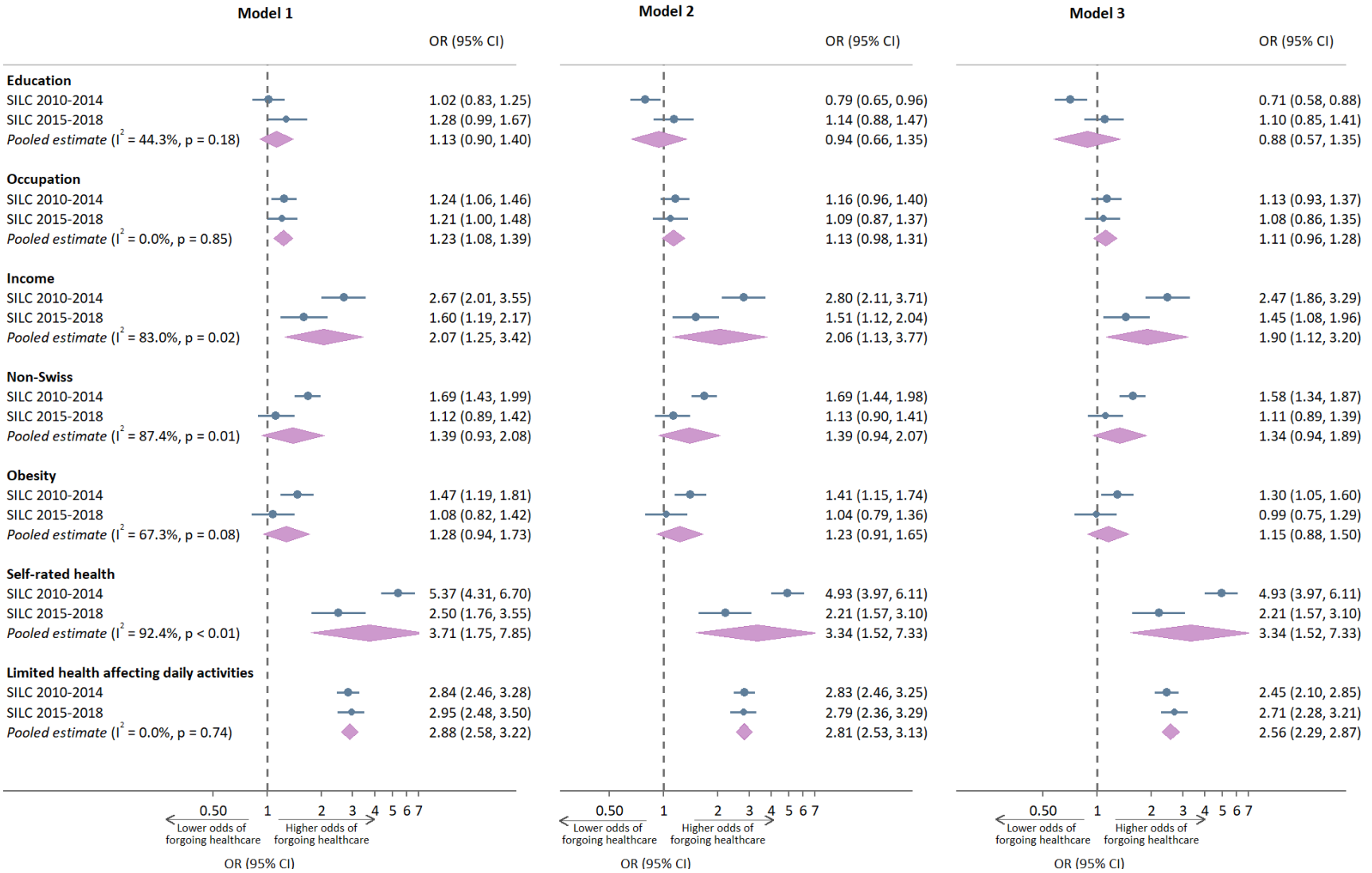
Self-rated health at baseline was associated with forgoing healthcare at follow-up in both survey periods, although the strength of the association was approximately double in 2010-2014 compared with 2015-2018. Overall, individuals with “poor/very poor” self-rated health at baseline were more than three times more likely to forgo healthcare than those with “very good/good” self-rated health. This association remained strong after taking into account income, education and nationality (Figure 23).

Finally, individuals who reported having limited health that affected their daily activities at baseline were almost three times more likely to forgo healthcare at follow-up compared with individuals with no limited health. This association attenuated but remained strong after accounting for income, education, nationality and self-rated health (Figure 23).

Comparison to the literature

To our knowledge, no previous analysis has assessed the longitudinal association between demographic, socioeconomic and health-related indicators at baseline and forgoing healthcare at follow-up in the general populations.

Figure 23. Longitudinal associations of socioeconomic and health-related indicators with subsequent forgoing healthcare



Odds ratios (95% confidence intervals) are from logistic regression model (adjusted for age and sex in model 1. Model 2: Model 1 + income, education, and nationality; Model 3: Model 2 + self-rated health), indicate the odds of forgoing healthcare of the group in the lowest socioeconomic group or having the condition relative to those in highest group or without the condition.

Cross-sectional associations with forgoing dental care

Forgoing dental care is associated with demographic and socioeconomic indicators

In cross-sectional analyses, forgoing dental care was generally associated with all demographic and socioeconomic indicators (Figure 24), largely reflecting the same associations found with forgoing healthcare.

In pooled analyses, individuals with a lower educational level were 96% more likely to forgo dental care than individuals with higher educational level. This association was strongest in SHP and SILC, weaker in Bus Santé, and absent in IHP.

Individuals with a lower occupational position were overall twice more likely to forgo dental care compared with individuals in a higher occupational position. This association was present in all surveys and periods.

The pooled estimate revealed that individuals with lower household incomes were almost eight times more likely to forgo dental care than their counterparts with the higher household incomes. This association was present in all surveys except one, but it varied widely across surveys. The strength of the association was particularly large in SHP across all survey periods.

Finally, the pooled estimates showed that non-Swiss or foreign-born individuals were 90% more likely to forgo dental care compared with Swiss nationals or Switzerland-born. This association was not present in the Bus Santé surveys, and varied across the other surveys and survey periods (Figure 24).

Forgoing dental care is associated with health-related indicators

Individuals with “poor/very poor” self-rated health were almost four times more likely to forgo dental care compared with individuals in “very good/good” self-rated health. This association varied across surveys and survey periods. Similarly, in SILC, , individuals reporting to have limited health that affects their daily activities approximately twice more likely to forgo dental care, compared with individuals who did not report experiencing this health limitation (Figure 25).

The pooled estimate revealed that individuals with obesity were 80% more likely to forgo dental care than individuals without obesity. There was no overall association between forgoing dental care and having hypertension—this association was only present in IHP 2016, where individuals with hypertension were 53% more likely to forgo dental care than normotensive individuals (Figure 26).

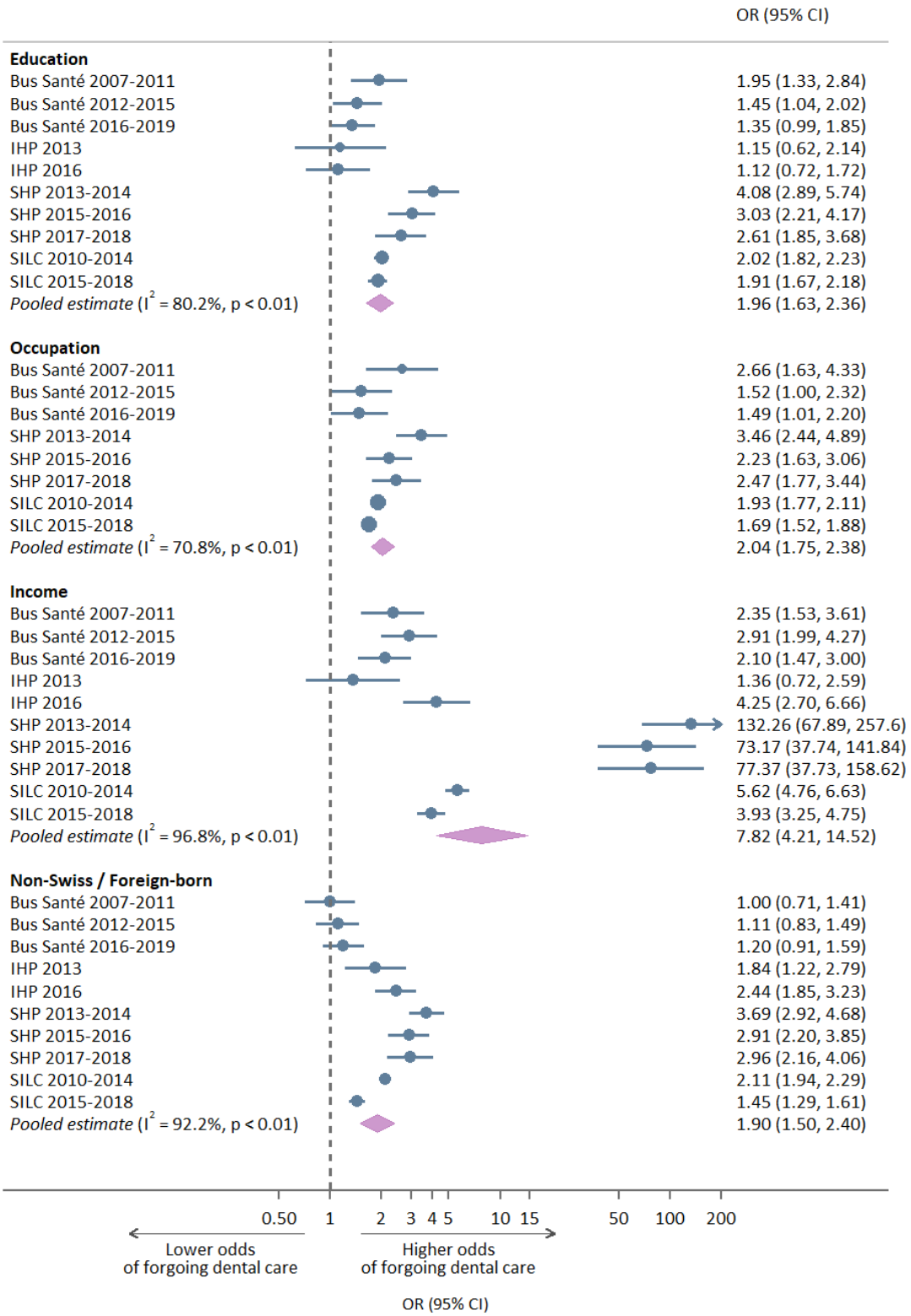
Overall, individuals with diabetes were 54% more likely to forgo dental care compared with individuals without diabetes, although the association was inconsistent across survey periods for each study. Similarly, individuals who had any cardiovascular disease were overall 36% more likely to forgo dental care compared with those without any cardiovascular condition. This association was also inconsistent across survey periods for each study (Figure 26).

Comparison to the literature

The associations between forgoing dental care and demographic, socioeconomic, and health-related indicators that we found in our analyses reflect findings from previous reports using SILC data as well as data from other surveys in Europe, the United States, Canada and South Korea [79,80,82,92–95].

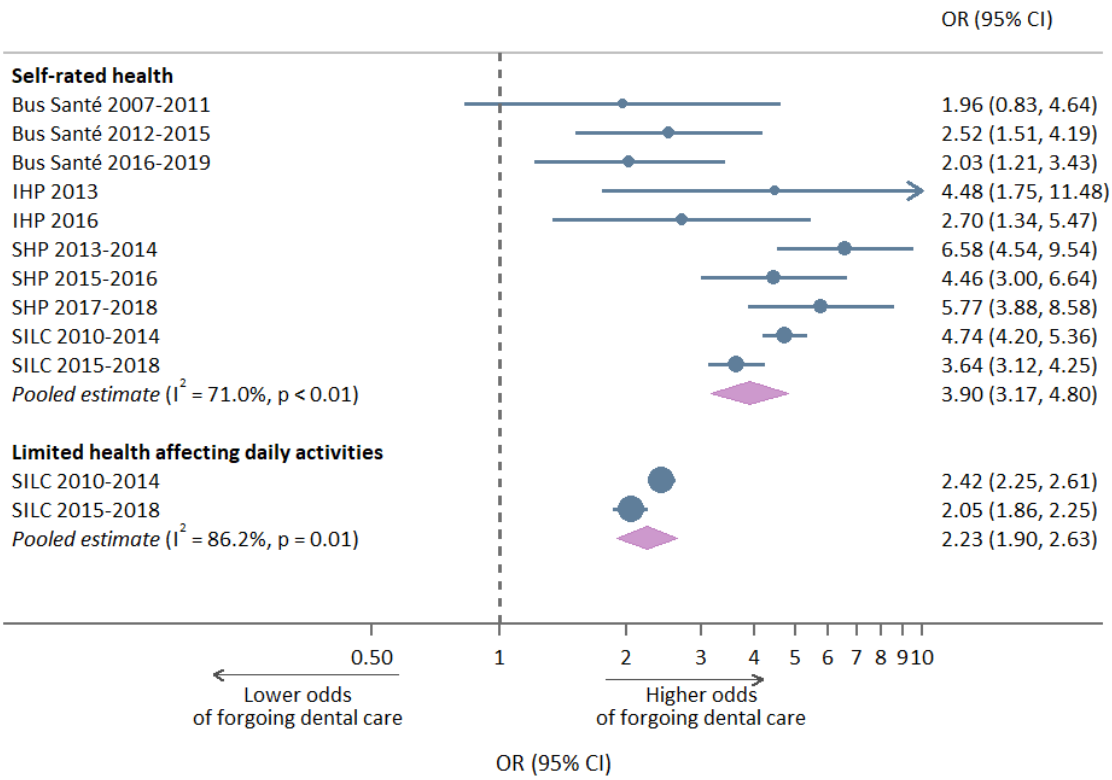
In most studies, the factor most frequently associated with forgoing dental care was income, whereby individuals with less income were much more likely to forgo dental care than individuals with higher income [4,80,82,92–96].

Figure 24. Associations of socioeconomic indicators with forgoing dental care



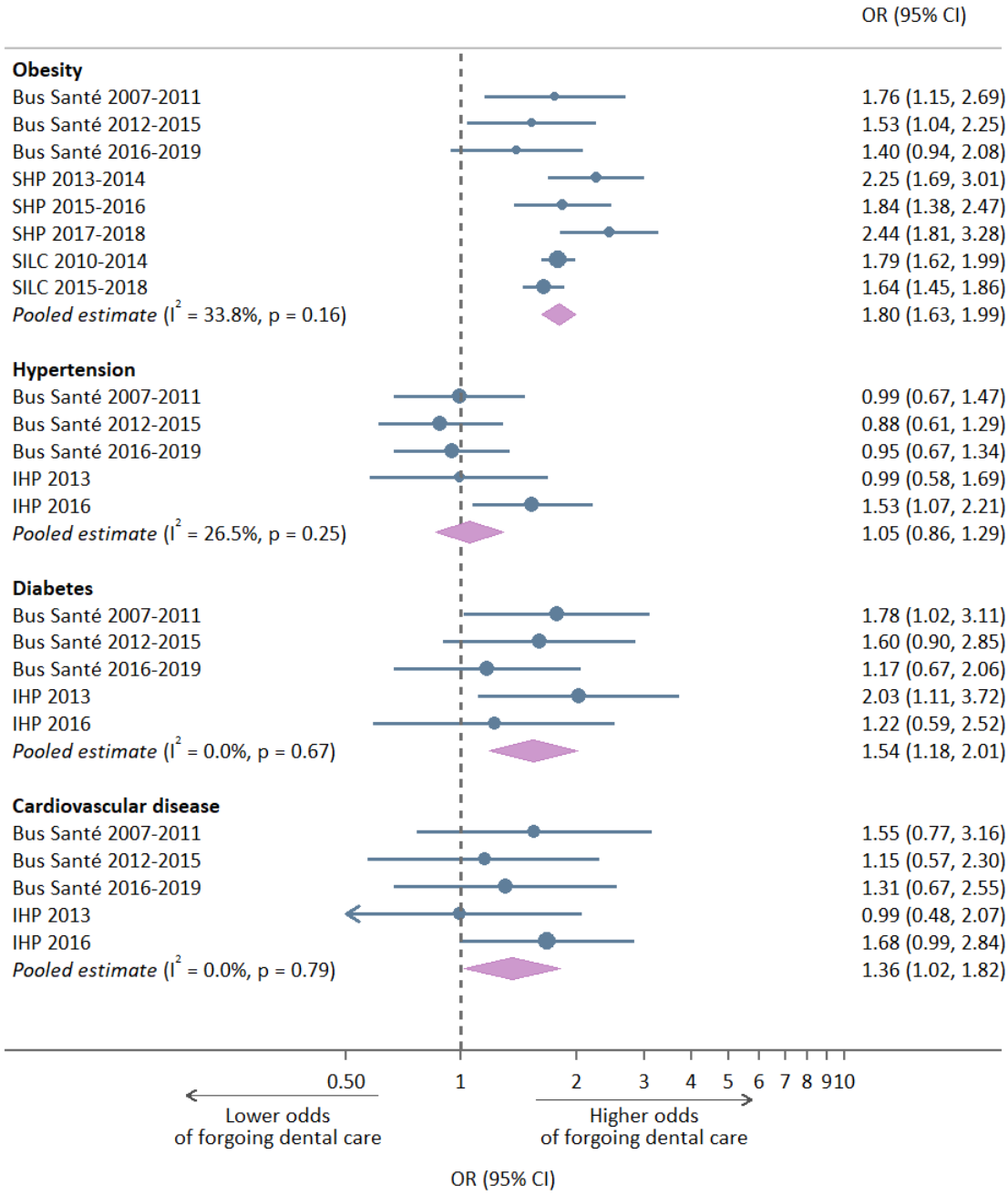
Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the group having the condition relative the group without (e.g. obese relative to non-obese individuals).

Figure 25. Associations between self-assessed health indicators and forgoing dental care



Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the group reporting "poor" health or "limited" health relative to the group not reporting.

Figure 26. Associations of health-related indicators with forgoing dental care



Odds ratios (95% confidence intervals) are from logistic regression model, adjusted for age and sex (and additionally for region in SILC). For each indicator, estimates indicate the odds of forgoing healthcare of the group having the condition relative the group without (e.g. obese relative to non-obese individuals).

Longitudinal associations with forgoing dental care

In longitudinal analyses using SILC and SHP, the patterns of associations with forgoing dental care mostly resembled those observed with forgoing healthcare (Figure 27). These association attenuated but remained after accounting for education, income, nationality and self-rated health.

Unlike with forgoing healthcare, forgoing dental care was associated with educational level. The pooled estimate revealed that individuals with a lower educational level were 34% more likely to forgo dental care at follow-up than individuals with a higher educational level, even after taking into account income, nationality, and self-rated health (Figure 27).

Individuals with a lower occupational position were overall 45% more likely to forgo dental care at follow-up than individuals with a higher occupational position, even after taking into account income, education, nationality, and self-rated health (Figure 27).

Overall, individuals with household income levels below 5000 CHF at baseline were 13 times more likely to forgo dental care at follow-up than individuals with incomes above 9500 CHF. This association was disproportionally strong in SHP (see Supplementary table 54). After taking into account education, nationality, and self-rated health, the association largely attenuated in all cohorts, but it remained strong; individuals in the lowest income group were approximately ten times more likely to forgo dental care at follow-up than their more privileged counterparts (Figure 27).

Nationality at baseline was associated with forgoing dental care at follow-up in all cohorts. Non-Swiss nationals were 2.3 times more likely to forgo dental care than Swiss nationals, even after considering the effect of income, education, and self-rated health (Figure 27).

Similarly, obesity at baseline was associated with subsequently forgoing dental care in all cohorts. Individuals with obesity at baseline were 60% more likely to forgo dental care at follow-up than individuals without obesity (Figure 27).

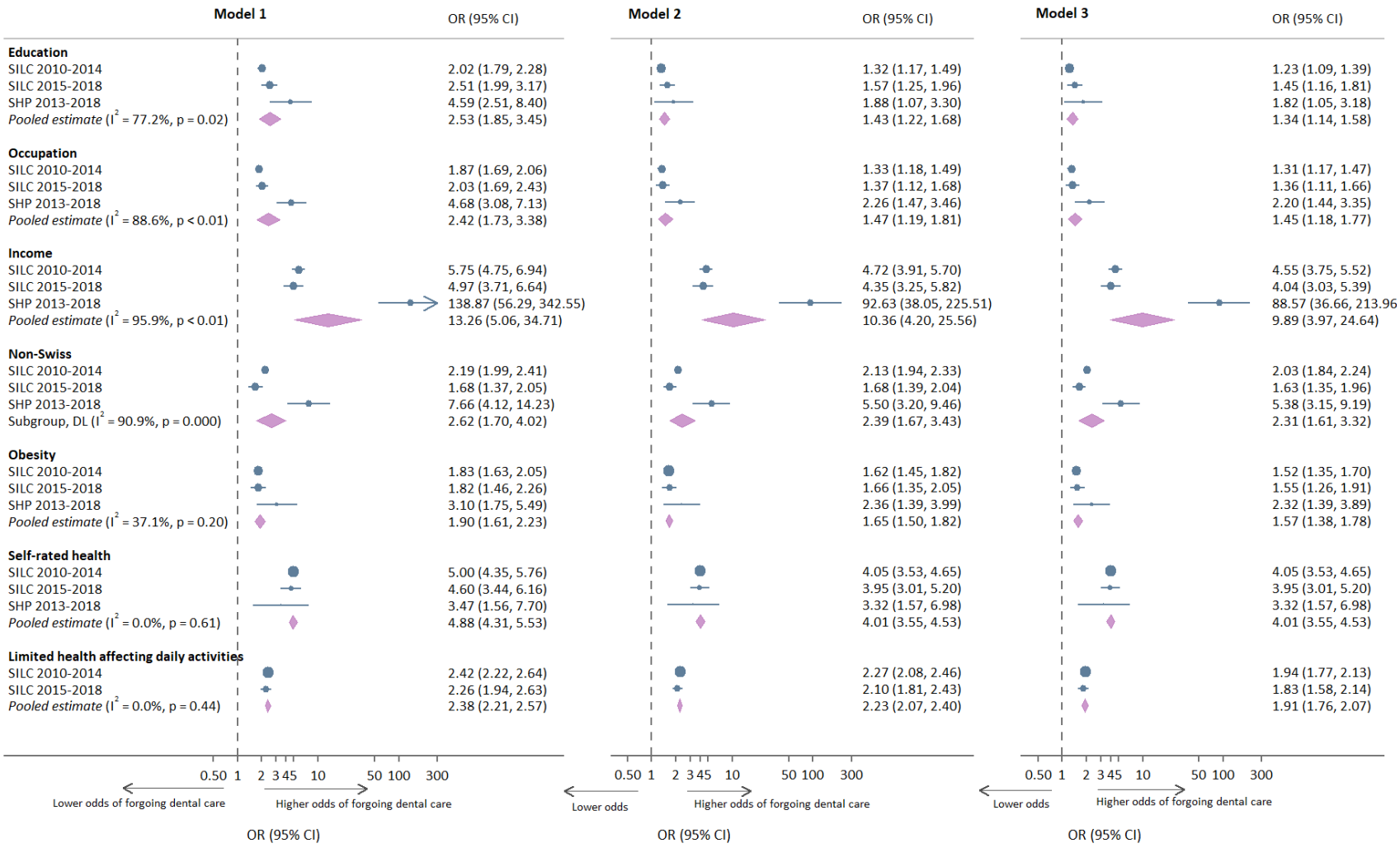
Overall, individuals with “poor/very poor” self-rated health at baseline were four times more likely to forgo dental care at follow-up than those with “very good/good” self-rated health, even after accounting for education, income, and nationality (Figure 27).

Finally, individuals who reported having limited health that affected their daily activities at baseline were almost two times more likely to forgo dental care at follow-up compared with individuals with no limited health, even after accounting for income, education, nationality and self-rated health (Figure 27).

Comparison to the literature

To our knowledge, no previous analysis has assessed the longitudinal association between demographic, socioeconomic and health-related indicators and subsequently forgoing dental care at follow-up.

Figure 27. Longitudinal association of socioeconomic and health-related indicators with subsequent forgoing dental care



Odds ratios (95% confidence intervals) are from logistic regression model (adjusted for age and sex, and additionally for region in SILC, in Model 1; Model 2: Model 1 + income, education, and nationality; Model 3: Model 2 + self-rated health), indicate the odds of forgoing dental care for the lowest socioeconomic group or having the condition relative the highest group or without the condition.

CHAPTER 5 – Reasons for forgoing healthcare

Background

In earlier chapters, our findings identified the demographic, socioeconomic and health-related characteristics of individuals who were more likely to report forgoing care. Among these, household income was consistently and strongly associated with forgoing care in all surveys. This is not surprising, given that all surveys—except SILC—exclusively inquired about forgoing care because of financial reasons (see Chapter 1, page 19).

In SILC, participants were asked to specify the main reason for not having had a medical examination or treatment (see Chapter 1, figure 6). Importantly, if participants had forgone care more than once during the preceding twelve months, they were asked to only consider the most recent occurrence. Using these data, in this chapter we examined the frequency of reasons for forgoing healthcare as well as the trends over time.

Methods

To estimate the percentage distribution of the reasons for forgoing healthcare, we used margins after logistic regression models, adjusting the estimates for age, sex, and region. To assess trends over time in the frequency of each reason for forgoing healthcare, we calculated the p-value for linear trend using orthogonal polynomial contrasts, with survey year as the time variable. We examined trends in the overall sample and separately, for the four most frequent reasons for forgoing healthcare, according to sex, age, nationality, household income, education, and self-rated health.

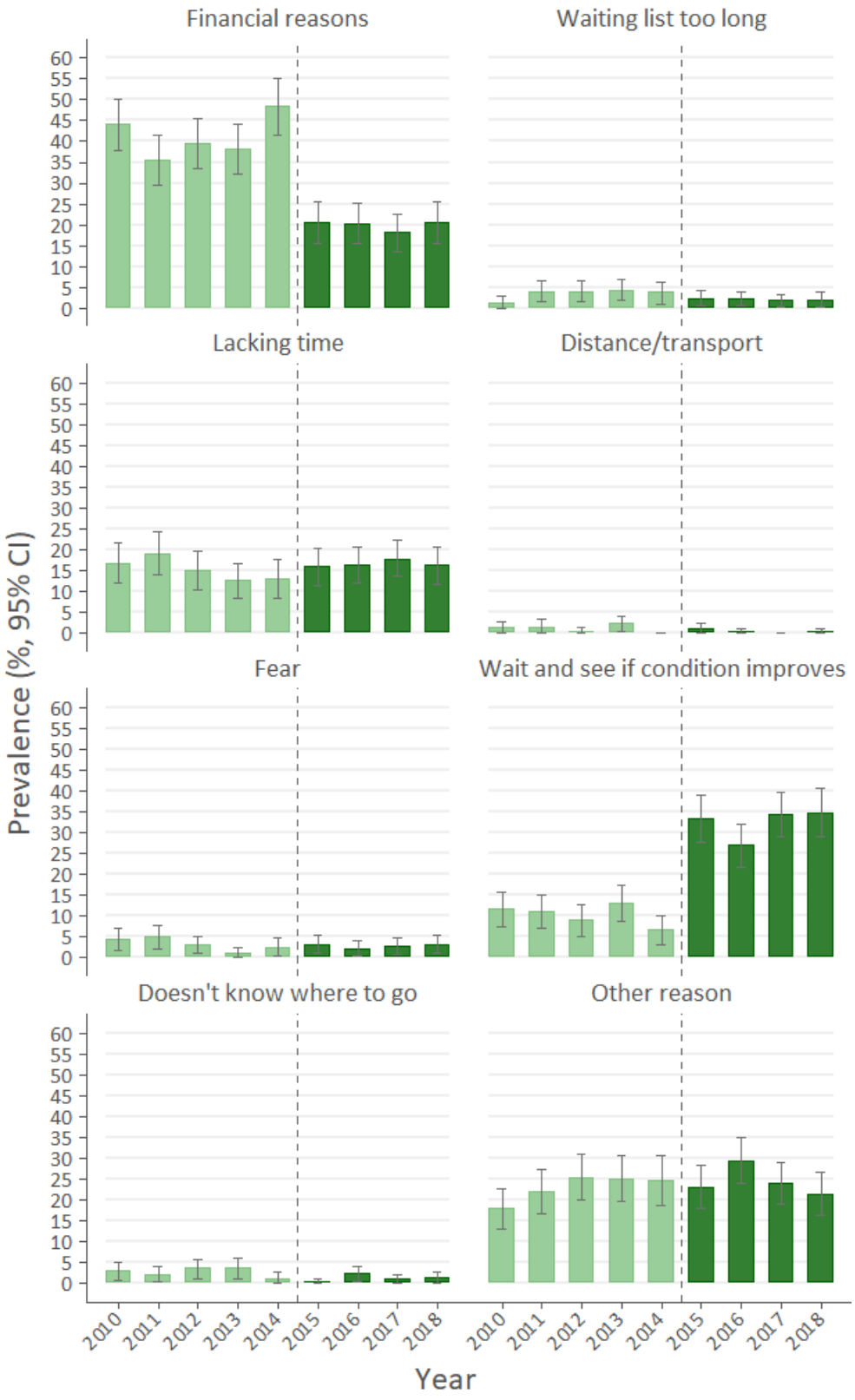
Finally, to assess the association between demographic, socioeconomic and health-related indicators and reasons for forgoing healthcare, we conducted logistic regression to calculated odds ratio (OR) and 95% confidence interval. In the model, we included the reason for forgoing healthcare as the dependent variable (e.g., financial reason versus all other reasons; lacking time versus all other reasons, etc.), and as independent variables sex, age , region, survey year and survey period (2010-2014 vs 2015-2018), household income, educational level, and self-rated health.

