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Digital Citizenship in a Swedish Marginalised Neighbourhood: Different attitudes to and experiences of digital inclusion and eHealth

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Abstract: We investigate digital citizenship by exploring attitudes and experiences of digital inclusion and eHealth with data from a survey study based on face-to-face interviews in different languages, in a marginalised hard to survey neighbourhood. Through public eHealth services, people can exercise digital citizenship. We explore differences between the marginalised neighbourhood and the national level, and among residents in the neighbourhood, with disaggregated data. The results show that the respondents in Skäggetorp report lower usage of the internet, lower access to smartphones, a somewhat lower usage of BankID, higher concern for surveillance, and a higher number of respondents feel excluded from digital society in comparison to the nationwide survey. The results in the disaggregated data show some differences in attitudes to and experience of digital inclusion among residents in Skäggetorp. We conclude that the studies of digital citizenship need to be broadened to address feeling included, social rights, and difference.

Keywords: Digital citizenship, marginalised neighbourhood, digital inclusion, eHealth, hard to survey

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1. Introduction

The continuous digitalisation of society implies that the interaction between citizens and the state is changing. The digitalisation of governmental interactions, called eGovernment, regards among other things welfare services, such as eHealth services (Gann, 2018; also, Chesser, et al. 2016; Choi & DiNitto, 2013). eHealth has been in focus in previous studies of the digital divide and how different groups in society benefit, or are excluded, from health-related services or information when they become digital (Gann, 2018; Millard et al., 2018; van Dijk, 2020). Much like the participation in democratic societies has required literacy, so too does eHealth. eHealth literacy is defined as "the ability to seek, find, understand and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem" (Choi & DiNitto 2013: 2). The definition does not distinguish between public and private providers of health services, nor does it reflect upon rights entitled to a person through citizenship. eHealth literacy requires the citizen to be active and competent (cf. Schou & Hjelholt, 2017), and trust the services. Based on citizenship or residence, a person has specific rights to public health in a welfare state such as Sweden. Being able to access and use public eHealth services concerns digital inclusion and citizenship. Studies show that the causes of digital inequalities are related to lack of social and cultural resources, as well as lack of material resources (van Dijk, 2020), which in turn are connected to eHealth literacy regarding level of education and language proficiency. Language and culture are relevant dimensions that may complicate eHealth literacy among populations in marginalised multi-ethnic neighbourhoods (see Warfa, et al. 2012; Arpey, et al., 2017).

When the interaction between citizens, and between citizens and the state, is performed through digital channels, the possibility to exercise citizenship (Isin & Ruppert, 2015) and to feel included in society can be influenced. To comprehend how this interaction is affected, studies of eGovernment and eParticipation can benefit from citizenship theories. At a recent conference on eGovernment and eParticipation, Professor Vishanth Weerkkody (2020) argued that the field must include analyses from public administration and political science to understand the requirements for digital transformation, giving an example that customers and citizens are often used as synonyms. Using them as synonyms may veil that a citizen per definition is entitled to rights within a bounded political community, like a municipality, which is an interesting aspect of eHealth. In this article we follow the call and apply theories on citizenship (Marshall, 1973; Kymlicka & Norman, 1994) and difference (Young, 1990; Werbner, 1999) to increase the understanding of digital citizenship (Isin & Ruppert, 2015), digital inclusion, and the digital divide (van Dijk, 2020).

In this study we will address feelings of inclusion, and map and analyse differences by comparing survey results from a marginalised neighbourhood with the nationwide survey titled 'The Swedes and the Internet 2019' (Swedish Internet Foundation, 2019). We also test differences among the respondents in the neighbourhood with disaggregated data that the UN (2015) and Statistics Sweden (2017) call for when monitoring the implementation of sustainable development. Disaggregated data is about subcategories among the residents like gender, nationality/ethnicity, level of education, occupation, age, and socioeconomic status. Many previous studies of digital inclusion focus on age and a connection between elderly people and digital exclusion (van Dijk 2020; Yu et al., 2018; Tsai et al., 2015).