To maximize statistical power, we dichotomized the following variables: age (<50 years versus ≥50 years), nationality (Swiss versus non-Swiss), monthly household income (<5000 CHF versus ≥5000 CHF), educational level (non-tertiary versus tertiary), and self-rated health (poor versus non-poor).

Reasons for forgoing healthcare

Across all survey years, the most frequently reported reasons for forgoing healthcare were financial, other, lacking time, and waiting to see if the problem resolves or improves on its own (Figure 28, Supplementary table 55). A notable difference in the most frequently reported reason for forgoing healthcare became evident between 2010-2014 and 2015-2018, likely due to the methodological change in the way forgoing healthcare was assessed across these two periods. For instance, in 2014, 48.4% of individuals reported forgoing healthcare due to financial reasons, while only 20.4% did so in 2015. In 2014, 6.3% of individuals who reported forgoing healthcare because they chose to wait and see if the problem resolved or improved on its own (thereafter “wait-and-see” attitude), while 33.5% did so in 2015 (Figure 28, Supplementary table 55).

Figure 28. Trends in reason for forgoing healthcare, SILC 2010-2018



Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age, sex, and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

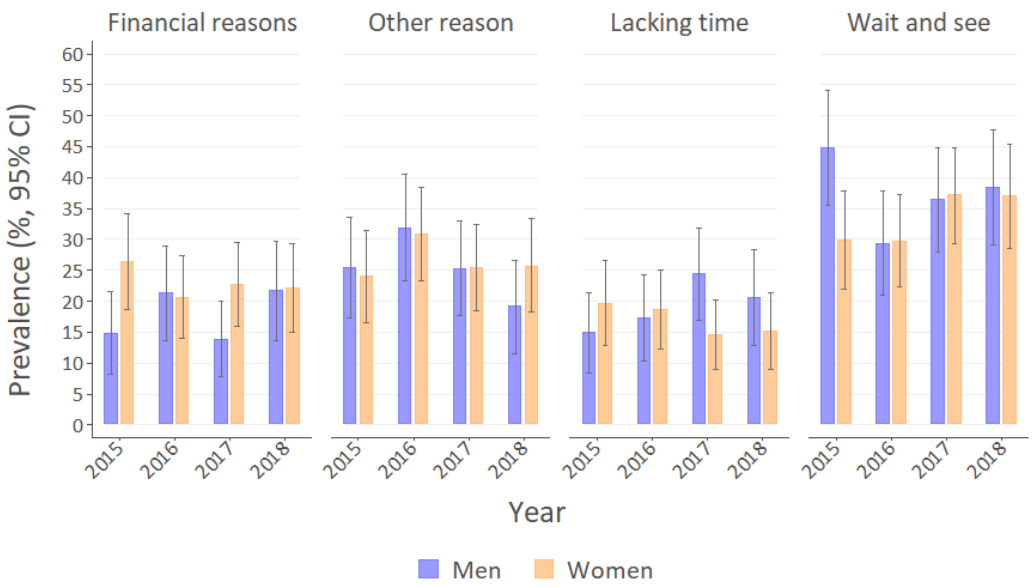
Given the change in the questions assessing forgoing care from 2015 onwards (see Chapter 1, figure 6), it is not possible to examine this apparent reversal in prevalence between forgoing healthcare for financial reasons and forgoing healthcare to wait and see if problem resolves or improves on its own.

In 2018, the most frequent reasons for forgoing healthcare were wait-and-see attitude (34.9%), other (21.4%), financial (20.5%), and lacking time (16.3%); while the remaining reasons were much less common.

In general, the frequency and trends of reasons for forgoing healthcare were similar among men and women (Figure 29, Supplementary table 56). In 2018, however, a greater proportion of men (20.6%) reported forgoing healthcare due to lacking time compared with women (15.1%); and a greater proportion of women (25.7%) reported forgoing healthcare due to other reason compared with men (19.2%).

Among women only, the frequency of forgoing healthcare for other reasons appeared to increase between 2010 and 2014, although not in subsequent years (Supplementary table 56).

Figure 29. Trends in reason for forgoing healthcare stratified by sex, SILC 2015-2018



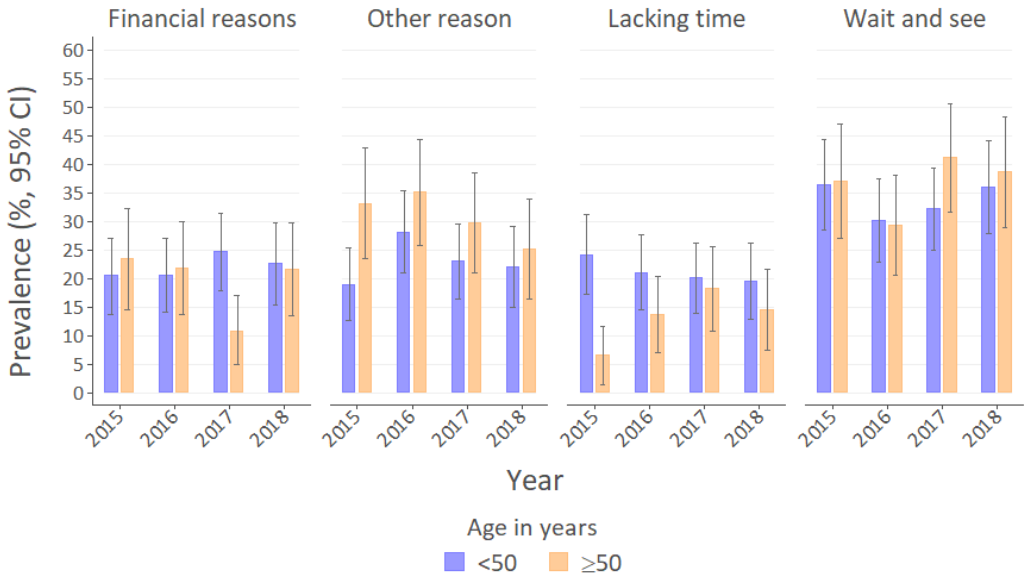
Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age and region.
For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

The reasons for forgoing healthcare were somewhat different between individuals aged <50 years and those aged ≥50 years.

In general, older individuals tended to forgo healthcare due to other reasons more frequently than younger individuals. At the same time, younger individuals tended to forgo healthcare more frequently due to lacking time; in 2018, for instance, 24.1% of individuals aged <50 years who reported forgoing healthcare did so because of lacking time, compared with only 6.6% of individuals aged ≥50 years.

Although no trends were statistically significant, there appeared to be an increase in the frequency of forgoing healthcare due to lacking time among those aged ≥50 years between 2015 and 2018 (Figure 30, Supplementary table 57).

Figure 30. Trends in reason for forgoing healthcare stratified by age, SILC 2015-2018

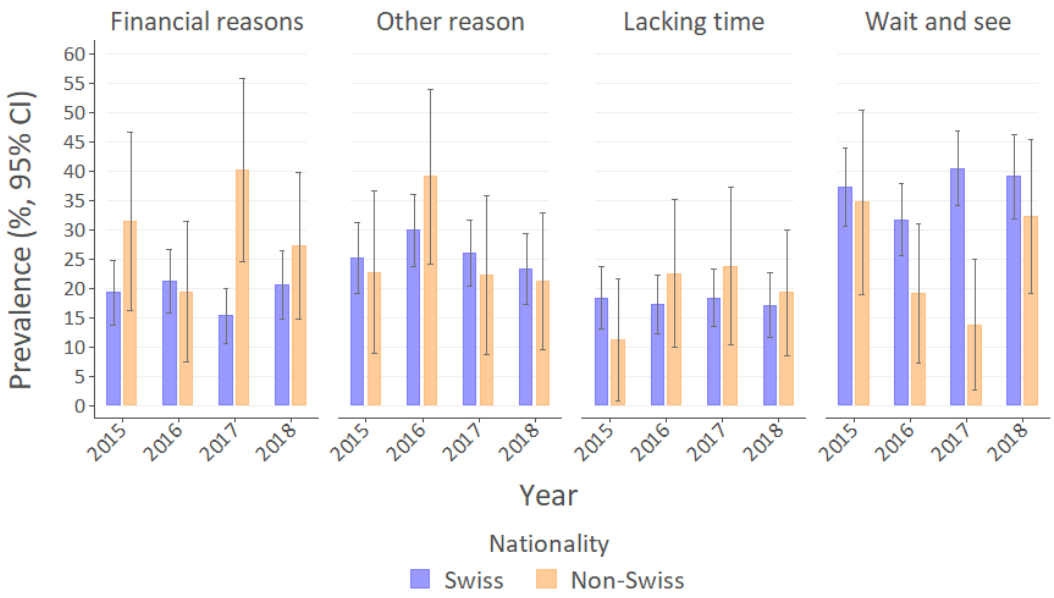


Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

There were some differences in the reasons for forgoing healthcare according to nationality. Across all years, a greater proportion of non-Swiss individuals reported forgoing healthcare due to financial reasons than Swiss individuals. For instance, in 2014, 74.4% of non-Swiss individuals who reported forgoing healthcare indicated doing so for financial reasons, compared with 44.4% of Swiss individuals. In 2018, the corresponding frequencies were 27.2% and 20.6% (Figure 31, Supplementary table 58).

In addition, Swiss individuals tended to report more frequency forgoing healthcare due to wait-and-see attitude compared with non-Swiss individuals. Between 2010 and 2014, among individuals who reported forgoing healthcare, the proportion of non-Swiss doing so due to other reasons decreased ($p = 0.03$), while it increased among Swiss individuals ($p = 0.01$) (Supplementary table 58).

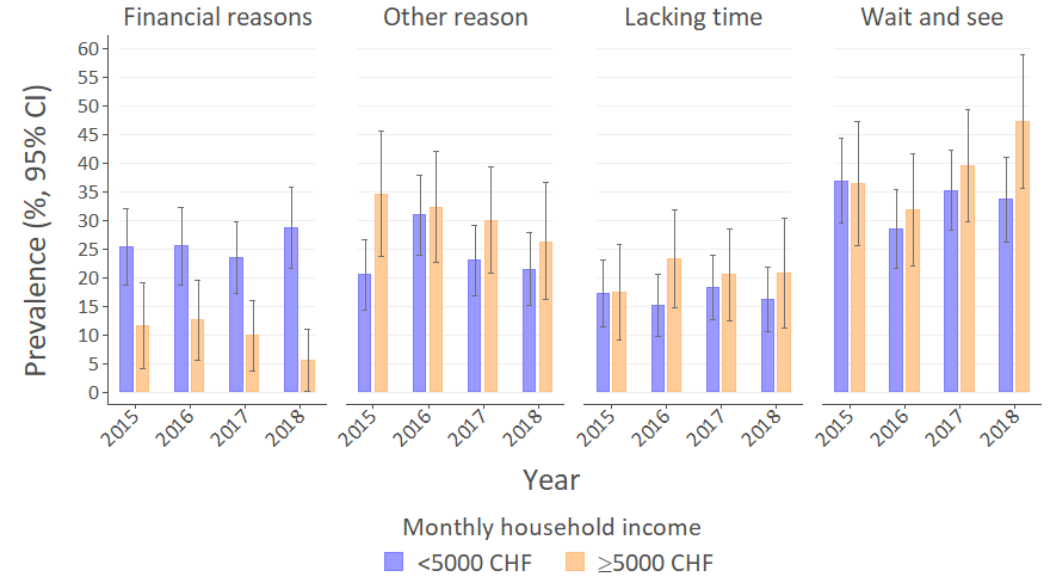
Figure 31. Trends in reason for forgoing healthcare stratified by nationality, SILC 2015-2018



Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Across all years, a greater proportion of individuals with monthly household income below 5000 CHF reported forgoing healthcare due to financial reasons than individuals with incomes ≥5000 CHF (Figure 32, Supplementary table 59). Inversely, a greater proportion of individuals with monthly household income ≥5000 CHF reported forgoing healthcare for other reasons, and generally, also due to a wait-and-see attitude; in 2018, for instance, 47.2% of those in the higher income group who reported forgoing healthcare chose to wait and see if the condition improved on its own, compared with 33.6% in the lower income group.

Figure 32. Trends in reason for forgoing healthcare stratified by household income, SILC 2015-2018



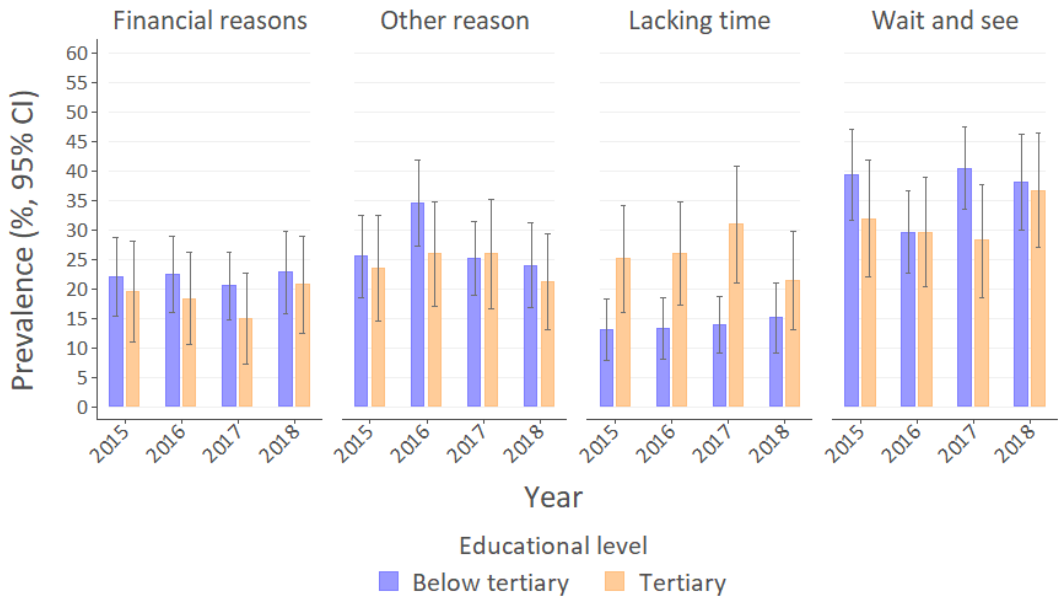
Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Wait-and-see attitude as a reason for forgoing healthcare appeared to increase in frequency only among individuals in the higher income group, from 36.4% in 2015 to 47.2% in 2018. Inversely, the frequency of forgoing healthcare for other reasons tended to decrease in the higher income group, from 34.6% in 2015 to 26.3% in 2018 (Figure 32, Supplementary table 59).

Individuals with a tertiary education tended to report lacking time as the main reason for forgoing healthcare (Figure 33, Supplementary table 60). For instance, in 2017, 30.9% of individuals with a tertiary education who reported forgoing healthcare did so because they lacked time, compared with only 14.0% of those with less than a tertiary education.

The same year, a greater proportion of individuals with less than a tertiary education (40.2%) reported forgoing healthcare because of a wait-and-see attitude compared with individuals with a higher educational level (28.2%).

Figure 33. Trends in reason for forgoing healthcare stratified by educational level, SILC 2015-2018

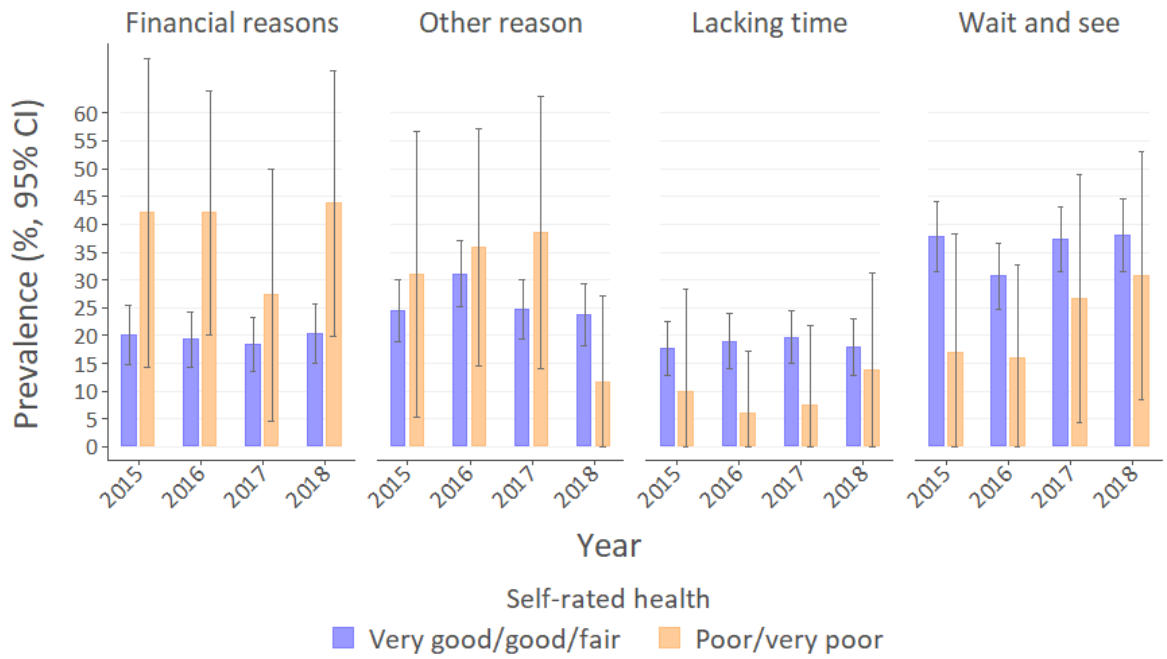


Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Across most survey years, a greater proportion of individuals with “poor/very poor” self-rated health reported forgoing healthcare due to financial reasons compared with individuals with “very good/good/fair” self-rated health (Figure 34, Supplementary table 61). In 2018, for instance, 43.8% of individuals in the former group who reported forgoing healthcare did so for financial reasons, compared with only 20.4% of individuals in the latter group.

At the same time, across most survey years, a greater proportion of individuals with “very good/good/fair” self-rated health who reported forgoing healthcare due to a wait-and-see attitude, and due to lacking time, than individuals with “poor/very poor” self-rated health.

Figure 34. Trends in reason for forgoing healthcare stratified by self-rated health, SILC 2015-2018



Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

In multivariable analyses, several associations were apparent between each of the four most frequent reasons for forgoing healthcare and demographic, socioeconomic and health-related indicators, with some associations varying by survey period (Figure 35).

In the 2010-2014 survey period, women were 35% more likely to forgo healthcare due to financial reasons than men. During the same survey period, women were also 51% less likely than men to wait and see if the condition improved on its own. In addition, women appeared to be about 30% less likely to forgo healthcare than men due to lacking time. A similar pattern of association was present in the 2015-2018 survey period, albeit not statistically significant. The other reasons for forgoing healthcare showed no association with sex when other socioeconomic and demographic factors were taken into account.

In the 2015-2018 survey period, individuals aged <50 years were 33% less likely than their older counterparts to forgo healthcare due to other reasons, but also 67% more likely to forgo healthcare due to lacking time. A similar pattern of association was observed for both reasons for forgoing healthcare in the 2010-2014 survey period. The other reasons for forgoing healthcare showed no association with age when other demographic and socioeconomic factors were taken into account.

In both survey periods, non-Swiss individuals were almost twice as likely as Swiss individuals to forgo healthcare due to financial reasons, even while taking into account sex, age, household income, educational level, and self-rated health.

In the 2015-2018 survey period only, non-Swiss individuals were 38% less likely to forgo healthcare because of a wait-and-see attitude than Swiss individuals. The other two reasons

for forgoing healthcare showed no association with nationality when other socioeconomic and demographic factors were taken into account.

In both survey periods, individuals with monthly household incomes <5000 CHF were almost three times more likely to forgo healthcare due to financial reasons than individuals with monthly household incomes ≥5000 CHF. As a reflection of this, individuals in the lower income group were less likely to forgo healthcare for other reasons than individuals in the higher income group. In the 2010-2014 survey period only, individuals in the lower income group were 56% less likely to forgo healthcare for lacking time than were individuals in the higher income group. There was no association between wait-and-see attitude and household income when the other factors were taken into account.

Individuals with less than a tertiary educational level were 49% less likely to forgo healthcare due to lacking time than were individuals with a tertiary level of education, although this association was only present in the 2015-2018 survey period. No other reason for forgoing healthcare showed an association with educational level when the other socioeconomic and demographic factors were taken into account.

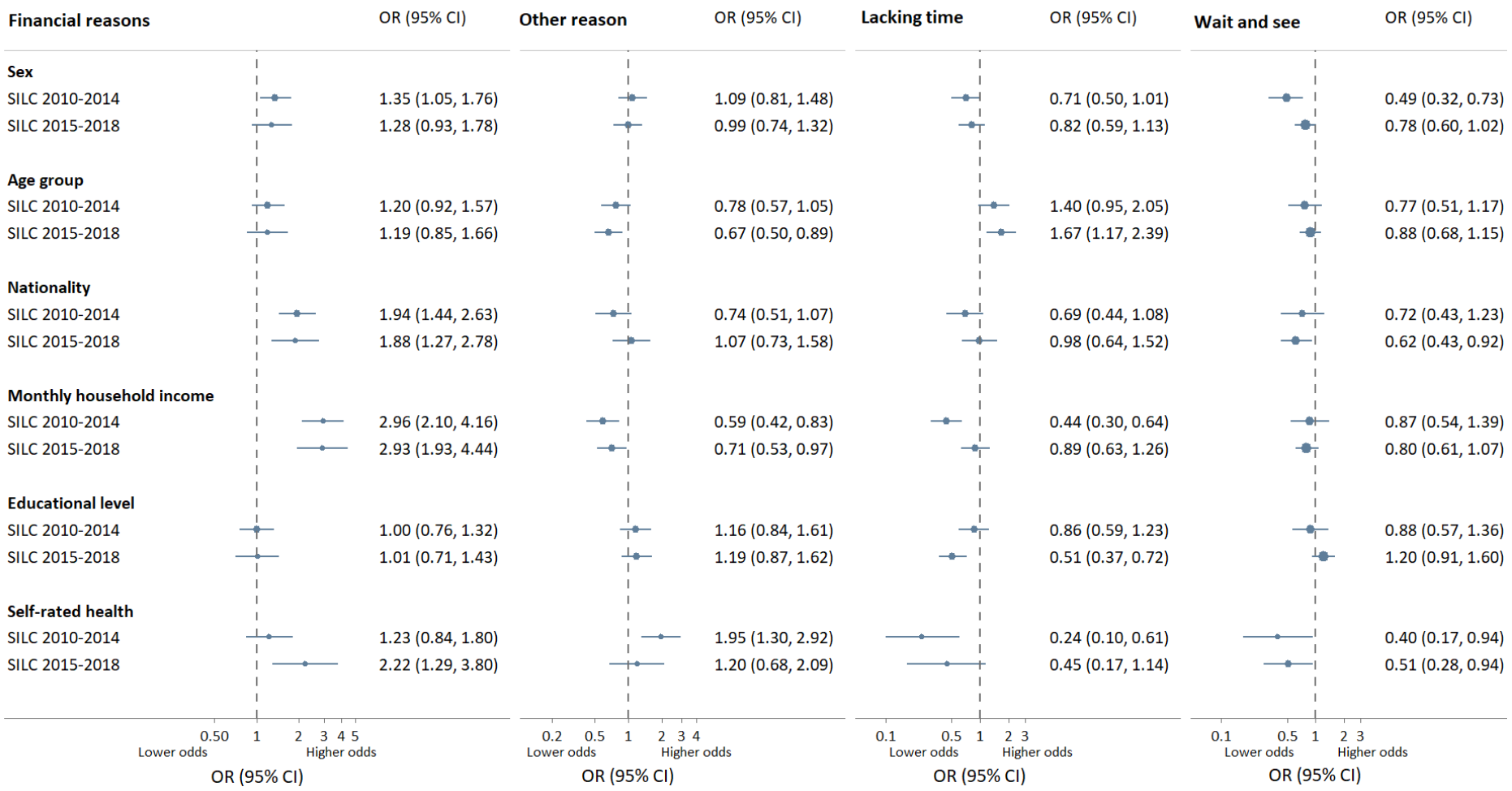
Finally, during the 2010-2014 survey period, individuals with "poor/very poor" self-rated health were 95% more likely to forgo healthcare for other reason, but 76% less likely to forgo healthcare due to lacking time, and 60% less likely to forgo healthcare due to a wait-and-see attitude, than individuals with "very good/good/fair" self-rated health. During the 2015-2018 survey period, individuals with "poor/very poor" self-rated health were more than twice as likely to forgo healthcare for financial reasons, and 49% less likely to forgo healthcare due to a wait-and-see attitude, than those with "very good/good/fair" self-rated health.

Comparison to the literature

To date, although a few studies have examined the trends in reasons for forgoing healthcare, no previous report has done it by stratifying according to demographic, socioeconomic and health-related indicators.

Our overall findings largely reflect those previously reported with SILC data across most European countries [7,94]. For instance, in SILC 2009, the most frequently reported reason for forgoing medical care across most countries was financial reasons (25% overall, compared to approximately 50% for Switzerland in our findings) [7]. Similar to our findings, 'other' reason and 'wait-and-see' attitude were the second and third most frequently reported reasons. However, unlike in our findings for Switzerland, a 'waiting list' that was too long was also reported frequently (13.4% compared with about 2% in our findings).

Figure 35. Association of reason for forgoing healthcare with demographic, socioeconomic and health-related indicators, SILC 2010-2018



Each forest plot column corresponds to the reason to forgoing healthcare listed on top. Estimates (OR and 95% confidence intervals) are from logistic regression, and adjusted for every other independent variable in figure plus region. Estimate indicates odds of forgoing healthcare for corresponding reason, respectively, among women versus men, among individuals aged <50 years versus ≥50 years, non-Swiss versus Swiss, individuals with <5000 CHF monthly household income versus those ≥5000 CHF, individuals with less than tertiary degree versus those with a tertiary degree, and individuals with poor/very poor self-rated health versus those with fair/good/very good self-rated health.

Reasons for forgoing dental care

The most frequent reason for forgoing dental care was financial, with more than half all of individuals forgoing dental care identifying it as the main reason in all survey years—unlike with forgoing healthcare (Figure 36, Supplementary table 62). In 2014, 67.7% of individuals who reported forgoing dental care did so due to financial reasons, and 53.3% did so in 2018—although it is not possible to compare findings between 2010-2014 and 2015-2018.

The second and third most frequent reason for forgoing dental care were 'other' and 'lacking time,' respectively, which also remained relatively stable within each survey period. In 2014, for instance, 15.3% and 8.7% of individuals who reported forgoing dental care did so because of 'other' reasons and 'lacking time,' respectively; in 2018, the frequencies were 17.4% and 12.9%, respectively. The fourth most frequent reason for forgoing dental care—differently from forgoing healthcare—was fear (of dentist/examination/treatment). In 2014, 5.8% of individuals who reported forgoing dental care did so because of fear, and 10.1% did so in 2018. Within each survey period, the frequency of each reason for forgoing dental care remained relatively stable.

The trends over time of the three most frequent reasons for forgoing healthcare were similar to those observed for forgoing healthcare, including when stratifying by sex, age groups, nationality, monthly household income, educational level, and self-rated health (Supplementary tables 63-68). There was no observable difference between men and women, as well as those aged <50 years and those aged ≥50 years, in reporting fear as the reason for forgoing dental care (Supplementary tables 63-64). Across all survey years, a greater proportion of Swiss individuals reported fear as the main reason for forgoing dental care than non-Swiss individuals (Supplementary table 65).

Similarly, a greater proportion of individuals with monthly household incomes ≥5000 CHF reported fear as the reason for forgoing dental care, than individuals in the lower income group (Supplementary table 66). There was no consistent pattern observed according to educational level and self-rated health (Supplementary tables 67-68).

In multivariable analyses (Figure 37), women were about 30% more likely than men to forgo dental care due to financial reasons. Individuals aged <50 years were about 30% less likely to forgo dental care due to 'other' reason and about twice as likely to forgo dental care for lacking time, compared with individuals aged ≥50 years. Non-Swiss individuals were twice more likely to forgo dental care due to financial reasons, and about 50% less likely to forgo for 'other' reason and for fear, than Swiss individuals.

Individuals in the lower income group were more than three times more likely to forgo dental care due to financial reasons than those in the higher income group. They were also about 50% less likely to forgo dental care due to 'other' reason, 'lacking time' or 'fear.' Individuals with less than a tertiary educational level were 55% more likely to forgo dental care due to financial reasons (in 2015-2018 only), 35% less likely to forgo for 'other' reason (in 2015-2018 only), and about 40% less likely to forgo dental care for 'lacking time' than individuals with a tertiary educational level.

Finally, individuals with 'poor/very poor' self-rated health were 50% more likely to forgo dental care due to financial reasons, and about 70% less likely to forgo due to 'lacking time' than individuals with better self-rated health (Figure 37).

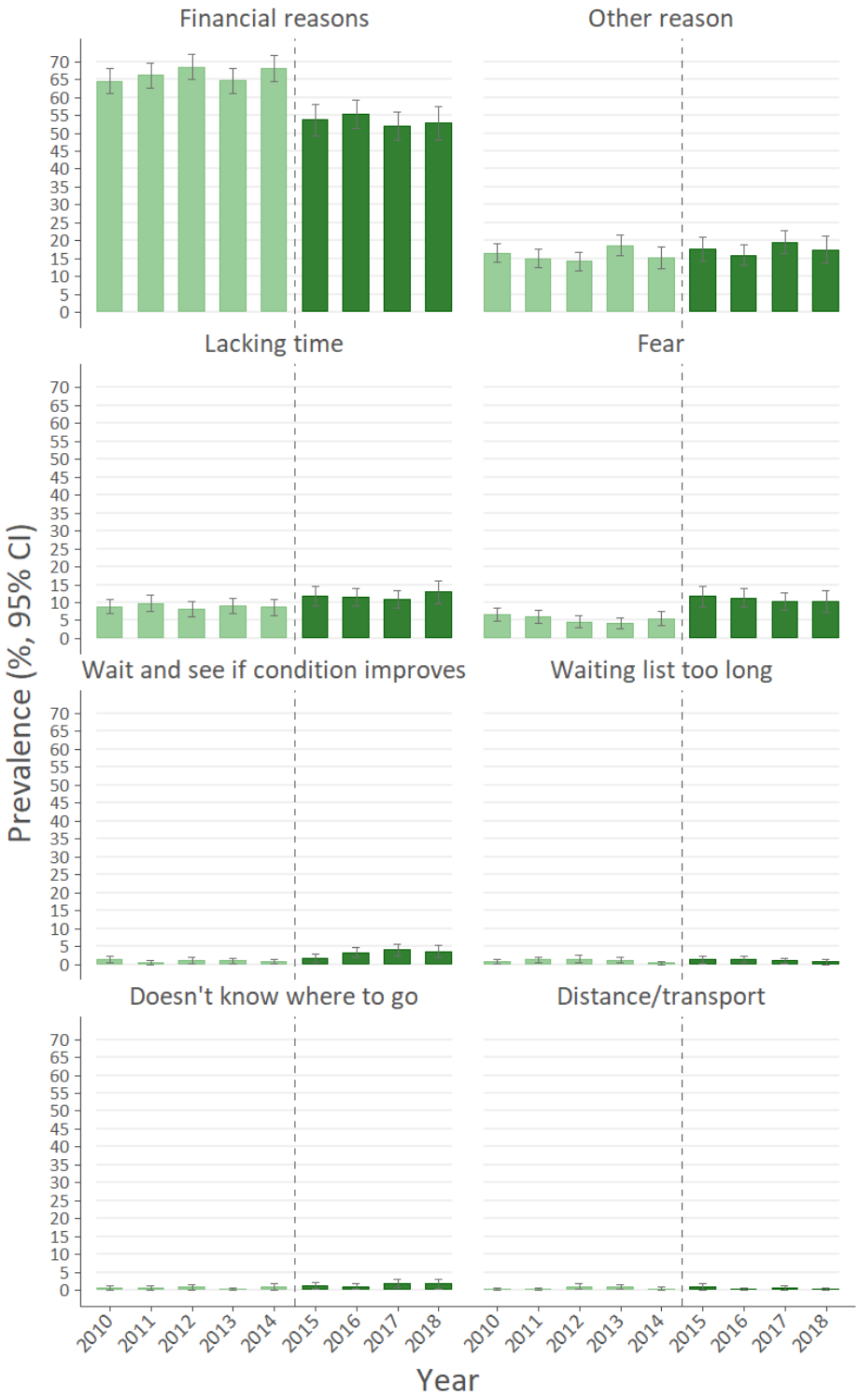
Comparison to the literature

To date, although a few studies have examined the trends in reasons for forgoing dental care, no previous report has done it by stratifying according to demographic, socioeconomic and health-related indicators.

Similar to our findings, studies using SILC data across Europeans countries have identified financial reasons as the predominant reason for forgoing dental care [94,95].

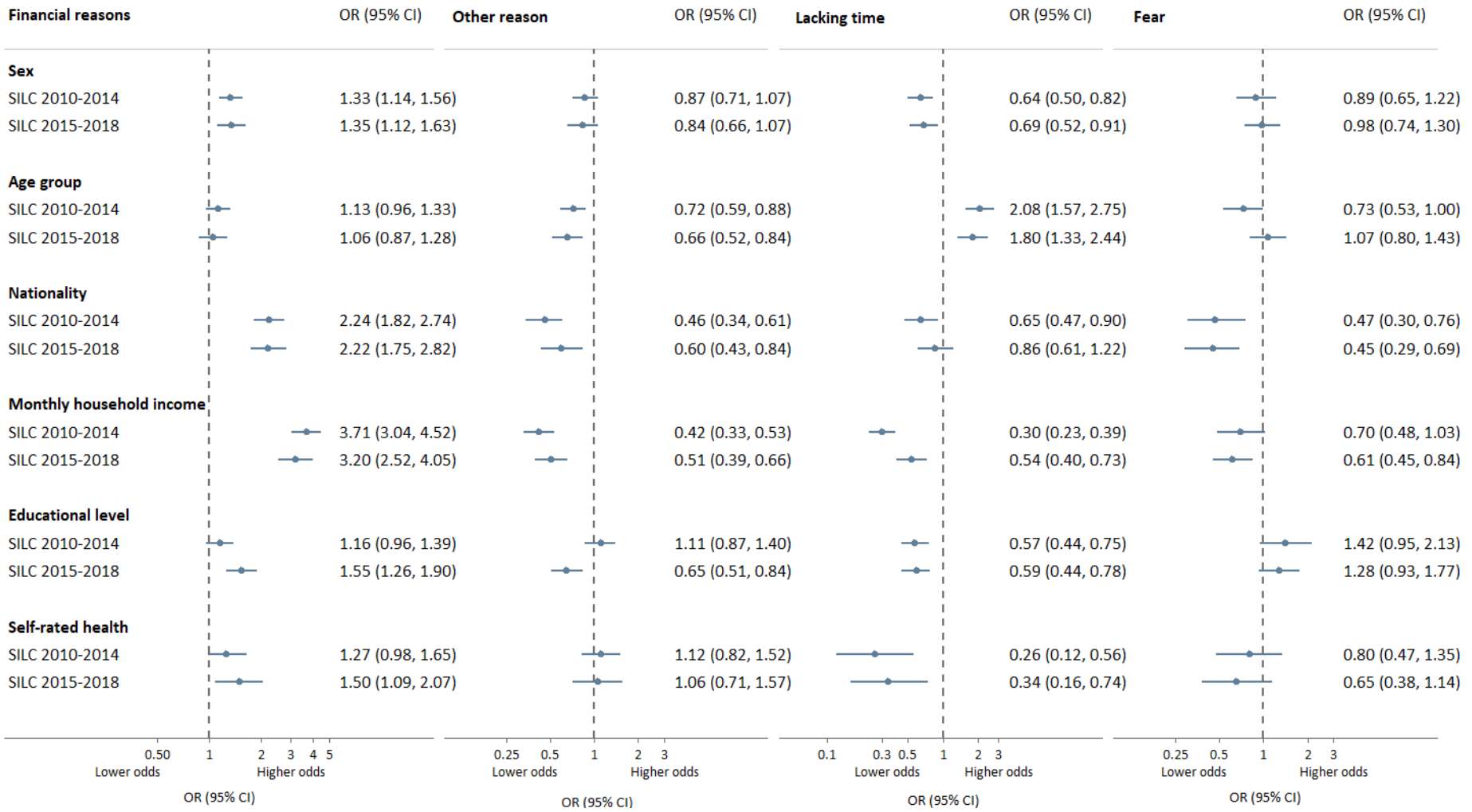
Outside SILC data, a study from Italy using nationwide representative data found that financial reasons predominantly the most important reason for forgoing dental care [92]. Studies from Canada and the United States have also reported that financial reasons were the main reason for forgoing dental care [97]. Another study from the United States additionally identified 'lacking time' (15%), 'transport issues' (10%), and lack of dentists that accept participant's insurance (9%) [98].

Figure 36. Trends in reason for forgoing dental care, SILC 2010-2018



Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age, sex, and region. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Figure 37. Association of reason for forgoing dental care with demographic, socioeconomic and health-related indicators, SILC 2010-2018



Each forest plot column corresponds to the reason to forgoing healthcare listed on top. Estimates (OR and 95% confidence intervals) are from logistic regression, and adjusted for every other independent variable in figure plus region. Estimate indicates odds of forgoing healthcare for corresponding reason, respectively, among women versus men, among individuals aged <50 years versus ≥50 years, non-Swiss versus Swiss, individuals with <5000 CHF monthly household income versus those ≥5000 CHF, individuals with less than tertiary degree versus those with a tertiary degree, and individuals with poor/very poor self-rated health versus those with fair/good/very good self-rated health

CHAPTER 6 – Health consequences of forgoing healthcare

Background

Previous evidence indicates that forgoing healthcare is associated with adverse health outcomes, including longer hospitalization stays, increased disease severity, increased chronic conditions, lower self-rated health, and lower quality of life overall [99–103]. However, most of these associations were cross-sectional, which limits the understanding of potential consequences of forgoing healthcare over time.

In this chapter, we used longitudinal data from the ReBus subset study (see Chapter 1) to assess the physical and mental health effects of forgoing healthcare for economic reasons, while taking into account socioeconomic conditions at baseline. We explored the longitudinal associations with specific biomarkers and clinical measures, namely blood glucose, plasma lipids, glycated hemoglobin, and blood pressure—alterations of these biomarkers contributes to the development of metabolic and cardiovascular disorders [104–107]. We additionally examined the consequences of forgoing healthcare at baseline on nine physical and mental health scores at follow-up. These scores are derived from the standard SF-36 health questionnaire, and have been consistently linked to multiple health outcomes, including cardiovascular disease, mental illness, overall well-being, and premature mortality [29,108,109].

Methods

To investigate the health consequences of forgoing healthcare at baseline, we used data from ReBus, a subset follow-up study of the Bus Santé survey in Geneva, Switzerland [110]. In this study, 600 participants were invited from a sample of participants who previously participated from 2008 to 2013. At baseline, participants responded whether they had forgone healthcare (see Chapter 1).

Using stratified sampling, the exposed and unexposed groups were matched based on their age, sex, household income, occupational position, and health insurance deductibles. Participants who answered “yes” at baseline were considered the exposed group, while participants who answered “no” were considered the unexposed group. Among the 400 participants who chose to participate in the follow-up visit, 172 participants were in the exposed group, and 228 in the unexposed group. The follow-up visits took place between 2014 and 2016 [110].

Demographic, socioeconomic and health-related risk factors

As baseline characteristics, we used country of origin as Swiss versus non-Swiss, occupational position, educational level, and household income (see Chapter 1 for variable categorization). Additionally, we used the level of annual flat deductible as an additional indicator of socioeconomic condition, which we categorized into three groups: “300-500 CHF,” “1000-1500 CHF,” and “2000-2500 CHF.”

Other baseline characteristics we used were smoking, self-reported diagnosed hypertension, diabetes, and high cholesterol, self-reported medication intake for hypertension, diabetes, and high-cholesterol, and self-reported health (see Chapter 1 for categorization).

Biomarkers and arterial blood pressure

To assess the potential effect of forgoing healthcare at baseline on biomarkers and arterial blood pressure, we examined the difference in five blood biomarkers and arterial blood pressure between the follow-up and baseline examinations. Blood biomarkers included glucose, glycated hemoglobin, total cholesterol, triglycerides, and high-density lipoprotein cholesterol (HDL)—all measured from fasting blood samples analyzed at the Geneva University Hospitals laboratory using the same standard procedures at both examinations [110,111].

SF-36 health scores

Physical and mental self-reported health scores at follow-up were assessed using the Short Form-36 self-administered questionnaire [29,112]. Briefly, the SF-36 questionnaire allows computing eight health scores, which have been consistently related with multiple health outcomes, and which comprise: 1) the physical functioning score; 2) the role-physical score; 3) the bodily pain score; 4) the general health score; 5) the vitality score; 6) the social functioning score; 7) the role-emotional score; and 8) the mental health score. We calculated all eight scores according to the "Transformed Scale Formula," ranging from zero (least favorable score) to 100 (most favorable score). For more detailed description of these scores, see Supplementary table 69. We evaluated the internal consistency of the scores using the Cronbach's α statistic (Supplementary table 70).

Statistical analyses

We first tested the association of baseline demographic, socioeconomic, and health-related indicators with forgoing healthcare, using logistic regression models, adjusting the estimate for sex and age at baseline.

We then investigated the association between forgoing healthcare at baseline and health-related consequences at follow-up using linear regression for biomarker outcomes. For this step, we implemented two models: a first model adjusting for sex, age at baseline, age at follow-up, educational level, occupational position, and household income, and a second model additionally adjusting for baseline cholesterol level, high blood pressure, diabetes, and self-rated health.

For the SF-36 health scores, we similarly conducted linear regression models, adjusting the estimates for sex, age at baseline, age at follow-up, educational level, occupational position, household income and smoking in the first model, and additionally for baseline self-rated health in the second model.

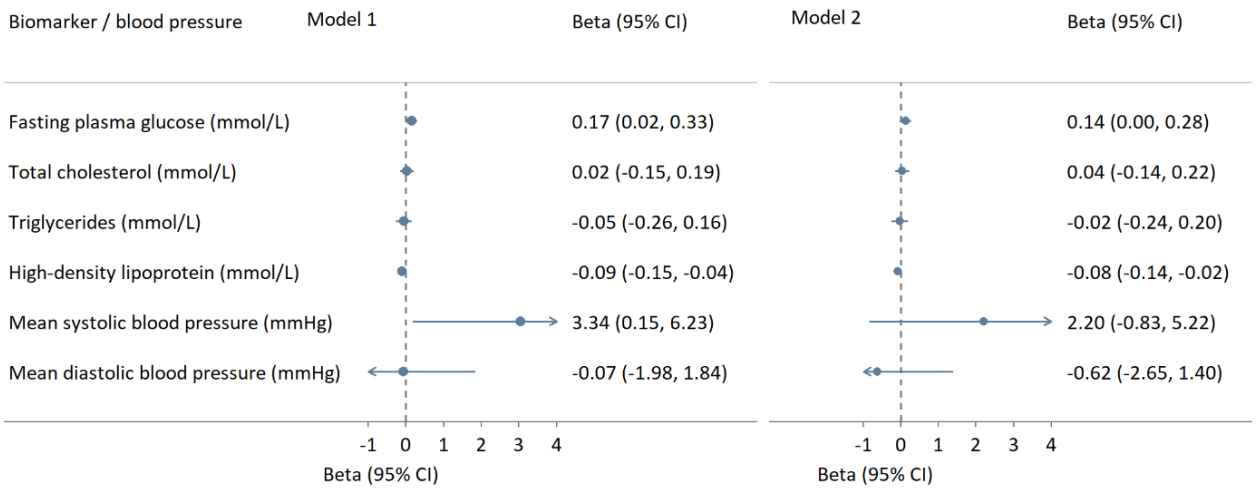
Findings

Forgoing healthcare for economic reasons at baseline was associated with an increase in blood glucose at follow-up (β-model 1: 0.17, 95% CI: 0.02, 0.33) (Figure 38). This association diminished only slightly after accounting for cardiometabolic conditions and self-rated health at baseline in model 2.

Forgoing healthcare at baseline was also associated with a decrease in HDL cholesterol (β-model 1: -0.09, 95% CI: -0.15, -0.04). This association remained after accounting for cardiometabolic conditions and self-rated health at baseline.

Finally, forgoing healthcare at baseline was associated with an increase in mean systolic blood pressure (β-model 1: 3.34, 95% CI: 0.15, 6.23). This association was no longer significant after accounting for cardiometabolic conditions and self-rated health at baseline.

Figure 38. Association between forgoing healthcare at baseline and difference in blood biomarkers and arterial blood pressure between follow-up and baseline, ReBus

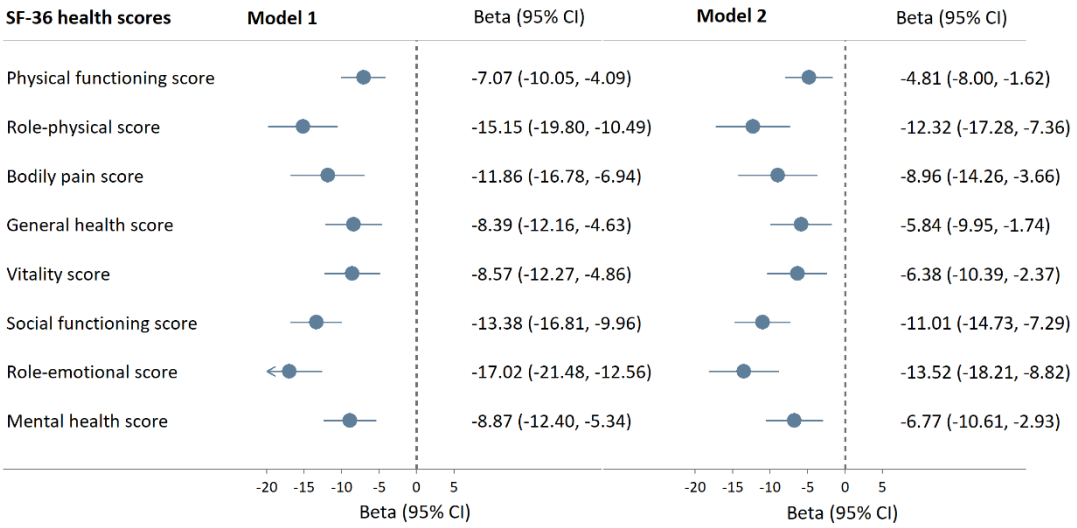


Baseline: 2008-2013; follow-up: 2014-2016, N = 400. Beta, the linear regression coefficient (95% confidence interval) are from linear regression for the association between forgoing healthcare and biomarkers change, adjusting for sex, age at baseline, age at follow-up, education, occupational position and household income in model 1; in model 2, additionally adjusting for baseline high cholesterol, high blood pressure, diabetes, and self-rated health.

There was no association between forgoing healthcare at baseline and the rest of the biomarkers and blood pressure indicators.

Forgoing healthcare at baseline was associated with all eight SF-36 scores. Individuals who reported forgoing healthcare at baseline systematically scored lower (7% to 17% average lower scores) than individuals who did not report forgoing healthcare at baseline (Figure 38). These associations attenuated but remained significant after accounting for self-rated health at baseline.

Figure 38. Longitudinal association of forgoing healthcare with SF-36 health scores, ReBus



Baseline: 2008-2013; follow-up: 2014-2016, N = 400. Beta, the linear regression coefficient (95% confidence interval) are from linear regression for the association between forgoing healthcare and biomarkers change, adjusting for sex, age at baseline, age at follow-up, education, occupational position, household income and smoking in model 1; in model 2, additionally adjusting for baseline self-rated health.

Comparison to the literature

To our knowledge, no previous report has examined the longitudinal association between forgoing healthcare at baseline and subsequent objectively measured health outcomes, namely biomarkers and blood pressure [110]. Our findings reflect those of studies that have found an association between forgoing healthcare and subjectively measured outcomes, such as poor self-reported health [100,102]. These results provide evidence for the detrimental consequences of forgoing healthcare, likely resulting from inadequate and insufficient preventive healthcare and health monitoring [86,113].

The findings of strong associations between forgoing healthcare and adverse physical health, mental health, vitality and social SF-36 scores largely reflect the existing literature. Previous studies have reported that forgoing or delaying healthcare is associated with subsequent poor self-reported health, lower quality-of-life, higher risk of hospitalization, and longer hospital stays [100,102,114]. Importantly, previous research has consistently found that the SF-36 scores we used in our analyses are predictive of cardiovascular outcomes, hospitalizations, and mortality [108,112,115–117]. Our findings thus provide important data linking forgoing healthcare to subsequent clinical outcomes.

CHAPTER 7 – Strengths and limitations

Strengths of included data, analyses and findings

The major strength of this report is that it uses data from multiple regional and national surveys to examine the prevalence and trends in prevalence of forgoing healthcare and dental care in Switzerland or elsewhere, and to explore both cross-sectional and longitudinal associations with demographic, socioeconomic, health-related indicators, and clinical outcomes.

Our analyses benefitted from the availability of several national and regional datasets which collected information about forgoing healthcare or dental care, or both, from large samples that are considered representative of the general adult population. Importantly, the included surveys contained abundant information regarding participants' demographic, socioeconomic, and health-related indicators, which allowed us to conduct stratified analyses of trends in prevalence of forgoing care. This allowed to observe important patterns of inequalities, particularly regarding nationality or birth country, and household income.

The availability of different demographic, socioeconomic and health-related information also allowed us to disentangle some observed patterns, and to assess whether the association of forgoing healthcare or dental care with a specific indicator remained or was explained once other indicators were taken into account. This was particularly the case when educational level and occupational position were generally no longer associated with forgoing healthcare once household income was taken into account. Similarly, this approach allowed us to observe that the strong association observed between forgoing healthcare or dental care and nationality or country of birth remained even after accounting for household income.

The included datasets also allowed us to examine trends over time, ranging from three survey years for IHP to nine survey years for SILC, and 13 survey years for Bus Santé. The availability of data across time allowed us not only to examine trends, but also to examine whether patterns of inequalities remained or evolved over time within each survey.

In addition, the availability of follow-up data in a few surveys allowed us to examine longitudinal associations between forgoing healthcare or dental care and several demographic, socioeconomic and health-related indicators. These findings provide important evidence linking socioeconomic disadvantage and poor self-rated health at one time point and increased likelihood of forgoing healthcare or dental care in the future, even after accounting for potential confounders.

Finally, data from the ReBus study allowed us to prospectively examine several health-related consequences resulting from forgoing healthcare at baseline. These data allowed us to assess the association of forgoing healthcare at baseline with objective and subjective health changes using measured biomarkers and validated health scores. As such, these findings provide important evidence linking forgoing healthcare with subsequent detrimental effects on physical and mental health.

Limitations of included data, analyses and findings

The major limitation of this report attempting to homogenize datasets and provide a national view was the heterogeneity in the way surveys measured forgoing care. While the regional surveys measured forgoing care very similarly ("In the past 12 months, have you renounced any type healthcare because of cost?"), the national surveys differed considerably from each other and from the regional surveys. This variation in assessment method prevented us from meta-analyzing estimates to calculate one national prevalence of forgoing healthcare in Switzerland.

In the case of SILC, the change in the relevant questions used to measuring forgoing healthcare from 2015 onwards also prevented us from assessing trends continuously from 2010 to 2018, and from making any inferences between changes observed before and after 2015. At the same time, however, this variation in assessment method across surveys posed no constraint in stratifying trends and prevalence according to demographic, socioeconomic and health-related factors. As shown in our findings, regardless of the specific way forgoing healthcare was measured in each survey, the same pattern of inequalities were consistently observed in most surveys.

Another further important limitation is the fact that participants in every survey were recruited from samples of formally registered residents; as such, all surveys provided no information about forgoing healthcare among asylum seekers and undocumented immigrants. These population subgroups, although comprising only a small proportion of the Swiss population [53,59–61], are at disproportionally higher risk of adverse physical and mental health [55–57], and face significant obstacles to accessing healthcare [17,60–62]—their lack of representation in the included surveys represents an information gap for these disproportionally vulnerable population subgroups.

In addition, while the data allowed us to identify a strong association between forgoing care and nationality or birth country, it did not contain information regarding migration permit type, which previous studies have found to be linked to the use of health care services [118,119]. Such information may have helped further explain the observed associations in our findings.

Another limitation in all included surveys is the fact that—as in virtually all population-based studies, in Switzerland and elsewhere—the participants tended to be more socioeconomically advantaged than the general population [120–123]. Given the consistently reported association between forgoing healthcare and socioeconomic indicators in the literature, this limitation may have led to underestimation of prevalence and strength of associations in our findings.

Another limitation was the limited sample size of some of the surveys. Although the national datasets SILC, IHP, and SHP contained thousands of participants per survey year, the prevalence of forgoing healthcare, namely in SILC, was quite low (about 3%), which led to reduced statistical power in stratified analyses and multivariable regression analyses. In the regional surveys, even though the prevalence of forgoing healthcare was much higher, the small sample size likely lead to statistical power issues that may have resulted in undetected

associations. This was particularly the case in the analyses of reasons for forgoing healthcare, as well as in the longitudinal analyses using ReBus data.

Also in analyses of the ReBus data, the fact that the findings showed little to no association of forgoing healthcare with triglycerides, total cholesterol and glycated hemoglobin may be explained by the participant's age at baseline (mean age of 48 years) and the relatively short time period between baseline and follow-up measures (mean time difference 4.8 years)—these may be insufficient for detecting major biomarkers changes in a middle-aged population [124,125].

In SILC, participants could only report one reason for forgoing healthcare—when there could have been more than one—and only for the most recent occurrence of forgoing healthcare—when there could have been more than one occurrence of forgoing healthcare [2,126]. This methodological approach, while standard practice in most surveys, introduced a limitation in the collected data, which likely provided only a partial picture of the reasons for forgoing healthcare.

Some important limitations relate to the question of forgoing healthcare itself. In measuring forgoing healthcare, all included surveys except one failed to ask specifically whether the occurrence of forgoing healthcare or dental care was in fact a case of completely renouncing care or merely delaying it. Such differentiation may indeed have already been done as the participant responded the question, with those who renounced healthcare at one point but subsequently accessing healthcare choosing to respond 'no' to the question [2,102].

The way questions were posed in all surveys relied and assumed the participant's full understanding of the phenomenon of forgoing healthcare, and may not have been interpreted uniformly across participants, particularly given the extensively reported socioeconomic and demographic inequalities in health literacy in Switzerland and other countries [127–134].

The way forgoing healthcare was measured in SILC from 2015 onwards, in particular, presented important limitations. In asking participants whether they 'really needed' medical care during the preceding year, the question assumed a high level of health literacy in general, understanding of preventive medical care, as well as of chronic condition care and follow-up care. Individuals with lower level of health literacy may not know whether a medical examination or treatment is truly needed until they are told so by a healthcare provider [128,129,135].

A previous study in multiple European countries found that 1 in 10 participants had inadequate health literacy [134], while a recent study in Switzerland found that almost half of the Swiss population had a low level of health literacy, particularly in respect to evaluating and applying information on disease prevention [136]. Thus, without accounting for health literacy, the way the question was posited to participants, particularly in SILC, may not have captured the real prevalence of forgoing healthcare.

Finally, while we included several potential confounders in most analyses, there may be important residual confounders that could explain the observed associations with forgoing healthcare but were not measured in the included surveys and not considered in this report.

CHAPTER 8 — Implications and recommendations

Implications of findings

The findings in this report indicate that forgoing care is a present and persistent phenomenon in the Swiss population. Importantly, although the prevalence of forgoing healthcare varied across surveys, the pattern of demographic, socioeconomic and health-related inequalities were observed consistently across national and regional surveys. These findings reflect a large body of literature linking socioeconomic disadvantage with forgoing healthcare and dental care in countries with different healthcare systems.

In particular, our findings showed that individuals with lower household income were disproportionally more likely to forgo care. This reflects extensive evidence from many countries that have consistently found the cost of accessing care to be the main or among the most important reason for forgoing healthcare [7,12]—which is then manifested in income inequalities in accessing care, and forgoing care, whenever individuals need to pay for services, as is the case in several European countries and the United States [74,137,138].

This is also the case with the healthcare system in Switzerland, where individuals are required to pay for their health insurance premium, deductible, and co-pay. Although cantonal government measures are in place to assist individuals and families who are unable to cover their healthcare coverage, these measures only apply under specific conditions, and vary considerably across cantons [6,9,10]. As such, it is likely that some individuals and families who do not meet the requirement for health insurance subsidies may in fact be in financially vulnerable situations where accessing healthcare may need to be deprioritized over other household expenses [11–16].

Evidence of the effectiveness of health insurance subsidies given to low-income individuals by cantons was shown in a previous study, which found that health insurance subsidies were associated with reduced mortality in the Swiss population [139].

Key message 1

Socioeconomically disadvantaged individuals are especially at risk of forgoing care. Knowing this, the relevant authorities and decision makers at the federal, cantonal, regional or local level should carefully evaluate individuals' socioeconomic conditions (i.e., assessing difficulty paying utility bills, food insecurity, risk of catastrophic health expenditure, etc.) and consider if appropriate expanding eligibility for existing social measures (e.g., health insurance premium subsidies, disability insurance, and social assistance). In addition, authorities on all levels could consider and explore alternative measures to overcome socioeconomically-related barriers to healthcare access.

Our findings showed that non-Swiss individuals and those born outside of Switzerland were significantly more likely to forgo healthcare, even after accounting for socioeconomic factors such as household income and educational level. More research is needed to elucidate this link, exploring potential contributing factors such as language proficiency, level of assimilation and acculturation, residence status (i.e., permit type), health literacy, and previous healthcare utilization patterns in country of birth.

Key message 2

Non-Swiss and foreign-born individuals are significantly more likely to forgo care, even after accounting for socioeconomic factors. Further research is needed to understand the reasons behind this link, collecting and analyzing detailed information on immigration history and current status (i.e., type of residence permit), language proficiency, level of assimilation and acculturation, health literacy, and healthcare access history in country of origin.

In addition, our findings revealed that individuals with chronic conditions and poor self-rated health were significantly more likely to forgo healthcare and dental care than individuals without chronic conditions (i.e., obesity, diabetes, cardiovascular disease). Previous research in Switzerland has found that patients with comorbidities in particular face multiple barriers to accessing the healthcare needed [130].

Key message 3

Individuals with a chronic condition (obesity, diabetes, cardiovascular disease) are more likely to forgo healthcare. Given the importance of chronic disease management in improving prognosis and preventing adverse health outcomes, healthcare providers should more systematically identify the work and living conditions of their patients in order to adapt healthcare to patients' needs, increase patients' compliance as well as their continuous access to care.

Our findings also revealed that forgoing healthcare at baseline is associated with negative objectively and subjectively measured health outcomes in subsequent years. Given that socioeconomically disadvantaged individuals are more likely to forgo healthcare than their more privileged counterparts in the Swiss population, the adverse impact of forgoing care on health likely contributes to maintaining socioeconomic inequalities in health in the Swiss population. At the same time, sensitively addressing forgoing healthcare represents a likely mechanism to decrease long-standing inequalities in health in the Swiss population.

Key message 4

Forgoing healthcare likely leads to adverse mental and physical health outcomes in the future. Thus, it is key that public health stakeholders at both cantonal and federal levels consider strategies to enable and empower individuals to access the healthcare needed, particularly socioeconomically disadvantaged individuals, those with a migration background, as well as individuals with chronic conditions.

Increased health literacy enables individuals to better understand the features of health insurance plans and insurance models, empowering them to make better choices in choosing a plan that works best for them in terms of insurance premium, deductible and co-pays, which in turn can improve their access to healthcare [9,10,134,135,140]. In addition, increased health literacy allows individuals to make better informed decisions on whether to seek a specific healthcare service [128,129,134,135].

Thus, improving health literacy in the population can potentially contribute to decreasing the prevalence of forgoing healthcare and dental care, and to reduce socioeconomic inequalities. Evidence from several studies indicates that health literacy is an important mediator of the association between socioeconomic conditions and healthcare use [127].

Given the inequalities observed in our findings according to nationality and socioeconomic conditions, and the extensive evidence linking health literacy with socioeconomic conditions [127–134], it is likely that health literacy plays a role in forgoing healthcare in Switzerland—although we could not assess this in the data. However, evidence indicates that population-wide approaches to improving health literacy disproportionally benefit individuals with higher socioeconomic privilege, and have little to no impact on socioeconomically disadvantaged individuals [141–143]. Therefore, interventions to increase health literacy in the population must be tailored according to the specific needs of different demographic and socioeconomic groups [141–143].

Key message 5

Given the extensive evidence linking health literacy with socioeconomic conditions, it is likely that health literacy plays a role in forgoing healthcare in Switzerland. Efforts to increase health literacy could contribute to decreasing the prevalence of forgoing healthcare and dental care by allowing individuals to make better informed decisions on whether to seek a specific healthcare service. Interventions to increase health literacy in the population must be tailored according to the specific needs of different demographic and socioeconomic groups.

While our findings demonstrate the existence of socioeconomic inequalities in forgoing healthcare in the Swiss population, our analyses did not capture several other important social, cultural, environmental and structural factors that may influence the decision to forgo healthcare. Thus, future research needs to collect more information regarding individuals' factors such as household financial situation, neighborhood conditions, proximity to medical services, knowledge of healthcare services available in the community, organizational or work-related barriers, language barriers, trust in doctors and the healthcare system overall, etc. Evaluating these factors may provide a better understanding of this phenomenon in Switzerland.

Key message 6

Future research as well as national and cantonal health monitoring need to collect more detailed information about individuals' social, economic, cultural, environmental, family and work characteristics to better understand factors leading individuals to forgo healthcare.

At the same time, future research needs to consistently measure the phenomenon of forgoing health and dental care in greater detail. The way forgoing care was assessed in the included surveys was based on the assumption that individuals understood when a healthcare service was truly necessary, and most included surveys did not assess whether the occurrence was in fact forgoing completely or merely postponing. To better capture the complexity and

occurrence of forgoing healthcare, qualitative or mixed methods [2,7], as well as cognitive interviewing methods should be explored [144,145].

Given differences in health literacy, as well as socioeconomic factors that influence an individual's thinking process about their healthcare-related choices, a more detailed examination of forgoing healthcare is warranted in future surveys [2,146]. Furthermore, when measuring reasons for forgoing healthcare, individuals may be given the option to specify their own reason, and these reasons need to be explored further instead of grouping them as "other reasons"—this is particularly important given that many reasons were grouped into the "other reason" category; the "other reason" category was the second most frequent category for forgoing healthcare across most survey years.

Key message 7

Future research and national and cantonal health monitoring need to better assess the indicator of forgoing healthcare and the reasons behind it, systematically collecting more comparable information at the individual and family/household level. This should include information about more than one occurrence of forgoing care, whether healthcare was subsequently accessed or permanently forgone, the underlying condition for which healthcare was needed, and what service/expense may have taken priority over the forgone healthcare (e.g., paying monthly rent or utility bills, food purchase, etc.).

While our findings highlighted the role of income in forgoing healthcare, a significant proportion of individuals forgoing healthcare reported doing so because of lack of time. To tackle this, improvements in work-life balance, work schedule flexibility, as well as expanded provision of childcare services, for example at the point of care, could enable individuals to not forgo healthcare.

Key message 8

Improvements in work-life balance can enable individuals to have more time devoted to healthcare seeking behavior. Greater flexibility in working hours, as well as expanded provision of childcare services, may help improving healthcare access.

Our findings also showed the prevalence of forgoing dental care in the Swiss population, which was even more strongly associated with household income than forgoing healthcare. This reflects the fact that dental care is currently not included in the mandatory health insurance plan. For those who purchase dental insurance plan, or indeed get approved for one, existing conditions are often excluded for coverage—this may systematically prevent immigrants from accessing dental care.

Forgoing dental care can contribute to tooth decay, dental cavities and periodontal disease, which in turn contribute to the development of systemic inflammation, cardiovascular disease [147–149]. Thus, access to dental care needs to be improved in the Swiss population, especially among migrants and socioeconomically underprivileged individuals. For this, the mandatory health insurance coverage should include basic dental care, and guarantee coverage regardless of pre-existing conditions. Indeed, dental health is an intrinsic component of overall health, and should thus be considered as such in healthcare policy [150–152].

Key message 9

Forgoing dental care remains a problem in Switzerland. To improve access to dental care, including preventive and basic dental care in the mandatory health insurance coverage should be considered, either at the federal level or at the cantonal level.

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ANNEX

Supplementary table 1. Characteristics of included sample, SILC 2010-2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
N	13087	12986	12956	12574	11418	12001	12442	12976	10147
Age (mean, SD)	49.6 (17.4)	49.8 (17.6)	50.3 (17.7)	51.1 (17.7)	50.7 (17.4)	50.0 (17.3)	49.9 (17.3)	49.6 (17.3)	51.2 (17.1)
Age group, in years									
18-34	2845 (21.7)	2855 (22.0)	2813 (21.7)	2596 (20.6)	2343 (20.5)	2670 (22.2)	2764 (22.2)	2970 (22.9)	1986 (19.6)
35-49	3775 (28.8)	3639 (28.0)	3487 (26.9)	3258 (25.9)	3086 (27.0)	3202 (26.7)	3342 (26.9)	3433 (26.5)	2644 (26.1)
50-64	3446 (26.3)	3391 (26.1)	3420 (26.4)	3375 (26.8)	3082 (27.0)	3262 (27.2)	3431 (27.6)	3578 (27.6)	2873 (28.3)
≥65	3021 (23.1)	3101 (23.9)	3236 (25.0)	3345 (26.6)	2907 (25.5)	2867 (23.9)	2905 (23.3)	2995 (23.1)	2644 (26.1)
Men	6100 (46.6)	6057 (46.6)	6068 (46.8)	5919 (47.1)	5400 (47.3)	5711 (47.6)	5941 (47.7)	6161 (47.5)	4779 (47.1)
Women	6987 (53.4)	6929 (53.4)	6888 (53.2)	6655 (52.9)	6018 (52.7)	6290 (52.4)	6501 (52.3)	6815 (52.5)	5368 (52.9)
Nationality									
Swiss	11314 (86.5)	11169 (86.0)	11137 (86.0)	10910 (86.8)	9813 (85.9)	10305 (85.9)	10642 (85.5)	11005 (84.8)	8736 (86.1)
EU	1203 (9.2)	1279 (9.8)	1302 (10.0)	1217 (9.7)	1304 (11.4)	1398 (11.6)	1507 (12.1)	1629 (12.6)	1191 (11.7)
Other	570 (4.4)	538 (4.1)	517 (4.0)	447 (3.6)	301 (2.6)	298 (2.5)	293 (2.4)	342 (2.6)	220 (2.2)
Monthly household income, in CHF									
<5000	8840 (67.6)	8563 (66.1)	8355 (64.6)	7951 (63.3)	7180 (63.1)	7499 (62.6)	7804 (62.8)	8082 (62.4)	6285 (62.0)
5000-9499	3619 (27.7)	3760 (29.0)	3950 (30.5)	3948 (31.4)	3572 (31.4)	3844 (32.1)	4031 (32.4)	4174 (32.2)	3307 (32.6)
>9500	609 (4.7)	639 (4.9)	637 (4.9)	666 (5.3)	623 (5.5)	637 (5.3)	595 (4.8)	704 (5.4)	549 (5.4)
Educational level									
Lower	2358 (18.0)	2281 (17.6)	2107 (16.3)	1954 (15.5)	1712 (15.0)	1609 (13.4)	1585 (12.7)	1573 (12.1)	1013 (10.0)
Middle	6633 (50.7)	6543 (50.4)	6606 (51.0)	6383 (50.8)	5852 (51.3)	6054 (50.4)	6219 (50.0)	6397 (49.3)	4944 (48.7)
Higher	4080 (31.2)	4158 (32.0)	4238 (32.7)	4231 (33.7)	3852 (33.7)	4338 (36.1)	4638 (37.3)	5006 (38.6)	4190 (41.3)
Occupational position									
Lower	5394 (45.8)	5486 (45.9)	5395 (44.7)	5095 (43.6)	5006 (46.8)	5143 (45.6)	5207 (44.6)	5360 (44.0)	3986 (42.0)
Middle	2641 (22.4)	2637 (22.0)	2732 (22.7)	2703 (23.1)	2139 (20.0)	2256 (20.0)	2407 (20.6)	2508 (20.6)	1969 (20.8)
Higher	3736 (31.7)	3841 (32.1)	3934 (32.6)	3880 (33.2)	3547 (33.2)	3874 (34.4)	4058 (34.8)	4326 (35.5)	3530 (37.2)
Reported forgoing healthcare	237 (1.8)	232 (1.8)	240 (1.9)	239 (1.9)	193 (1.7)	251 (2.1)	272 (2.2)	284 (2.2)	246 (2.4)
Reported forgoing dental care	717 (5.5)	721 (5.6)	666 (5.1)	687 (5.5)	553 (4.8)	482 (4.0)	579 (4.7)	582 (4.5)	421 (4.1)
Self-rated health									
Poor/very poor	10420 (82.0)	10268 (81.9)	10325 (82.6)	9720 (80.4)	8695 (79.2)	9612 (80.1)	9812 (78.9)	10608 (81.8)	8305 (81.9)
Fair	1869 (14.7)	1869 (14.9)	1804 (14.4)	1941 (16.0)	1879 (17.1)	1952 (16.3)	2156 (17.3)	1912 (14.7)	1489 (14.7)
Very good/good	416 (3.3)	403 (3.2)	365 (2.9)	433 (3.6)	405 (3.7)	431 (3.6)	465 (3.7)	454 (3.5)	348 (3.4)
Limited health affecting daily activities	3198 (24.4)	3041 (23.4)	2681 (20.7)	3986 (31.7)	3702 (32.7)	3622 (30.3)	3883 (31.2)	3860 (29.8)	3108 (30.7)
Obesity	1234 (9.8)	1244 (10.0)	1249 (10.1)	1242 (10.4)	1227 (11.3)	1335 (11.3)	1332 (10.8)	1363 (10.6)	1106 (11.0)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 2. Characteristics of included sample, IHP 2010, 2013, 2016

	2010	2013	2016
N	1270	1496	1161
Age (mean, SD)	55.4 (17.4)	48.5 (17.5)	50.3 (17.5)
Age group, in years			
18-34	151 (11.9)	380 (25.4)	250 (21.5)
35-49	361 (28.4)	429 (28.7)	298 (25.7)
50-64	324 (25.5)	368 (24.6)	352 (30.3)
≥65	434 (34.2)	319 (21.3)	261 (22.5)
Men	728 (57.3)	788 (52.7)	596 (51.3)
Women	542 (42.7)	708 (47.3)	565 (48.7)
Country of birth			
Switzerland	1196 (94.2)	1242 (84.3)	831 (71.7)
Other country	74 (5.8)	232 (15.7)	328 (28.3)
Monthly household income, in CHF			
<5000	557 (45.8)	511 (39.6)	485 (45.5)
5000-9499	314 (25.8)	410 (31.8)	233 (21.8)
≥9500	344 (28.3)	370 (28.7)	349 (32.7)
Educational level			
Lower	218 (17.3)	101 (7.1)	155 (13.7)
Middle	720 (57.0)	794 (55.5)	654 (57.6)
Higher	325 (25.7)	535 (37.4)	326 (28.7)
Reported forgoing healthcare	121 (9.5)	165 (11.0)	235 (20.2)
Reported forgoing dental care	NA	143 (9.7)	229 (20.3)
Self-rated health			
Poor/fair	35 (3.1)	29 (2.1)	38 (3.7)
Good	283 (24.9)	413 (29.4)	258 (25.1)
Very good/excellent	817 (72.0)	962 (68.5)	730 (71.2)
Cardiometabolic conditions			
Hypertension	132 (10.5)	267 (18.6)	247 (21.5)
Obesity	103 (8.1)	116 (8.1)	52 (4.5)
Cardiovascular disease	129 (10.2)	126 (8.8)	92 (8.0)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 3. Characteristics of included sample, SHP 2013-2018

	2013	2014	2015	2016	2017	2018
N	6602	7213	6488	5856	5794	5919
Age (mean, SD)	52.1 (17.7)	52.7 (17.4)	53.6 (17.7)	54.5 (17.8)	54.2 (18.0)	53.9 (18.3)
Age group, in years						
18-34	1269 (19.2)	1302 (18.1)	1133 (17.5)	984 (16.8)	1039 (17.9)	1148 (19.4)
35-49	1702 (25.8)	1797 (24.9)	1482 (22.8)	1268 (21.7)	1218 (21.0)	1181 (20.0)
50-64	1795 (27.2)	2052 (28.4)	1866 (28.8)	1669 (28.5)	1662 (28.7)	1712 (28.9)
≥65	1836 (27.8)	2062 (28.6)	2007 (30.9)	1935 (33.0)	1875 (32.4)	1878 (31.7)
Men	2888 (43.7)	3205 (44.4)	2848 (43.9)	2530 (43.2)	2521 (43.5)	2649 (44.8)
Women	3714 (56.3)	4008 (55.6)	3640 (56.1)	3326 (56.8)	3273 (56.5)	3270 (55.2)
Nationality						
Swiss	5950 (90.1)	6504 (90.2)	5942 (91.6)	5416 (92.5)	5373 (92.7)	5500 (92.9)
Non-Swiss	652 (9.9)	709 (9.8)	546 (8.4)	440 (7.5)	421 (7.3)	419 (7.1)
Monthly household income, in CHF						
<5000	441 (7.3)	571 (8.4)	517 (8.5)	474 (8.5)	472 (8.6)	510 (9.1)
5000-9499	2456 (40.8)	2931 (43.4)	2619 (42.9)	2388 (42.9)	2391 (43.7)	2483 (44.4)
9500	3123 (51.9)	3256 (48.2)	2969 (48.6)	2701 (48.6)	2603 (47.6)	2603 (46.5)
Educational level						
Lower	642 (16.0)	1075 (16.0)	1002 (15.5)	905 (15.5)	832 (14.4)	833 (14.1)
Middle	1998 (49.9)	3227 (48.2)	3133 (48.3)	2730 (46.7)	2670 (46.2)	2745 (46.4)
Higher	1363 (34.0)	2396 (35.8)	2347 (36.2)	2212 (37.8)	2281 (39.4)	2332 (39.5)
Occupational position						
Lower	702 (27.9)	1250 (29.5)	1154 (28.3)	986 (27.8)	1011 (28.4)	995 (27.0)
Middle	216 (8.6)	388 (9.1)	380 (9.3)	343 (9.7)	293 (8.2)	317 (8.6)
Higher	1598 (63.5)	2605 (61.4)	2538 (62.3)	2215 (62.5)	2261 (63.4)	2372 (64.4)
Reported forgoing dental care	163 (2.5)	216 (3.0)	188 (2.9)	143 (2.4)	142 (2.5)	133 (2.2)
Self-rated health						
Poor/very poor	101 (2.5)	164 (2.4)	172 (2.7)	128 (2.2)	137 (2.4)	159 (2.7)
Fair	630 (15.7)	939 (14.0)	917 (14.1)	875 (14.9)	844 (14.6)	882 (14.9)
Very good/good	3274 (81.7)	5599 (83.5)	5392 (83.2)	4853 (82.9)	4810 (83.1)	4875 (82.4)
Obesity	430 (11.0)	761 (11.6)	713 (11.2)	625 (10.9)	661 (11.7)	624 (11.2)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 4. Characteristics of included sample, Bus Santé 2007-2019

	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019
N	1839	1951	1985	2161	2231	2324
Age (mean, SD)	51.8 (11.0)	52.0 (10.9)	46.8 (14.4)	46.7 (14.0)	46.5 (14.0)	47.4 (14.1)
Age group, in years						
18-34	22 (1.2)	26 (1.3)	472 (23.8)	512 (23.7)	528 (23.7)	533 (22.9)
35-49	856 (46.5)	915 (46.9)	701 (35.3)	766 (35.4)	815 (36.5)	779 (33.5)
50-64	685 (37.2)	689 (35.3)	531 (26.8)	615 (28.5)	593 (26.6)	704 (30.3)
≥65	276 (15.0)	321 (16.5)	281 (14.2)	268 (12.4)	295 (13.2)	308 (13.3)
Men	938 (51.0)	995 (51.0)	1016 (51.2)	1118 (51.7)	1166 (52.3)	1221 (52.5)
Women	901 (49.0)	956 (49.0)	969 (48.8)	1043 (48.3)	1065 (47.7)	1103 (47.5)
Nationality						
Swiss	1297 (70.6)	1339 (68.7)	1333 (67.2)	1334 (61.7)	1445 (64.8)	1574 (67.7)
Eu	76 (4.1)	131 (6.7)	99 (5.0)	120 (5.6)	139 (6.2)	159 (6.8)
Other	83 (4.5)	87 (4.5)	81 (4.1)	96 (4.4)	85 (3.8)	80 (3.4)
Monthly household income, in CHF						
<5000	359 (20.6)	391 (21.4)	437 (24.4)	427 (22.4)	422 (21.2)	463 (22.1)
5000-9499	706 (40.5)	732 (40.1)	684 (38.3)	746 (39.1)	753 (37.8)	766 (36.6)
≥9500	677 (38.9)	702 (38.5)	667 (37.3)	736 (38.6)	817 (41.0)	864 (41.3)
Educational level						
Lower	636 (35.2)	722 (37.7)	755 (38.7)	900 (42.0)	1023 (46.4)	1070 (46.2)
Middle	422 (23.4)	478 (25.0)	536 (27.5)	545 (25.4)	534 (24.2)	581 (25.1)
Higher	749 (41.4)	714 (37.3)	660 (33.8)	698 (32.6)	650 (29.5)	667 (28.8)
Occupational position						
Lower	336 (24.9)	385 (27.1)	323 (23.6)	420 (26.9)	502 (31.3)	531 (31.5)
Middle	488 (36.2)	503 (35.4)	488 (35.6)	520 (33.3)	504 (31.4)	556 (33.0)
Higher	525 (38.9)	534 (37.6)	559 (40.8)	620 (39.7)	598 (37.3)	599 (35.5)
Reported forgoing healthcare	202 (11.0)	250 (12.8)	282 (14.2)	289 (13.4)	318 (14.3)	371 (16.0)
Reported forgoing dental care	84 (4.6)	78 (4.0)	101 (5.1)	107 (5.0)	95 (4.3)	129 (5.6)
Self-rated health						
Poor/very poor	31 (3.0)	27 (2.6)	44 (2.2)	50 (2.3)	42 (1.9)	45 (1.9)
Fair	192 (18.8)	172 (16.4)	338 (17.1)	349 (16.2)	357 (16.0)	384 (16.5)
Very good/good	798 (78.2)	852 (81.1)	1600 (80.7)	1760 (81.5)	1832 (82.1)	1895 (81.5)
Cardiometabolic conditions						
Obesity	217 (13.7)	255 (13.3)	233 (12.1)	261 (12.4)	233 (10.9)	257 (11.4)
Hypertension	529 (28.8)	493 (25.3)	447 (22.5)	432 (20.0)	475 (21.3)	522 (22.5)
Diabetes	127 (6.9)	127 (6.5)	96 (4.8)	102 (4.7)	123 (5.5)	124 (5.3)
Cardiovascular disease	83 (4.5)	97 (5.0)	90 (4.5)	79 (3.7)	86 (3.9)	79 (3.4)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 5. Characteristics of included sample, CoLaus 2014-2017

	2014	2015	2016	2017
N	673	1642	1748	252
Age (mean, SD)	63.6 (10.8)	62.8 (10.3)	61.9 (9.9)	60.8 (9.9)
Age group, in years				
45-64	368 (54.7)	966 (58.8)	1088 (62.2)	176 (69.8)
≥65	305 (45.3)	676 (41.2)	660 (37.8)	76 (30.2)
Men	323 (48.0)	721 (43.9)	799 (45.7)	108 (42.9)
Women	350 (52.0)	921 (56.1)	949 (54.3)	144 (57.1)
Nationality				
Swiss	220 (32.7)	629 (38.3)	608 (34.8)	101 (40.1)
Non-Swiss	453 (67.3)	1013 (61.7)	1140 (65.2)	151 (59.9)
Monthly household income, in CHF				
<5000	170 (28.9)	378 (27.1)	394 (26.6)	55 (27.8)
5000-9499	254 (43.2)	628 (45.1)	626 (42.2)	89 (44.9)
≥9500	164 (27.9)	388 (27.8)	462 (31.2)	54 (27.3)
Educational level				
Lower	358 (53.3)	823 (50.1)	895 (51.2)	134 (53.2)
Middle	202 (30.1)	460 (28.0)	421 (24.1)	61 (24.2)
Higher	112 (16.7)	359 (21.9)	431 (24.7)	57 (22.6)
Occupational position				
Lower	332 (53.5)	816 (54.1)	841 (52.4)	128 (56.4)
Middle	199 (32.1)	514 (34.1)	554 (34.5)	72 (31.7)
Higher	89 (14.4)	179 (11.9)	210 (13.1)	27 (11.9)
Reported forgoing healthcare	91 (13.5)	197 (12.0)	242 (13.8)	42 (16.7)
Self-rated health				
Poor/very poor	8 (1.2)	35 (2.1)	48 (2.8)	6 (2.4)
Fair	124 (18.6)	295 (18.0)	331 (19.0)	59 (23.4)
Very good/good	536 (80.2)	1307 (79.8)	1361 (78.2)	187 (74.2)
Cardiometabolic conditions				
Obesity	135 (20.1)	313 (19.1)	412 (23.6)	89 (35.3)
Hypertension	343 (51.3)	800 (49.5)	823 (48.6)	118 (51.5)
Diabetes	70 (10.6)	185 (11.6)	198 (12.1)	32 (15.4)
Cardiovascular disease	53 (8.0)	159 (9.8)	200 (11.6)	33 (13.4)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 6. Characteristics of included sample, SKIPOGH 2013-2015

	2013	2014	2015
N	330	357	205
Age (mean, SD)	51.2 (17.0)	51.0 (17.2)	50.2 (17.4)
Age group, in years			
18-34	75 (22.7)	75 (21.0)	55 (26.8)
35-49	75 (22.7)	91 (25.5)	36 (17.6)
50-64	103 (31.2)	95 (26.6)	63 (30.7)
≥65	77 (23.3)	96 (26.9)	51 (24.9)
Men	154 (46.7)	172 (48.2)	91 (44.4)
Women	176 (53.3)	185 (51.8)	114 (55.6)
Nationality			
Swiss	260 (80.5)	289 (81.0)	187 (91.2)
Non-Swiss	63 (19.5)	68 (19.0)	18 (8.8)
Monthly household income, in CHF			
<5000	63 (22.3)	60 (20.0)	39 (22.0)
5000-9499	116 (41.0)	125 (41.7)	68 (38.4)
≥9500	104 (36.7)	115 (38.3)	70 (39.5)
Educational level			
Lower	66 (21.0)	60 (17.6)	31 (16.1)
Middle	146 (46.5)	145 (42.6)	80 (41.7)
Higher	102 (32.5)	135 (39.7)	81 (42.2)
Occupational position			
Lower	155 (52.4)	124 (38.6)	81 (43.1)
Middle	90 (30.4)	127 (39.6)	61 (32.4)
Higher	51 (17.2)	70 (21.8)	46 (24.5)
Reported forgoing healthcare	35 (10.6)	42 (11.8)	23 (11.2)
Self-rated health			
Poor/very poor	63 (19.3)	83 (23.9)	52 (26.9)
Fair	263 (80.7)	265 (76.1)	141 (73.1)
Very good/good			
Cardiometabolic conditions			
Obesity	52 (15.8)	48 (13.4)	32 (15.6)
Hypertension	101 (30.6)	97 (27.2)	50 (24.4)
Diabetes	21 (6.4)	17 (4.8)	14 (6.9)
Cardiovascular disease	64 (19.6)	64 (18.0)	37 (18.1)

Raw N (%) unless specified otherwise. For description and categorization of variables, see Chapter 1.

Supplementary table 7. Trends in prevalence of forgoing healthcare

	Prevalence, % (95% confidence interval)												
Survey	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SILC	-	-	-	1.8 (1.6-2.0)	1.8 (1.6-2.0)	1.9 (1.6-2.1)	1.9 (1.7-2.1)	1.7 (1.5-1.9)	2.1 (1.8-2.4)	2.2 (1.9-2.4)	2.2 (1.9-2.4)	2.4 (2.1-2.7)	
IHP	-	-	-	9.5 (7.9-11.1)	-	-	11.0 (9.5-12.6)	-	-	20.2 (18.0-22.5)	-	-	-
SKIPOGH	-	-	-	-	-	-	10.6 (7.3-13.9)	11.8 (8.5-15.1)	11.2 (7.0-15.5)	-	-	-	-
CoLaus	-	-	-	-	-	-	-	13.5 (11.0-16.1)	12.0 (10.5-13.6)	13.8 (12.2-15.5)	16.7 (12.1-21.2)		
Bus Santé	8.5 (5.2-11.8)	11.9 (9.1-14.7)	11.2 (9.3-13.1)	12.1 (10.1-14.1)	13.6 (11.4-15.7)	14.1 (11.9-16.3)	14.3 (12.2-16.5)	12.3 (10.3-14.3)	14.3 (12.3-16.4)	14.3 (12.2-16.5)	14.2 (12.2-16.1)	16.2 (14.1-18.3)	15.7 (13.7-17.8)

Prevalence and 95% confidence interval are from logistic regression models, and adjusted for age and sex, and in SILC, additionally for region. These estimates were used to populate the corresponding figure.

Supplementary table 8. Trends in prevalence of forgoing healthcare by region, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Region	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Lake Geneva	3.9 (3.1-4.7)	4.4 (3.6-5.3)	4.6 (3.7-5.4)	4.0 (3.2-4.9)	3.1 (2.3-3.8)	*0.15*	2.1 (1.5-2.7)	2.2 (1.6-2.8)	2.6 (1.9-3.2)	3.4 (2.6-4.3)	*<0.01*
Mitteland	1.7 (1.3-2.2)	1.3 (0.9-1.7)	1.5 (1.1-1.9)	2.1 (1.6-2.6)	1.7 (1.2-2.1)	*0.19*	2.4 (1.9-3.0)	2.6 (2.0-3.1)	2.2 (1.7-2.7)	2.9 (2.2-3.5)	*0.50*
Northwest	1.1 (0.6-1.6)	1.5 (1.0-2.1)	1.5 (0.9-2.0)	1.5 (0.9-2.0)	1.2 (0.7-1.7)	*0.76*	1.6 (1.0-2.2)	2.3 (1.6-3.0)	2.3 (1.6-3.0)	1.9 (1.2-2.6)	*0.69*
Zurich	1.2 (0.8-1.7)	1.2 (0.7-1.6)	1.0 (0.6-1.4)	1.3 (0.8-1.7)	1.4 (0.8-1.9)	*0.64*	1.8 (1.2-2.3)	1.7 (1.2-2.3)	1.6 (1.1-2.1)	1.7 (1.1-2.3)	*0.95*
East	0.9 (0.4-1.3)	0.8 (0.4-1.2)	1.1 (0.6-1.6)	0.8 (0.4-1.3)	1.1 (0.6-1.6)	*0.41*	2.3 (1.5-3.0)	2.2 (1.5-2.9)	2.1 (1.4-2.8)	2.2 (1.4-3.0)	*0.98*
Central	1.2 (0.6-1.8)	1.6 (0.9-2.3)	1.1 (0.5-1.7)	1.0 (0.4-1.6)	1.3 (0.6-2.0)	*0.69*	2.4 (1.5-3.3)	1.9 (1.1-2.7)	2.3 (1.4-3.1)	1.8 (0.9-2.7)	*0.69*
Ticino	3.4 (1.8-5.0)	1.3 (-0.2-2.8)	1.7 (0.5-3.0)	3.7 (1.2-6.2)	2.3 (0.8-3.8)	*0.80*	2.1 (0.8-3.5)	2.0 (0.8-3.2)	2.8 (1.3-4.2)	2.6 (1.1-4.1)	*0.47*

Prevalence and 95% confidence interval are from logistic regression models separately run by region, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 9. Trends in prevalence of forgoing healthcare by age group, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Age group, years	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
18-34	2.1 (1.6-2.7)	1.8 (1.3-2.3)	2.4 (1.8-2.9)	2.4 (1.8-3.0)	2.3 (1.7-2.9)	*0.34*	2.6 (2.0-3.2)	2.5 (2.0-3.1)	2.7 (2.1-3.3)	3.2 (2.5-4.0)	*0.17*
35-49	2.6 (2.1-3.1)	2.7 (2.2-3.2)	2.4 (1.9-2.9)	2.3 (1.8-2.9)	2.2 (1.7-2.8)	*0.17*	2.7 (2.1-3.2)	2.8 (2.2-3.3)	2.6 (2.1-3.1)	3.1 (2.5-3.8)	*0.39*
50-64	1.5 (1.1-1.9)	1.8 (1.3-2.2)	1.8 (1.3-2.2)	2.2 (1.7-2.7)	1.7 (1.2-2.2)	*0.18*	1.9 (1.4-2.4)	2.4 (1.9-2.9)	2.0 (1.6-2.5)	2.3 (1.8-2.9)	*0.66*
≥65	0.9 (0.6-1.2)	0.9 (0.5-1.2)	1.0 (0.7-1.4)	0.8 (0.5-1.2)	0.6 (0.3-0.9)	*0.34*	1.2 (0.8-1.6)	1.0 (0.6-1.4)	1.4 (1.0-1.8)	1.3 (0.9-1.8)	*0.34*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 10. Trends in prevalence of forgoing healthcare by age group, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Age group, years	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
18-34	10.0 (-2.2-22.2)	26.3 (6.6-46.0)	18.0 (14.6-21.5)	16.4 (13.2-19.6)	16.9 (13.7-20.0)	20.5 (17.0-23.9)	*0.20*
35-49	14.4 (11.9-17.0)	15.2 (12.9-17.5)	15.6 (12.9-18.2)	15.1 (12.6-17.7)	16.1 (13.6-18.6)	18.2 (15.5-20.9)	*0.04*
50-64	10.0 (7.6-12.4)	12.3 (9.9-14.8)	12.2 (9.5-15.0)	12.2 (9.6-14.8)	12.5 (9.8-15.1)	13.9 (11.4-16.5)	*0.09*
≥65	5.6 (2.6-8.5)	6.5 (3.8-9.2)	8.2 (5.0-11.4)	5.2 (2.6-7.8)	8.1 (5.0-11.3)	7.1 (4.3-10.0)	*0.41*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 11. Trends in prevalence of forgoing healthcare by age group, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
	Age group, years	2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	45-64					16.6 (12.8-20.4)	15.8 (13.5-18.2)	16.8 (14.5-18.9)	19.8 (13.9-25.7)	*0.31*
	≥65					9.8 (6.5-13.2)	6.5 (4.6-8.4)	9.0 (6.8-11.3)	9.3 (2.8-15.9)	*0.86*
SKIPOGH	18-34				11.2 (4-18.4)	16.4 (8.1-24.7)	8.3 (1.3-15.9)			*0.57*
	35-49				22.8 (13.3-32.3)	16.4 (8.8-23.9)	22.2 (8.9-35.8)			*0.95*
	50-64				6.8 (1.3-10.3)	6.3 (1.4-11.3)	9.5 (2.3-16.7)			*0.97*
	≥65				5.1 (0.2-10.1)	9.3 (3.5-15.1)	7.9 (0.4-15.3)			*0.53*
IHP	18-34	13.8 (8.3-19.3)			12.1 (8.9-15.4)			29.1 (23.5-34.7)		*<0.001*
	35-49	11.1 (8.6-15.2)			13 (9.8-16.3)			26.9 (21.8-32.8)		*<0.001*
	50-64	9.8 (6.5-13)			9.5 (6.5-12.5)			18.3 (14.2-22.3)		*<0.001*
	≥65	5.3 (3.6-8)			8.7 (5.6-11.8)			8.6 (6.8-11.9)		*<0.001*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 12. Trends in prevalence of forgoing healthcare by sex, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Men	1.6 (1.3-1.9)	1.6 (1.3-1.9)	1.6 (1.3-1.9)	1.7 (1.4-2.1)	1.6 (1.3-1.9)	*0.60*	2.0 (1.7-2.4)	1.9 (1.6-2.3)	2.0 (1.6-2.3)	2.2 (1.8-2.7)	*0.29*
Women	2.0 (1.7-2.3)	2.0 (1.7-2.4)	2.1 (1.8-2.4)	2.1 (1.8-2.5)	1.8 (1.5-2.1)	*0.60*	2.2 (1.8-2.5)	2.5 (2.1-2.8)	2.4 (2.0-2.8)	2.6 (2.2-3.0)	*0.20*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 13. Trends in prevalence of forgoing healthcare by sex, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Men	11.1 (9.0-13.3)	13.7 (11.6-15.8)	15.2 (13.0-17.4)	15.5 (13.4-17.6)	14.9 (12.9-17.0)	16.7 (14.6-18.8)	*0.04*
Women	11.7 (9.4-14.0)	11.9 (9.9-14.0)	13.2 (11.1-15.3)	11.1 (9.2-13.0)	13.5 (11.5-15.6)	15.1 (13.0-17.2)	*0.03*

Prevalence and 95% confidence interval are from logistic regression models separately run by sex, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 14. Trends in prevalence of forgoing healthcare stratified by sex, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
		2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	Men					13.9 (10.1-17.7)	12.3 (9.9-14.7)	13.0 (10.7-15.3)	18.9 (11.7-26.2)	*0.18*
	Women					14.1 (10.4-17.8)	12.0 (9.9-14.1)	14.2 (12.0-16.4)	13.4 (8.1-18.7)	*0.95*
SKIPOGH	Men				9.7 (5.1-14.4)	10.9 (6.3-15.5)	9.0 (3.1-14.9)			*0.87*
	Women				11.5 (6.8-16.2)	12.6 (7.8-17.4)	12.7 (6.7-18.7)			*0.75*
IHP	Men	9.8 (7.2-12.3)			9.0 (7.0-11.1)			19.6 (16.4-22.9)		*<0.01*
	Women	10.7 (8.4-13.0)			11.8 (9.6-14.0)			20.2 (17.1-23.4)		*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by sex, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 15. Trends in prevalence of forgoing healthcare stratified by nationality, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Swiss	1.6 (1.4-1.8)	1.6 (1.4-1.8)	1.6 (1.4-1.9)	1.7 (1.5-1.9)	1.5 (1.2-1.7)	*0.95*	2.1 (1.8-2.4)	2.2 (1.9-2.4)	2.2 (1.9-2.5)	2.2 (1.9-2.5)	*0.36*
EU	3.6 (2.5-4.7)	2.8 (1.9-3.7)	3.6 (2.5-4.6)	3.2 (2.2-4.2)	2.5 (1.7-3.4)	*0.67*	1.9 (1.2-2.6)	2.7 (1.9-3.5)	2.4 (1.6-3.2)	3.3 (2.3-4.3)	*0.65*
Other	4.5 (2.6-6.4)	4.3 (2.2-6.4)	4.8 (2.7-6.9)	4.0 (2.1-5.8)	5.9 (2.9-8.9)	*0.35*	5.3 (2.2-8.3)	2.2 (0.3-4.2)	2.9 (0.4-5.4)	8.3 (4.0-12.6)	*0.95*

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 16. Trends in prevalence of forgoing healthcare stratified by nationality, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Swiss	10.3 (8.6-11.9)	11.8 (10.1-13.5)	12.0 (10.3-13.7)	11.3 (9.6-13.0)	13.2 (11.4-14.9)	14.2 (12.5-16.0)	*0.05*
EU	10.0 (6.9-13.1)	12.5 (9.3-15.7)	16.1 (12.5-19.8)	14.0 (11.0-17.0)	13.8 (10.7-16.8)	17.0 (13.7-20.4)	*0.05*
Other	17.8 (12.4-23.2)	20.1 (14.6-25.6)	22.7 (17.6-27.8)	20.9 (16.5-25.4)	20.4 (15.9-25.0)	24.3 (19.2-29.3)	*0.27*

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 17. Trends in prevalence of forgoing healthcare stratified by Swiss nationality/Birth place, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
		2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	Swiss					14.3 (11.0-17.7)	10.8 (8.8-12.7)	12.2 (10.3-14.1)	15.0 (9.4-20.6)	*0.68*
	Non-Swiss					13.4 (9.0-17.7)	14.1 (11.4-16.7)	16.2 (13.3-19.0)	16.9 (10.0-23.8)	*0.28*
SKIPOGH	Swiss				11.6 (7.8-15.5)	11.5 (7.9-15.2)	10.9 (6.5-15.2)			*0.53*
	Non-Swiss				7.5 (0.4-14.5)	13.2 (4.7-21.7)	13.2 (0.01-30.0)			*0.80*
IHP	Swiss-born	9.2 (7.5-10.9)			10.4 (8.8-12.1)			18.6 (16.0-21.3)		*<0.001*
	Foreign-born	26.2 (16.2-36.2)			11.4 (7.5-15.3)			23.6 (19.0-28.1)		*0.25*

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality/birth place, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 18. Trends in prevalence of forgoing healthcare stratified by income level, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Income level	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
<5000 CHF	2.2 (1.9-2.5)	2.1 (1.8-2.4)	2.2 (1.9-2.5)	2.4 (2.1-2.7)	2.2 (1.9-2.6)	*0.35*	2.3 (1.9-2.6)	2.2 (1.9-2.5)	2.2 (1.9-2.6)	2.7 (2.3-3.1)	*0.08*
5000-9499 CHF	1.0 (0.7-1.4)	1.2 (0.8-1.5)	1.4 (1.1-1.8)	1.1 (0.8-1.4)	0.8 (0.5-1.1)	*0.44*	1.9 (1.4-2.3)	2.1 (1.7-2.6)	2.1 (1.7-2.6)	2.0 (1.5-2.5)	*0.66*
≥9500 CHF	1.2 (0.3-2.1)	1.5 (0.5-2.5)	1.0 (0.2-1.8)	1.4 (0.4-2.3)	0.9 (0.1-1.6)	*0.99*	1.2 (0.3-2.1)	1.5 (0.5-2.5)	1.1 (0.3-1.9)	1.7 (0.5-2.8)	*0.76*

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 19. Trends in prevalence of forgoing healthcare stratified by income level, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Income level	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
<5000 CHF	28.1 (23.3-32.9)	30.7 (26.0-35.4)	27.4 (23.3-31.6)	24.7 (20.7-28.8)	25.6 (21.5-29.6)	27.4 (23.3-31.4)	*0.75*
5000-9499 CHF	10.7 (8.4-13.1)	13.4 (10.9-16.0)	12.8 (10.4-15.3)	12.6 (10.3-15.0)	15.3 (12.8-17.8)	16.9 (14.3-19.6)	*<0.01*
≥9500 CHF	5.2 (3.5-6.9)	4.8 (3.2-6.4)	6.1 (4.3-7.8)	6.6 (4.9-8.4)	7.3 (5.6-9.0)	8.3 (6.5-10.1)	*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 20. Trends in prevalence of forgoing healthcare by income, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
	Income level	2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	<5000 CHF					28.3 (21.3-35.4)	26.4 (19.9-30.0)	31.6 (26.9-36.3)	33.8 (21.3-46.2)	*0.21*
	5000-9499 CHF					15.4 (10.8-19.9)	13.4 (10.7-16.1)	13.5 (10.9-16.1)	12.3 (5.9-18.7)	*0.47*
	≥9500 CHF					6.5 (3.1-9.9)	4.0 (2.3-5.7)	4.5 (2.8-6.2)	8.3 (2.0-14.6)	*0.52*
SKIPOGH	<5000 CHF				21.6 (11.2-32.0)	22.8 (12.3-33.3)	29.9 (15.6-44.3)			*0.36*
	5000-9499 CHF				7.7 (2.9-12.5)	13.9 (7.8-20.1)	8.7 (2.1-15.4)			*0.81*
	≥9500 CHF				8.5 (3.2-13.8)	5.2 (1.2-9.3)	4.3 (-0.5-9.0)			*0.26*
IHP	Much/somewhat below average	14.0 (11.0-17.1)			15.6 (12.6-18.7)			28.4 (24.5-32.4)		<0.001
	Average	6.0 (3.2-8.7)			7.7 (5.2-10.2)			17.1 (12.3-21.9)		<0.001
	Much/somewhat above average	8.1 (5.2-10.9)			9.0 (6.1-11.8)			12.3 (9.0-15.7)		0.07

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 21. Trends in prevalence of forgoing healthcare stratified by education level, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Education level	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Primary/lower secondary	2.2 (1.6-2.7)	1.7 (1.2-2.2)	2.2 (1.6-2.8)	2.3 (1.7-3.0)	1.6 (1.1-2.2)	*0.64*	1.7 (1.1-2.2)	2.1 (1.4-2.7)	2.4 (1.7-3.0)	2.2 (1.4-3.1)	*0.16*
Secondary	1.6 (1.3-1.9)	1.7 (1.4-2.0)	1.7 (1.4-2.0)	1.7 (1.4-2.0)	1.6 (1.3-2.0)	*0.72*	2.2 (1.8-2.6)	2.2 (1.8-2.6)	2.4 (2.0-2.8)	2.6 (2.1-3.0)	*0.11*
Tertiary	1.8 (1.4-2.2)	1.9 (1.5-2.4)	1.9 (1.5-2.3)	2.1 (1.7-2.5)	1.8 (1.4-2.2)	*0.88*	2.1 (1.6-2.5)	2.1 (1.7-2.5)	1.8 (1.4-2.1)	2.3 (1.9-2.8)	*0.85*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 22. Trends in prevalence of forgoing healthcare stratified by education level, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Education level	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
Primary/lower secondary	14.6 (12.0-17.3)	17.2 (14.3-20.1)	19.2 (16.2-22.2)	16.2 (13.5-19.0)	15.9 (13.1-18.7)	19.2 (16.2-22.3)	*0.30*
Secondary	15.5 (12.0-19.0)	14.6 (11.4-17.8)	12.2 (9.5-14.8)	15.0 (12.1-17.9)	13.9 (11.0-16.7)	18.1 (15.0-21.2)	*0.23*
Tertiary	7.0 (5.0-9.0)	10.6 (8.3-12.9)	9.8 (7.8-11.9)	9.2 (7.4-11.1)	12.2 (10.3-14.2)	12.3 (10.4-14.2)	*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 23. Trends in prevalence of forgoing healthcare by education level, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
	Education level	2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	Primary/lower secondary					15.5 (11.6-19.3)	13.9 (11.5-16.3)	16.1 (13.7-18.5)	21.9 (15.1-28.7)	*0.21*
	Secondary					13.3 (8.6-18.0)	11.9 (9.0-14.9)	13.4 (10.2-16.5)	10.9 (3.3-18.5)	*0.78*
	Tertiary					11.4 (5.8-17.0)	8.6 (5.8-11.4)	9.3 (6.7-11.9)	7.5 (1.2-13.9)	*0.56*
SKIPOGH	Primary/lower secondary				9.6 (2.3-16.8)	15.1 (6.1-24.2)	17.7 (3.8-31.7)			*0.33*
	Secondary				13.0 (7.6-18.5)	14.5 (8.8-20.3)	10.7 (4.1-17.4)			*0.85*
	Tertiary				6.7 (1.9-11.4)	6.7 (2.5-11.0)	9.7 (3.3-16.1)			*0.39*
IHP	Primary/lower secondary	13.0 (8.2-17.8)			22.6 (14.1-31.1)			19.6 (13.2-25.9)		*0.67*
	Secondary	9.1 (6.9-11.3)			10.2 (8.1-12.2)			20.4 (17.3-23.4)		*<0.001*
	Tertiary	11.4 (8.0-14.9)			9.4 (7.1-11.7)			19.6 (15.4-23.8)		*<0.001*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 24. Trends in prevalence of forgoing healthcare stratified by occupation level, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Occupation level	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Lower	1.9 (1.6-2.3)	2.0 (1.6-2.4)	1.9 (1.5-2.3)	2.2 (1.8-2.6)	1.7 (1.4-2.1)	*0.73*	2.1 (1.7-2.5)	2.1 (1.7-2.5)	2.4 (2.0-2.8)	2.7 (2.2-3.1)	*0.06*
Middle	1.7 (1.2-2.2)	1.4 (1.0-1.9)	2.1 (1.6-2.7)	1.4 (1.0-1.9)	2.0 (1.4-2.5)	*0.59*	2.3 (1.7-3.0)	2.6 (2.0-3.2)	2.3 (1.7-2.9)	2.3 (1.6-2.9)	*0.75*
Higher	1.5 (1.1-1.9)	1.6 (1.2-2.0)	1.6 (1.2-1.9)	1.9 (1.4-2.3)	1.4 (1.0-1.8)	*0.94*	1.9 (1.4-2.3)	1.9 (1.5-2.4)	1.8 (1.4-2.2)	2.2 (1.7-2.7)	*0.51*

Prevalence and 95% confidence interval are from logistic regression models separately run by occupation level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 25. Trends in prevalence of forgoing healthcare stratified by occupation level, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Occupation level	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
Lower	15.9 (12.7-19.1)	16.9 (13.6-20.1)	18.3 (15.2-21.5)	17.1 (14.2-20.0)	16.2 (13.3-19.2)	19.7 (16.5-22.8)	*0.06*
Middle	10.9 (8.1-13.7)	13.2 (10.1-16.2)	12.1 (9.2-14.9)	13.0 (10.1-15.8)	14.4 (11.4-17.4)	15.9 (12.9-18.9)	*0.06*
Higher	5.7 (3.1-8.3)	9.2 (6.2-12.2)	7.4 (4.6-10.3)	7.6 (5.1-10.2)	7.6 (5.3-9.9)	10.8 (8.2-13.4)	*0.09*

Prevalence and 95% confidence interval are from logistic regression models separately run by occupation level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 26. Trends in prevalence of forgoing healthcare by occupation, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
	Occupation level	2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	Lower					18.5 (14.3-22.8)	13.9 (11.5-16.3)	16.4 (13.9-18.9)	25.3 (18.0-32.7)	*0.06*
	Middle					10.1 (5.8-14.3)	10.2 (7.7-12.8)	12.4 (9.7-15.1)	7.5 (1.7-13.2)	*0.58*
	Higher					8.2 (2.7-13.6)	8.7 (4.6-12.8)	4.2 (1.6-6.8)	3.3 (-3.1-9.7)	*0.27*
SKIPOGH	Lower				13.1 (7.8-18.4)	15.4 (9.0-21.7)	10.9 (4.2-17.6)			*0.92*
	Middle				11.8 (5.2-18.4)	12.4 (6.7-18.1)	14.2 (5.5-22.8)			*0.68*
	Higher				8.1 (0.5-15.7)	4.5 (-0.5-9.5)	6.8 (-0.6-14.2)			*0.64*

Prevalence and 95% confidence interval are from logistic regression models separately run by occupation level, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 27. Trends in prevalence of forgoing healthcare stratified by self-rated health, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Self-rated health	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Very good/good	1.4 (1.2-1.7)	1.3 (1.1-1.5)	1.4 (1.2-1.7)	1.5 (1.2-1.7)	1.1 (0.9-1.3)	0.38	1.7 (1.5-2.0)	1.9 (1.6-2.2)	1.8 (1.6-2.1)	2.1 (1.8-2.5)	0.07
Fair/average	3.1 (2.3-3.9)	3.1 (2.3-3.9)	3.2 (2.4-4.0)	3.1 (2.4-3.9)	2.8 (2.1-3.6)	0.39	3.7 (2.9-4.5)	3.1 (2.4-3.8)	3.8 (2.9-4.6)	3.4 (2.5-4.3)	0.67
Poor/very poor	4.8 (2.8-6.8)	7.8 (5.1-10.5)	6.9 (4.4-9.3)	7.6 (5.1-10.1)	6.9 (4.4-9.4)	0.37	3.9 (1.9-5.8)	4.5 (2.6-6.4)	3.7 (2.0-5.5)	5.4 (3.0-7.8)	0.21

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 28. Trends in prevalence of forgoing healthcare stratified by self-rated health, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Self-rated health	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
Very good/good	6.7 (4.8-8.6)	8.2 (6.4-10.1)	11.7 (10.1-13.3)	10.6 (9.2-12.1)	11.8 (10.3-13.3)	13.5 (11.9-15.0)	*0.02*
Fair/average	14.1 (8.8-19.4)	18.6 (12.9-24.4)	23.1 (18.7-27.5)	23.8 (19.4-28.1)	23.5 (19.1-27.9)	25.3 (21.0-29.6)	*0.25*
Poor/very poor	37.9 (20.7-55.2)	18.5 (3.9-33.1)	38.6 (24.9-52.4)	36.0 (23.0-49.0)	42.9 (28.1-57.6)	42.2 (27.8-56.6)	*0.32*

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 29. Trends in prevalence of forgoing healthcare by self-rated health, CoLaus 2014-2017, SKIPOGH 2013-2015, IHP 2010, 2013, 2016

		Prevalence, % (95% confidence interval)								
	Self-rated health	2010	2011	2012	2013	2014	2015	2016	2017	*p-value*
CoLaus	Very good/good					13.0 (10.1-15.8)	9.5 (7.9-11.1)	10.9 (9.3-12.5)	11.2 (6.9-15.5)	*0.75*
	Fair/average					17.7 (10.8-24.6)	21.0 (16.3-25.7)	22.2 (17.7-26.6)	29.4 (18.0-40.8)	*0.07*
	Poor/very poor					29.4 (-3.4-62.3)	43.1 (26.8-59.5)	34.1 (21.2-47.1)	35.3 (-2.8-73.3)	*0.88*
SKIPOGH	Good/fair				9.8 (6.3-13.4)	11.2 (7.4-15.0)	7.7 (3.5-11.9)			*0.77*
	Poor/very poor				15.2 (6.1-24.3)	14.2 (6.5-21.9)	22.6 (10.5-34.7)			*0.11*
IHP	Very good/good	7.9 (6.0-9.8)			9.3 (7.5-11.1)			16.2 (13.5-18.8)		*<0.001*
	Fair/average	14.8 (10.5-19.0)			12.8 (9.7-15.9)			26.6 (21.3-31.8)		*<0.01*
	Poor/very poor	17.1 (4.8-29.5)			22.2 (7.6-36.7)			47.2 (31.6-62.8)		*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 30. Trends in prevalence of forgoing dental care

	Prevalence, % (95% confidence interval)												
Survey	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
SILC				5.5 (5.1-5.9)	5.6 (5.2-6.0)	5.1 (4.8-5.5)	5.5 (5.1-5.9)	4.8 (4.4-5.2)	4.0 (3.7-4.4)	4.7 (4.3-5.0)	4.5 (4.1-4.8)	4.2 (3.8-4.5)	
SHP							2.5 (2.1-2.8)	3.0 (2.6-3.4)	2.9 (2.5-3.3)	2.4 (2.1-2.8)	2.5 (2.1-2.9)	2.3 (1.9-2.6)	
IHP							9.7 (8.2-11.3)			21.9 (19.7-24.1)			
Bus Santé	2.2 (0.5-3.9)	5.0 (3.1-6.9)	4.9 (3.6-6.2)	3.6 (2.5-4.8)	4.4 (3.1-5.7)	3.9 (2.7-5.1)	6.2 (4.7-7.6)	5.2 (3.9-6.6)	4.7 (3.5-5.9)	4.6 (3.3-5.9)	3.9 (2.8-5.0)	5.2 (3.9-6.5)	5.9 (4.5-7.2)

Prevalence and 95% confidence interval are from logistic regression models, and adjusted for age and sex, and in SILC, additionally for region. These estimates were used to populate the corresponding figure.

Supplementary table 31. Trends in prevalence of forgoing dental care by region, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Region	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Lake Geneva	8.0 (6.9-9.1)	9.0 (7.8-10.2)	9.1 (7.9-10.3)	8.9 (7.6-10.1)	6.8 (5.7-7.9)	*0.16*	5.4 (4.4-6.3)	6.9 (5.9-8.0)	6.6 (5.6-7.6)	7.7 (6.5-8.9)	*0.01*
Mitteland	5.2 (4.4-6.0)	5.2 (4.5-6.0)	5.6 (4.8-6.4)	5.2 (4.4-6.0)	5.4 (4.5-6.2)	*0.77*	4.8 (4.1-5.6)	4.5 (3.8-5.3)	5.1 (4.3-5.8)	4.3 (3.5-5.1)	*0.75*
Northwest	5.1 (4.1-6.1)	5.1 (4.1-6.1)	4.7 (3.7-5.6)	4.5 (3.6-5.5)	4.3 (3.3-5.2)	*0.23*	3.0 (2.2-3.8)	3.4 (2.6-4.2)	3.7 (2.8-4.5)	3.0 (2.2-3.9)	*0.82*
Zurich	5.0 (4.1-5.9)	4.4 (3.5-5.2)	3.2 (2.5-3.9)	4.8 (4.0-5.7)	3.8 (3.0-4.7)	*0.29*	2.8 (2.1-3.6)	3.7 (2.9-4.5)	3.8 (3.0-4.5)	3.4 (2.5-4.2)	*0.30*
East	3.6 (2.7-4.5)	3.8 (2.9-4.7)	3.4 (2.5-4.3)	4.6 (3.6-5.6)	4.1 (3.1-5.1)	*0.23*	2.3 (1.6-3.1)	3.9 (2.9-4.8)	3.0 (2.1-3.8)	2.7 (1.8-3.6)	*0.73*
Central	4.3 (3.2-5.5)	5.0 (3.8-6.2)	2.9 (2.0-3.8)	3.1 (2.1-4.1)	2.4 (1.5-3.3)	*<0.001*	3.7 (2.6-4.9)	5.0 (3.7-6.2)	2.7 (1.8-3.6)	1.7 (0.8-2.5)	*<0.01*
Ticino	9.1 (6.5-11.7)	7.4 (4.9-9.9)	7.4 (4.8-9.9)	8.9 (6.2-11.7)	8.7 (6.0-11.5)	*0.85*	7.7 (5.3-10.1)	6.3 (4.2-8.4)	6.1 (4.0-8.2)	4.9 (2.9-7.0)	*0.11*

Prevalence and 95% confidence interval are from logistic regression models separately run by region, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 32. Trends in prevalence of forgoing dental care by age group, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Age group, years	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
18-34	6.6 (5.7-7.5)	5.7 (4.9-6.6)	5.4 (4.5-6.2)	5.6 (4.8-6.5)	5.2 (4.3-6.1)	*0.03*	3.9 (3.2-4.6)	5.4 (4.6-6.2)	5.6 (4.8-6.4)	4.5 (3.6-5.4)	*0.26*
35-49	7.0 (6.2-7.8)	6.4 (5.6-7.1)	6.4 (5.6-7.2)	6.6 (5.7-7.4)	6.2 (5.4-7.1)	*0.30*	4.5 (3.8-5.3)	5.9 (5.1-6.7)	5.0 (4.2-5.7)	5.5 (4.6-6.3)	*0.51*
50-64	4.7 (4.0-5.4)	6.2 (5.4-7.0)	5.0 (4.3-5.7)	6.0 (5.2-6.8)	4.9 (4.1-5.6)	*0.82*	4.6 (3.9-5.3)	4.7 (4.0-5.4)	4.0 (3.4-4.7)	4.4 (3.7-5.2)	*0.46*
≥65	3.3 (2.7-4.0)	3.7 (3.1-4.4)	3.8 (3.1-4.4)	3.8 (3.1-4.4)	3.1 (2.4-3.7)	*0.71*	2.9 (2.3-3.5)	2.6 (2.0-3.2)	3.4 (2.8-4.1)	2.2 (1.7-2.8)	*0.49*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 33. Trends in prevalence of forgoing dental care by age group, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Age group, years	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
18-34	0 (0-0)	10.5 (0.0-24.0)	4.8 (2.9-6.8)	4.1 (2.4-5.8)	3.8 (2.2-5.4)	6.5 (4.5-8.6)	*0.31*
35-49	6.4 (4.8-8.0)	4.6 (3.2-5.9)	6.7 (4.8-8.5)	5.8 (4.2-7.5)	4.2 (2.8-5.5)	5.3 (3.7-6.8)	*0.24*
50-64	3.6 (2.2-5.0)	3.9 (2.5-5.4)	3.4 (1.8-4.9)	5.7 (3.8-7.5)	4.4 (2.7-6.0)	5.5 (3.8-7.2)	*0.05*
≥65	1.4 (0.0-2.8)	2.2 (0.6-3.8)	4.6 (2.2-7.1)	2.2 (0.5-4.0)	5.1 (2.6-7.6)	4.5 (2.2-6.9)	*0.02*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 34. Trends in prevalence of forgoing dental care by age group, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Age groups	2013	2014	2015	2016	2017	2018	*p-value*
SHP	18-34	2.2 (1.2-3.1)	2.1 (1.2-3.0)	2.4 (1.4-3.4)	1.8 (0.9-2.7)	2.4 (1.3-3.5)	1.8 (1.0-2.7)	*0.67*
	35-49	2.0 (1.3-2.6)	2.8 (2.0-3.5)	2.7 (1.9-3.6)	2.0 (1.2-2.7)	2.5 (1.7-3.4)	2.0 (1.2-2.8)	*0.53*
	50-64	3.2 (2.3-4.1)	3.5 (2.6-4.4)	3.7 (2.8-4.6)	2.9 (2.1-3.8)	2.8 (2.0-3.7)	2.5 (1.7-3.3)	*0.06*
	≥65	2.4 (1.4-3.5)	3.5 (2.2-4.9)	2.7 (1.6-3.8)	3.0 (1.8-4.2)	2.1 (1.2-3.1)	2.6 (1.5-3.7)	*0.24*
IHP	18-34	12.7 (6.6-18.8)			23.9 (14.0-33.9)			*0.05*
	35-49	10.7 (7.5-13.9)			32.2 (26.2-38.1)			*<0.001*
	50-64	7.8 (4.7-10.8)			20.0 (15.1-24.8)			*<0.01*
	≥65	6.8 (2.3-11.3)			9.8 (3.8-15.8)			*0.34*

Prevalence and 95% confidence interval are from logistic regression models separately run by age groups, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 35. Trends in prevalence of forgoing dental care by sex, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Sex	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Men	5.1 (4.5-5.6)	5.2 (4.7-5.8)	4.8 (4.2-5.3)	5.4 (4.8-6.0)	4.4 (3.8-4.9)	*0.21*	4.3 (3.8-4.8)	5.1 (4.5-5.6)	5.0 (4.4-5.5)	3.9 (3.4-4.5)	*0.43*
Women	5.8 (5.3-6.4)	5.8 (5.3-6.4)	5.5 (4.9-6.0)	5.5 (5.0-6.1)	5.3 (4.7-5.8)	*0.17*	3.8 (3.3-4.2)	4.3 (3.8-4.8)	4.0 (3.6-4.5)	4.3 (3.8-4.9)	*0.21*

Prevalence and 95% confidence interval are from logistic regression models separately run by sex, and adjusted for age and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 36. Trends in prevalence of forgoing dental care by sex, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Sex	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	*p-value*
Men	4.5 (3.2-5.9)	4.1 (2.8-5.3)	5.2 (3.8-6.6)	4.4 (3.2-5.7)	4.0 (2.8-5.2)	5.2 (3.9-6.5)	*0.39*
Women	4.8 (3.4-6.1)	4.1 (2.9-5.4)	4.8 (3.5-6.1)	5.3 (4.0-6.6)	4.4 (3.2-5.5)	5.8 (4.5-7.1)	*0.51*

Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age and sex. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 37. Trends in prevalence of forgoing dental care by sex, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Sex	2013	2014	2015	2016	2017	2018	*p-value*
SHP	Men	2.5 (2.0-3.0)	3.1 (2.6-3.6)	3.0 (2.4-3.5)	2.6 (2.1-3.1)	2.4 (1.9-2.9)	2.7 (2.2-3.3)	*0.76*
	Women	2.3 (1.8-2.8)	2.7 (2.1-3.2)	2.9 (2.3-3.5)	2.3 (1.7-2.9)	2.5 (1.9-3.1)	1.8 (1.3-2.3)	*0.88*
IHP	Men	8.7 (6.7-10.6)			23.5 (20.3-26.7)			*<0.01*
	Women	10.7 (8.4-12.9)			20.8 (17.7-23.9)			*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by age groups, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 38. Trends in prevalence of forgoing dental care stratified by nationality, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Nationality	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Swiss	4.8 (4.4-5.1)	4.9 (4.5-5.3)	4.4 (4.0-4.7)	4.7 (4.3-5.1)	4.0 (3.6-4.4)	0.12	3.7 (3.4-4.1)	4.3 (3.9-4.6)	4.1 (3.8-4.5)	3.9 (3.4-4.3)	0.15
EU	9.1 (7.5-10.7)	9.4 (7.8-11.0)	9.0 (7.4-10.5)	9.1 (7.5-10.7)	9.3 (7.7-10.9)	0.91	5.5 (4.3-6.7)	6.8 (5.5-8.0)	5.8 (4.7-6.9)	5.8 (4.5-7.1)	0.67
Other	13.8 (10.9-16.8)	10.2 (7.7-12.8)	12.2 (9.4-15.0)	13.5 (10.3-16.6)	13.6 (9.8-17.5)	0.55	7.6 (4.6-10.7)	8.9 (5.7-12.1)	10.0 (6.8-13.3)	8.1 (4.4-11.8)	0.29

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 39. Trends in prevalence of forgoing dental care stratified by nationality, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Nationality	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Swiss	4.6 (3.5-5.8)	3.7 (2.7-4.7)	4.7 (3.6-5.8)	4.9 (3.7-6.0)	4.1 (3.1-5.1)	5.1 (4.1-6.2)	*0.44*
EU	3.7 (1.7-5.6)	4.2 (2.3-6.1)	4.3 (2.3-6.3)	4.3 (2.6-6.1)	4.7 (2.9-6.6)	5.0 (3.0-6.9)	*0.53*
Other	5.7 (2.4-9.0)	5.8 (2.6-9.0)	8.1 (4.8-11.3)	6.2 (3.6-8.8)	4.3 (2.0-6.6)	8.9 (5.5-12.3)	*0.66*

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 40. Trends in prevalence of forgoing dental care by nationality, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Nationality/Birth place	2013	2014	2015	2016	2017	2018	*p-value*
SHP	Swiss	2.5 (2.0-3.0)	3.1 (2.6-3.6)	3.0 (2.4-3.5)	2.6 (2.1-3.1)	2.4 (1.9-2.9)	2.7 (2.2-3.3)	*0.76*
	Non-Swiss	2.3 (1.8-2.8)	2.7 (2.1-3.2)	2.9 (2.3-3.5)	2.3 (1.7-2.9)	2.5 (1.9-3.1)	1.8 (1.3-2.3)	*0.88*
IHP	Swiss-born	8.6 (7.0-10.1)			17.6 (15.2-20.1)			*<0.01*
	Foreign-born	14.6 (10.1-19.1)			33.7 (29.0-38.5)			*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by nationality/place of birth, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 41. Trends in prevalence of forgoing dental care stratified by income level, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Income level	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
<5000	6.6 (6.1-7.1)	6.9 (6.3-7.4)	6.4 (5.9-7.0)	6.9 (6.3-7.4)	6.5 (6.0-7.1)	*0.87*	5.0 (4.5-5.4)	5.8 (5.2-6.3)	5.4 (4.9-5.9)	5.2 (4.6-5.7)	*0.91*
5000-9499	2.8 (2.3-3.3)	2.9 (2.3-3.4)	2.9 (2.4-3.4)	3.2 (2.7-3.8)	2.0 (1.5-2.4)	*0.11*	2.2 (1.8-2.7)	2.7 (2.2-3.2)	3.0 (2.5-3.5)	2.6 (2.1-3.2)	*0.19*
≥9500	2.4 (1.2-3.6)	2.0 (0.9-3.1)	1.4 (0.5-2.3)	1.7 (0.7-2.7)	1.0 (0.2-1.7)	*0.07*	2.0 (0.9-3.1)	1.8 (0.8-2.9)	1.4 (0.6-2.3)	1.7 (0.6-2.8)	*0.48*

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 42. Trends in prevalence of forgoing dental care stratified by income level, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Income level	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
<5000	4.8 (2.5-7.0)	5.2 (2.9-7.4)	7.4 (5.0-9.8)	8.0 (5.4-10.5)	4.6 (2.6-6.5)	7.7 (5.3-10.1)	*0.10*
5000-9499	7.2 (5.3-9.2)	5.5 (3.8-7.2)	5.8 (4.0-7.5)	6.0 (4.3-7.7)	6.3 (4.6-8.1)	7.0 (5.2-8.8)	*0.92*
≥9500	2.2 (1.1-3.3)	2.4 (1.3-3.6)	2.6 (1.4-3.8)	2.7 (1.5-3.8)	2.3 (1.3-3.3)	3.8 (2.5-5.0)	*0.12*

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 43. Trends in prevalence of forgoing dental care by income level, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Income level	2013	2014	2015	2016	2017	2018	*p-value*
SHP	<5000	5.5 (4.5-6.5)	6.6 (5.6-7.7)	6.2 (5.2-7.3)	5.9 (4.8-6.9)	5.3 (4.2-6.3)	5.5 (4.5-6.6)	*0.39*
	5000-9499	1.5 (1.0-2.0)	2.1 (1.5-2.6)	2.2 (1.6-2.8)	1.5 (0.9-2.0)	1.7 (1.1-2.3)	1.1 (0.6-1.5)	*0.11*
	≥9500	0.5 (0.2-0.9)	0.5 (0.2-0.8)	0.5 (0.2-0.8)	0.4 (0.1-0.7)	0.7 (0.3-1.0)	0.4 (0.1-0.6)	*0.91*
IHP	Below/much below average	10.9 (8.2-13.5)			30.8 (27.0-34.7)			*<0.001*
	Average	7.6 (5.0-10.1)			19.6 (14.7-24.5)			*<0.001*
	Above/much above	10.8 (7.7-14.0)			14.2 (10.8-17.6)			*<0.001*

Prevalence and 95% confidence interval are from logistic regression models separately run by income level, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 44. Trends in prevalence of forgoing dental care stratified by education level, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Education level	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Lower	7.2 (6.2-8.2)	7.1 (6.1-8.1)	6.6 (5.6-7.6)	6.7 (5.7-7.8)	7.1 (5.9-8.2)	*0.59*	4.8 (3.9-5.8)	5.7 (4.7-6.8)	6.2 (5.2-7.3)	5.7 (4.4-7.0)	*0.23*
Middle	5.7 (5.1-6.2)	5.5 (4.9-6.0)	5.4 (4.9-6.0)	6.0 (5.4-6.6)	5.0 (4.5-5.6)	*0.51*	4.0 (3.5-4.5)	4.6 (4.1-5.1)	4.4 (3.9-4.9)	4.9 (4.3-5.5)	*0.07*
Higher	3.7 (3.1-4.3)	4.5 (3.9-5.1)	3.8 (3.2-4.3)	4.0 (3.4-4.6)	3.3 (2.8-3.9)	*0.17*	3.4 (2.9-4.0)	4.1 (3.5-4.6)	3.7 (3.2-4.3)	2.9 (2.4-3.4)	*0.11*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 45. Trends in prevalence of forgoing dental care stratified by education level, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Income level	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Lower	6.2 (4.4-8.0)	5.1 (3.4-6.8)	6.4 (4.5-8.3)	5.8 (4.0-7.5)	5.3 (3.5-7.0)	6.1 (4.3-7.9)	*0.87*
Middle	3.9 (2.0-5.7)	4.9 (3.0-6.9)	5.4 (3.5-7.3)	3.7 (2.2-5.3)	4.4 (2.7-6.1)	5.9 (4.0-7.8)	*0.36*
Higher	3.5 (2.1-4.9)	2.8 (1.6-4.0)	3.7 (2.4-5.1)	4.6 (3.3-6.0)	3.4 (2.3-4.5)	4.9 (3.7-6.2)	*0.10*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 46. Trends in prevalence of forgoing dental care by education level, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Education level	2013	2014	2015	2016	2017	2018	*p-value*
SHP	Lower	4.7 (3.2-6.2)	4.6 (3.5-5.8)	4.5 (3.3-5.6)	4.1 (2.9-5.3)	3.9 (2.7-5.2)	3.8 (2.6-5.0)	*0.21*
	Middle	2.6 (1.9-3.3)	2.8 (2.3-3.4)	3.2 (2.6-3.9)	2.7 (2.1-3.3)	2.6 (2.0-3.2)	2.2 (1.7-2.8)	*0.24*
	Higher	0.9 (0.4-1.5)	1.8 (1.3-2.3)	1.7 (1.2-2.3)	1.4 (0.9-1.9)	1.6 (1.1-2.1)	1.7 (1.2-2.2)	*0.33*
IHP	Lower	16.0 (8.1-23.8)			28.4 (21.3-35.4)			*0.03*
	Middle	8.5 (6.6-10.5)			20.4 (17.5-23.3)			*<0.001*
	Higher	10.0 (7.5-12.4)			23.3 (19.1-27.6)			*<0.001*

Prevalence and 95% confidence interval are from logistic regression models separately run by education level, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 47. Trends in prevalence of forgoing dental care stratified by occupational position, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Occupational position	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Lower	1.9 (1.6-2.3)	2.0 (1.6-2.4)	1.9 (1.5-2.3)	2.2 (1.8-2.6)	1.7 (1.4-2.1)	*0.73*	2.1 (1.7-2.5)	2.1 (1.7-2.5)	2.4 (2.0-2.8)	2.7 (2.2-3.1)	*0.06*
Middle	1.7 (1.2-2.2)	1.4 (1.0-1.9)	2.1 (1.6-2.7)	1.4 (1.0-1.9)	2.0 (1.4-2.5)	*0.59*	2.3 (1.7-3.0)	2.6 (2.0-3.2)	2.3 (1.7-2.9)	2.3 (1.6-2.9)	*0.75*
Higher	1.5 (1.1-1.9)	1.6 (1.2-2.0)	1.6 (1.2-1.9)	1.9 (1.4-2.3)	1.4 (1.0-1.8)	*0.94*	1.9 (1.4-2.3)	1.9 (1.5-2.4)	1.8 (1.4-2.2)	2.2 (1.7-2.7)	*0.51*

Prevalence and 95% confidence interval are from logistic regression models separately run by occupation level, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 48. Trends in prevalence of forgoing dental care stratified by occupational position, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Occupational position	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Lower	6.4 (4.3-8.5)	6.5 (4.4-8.6)	7.3 (5.2-9.5)	5.9 (4.0-7.7)	5.7 (3.9-7.6)	6.8 (4.8-8.8)	0.55
Middle	6.3 (4.1-8.4)	3.7 (2.0-5.3)	3.6 (2.0-5.3)	4.3 (2.6-6.0)	2.9 (1.5-4.4)	5.9 (3.9-7.8)	0.18
Higher	2.8 (1.0-4.5)	1.9 (0.5-3.3)	3.4 (1.4-5.4)	6.0 (3.7-8.2)	3.9 (2.2-5.6)	4.9 (3.0-6.7)	0.06

Prevalence and 95% confidence interval are from logistic regression models separately run by occupation level, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 49. Trends in prevalence of forgoing dental care by occupational position, SHP 2013-2018

		Prevalence, % (95% confidence interval)						
	Occupational position	2013	2014	2015	2016	2017	2018	*p-value*
SHP	Lower	3.8 (2.4-5.2)	4.6 (3.5-5.8)	3.8 (2.7-4.9)	2.9 (1.9-4.0)	3.9 (2.8-5.1)	3.1 (2.1-4.2)	*0.48*
	Middle	1.4 (0.0-3.1)	1.1 (0.0-2.1)	4.1 (2.1-6.2)	2.1 (0.6-3.7)	2.5 (0.7-4.3)	2.3 (0.6-4.0)	*0.07*
	Higher	1.3 (0.7-1.8)	1.4 (1.0-1.9)	1.8 (1.3-2.3)	1.4 (0.9-1.9)	1.6 (1.1-2.1)	1.5 (1.0-2.0)	*0.85*

Prevalence and 95% confidence interval are from logistic regression models separately run by occupational level, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 50. Trends in prevalence of forgoing dental care stratified by self-rated health, SILC, 2010-2018

	Prevalence, % (95% confidence interval)									
Self-rated health	2010	2011	2012	2013	2014	*p-value*	2015	2016	2017	2018	*p-value*
Very good/good	4.1 (3.7-4.5)	4.1 (3.7-4.5)	3.9 (3.5-4.3)	4.2 (3.8-4.6)	3.5 (3.1-3.9)	*0.09*	3.1 (2.7-3.4)	3.5 (3.1-3.9)	3.6 (3.2-3.9)	3.5 (3.1-3.9)	*0.08*
Fair/average	9.4 (8.0-10.8)	10.1 (8.7-11.5)	9.3 (7.9-10.7)	8.7 (7.4-10.0)	8.1 (6.8-9.4)	*0.09*	6.5 (5.3-7.6)	8.0 (6.8-9.2)	7.1 (5.9-8.3)	6.5 (5.2-7.8)	*0.79*
Poor/very poor	19.1 (15.2-23.1)	21.6 (17.5-25.7)	20.7 (16.3-25.0)	21.7 (17.7-25.7)	17.7 (13.9-21.6)	*0.79*	13.5 (10.2-16.8)	13.8 (10.6-17.0)	14.4 (11.1-17.8)	11.9 (8.4-15.5)	*0.58*

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age, sex, and region. These estimates were used to populate the corresponding figure. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts.

Supplementary table 51. Trends in prevalence of forgoing dental care stratified by self-rated health, Bus Santé 2007-2019

	Prevalence, % (95% confidence interval)						
Self-rated health	2007-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	p-value
Very good/good	3.0 (1.8-4.2)	3.2 (2.0-4.4)	4.5 (3.5-5.5)	4.3 (3.4-5.2)	4.1 (3.2-5.0)	4.7 (3.7-5.6)	*0.06*
Fair/average	5.4 (2.1-8.7)	4.9 (1.6-8.2)	6.4 (3.8-9.0)	7.7 (4.9-10.4)	4.1 (2.1-6.2)	9.2 (6.4-12.1)	*0.18*
Poor/very poor	3.4 (0.1-9.9)	3.9 (0.0-11.4)	13.4 (3.4-23.3)	6.0 (0.0-12.6)	7.0 (0.6-14.6)	6.6 (0.0-13.8)	*0.57*

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age. These estimates were used to populate the corresponding figure. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 52. Trends in prevalence of forgoing dental care by self-rated health, SHP 2013-2018 and IHP 2013, 2016

		Prevalence, % (95% confidence interval)						
	Self-rated health	2013	2014	2015	2016	2017	2018	*p-value*
SHP	Very good/good	1.7 (1.3-2.1)	2.0 (1.6-2.3)	2.4 (2.0-2.8)	2.0 (1.6-2.4)	1.9 (1.6-2.3)	1.8 (1.4-2.1)	*0.81*
	Fair/average	4.6 (3.0-6.3)	5.9 (4.4-7.4)	4.7 (3.3-6.1)	4.6 (3.2-6.1)	4.4 (3.0-5.8)	3.8 (2.5-5.1)	*0.16*
	Poor/very poor	14.5 (7.5-21.5)	14.7 (9.2-20.2)	12.3 (7.2-17.3)	8.1 (3.3-12.9)	10.7 (5.4-16.0)	11.3 (6.3-16.3)	*0.13*
IHP	Very good/good	5.3 (4.1-6.6)			15.2 (12.8-17.6)			*<0.001*
	Fair/average	10.5 (7.9-13.2)			21.0 (16.4-25.5)			*<0.01*
	Poor/very poor	9.2 (0.4-17.9)			22.6 (11.3-33.8)			*<0.01*

Prevalence and 95% confidence interval are from logistic regression models separately run by self-rated health, and adjusted for age and sex. P-values for linear trend calculated using orthogonal polynomial contrasts.

Supplementary table 53. Distribution of forgoing healthcare according to educational level and household income level

	Household income level			
	<5000 CHF		≥9500 CHF	
Educational level	N / total	%	N / total	%
Higher	258 / 9617	2.7	18 / 2084	0.9
Middle	434 / 22312	2.0	8 / 978	1.0
Lower	215 / 9750	2.2	2 / 144	1.4

Supplementary table 54. Distribution of forgoing dental care in SHP, 2013-2018

	Household income level (CHF/month)							
	<5000		5000-6999		7000-9499		≥9500	
Survey period	N / total	%	N / total	%	N / total	%	N / total	%
2013-2014	305 / 6379	4.8	37 / 3496	1.1	11 / 1891	0.6	3 / 1012	0.3
2015-2016	264 / 5670	4.7	41 / 3182	1.3	11 / 1825	0.6	2 / 991	0.2
2017-2018	219 / 5206	4.2	36 / 3121	1.2	5 / 1753	0.3	4 / 982	0.4

Supplementary table 55. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare, SILC 2010-2018

	Prevalence (%, 95% CI)										
Reason	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	44.0 (37.8-50.2)	35.4 (29.4-41.5)	39.6 (33.6-45.6)	38.1 (32.1-44.1)	48.4 (41.4-55.3)	*0.30*	20.4 (15.4-25.5)	20.3 (15.4-25.1)	18.1 (13.6-22.6)	20.5 (15.5-25.5)	*0.71*
Other	17.8 (12.9-22.7)	21.9 (16.5-27.2)	25.4 (19.9-30.9)	25.1 (19.6-30.5)	24.6 (18.5-30.7)	*0.07*	23.0 (17.9-28.2)	29.4 (24.0-34.8)	24.1 (19.1-29.0)	21.4 (16.3-26.5)	*0.29*
Lacking time	16.7 (11.9-21.5)	19.1 (13.9-24.2)	15.0 (10.5-19.5)	12.5 (8.3-16.7)	12.9 (8.3-17.6)	*0.06*	15.9 (11.5-20.3)	16.3 (12.0-20.6)	17.8 (13.5-22.2)	16.3 (11.7-20.8)	*0.79*
Wait and see	11.7 (7.5-15.8)	11.1 (7.0-15.2)	9.0 (5.3-12.7)	13.2 (8.9-17.5)	6.8 (3.2-10.3)	*0.32*	33.5 (27.8-39.2)	27.1 (21.9-32.3)	34.4 (29.0-39.9)	34.9 (29.0-40.8)	*0.18*
Fear	4.5 (1.9-7.2)	5.0 (2.2-7.7)	3.1 (1.0-5.3)	1.2 (0-2.6)	2.6 (0.4-4.9)	*0.22*	3.3 (1.1-5.6)	2.3 (0.5-4.1)	2.9 (0.9-4.9)	3.2 (1.0-5.4)	*0.85*
Waiting list	1.3 (0-2.8)	4.0 (1.4-6.6)	3.9 (1.4-6.4)	4.2 (1.7-6.8)	3.7 (1.0-6.3)	*0.53*	2.3 (0.5-4.2)	2.1 (0.4-3.8)	1.7 (0.2-3.2)	2.0 (0.3-3.7)	*0.62*
Does not know where to go	2.8 (0.6-4.9)	2.1 (0.3-3.9)	3.5 (1.1-5.8)	3.5 (1.1-5.9)	1.1 (0-2.5)	*0.37*	0.4 (0-1.1)	2.2 (0.4-3.9)	1.0 (0-2.1)	1.2 (0-2.6)	*NA*
Distance / transport	1.2 (0-2.6)	1.5 (0-3.2)	0.4 (0-1.3)	2.2 (0.3-4.1)	0.0 (0-0.0)	*NA*	1.1 (0-2.4)	0.4 (0-1.1)	0.0 (0-0.0)	0.4 (0-1.1)	*NA*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age, sex, and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 56. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by sex, SILC 2010-2018

		Prevalence (%, 95% CI)									
Reason	Sex	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Men	40.1 (29.9-50.3)	35.6 (25.5-45.8)	38.4 (28.3-48.5)	39.0 (29.0-48.9)	50.3 (39.3-61.3)	*0.13*	14.8 (8.2-21.5)	21.3 (13.6-29.0)	13.9 (7.8-20.1)	21.7 (13.7-29.7)	*0.62*
	Women	57.8 (49.2-66.4)	44.9 (36.1-53.8)	49.8 (41.3-58.4)	46.5 (37.8-55.2)	54.0 (44.3-63.7)	*0.89*	26.4 (18.6-34.1)	20.7 (14.0-27.3)	22.7 (15.9-29.6)	22.1 (14.9-29.4)	*0.49*
Other	Men	22.4 (13.6-31.2)	24.6 (15.3-33.9)	29.0 (19.5-38.5)	23.8 (15.0-32.7)	21.9 (12.8-31.0)	*0.96*	25.4 (17.3-33.5)	31.9 (23.3-40.6)	25.3 (17.7-33.0)	19.2 (11.6-26.7)	*0.18*
	Women	17.5 (10.9-24.1)	25.6 (17.8-33.3)	28.0 (20.3-35.7)	31.3 (23.2-39.4)	30.1 (21.2-39.1)	*<0.01*	24.0 (16.6-31.4)	30.9 (23.4-38.4)	25.4 (18.4-32.4)	25.7 (18.2-33.3)	*0.89*
Lacking time	Men	22.3 (13.7-30.8)	23.7 (14.7-32.7)	19.7 (11.4-28.0)	14.4 (7.2-21.6)	18.8 (10.3-27.3)	*0.21*	14.9 (8.4-21.4)	17.3 (10.4-24.2)	24.4 (16.9-31.8)	20.6 (12.9-28.4)	*0.08*
	Women	14.4 (8.3-20.5)	19.4 (12.3-26.6)	14.3 (8.2-20.4)	13.3 (7.3-19.3)	9.9 (4.1-15.6)	*0.17*	19.7 (12.8-26.6)	18.7 (12.3-25.1)	14.7 (9.0-20.3)	15.1 (8.9-21.4)	*0.16*
Wait and see	Men	15.2 (7.6-22.8)	16.0 (8.1-24.0)	12.9 (5.8-20.0)	22.9 (14.1-31.6)	9.0 (2.6-15.3)	*0.62*	44.9 (35.6-54.1)	29.4 (21.0-37.9)	36.4 (27.9-44.8)	38.4 (29.1-47.8)	*0.96*
	Women	10.3 (5.0-15.6)	10.1 (4.7-15.5)	7.9 (3.2-12.6)	8.9 (3.9-13.9)	6.0 (1.3-10.7)	*0.29*	29.9 (22.0-37.9)	29.7 (22.3-37.2)	37.2 (29.4-44.9)	37.0 (28.6-45.4)	*0.11*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 57. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by age group, SILC 2010-2018

Reason	Age in years	Prevalence (%, 95% CI)									
		2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<50	54.0 (46.0-61.9)	42.7 (34.2-51.1)	45.7 (37.2-54.2)	44.9 (36.3-53.6)	55.6 (46.5-64.6)	*0.87*	20.5 (13.8-27.1)	20.6 (14.1-27.1)	24.7 (17.9-31.4)	22.6 (15.4-29.7)	*0.51*
	≥50	41.9 (30.1-53.8)	39.4 (28.4-50.4)	45.8 (35.2-56.3)	42.4 (32.0-52.7)	48.7 (36.4-61.1)	*0.25*	23.4 (14.5-32.2)	21.9 (13.8-29.9)	10.9 (4.9-17.0)	21.7 (13.5-29.8)	*0.19*
Other	<50	17.7 (11.5-23.8)	23.6 (16.2-31.0)	23.4 (16.0-30.7)	27.5 (19.7-35.4)	21.8 (14.3-29.4)	*0.35*	19.0 (12.6-25.4)	28.1 (20.9-35.3)	23.0 (16.5-29.5)	22.0 (14.9-29.1)	*0.87*
	≥50	22.9 (12.7-33.1)	27.5 (17.3-37.8)	36.7 (26.3-47.1)	30.1 (20.4-39.8)	35.3 (23.4-47.1)	*0.06*	33.1 (23.4-42.8)	35.1 (25.8-44.3)	29.7 (20.9-38.5)	25.1 (16.4-33.8)	*0.21*
Lacking time	<50	19.6 (13.2-25.9)	21.1 (14.1-28.2)	20.6 (13.6-27.6)	12.9 (7.0-18.8)	16.5 (9.7-23.3)	*0.17*	24.1 (17.2-31.1)	21.1 (14.6-27.6)	20.1 (14.0-26.3)	19.5 (12.8-26.3)	*0.32*
	≥50	14.4 (5.7-23.0)	21.5 (12.0-31.1)	7.5 (1.7-13.2)	14.4 (6.9-21.8)	8.0 (1.3-14.7)	*0.12*	6.6 (1.5-11.6)	13.7 (7.1-20.4)	18.2 (10.8-25.6)	14.6 (7.5-21.7)	*0.06*
Wait and see	<50	8.8 (4.2-13.4)	12.6 (6.8-18.3)	10.3 (5.0-15.7)	14.6 (8.4-20.8)	6.1 (1.7-10.4)	*0.55*	36.4 (28.5-44.2)	30.2 (22.9-37.5)	32.2 (25.0-39.3)	35.9 (27.8-44.0)	*0.95*
	≥50	20.8 (10.8-30.8)	11.5 (4.1-19.0)	10.1 (3.5-16.6)	13.2 (6.0-20.4)	8.0 (1.3-14.7)	*0.18*	37.0 (27.1-46.9)	29.3 (20.5-38.1)	41.2 (31.7-50.6)	38.6 (28.9-48.3)	*0.23*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 58. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by nationality, SILC 2010-2018

		Prevalence (%, 95% CI)									
Reason	Nationality	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Swiss	44.3 (36.7-51.9)	39.7 (32.2-47.2)	41.6 (34.1-49.0)	38.9 (31.5-46.3)	44.4 (36.0-52.9)	*0.98*	19.3 (13.8-24.8)	21.2 (15.7-26.7)	15.3 (10.6-20.0)	20.6 (14.7-26.5)	*0.63*
	Non-Swiss	68.0 (55.6-80.5)	44.7 (30.5-59.0)	55.1 (41.8-68.4)	57.3 (44.0-70.6)	74.4 (62.4-86.5)	*0.08*	31.4 (16.2-46.6)	19.4 (7.4-31.4)	40.2 (24.6-55.8)	27.2 (14.7-39.7)	*0.61*
Other	Swiss	18.8 (12.8-24.9)	24.7 (18.0-31.4)	29.9 (22.9-36.9)	32.0 (24.8-39.1)	32.9 (24.9-40.9)	*0.01*	25.1 (19.2-31.1)	29.9 (23.8-36.0)	26.0 (20.4-31.6)	23.3 (17.2-29.4)	*0.46*
	Non-Swiss	21.2 (10.2-32.3)	26.8 (14.0-39.7)	23.7 (12.2-35.3)	16.1 (6.0-26.3)	8.4 (0.5-16.3)	*0.03*	22.7 (8.9-36.5)	39.0 (24.2-53.8)	22.2 (8.8-35.7)	21.2 (9.6-32.8)	*0.40*
Lacking time	Swiss	21.0 (14.7-27.3)	23.3 (16.6-29.9)	18.5 (12.5-24.5)	12.8 (7.6-18.0)	16.5 (10.1-22.8)	*0.04*	18.4 (13.1-23.7)	17.2 (12.2-22.2)	18.3 (13.5-23.2)	17.1 (11.6-22.6)	*0.86*
	Non-Swiss	8.9 (1.5-16.2)	15.2 (5.0-25.4)	11.3 (2.8-19.7)	16.7 (6.9-26.6)	7.4 (0.4-14.3)	*0.95*	11.3 (0.9-21.7)	22.5 (9.9-35.2)	23.8 (10.4-37.2)	19.3 (8.6-30.0)	*0.33*
Wait and see	Swiss	15.9 (10.2-21.6)	12.3 (7.2-17.5)	10.0 (5.4-14.6)	16.3 (10.6-22.0)	6.2 (2.1-10.4)	*0.07*	37.2 (30.5-43.8)	31.7 (25.5-37.9)	40.4 (34.1-46.7)	39.0 (31.9-46.1)	*0.21*
	Non-Swiss	1.9 (-1.8-5.5)	13.2 (3.4-23.1)	9.9 (1.7-18.1)	9.8 (1.7-18.0)	9.8 (1.6-18.0)	*0.14*	34.7 (18.9-50.4)	19.1 (7.2-31.0)	13.8 (2.6-25.0)	32.2 (19.2-45.3)	*0.70*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 59. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by household income, SILC 2010-2018

		Prevalence (%, 95% CI)										
Reason	Income[a]	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<5000	55.5 (48.2-62.9)	46.7 (38.8-54.5)	52.2 (44.5-59.9)	48.1 (40.7-55.6)	58.0 (50.0-65.9)	*0.27*	25.4 (18.7-32.1)	25.5 (18.8-32.2)	23.5 (17.2-29.8)	28.7 (21.7-35.8)	*0.76*
	≥5000	28.1 (14.6-41.6)	22.7 (11.4-34.0)	24.8 (13.9-35.8)	25.2 (12.9-37.5)	24.3 (8.9-39.6)	*0.76*	11.6 (4.1-19.1)	12.6 (5.7-19.5)	10.0 (3.8-16.1)	5.7 (0.3-11.1)	*0.21*
Other	<5000	18.1 (12.4-23.9)	25.2 (18.3-32.0)	25.7 (19.0-32.5)	24.9 (18.4-31.4)	24.9 (17.9-31.8)	*0.11*	20.5 (14.3-26.6)	30.9 (23.9-37.9)	23.0 (16.8-29.2)	21.4 (15.1-27.8)	*0.63*
	≥5000	25.5 (12.1-38.9)	26.0 (14.0-38.0)	35.9 (23.5-48.3)	40.9 (26.6-55.1)	35.9 (19.1-52.7)	*0.29*	34.6 (23.8-45.5)	32.3 (22.6-42.1)	30.0 (20.8-39.2)	26.3 (16.2-36.5)	*0.06*
Lacking time	<5000	14.0 (8.8-19.1)	17.3 (11.2-23.3)	13.0 (7.7-18.3)	12.4 (7.4-17.5)	11.0 (5.9-16.0)	*0.24*	17.3 (11.5-23.1)	15.1 (9.7-20.5)	18.2 (12.6-23.9)	16.3 (10.6-21.9)	*0.99*
	≥5000	33.9 (19.7-48.0)	33.7 (20.9-46.4)	26.7 (15.3-38.0)	18.5 (7.6-29.4)	27.5 (12.3-42.8)	*0.16*	17.4 (9.1-25.7)	23.3 (14.7-31.9)	20.5 (12.5-28.4)	20.8 (11.3-30.4)	*0.85*
Wait and see	<5000	12.4 (7.4-17.3)	10.9 (5.9-15.9)	9.0 (4.5-13.5)	14.6 (9.2-19.9)	6.2 (2.3-10.2)	*0.29*	36.9 (29.5-44.2)	28.5 (21.7-35.3)	35.2 (28.2-42.2)	33.6 (26.3-40.9)	*0.91*
	≥5000	12.6 (2.3-22.8)	17.6 (7.2-28.1)	12.6 (3.9-21.4)	15.4 (4.9-25.9)	12.3 (1.0-23.6)	*0.83*	36.4 (25.5-47.2)	31.8 (22.1-41.5)	39.5 (29.7-49.3)	47.2 (35.5-58.9)	*0.06*

[a] Monthly household income, in CHF. Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 60. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by educational level, SILC 2010-2018

		Prevalence (%, 95% CI)									
Reason	Education[a]	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<Tertiary	52.1 (44.0-60.2)	47.0 (38.5-55.5)	49.4 (41.4-57.3)	43.4 (35.4-51.3)	53.2 (44.2-62.2)	0.49	22.1 (15.4-28.8)	22.5 (16.0-29.0)	20.5 (14.7-26.3)	22.8 (15.8-29.8)	0.82
	Tertiary	46.3 (34.9-57.8)	30.5 (20.3-40.7)	35.0 (23.8-46.2)	42.8 (31.3-54.2)	50.9 (38.5-63.2)	0.59	19.5 (11.0-28.0)	18.4 (10.5-26.2)	14.9 (7.2-22.7)	20.8 (12.5-29.0)	0.94
Other	<Tertiary	19.3 (12.8-25.9)	26.4 (18.8-34.0)	28.8 (21.6-36.0)	27.9 (20.6-35.2)	27.9 (19.7-36.0)	0.04	25.5 (18.6-32.4)	34.6 (27.2-41.9)	25.2 (19.0-31.4)	24.0 (16.9-31.1)	0.35
	Tertiary	19.7 (10.5-29.0)	23.0 (13.5-32.5)	27.3 (16.7-38.0)	28.7 (18.1-39.3)	24.0 (13.4-34.5)	0.61	23.5 (14.5-32.4)	25.9 (17.1-34.8)	25.9 (16.7-35.2)	21.2 (13.0-29.4)	0.78
Lacking time	<Tertiary	15.6 (9.8-21.5)	17.0 (10.5-23.5)	13.6 (8.1-19.1)	13.2 (7.7-18.7)	11.0 (5.4-16.6)	0.27	13.1 (7.9-18.3)	13.4 (8.2-18.6)	14.0 (9.2-18.8)	15.1 (9.2-21.0)	0.58
	Tertiary	22.6 (12.8-32.4)	28.9 (18.8-39.0)	23.8 (13.6-34.0)	15.4 (6.8-23.9)	19.0 (9.5-28.5)	0.11	25.1 (16.0-34.2)	26.0 (17.3-34.8)	30.9 (21.1-40.8)	21.4 (13.0-29.7)	0.78
Wait and see	<Tertiary	12.9 (7.4-18.5)	9.6 (4.4-14.7)	8.2 (3.8-12.7)	15.5 (9.6-21.5)	7.9 (3.0-12.9)	0.81	39.3 (31.6-47.1)	29.6 (22.6-36.6)	40.4 (33.4-47.4)	38.0 (29.9-46.1)	0.43
	Tertiary	11.3 (3.9-18.7)	17.6 (9.0-26.3)	13.9 (5.5-22.4)	13.2 (5.2-21.1)	6.1 (0.3-12.0)	0.15	31.9 (22.1-41.7)	29.6 (20.4-38.8)	28.2 (18.6-37.7)	36.7 (27.0-46.4)	0.55

[a] Educational level. Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 61. Prevalence of reasons for forgoing healthcare among participants who reported forgoing healthcare stratified by self-rated health, SILC 2010-2018

Reason	Self-rated health[a]	Prevalence (%, 95% CI)									
		2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Non-poor	48.1 (41.1-55.2)	39.9 (32.5-47.2)	43.9 (36.8-51.1)	41.8 (34.7-48.8)	51.5 (43.3-59.8)	*0.44*	20.1 (14.8-25.4)	19.3 (14.2-24.3)	18.4 (13.6-23.2)	20.4 (15.0-25.8)	*0.87*
	Poor	65.3 (42.8-87.7)	56.3 (37.3-75.3)	44.0 (23.9-64.2)	51.7 (33.0-70.4)	50.4 (31.3-69.5)	*0.57*	42.1 (14.4-69.9)	42.1 (20.1-64.0)	27.3 (4.7-49.9)	43.8 (19.8-67.7)	*0.75*
Other	Non-poor	18.4 (12.8-23.9)	23.1 (16.7-29.5)	26.7 (20.2-33.1)	26.8 (20.4-33.3)	23.7 (16.5-30.8)	*0.15*	24.5 (18.9-30.1)	31.1 (25.2-37.0)	24.7 (19.4-30.0)	23.8 (18.1-29.4)	*0.47*
	Poor	28.3 (7.2-49.4)	30.2 (12.7-47.8)	47.3 (27.0-67.5)	36.3 (18.3-54.3)	41.2 (22.4-59.9)	*0.31*	30.9 (5.3-56.6)	35.9 (14.5-57.3)	38.5 (14.1-62.9)	11.7 (0.0-27.1)	*0.25*
Lacking time	Non-poor	19.5 (13.9-25.0)	24.3 (17.8-30.8)	19.1 (13.4-24.9)	14.5 (9.4-19.6)	16.0 (10.1-22.0)	*0.07*	17.7 (12.8-22.6)	18.9 (14.0-23.9)	19.7 (14.9-24.5)	17.9 (12.8-23.0)	*0.88*
	Poor	6.4 (0.0-18.5)	4.9 (0.0-14.2)	0.0 (0.0-0.0)	8.3 (0.0-19.1)	4.5 (0.0-13.1)	*NA*	10.0 (0.0-28.3)	6.0 (0.0-17.3)	7.5 (0.0-21.7)	13.7 (0.0-31.2)	*0.61*
Wait and see	Non-poor	14.1 (9.1-19.1)	12.8 (7.7-17.9)	10.3 (5.8-14.8)	17.0 (11.5-22.5)	8.8 (4.0-13.5)	*0.46*	37.7 (31.4-44.0)	30.7 (24.8-36.6)	37.3 (31.4-43.2)	38.0 (31.5-44.5)	*0.39*
	Poor	0.0 (0.0-0.0)	8.5 (0.0-19.7)	8.7 (0.0-20.2)	3.7 (0.0-10.9)	4.0 (0.0-11.6)	*NA*	16.9 (0.0-38.2)	16.0 (0.0-32.6)	26.7 (4.3-49.0)	30.8 (8.4-53.1)	*0.21*

[a] Self-rated health: non-poor includes “very good,” “good”, and “fair”; poor includes “poor” and “very poor.” Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing healthcare, see Chapter 1, figure 6.

Supplementary table 62. Prevalence of reasons for forgoing care among participants who reported forgoing dental care, SILC 2010-2018

	Prevalence (%, 95% CI)										
Reason	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	64.4 (60.9-67.9)	66.0 (62.6-69.4)	68.4 (64.9-72.0)	64.4 (60.9-68.0)	67.7 (63.9-71.6)	*0.41*	54.1 (49.7-58.5)	55.7 (51.7-59.7)	51.9 (47.9-55.9)	53.3 (48.6-58.0)	*0.42*
Other	16.7 (14.0-19.4)	15.1 (12.5-17.7)	14.2 (11.5-16.8)	18.8 (16.0-21.7)	15.3 (12.3-18.3)	*0.78*	17.4 (14.1-20.7)	16.0 (13.0-18.9)	19.5 (16.3-22.7)	17.4 (13.7-21.0)	*0.45*
Lacking time	8.9 (6.9-11.0)	9.9 (7.7-12.0)	8.2 (6.1-10.3)	9.0 (6.9-11.2)	8.7 (6.4-11.0)	*0.72*	11.7 (8.9-14.5)	11.4 (8.9-13.9)	10.9 (8.4-13.3)	12.9 (9.7-16.0)	*0.68*
Fear	6.7 (4.9-8.6)	6.1 (4.4-7.8)	4.7 (3.1-6.3)	4.3 (2.8-5.8)	5.8 (3.8-7.7)	*0.15*	11.7 (8.8-14.6)	11.1 (8.6-13.7)	10.3 (7.8-12.7)	10.1 (7.2-13.1)	*0.36*
Wait and see	1.4 (0.5-2.3)	0.6 (0.0-1.1)	1.1 (0.3-1.9)	1.0 (0.3-1.8)	0.7 (0.0-1.4)	*0.62*	1.6 (0.5-2.8)	3.3 (1.9-4.8)	4.0 (2.4-5.5)	3.6 (1.8-5.4)	*0.06*
Waiting list	0.9 (0.2-1.5)	1.2 (0.4-2.0)	1.5 (0.6-2.4)	1.1 (0.4-1.9)	0.4 (0.0-0.9)	*0.81*	1.2 (0.3-2.2)	1.2 (0.3-2.1)	1.0 (0.2-1.9)	0.7 (0.0-1.5)	*0.30*
Does not know where to go	0.7 (0.1-1.3)	0.8 (0.2-1.4)	0.9 (0.2-1.6)	0.3 (0.0-0.7)	1.0 (0.2-1.9)	*0.39*	1.2 (0.3-2.2)	1.1 (0.2-2.0)	1.8 (0.7-3.0)	1.7 (0.5-3.0)	*0.64*
Distance / transport	0.3 (0.0-0.7)	0.3 (0.0-0.6)	1.0 (0.3-1.8)	0.9 (0.3-1.6)	0.4 (0.0-0.8)	*0.28*	1.0 (0.1-1.8)	0.2 (0.0-0.5)	0.5 (0.0-1.2)	0.3 (0.0-0.8)	*0.37*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age, sex, and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing dental care, see Chapter 1, figure 6.

Supplementary table 63. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by sex, SILC 2010-2018

Reason	Sex	Prevalence (%, 95% CI)									
		2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Men	66.6 (61.4-71.9)	67.5 (62.4-72.7)	66.2 (60.6-71.8)	58.0 (52.6-63.5)	63.6 (57.5-69.8)	*0.06*	54.5 (48.2-60.9)	50.7 (44.9-56.5)	53.7 (47.9-59.4)	47.3 (40.0-54.6)	*0.15*
	Women	67.0 (62.4-71.6)	68.7 (64.1-73.3)	76.1 (71.7-80.5)	74.2 (69.7-78.7)	74.5 (69.7-79.3)	*<0.01*	58.8 (52.4-65.2)	66.9 (61.3-72.5)	57.4 (51.5-63.4)	64.9 (58.6-71.2)	*0.86*
Other	Men	16.9 (12.7-21.1)	15.5 (11.5-19.6)	17.7 (13.2-22.3)	24.5 (19.8-29.3)	16.1 (11.4-20.8)	*0.27*	20.5 (15.3-25.6)	19.7 (15.0-24.3)	23.8 (18.8-28.7)	19.2 (13.4-25.0)	*0.30*
	Women	17.3 (13.6-21.0)	15.4 (11.8-18.9)	12.5 (9.1-15.9)	15.3 (11.6-18.9)	15.2 (11.2-19.1)	*0.47*	16.6 (11.8-21.4)	14.5 (10.3-18.7)	18.7 (14.0-23.5)	17.9 (12.8-23.0)	*0.93*
Lacking time	Men	10.8 (7.4-14.2)	10.2 (6.9-13.4)	10.1 (6.6-13.7)	12.3 (8.6-16.0)	13.3 (9.1-17.6)	*0.22*	14.3 (9.9-18.8)	15.3 (11.2-19.4)	12.2 (8.5-16.0)	20.9 (14.9-26.8)	*0.88*
	Women	7.8 (5.2-10.4)	10.1 (7.1-13.2)	7.2 (4.5-10.0)	6.7 (4.1-9.3)	5.2 (2.8-7.7)	*0.06*	10.5 (6.5-14.6)	9.2 (5.8-12.6)	11.8 (8.0-15.6)	7.8 (4.3-11.3)	*0.39*
Fear	Men	5.7 (3.0-8.3)	6.8 (4.0-9.6)	6.0 (3.1-8.8)	5.2 (2.7-7.6)	6.9 (3.7-10.2)	*0.94*	10.7 (6.7-14.7)	14.3 (10.2-18.4)	10.4 (6.8-13.9)	12.6 (7.7-17.5)	*0.55*
	Women	7.9 (5.2-10.6)	5.8 (3.5-8.1)	4.2 (2.1-6.2)	3.9 (1.9-5.8)	5.1 (2.7-7.5)	*0.05*	14.1 (9.6-18.7)	9.3 (5.9-12.8)	12.0 (8.1-16.0)	9.3 (5.4-13.2)	*0.27*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing dental care, see Chapter 1, figure 6.

Supplementary table 64. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by age group, SILC 2010-2018

Reason	Age in years	Prevalence (%, 95% CI)									
		2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<50	67.8 (63.4-72.1)	71.1 (66.6-75.6)	73.2 (68.7-77.8)	65.9 (61.0-70.8)	72.7 (67.7-77.6)	*0.46*	58.2 (52.0-64.4)	60.0 (54.7-65.3)	54.5 (49.1-59.9)	56.9 (50.4-63.3)	*0.32*
	≥50	65.2 (59.4-71.1)	64.8 (59.5-70.0)	69.8 (64.3-75.2)	68.4 (63.3-73.5)	66.8 (60.8-72.9)	*0.59*	56.6 (50.1-63.1)	58.5 (52.0-65.0)	59.3 (52.9-65.6)	57.7 (50.3-65.0)	*0.92*
Other	<50	14.6 (11.3-17.8)	12.1 (8.9-15.4)	11.6 (8.2-14.9)	18.7 (14.6-22.8)	10.7 (7.3-14.1)	*0.93*	13.8 (9.5-18.2)	14.7 (10.9-18.5)	17.2 (13.1-21.4)	16.8 (11.8-21.8)	*0.30*
	≥50	20.8 (15.8-25.7)	19.7 (15.3-24.1)	19.1 (14.4-23.7)	20.2 (15.8-24.5)	20.9 (15.7-26.1)	*0.83*	22.5 (17.0-28.0)	18.9 (13.7-24.0)	25.2 (19.6-30.9)	21.0 (14.8-27.1)	*0.70*
Lacking time	<50	11.4 (8.4-14.3)	12.6 (9.3-15.9)	10.6 (7.4-13.8)	11.7 (8.3-15.0)	11.1 (7.6-14.6)	*0.85*	15.3 (10.8-19.9)	14.6 (10.8-18.4)	15.9 (11.9-19.8)	15.8 (10.9-20.6)	*0.87*
	≥50	6.1 (3.1-9.0)	6.6 (3.8-9.4)	5.6 (2.9-8.4)	6.1 (3.4-8.7)	5.8 (2.7-8.8)	*0.66*	8.6 (4.9-12.3)	9.0 (5.2-12.8)	6.6 (3.4-9.8)	10.1 (5.5-14.6)	*0.96*
Fear	<50	6.3 (4.0-8.6)	4.2 (2.2-6.1)	4.6 (2.4-6.7)	3.7 (1.7-5.7)	5.5 (3.0-8.1)	*0.63*	12.6 (8.4-16.9)	10.7 (7.3-14.0)	12.4 (8.8-16.1)	10.6 (6.5-14.6)	*0.74*
	≥50	8.0 (4.6-11.3)	9.0 (5.8-12.1)	5.5 (2.8-8.3)	5.4 (2.9-7.9)	6.5 (3.3-9.7)	*0.18*	12.3 (8.0-16.7)	13.6 (9.1-18.2)	8.9 (5.2-12.6)	11.3 (6.5-16.1)	*0.26*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing care, see Chapter 1, figure 6.

Supplementary table 65. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by nationality, SILC 2010-2018

		Prevalence (%, 95% CI)									
Reason	Nationality	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Swiss	63.6 (59.5-67.7)	63.5 (59.5-67.6)	67.3 (63.1-71.6)	61.3 (57.1-65.5)	63.8 (59.1-68.5)	*0.91*	53.3 (48.3-58.4)	57.0 (52.3-61.7)	51.1 (46.4-55.8)	53.5 (48.0-59.0)	*0.28*
	Non-Swiss	75.6 (69.3-82.0)	81.3 (75.6-87.1)	82.8 (77.1-88.4)	82.7 (77.0-88.3)	83.7 (78.1-89.4)	*0.12*	71.4 (62.3-80.5)	66.2 (58.2-74.2)	73.2 (65.3-81.1)	70.2 (60.2-80.1)	*0.65*
Other	Swiss	18.4 (15.1-21.7)	16.9 (13.7-20.0)	17.0 (13.5-20.4)	23.3 (19.7-27.0)	20.5 (16.5-24.4)	*0.06*	19.8 (15.8-23.8)	18.5 (14.8-22.2)	23.1 (19.1-27.0)	20.2 (15.7-24.6)	*0.46*
	Non-Swiss	13.6 (8.5-18.7)	11.4 (6.7-16.1)	9.0 (4.7-13.4)	8.3 (4.1-12.4)	3.8 (0.8-6.9)	*0.01*	12.7 (6.0-19.4)	11.7 (6.2-17.2)	13.9 (7.7-20.2)	12.1 (4.8-19.4)	*0.95*
Lacking time	Swiss	10.5 (8.0-13.1)	12.4 (9.6-15.2)	10.0 (7.2-12.8)	9.8 (7.2-12.5)	8.8 (5.9-11.6)	*0.20*	12.7 (9.3-16.1)	11.7 (8.7-14.7)	13.3 (10.1-16.4)	13.7 (10.0-17.5)	*0.57*
	Non-Swiss	5.5 (2.2-8.8)	3.8 (1.1-6.6)	5.2 (1.9-8.5)	7.9 (3.8-11.9)	9.2 (4.8-13.6)	*0.06*	10.5 (4.4-16.6)	13.5 (7.9-19.1)	6.9 (2.6-11.2)	13.9 (6.5-21.3)	*0.75*
Fear	Swiss	7.5 (5.2-9.8)	7.2 (5.0-9.4)	5.7 (3.6-7.8)	5.6 (3.6-7.6)	7.0 (4.4-9.5)	*0.44*	14.1 (10.6-17.7)	12.8 (9.6-16.0)	12.5 (9.4-15.7)	12.6 (8.9-16.3)	*0.50*
	Non-Swiss	5.2 (1.9-8.6)	3.4 (0.7-6.1)	3.0 (0.4-5.5)	1.2 (-0.4-2.8)	3.2 (0.4-6.0)	*0.11*	5.4 (0.8-9.9)	8.6 (3.7-13.4)	6.0 (1.7-10.3)	3.9 (-0.4-8.1)	*0.50*

Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing care, see Chapter 1, figure 6.

Supplementary table 66. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by household income, SILC 2010-2018

		Prevalence (%, 95% CI)										
Reason	Income[a]	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<5000	72.3 (68.6-75.9)	73.1 (69.5-76.7)	77.8 (74.2-81.4)	73.9 (70.2-77.6)	74.2 (70.2-78.2)	*0.38*	62.5 (57.6-67.5)	65.5 (61.1-69.9)	62.1 (57.5-66.7)	64.7 (59.3-70.0)	*0.94*
	≥5000	38.0 (29.1-46.8)	42.8 (33.9-51.7)	45.2 (36.3-54.1)	38.6 (30.3-46.9)	42.8 (32.0-53.6)	*0.64*	36.2 (26.7-45.8)	33.4 (24.7-42.0)	33.5 (25.2-41.9)	28.8 (19.2-38.4)	*0.17*
Other	<5000	14.4 (11.6-17.3)	14.3 (11.5-17.1)	12.5 (9.7-15.4)	15.2 (12.2-18.2)	14.0 (10.9-17.1)	*0.96*	16.8 (13.0-20.6)	13.9 (10.7-17.2)	17.8 (14.2-21.4)	14.7 (10.7-18.7)	*0.97*
	≥5000	32.4 (23.8-41.1)	21.8 (14.3-29.2)	25.1 (17.2-33.0)	36.7 (28.6-44.8)	26.1 (16.4-35.7)	*0.64*	24.7 (16.2-33.2)	29.2 (20.9-37.5)	33.6 (25.2-42.0)	32.9 (23.1-42.8)	*0.30*
Lacking time	<5000	6.1 (4.1-8.0)	7.0 (4.9-9.0)	5.0 (3.0-6.9)	7.8 (5.5-10.1)	6.9 (4.6-9.2)	*0.44*	9.7 (6.6-12.7)	10.9 (8.0-13.7)	9.6 (6.8-12.3)	10.6 (7.2-14.1)	*0.87*
	≥5000	24.1 (16.7-31.4)	25.9 (18.1-33.8)	23.5 (16.1-31.0)	14.9 (9.0-20.7)	19.4 (11.2-27.7)	*0.09*	21.4 (13.5-29.2)	16.9 (10.4-23.5)	19.4 (12.8-26.0)	24.0 (15.4-32.6)	*0.73*
Fear	<5000	7.3 (5.2-9.4)	5.6 (3.8-7.5)	4.7 (2.8-6.5)	3.2 (1.7-4.6)	4.9 (3.0-6.9)	*0.02*	11.0 (7.8-14.2)	9.7 (6.9-12.4)	10.6 (7.6-13.5)	10.0 (6.6-13.4)	*0.82*
	≥5000	5.5 (1.2-9.8)	9.5 (4.2-14.8)	6.1 (1.7-10.6)	9.9 (4.8-15.0)	11.7 (4.5-18.8)	*0.13*	17.7 (10.1-25.3)	20.5 (13.0-27.9)	13.5 (7.3-19.6)	14.2 (6.8-21.6)	*0.16*

[a] Monthly household income, in CHF. Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing care, see Chapter 1, figure 6.

Supplementary table 67. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by educational level, SILC 2010-2018

		Prevalence (%, 95% CI)									
Reason	Education[a]	2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	<Tertiary	67.9 (64.0-71.7)	70.3 (66.4-74.2)	73.7 (69.8-77.6)	68.4 (64.4-72.5)	71.4 (67.1-75.7)	*0.44*	61.0 (55.7-66.3)	62.8 (57.9-67.6)	64.6 (59.7-69.4)	57.2 (51.4-62.9)	*0.20*
	Tertiary	60.9 (53.0-68.7)	61.7 (54.8-68.7)	64.4 (56.7-72.1)	61.4 (54.1-68.8)	63.5 (55.2-71.8)	*0.61*	47.7 (39.5-55.9)	51.3 (44.0-58.7)	38.2 (31.1-45.2)	56.3 (47.3-65.4)	*0.60*
Other	<Tertiary	16.6 (13.5-19.7)	16.1 (13.0-19.3)	15.5 (12.3-18.7)	18.8 (15.4-22.2)	15.7 (12.2-19.1)	*0.90*	16.3 (12.3-20.2)	15.6 (12.0-19.2)	16.5 (12.7-20.3)	18.2 (13.7-22.7)	*0.52*
	Tertiary	20.2 (13.7-26.7)	13.9 (8.9-18.9)	12.6 (7.2-18.0)	21.6 (15.4-27.8)	15.7 (9.4-22.0)	*0.89*	23.2 (16.3-30.2)	20.1 (14.2-26.1)	31.0 (24.2-37.8)	19.6 (12.2-27.0)	*0.81*
Lacking time	<Tertiary	8.0 (5.8-10.2)	7.0 (4.8-9.2)	5.8 (3.7-7.9)	8.2 (5.8-10.6)	6.7 (4.3-9.1)	*0.80*	8.7 (5.7-11.8)	9.4 (6.5-12.3)	9.1 (6.2-12.0)	12.8 (8.9-16.8)	*0.20*
	Tertiary	14.1 (8.6-19.5)	18.9 (13.4-24.5)	18.2 (12.0-24.4)	12.7 (7.7-17.8)	16.1 (9.8-22.4)	*0.87*	20.5 (14.0-27.1)	17.6 (12.3-22.8)	17.1 (11.9-22.4)	15.8 (9.4-22.2)	*0.40*
Fear	<Tertiary	7.6 (5.3-9.8)	6.6 (4.4-8.7)	5.0 (3.0-6.9)	4.5 (2.7-6.3)	6.2 (3.9-8.6)	*0.14*	14.0 (10.2-17.8)	12.3 (8.9-15.6)	9.9 (6.8-12.9)	11.8 (8.1-15.6)	*0.19*
	Tertiary	4.9 (1.4-8.4)	5.5 (2.2-8.8)	4.8 (1.3-8.3)	4.2 (1.2-7.3)	4.7 (1.0-8.4)	*0.71*	8.5 (3.9-13.2)	11.0 (6.3-15.6)	13.7 (8.6-18.8)	8.2 (3.1-13.4)	*0.91*

[a] Educational level. Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing care, see Chapter 1, figure 6.

Supplementary table 68. Prevalence of reasons for forgoing care among participants who reported forgoing dental care stratified by self-rated health, SILC 2010-2018

Reason	Self-rated health[a]	Prevalence (%, 95% CI)									
		2010	2011	2012	2013	2014	*p*	2015	2016	2017	2018	*p*
Financial	Non-poor	65.6 (61.8-69.4)	66.6 (62.8-70.3)	71.2 (67.4-75.0)	66.0 (62.2-69.9)	70.0 (65.8-74.2)	*0.19*	55.1 (50.3-59.9)	57.1 (52.8-61.5)	55.2 (50.8-59.6)	55.6 (50.5-60.7)	*0.59*
	Poor	77.2 (67.4-87.0)	79.0 (70.2-87.9)	83.3 (74.2-92.3)	72.4 (62.5-82.2)	73.0 (62.2-83.8)	*0.30*	73.5 (61.5-85.4)	75.6 (64.4-86.9)	63.0 (50.6-75.4)	72.3 (57.2-87.5)	*0.60*
Other	Non-poor	16.6 (13.6-19.6)	15.8 (12.9-18.7)	14.5 (11.5-17.5)	20.0 (16.7-23.3)	14.1 (10.9-17.3)	*0.95*	18.4 (14.7-22.1)	17.7 (14.4-21.1)	21.4 (17.8-25.1)	18.1 (14.1-22.1)	*0.68*
	Poor	14.9 (6.8-23.0)	13.4 (6.1-20.7)	13.7 (5.4-22.0)	18.1 (9.8-26.4)	20.4 (10.6-30.1)	*0.39*	18.5 (8.1-28.9)	11.1 (2.8-19.3)	18.8 (8.8-28.7)	23.4 (9.4-37.5)	*0.29*
Lacking time	Non-poor	10.2 (7.8-12.5)	11.5 (9.0-14.1)	9.6 (7.1-12.1)	10.2 (7.7-12.7)	10.2 (7.4-12.9)	*0.78*	13.3 (10.0-16.5)	12.9 (10.1-15.8)	12.3 (9.5-15.1)	14.4 (10.8-18.0)	*0.85*
	Poor	5.2 (-0.5-10.9)	1.5 (-1.4-4.3)	0.0 (0.0-0.0)	3.5 (-1.2-8.1)	2.0 (-1.8-5.8)	*0.66*	2.4 (-2.2-7.0)	4.4 (-1.5-10.3)	6.3 (-0.5-13.2)	4.2 (-3.8-12.2)	*0.53*
Fear	Non-poor	7.6 (5.4-9.8)	6.1 (4.2-8.0)	4.8 (2.9-6.6)	3.8 (2.2-5.4)	5.8 (3.6-8.0)	*0.05*	13.2 (9.9-16.5)	12.2 (9.3-15.2)	11.0 (8.2-13.8)	11.9 (8.6-15.3)	*0.38*
	Poor	2.7 (-1.0-6.5)	6.1 (0.9-11.3)	3.1 (-1.1-7.2)	6.1 (0.9-11.2)	4.6 (-0.5-9.8)	*0.63*	5.7 (-0.6-11.9)	8.9 (1.5-16.3)	11.9 (3.6-20.2)	0.0 (0.0-0.0)	*NA*

[a] Self-rated health: non-poor includes “very good,” “good”, and “fair”; poor includes “poor” and “very poor.” Percentages and 95% confidence intervals are from margins after logistic regression, and are adjusted for sex, age and region. P-value for linear trend was calculated using orthogonal polynomial contrasts with survey year as time variable. NA indicates that p-value was not estimable due to zero values. For detailed description of each reason for forgoing care, see Chapter 1, figure 6.

Supplementary table 69. Short-Form 36 questionnaire

The Short-Form 36 questionnaire (SF-36) is a multipurpose, self-administered, validated survey including 36 health-related questions. In the present research, we used a validated version of the SF-36 questionnaire in French [153].

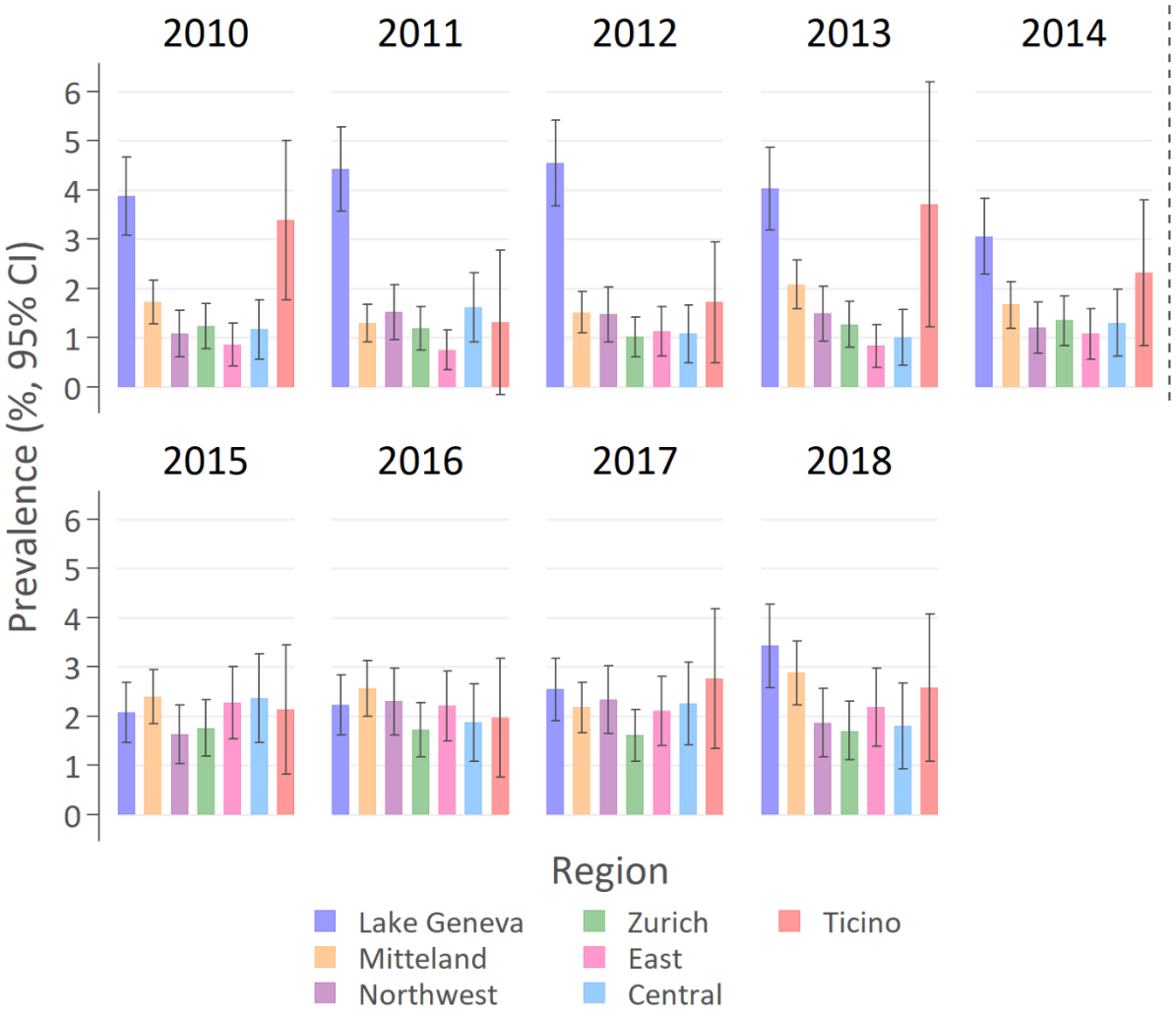
The SF-36 questionnaire allows computing 8-scale profile scores:
1-the physical functioning score, assessing physical limitations at work or in everyday activities (i.e. physical activities, household activities, personal hygiene);
2-the role-physical score, inquiring about problems with work or other daily activities as a result of poor physical health;
3-the bodily pain score, assessing the level of pain and the limitations in everyday life resulting from physical pain;
4-the general health score, inquiring about the general health state of the participant and comparing to that of their entourage;
5-the vitality score, assessing tiredness, lack of motivation, and lack of energy in everyday life;
6-the social functioning score, evaluating to what extent the social functioning is affected by physical or mental health issues;
7-the role-emotional score, inquiring about problems with work or other activities as a result of emotional distress;
8-the mental health score, assessing feelings of depression, nervousness, sadness, happiness, and serenity in everyday life [154,155].

All of the scores were calculated according to “Transformed Scale Formula”, ranging from 0: least favorable score, to 100: most favorable score [155].

Supplementary Table 70. Cronbach's α statistic for SF-36 scores internal consistency

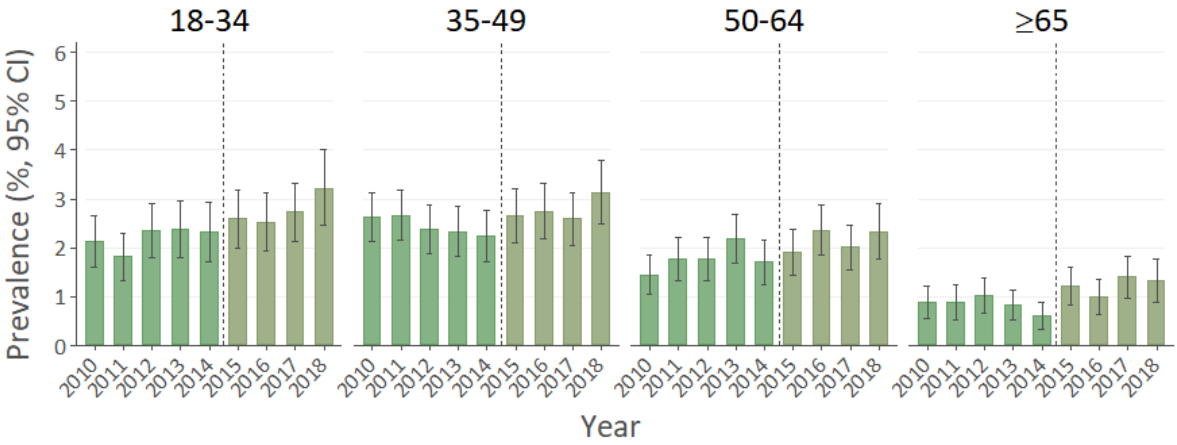
	N	Cronbach's alpha
1-Physical functioning score	388	0.8827
2-Role-physical score	385	0.8753
3-Bodily pain score	385	0.8805
4-General health score	385	0.8764
5-Vitality score	382	0.8717
6-Social functioning score	382	0.8688
7-Role-emotional score	383	0.8744
8-Mental health score	382	0.8777

Supplementary figure 1. Trends in prevalence of forgoing health stratified by region, SILC 2010-2018



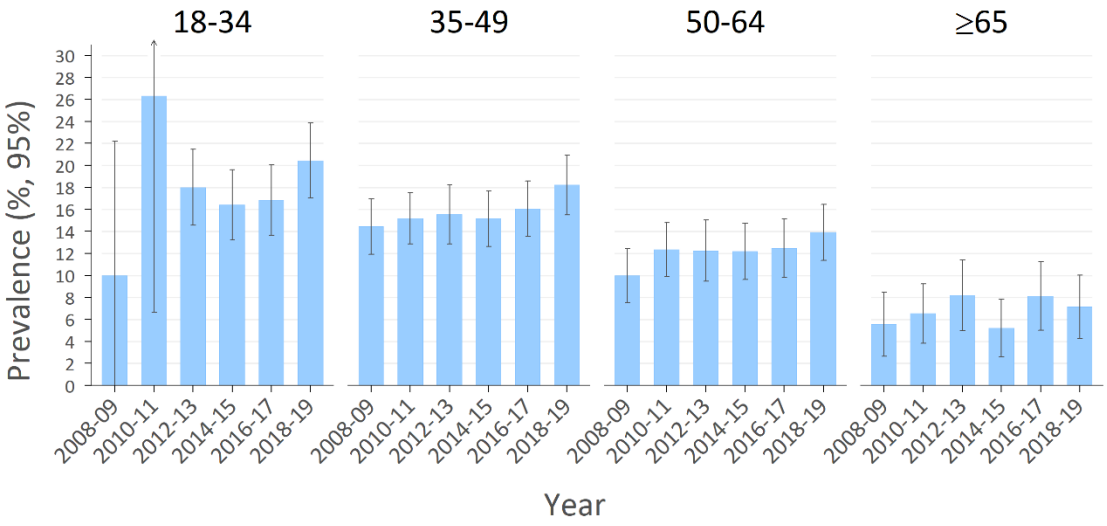
Prevalence and 95% confidence interval are from logistic regression models separately run by region, and adjusted for age and sex. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts. For corresponding p-values, see Supplementary table 1. . Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

Supplementary figure 2. Trends in prevalence of forgoing healthcare stratified by age, SILC 2010-2018



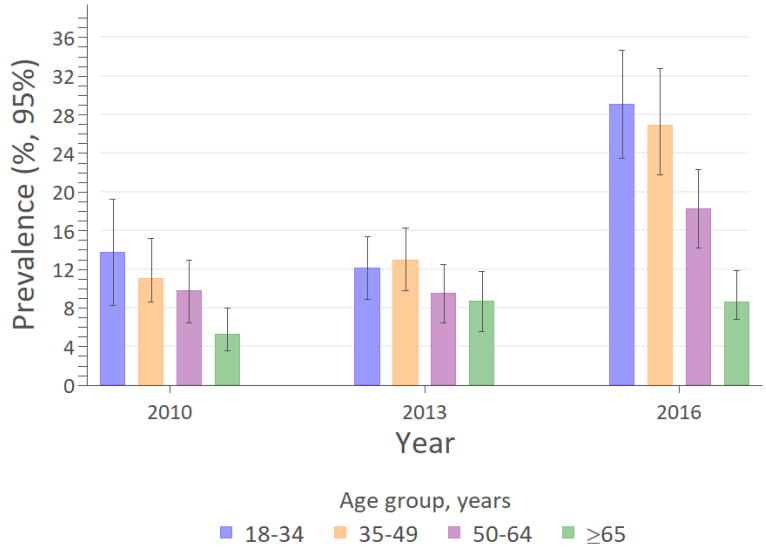
Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex, and region. P-values for linear trend separately calculated for the period 2010-2014, and 2015-2018, using orthogonal polynomial contrasts. For corresponding p-values, see Supplementary table 3. . Dashed vertical line represents the change in assessment of forgoing healthcare from 2015 onwards.

Supplementary figure 3. Trends in prevalence of forgoing healthcare stratified by age, Bus Santé 2007-2019



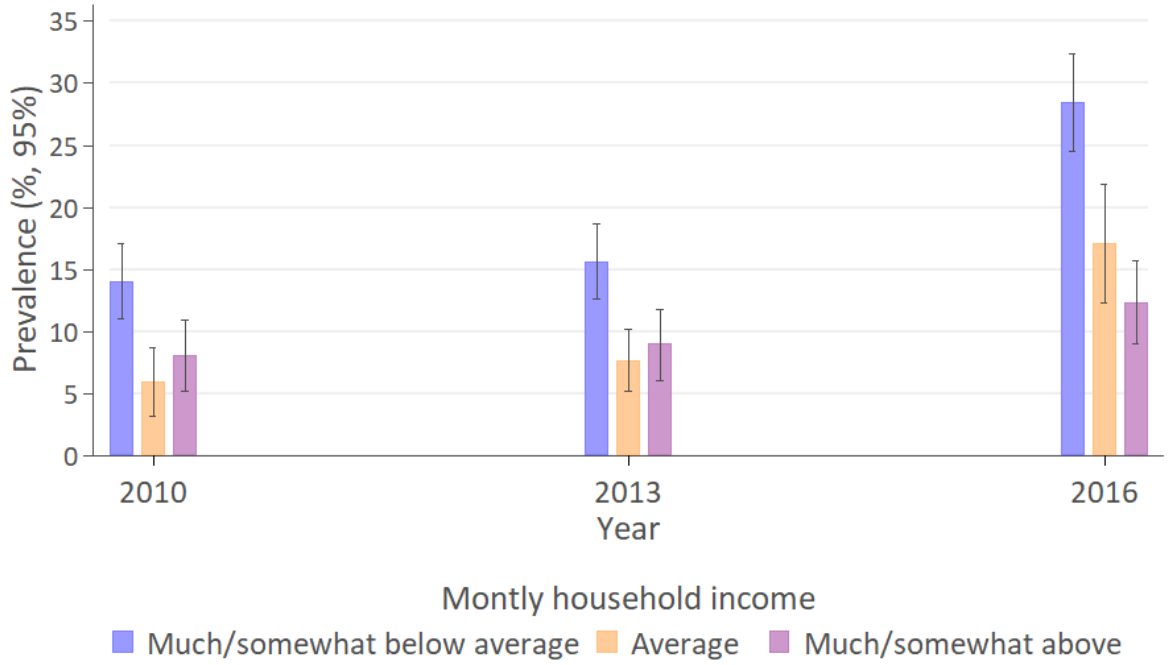
Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex. P-values for linear trend calculated using orthogonal polynomial contrasts. For corresponding p-values, see Supplementary table 4.

Supplementary figure 4. Trends in prevalence of forgoing healthcare stratified by age, IHP 2010, 2013, 2016



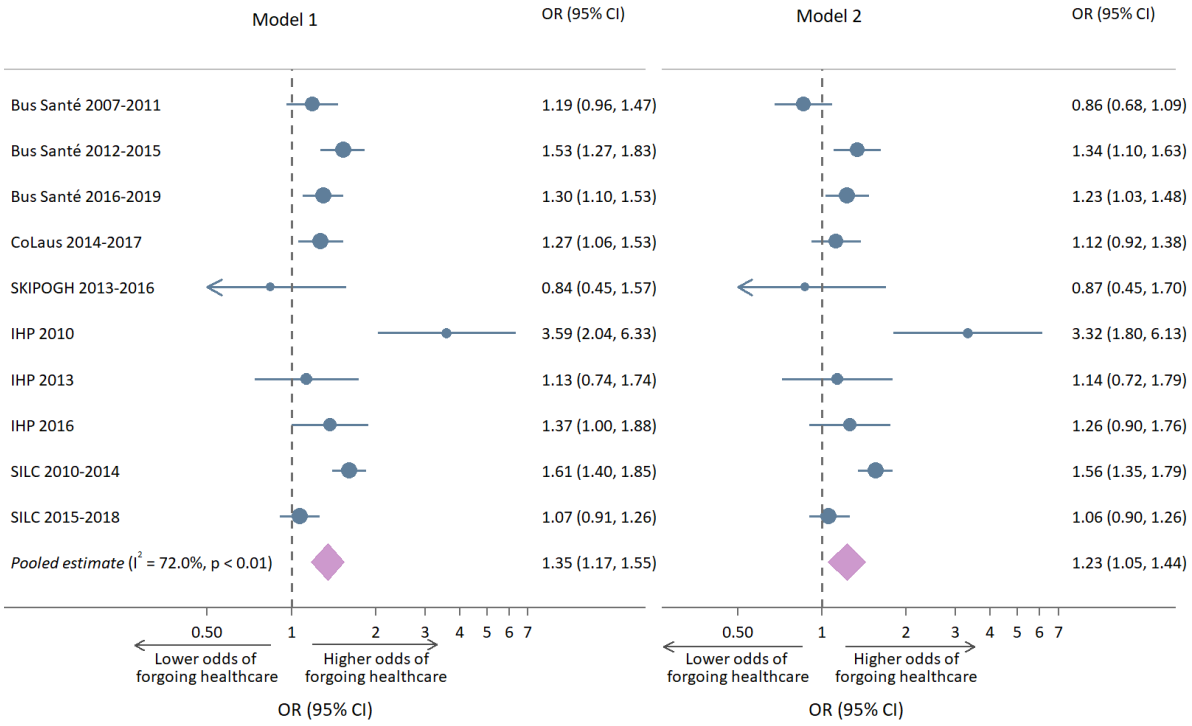
Prevalence and 95% confidence interval are from logistic regression models separately run by age group, and adjusted for age, sex. P-values for linear trend calculated using orthogonal polynomial contrasts. For corresponding p-values, see Supplementary table 5.

Supplementary figure 6. Trends in prevalence of forgoing healthcare stratified by income, IHP 2010, 2013, 2016



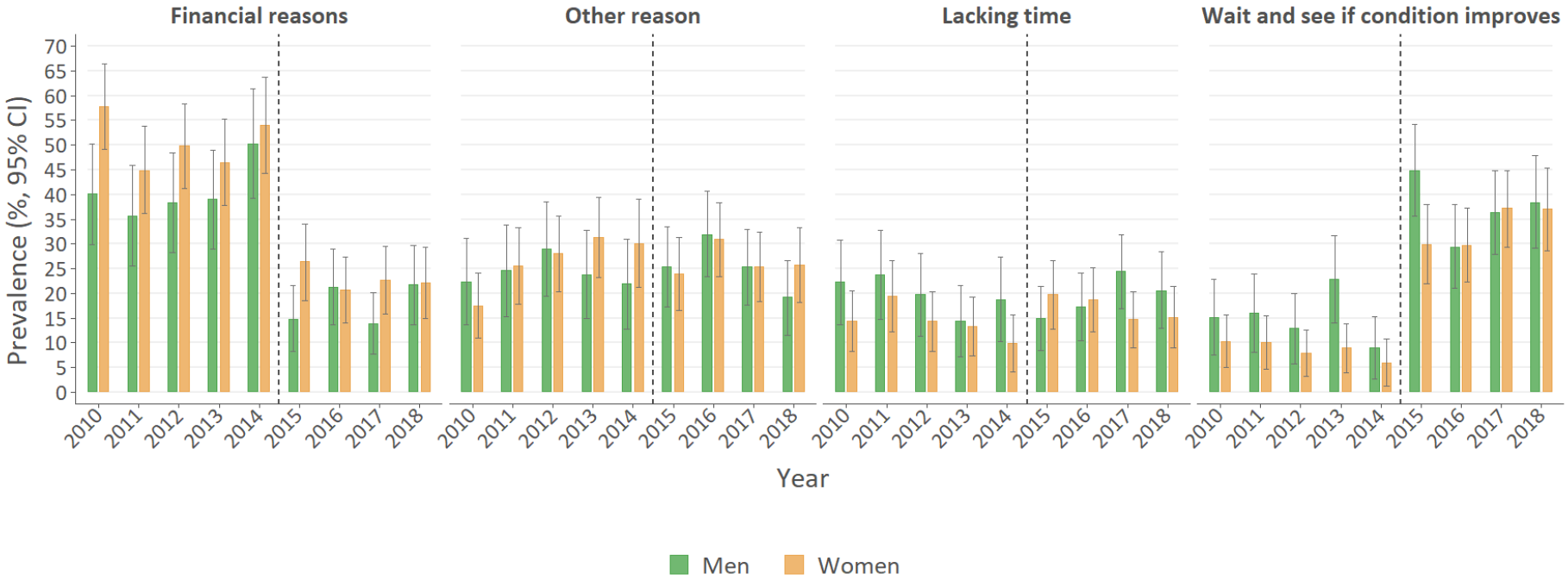
Prevalence and 95% confidence interval are from logistic regression models separately run by income group, and adjusted for age and sex. For corresponding p-values, see Supplementary table 14.

Supplementary figure 7. Association of nationality/birth place with forgoing healthcare



Odds ratio (95% confidence interval) are from logistic regression, adjusted for age and sex (and additionally for region in SILC) in Model 1; in Model 2, estimates were additionally adjusted for household income. Estimates were calculated separately by study and period, and later meta-analyzed. For all cohorts except IHP, estimates indicate odds of forgoing healthcare among non-Swiss nationals compared with Swiss nationals. In IHP, estimates indicate odds of forgoing healthcare among foreign-born individuals compared with individuals born in Switzerland.

Supplementary figure 8. Prevalence of four most frequent reasons for forgoing healthcare stratified by sex, SILC 2010-2018



Prevalence and 95% confidence interval are from logistic regression models separately run by sex, and adjusted for age and region. For corresponding p-values, see Supplementary table 50.