When mapping differences in the marginalised neighbourhood we focus on eHealth. eHealth is an example of welfare services that citizens should be able to access and trust in a democratic society. Residents in the surveyed neighbourhood are considered hard to survey (Berg & Johansson, 2016; Esaiasson, 2019). Low level of participation in surveys is a challenge for both research and policy making. The Swedish Internet Foundation (2018) remarks on having problems reaching inhabitants who do not speak Swedish well, 91% of the respondents were born in Sweden, despite Swedish statistics showing that 20% are born outside Sweden (Statistics Sweden, 2020). This underrepresentation in the nationwide survey was a motivation for our study and our multilingual team. The response rate on the National Patient Survey for the local health centre in Skäggetorp was 25% compared to other areas where almost 60% of the patients answered the survey (Gerdien, 2017). Data on usage of a regional public Digital Health Centre app, launched in early 2017, show that during 2019 there were remarkably fewer doctor's visits among registered patients in Skäggetorp compared to other neighbourhoods with less ethnic diversity and higher socioeconomic status (Region Östergötland, 2020a). In this paper eHealth relates mainly to public e-services. Being able to use these services has been called a social right of citizenship (Marshall, 1973). Studying this is relevant because Sweden has high ambitions to be "the best in the world in using digitalisation and eHealth to increase participation and equal health" (Swedish Government & SALAR, 2016). We also investigate trust towards the health centre and a public eHealth app in our disaggregated data, since this is part of being a member of a digital political community, and thus, digital citizenship.

1.1. Aim and hypotheses

The aim of this paper is to investigate digital citizenship, by exploring differences between the marginalised neighbourhood and the national level, and among residents in the marginalised neighbourhood Skäggetorp, regarding digital inclusion and eHealth. Van Dijk (2020:83) concludes that the most significant causes of inequalities in digital usage are social and cultural resources, insufficient material resources (like lacking a smartphone), competence, and motivation. These inequalities in access to social and cultural resources are characteristic for people living in marginalised neighbourhoods, and often related to lower levels of education, occupation and socioeconomic status. In Skäggetorp, 56% of the residents are born outside of Sweden (Linköping, 2019a) and have a different mother tongue than Swedish. Our hypotheses are that (h1) there are differences between Skäggetorp residents' attitudes towards eHealth services, and nationwide data; (h2) there are significant differences in attitudes towards eHealth services between ethnonational groups within our sample; (h3) there are significant differences between occupational groups within our sample; (h4) there are significant differences between age groups within our sample; (h5) there are no significant differences between gender within our sample. The hypotheses will be further developed below.

The paper is organised as follows. First, we describe and explain our analytical framework on digital citizenship, followed by a description of the studied neighbourhood and a presentation of the administrative organisation of public health in Sweden. Then we detail the methods used, the survey data and the analysis. Thereafter, we present the results, starting with a comparison between the neighbourhood and the national level. Thereafter we present disaggregated data from the neighbourhood. In the conclusions we highlight how disaggregated data and comparisons between the

marginalised neighbourhood and the nationwide survey on digital inclusion give us clues about difference and digital citizenship.

2. Digital Citizenship and Digital Inclusion

Welfare has been a central tenet of citizenship theories since Marshall published a set of influential texts where he added social rights to political and civil rights (1973). Marshall presented citizenship and welfare services as enabling membership in a community where excluded groups could be included. His analyses have subsequently been criticised for lacking attention to difference (Kymlicka & Norman, 1994). There is a tendency in political theory on citizenship "to reduce political subjects to a unity and to value commonness and sameness over specificity and difference" (Young, 1990:3). Kymlicka and Norman (1994) argue that disadvantaged groups may still feel excluded from society even if they have the common rights of citizenship, "groups that feel excluded want to be included in the larger society, and recognition and accommodation of their 'difference' is intended to facilitate this" (1994:373). Addressing difference is vital for understanding citizenship and "membership in a community" (Werbner, 1999: 221). The arguments are fruitful for understanding the digital divide as a sense of inclusion in or exclusion from digital society or the political community. The concept of citizen refers to members of a political community and thus more than the juridical citizenship, such as having or not having a passport (Kymlicka & Norman, 1994). Swedish citizens and residents of a municipality and region (the local and regional administrations) will be called citizens here, even if people are entitled to certain public eHealth services due to being residents in a municipality and region. The fact that different groups may feel included and excluded in society, particularly in a marginalised neighbourhood, is the reason we theorise about differences in this study and raise this in the hypotheses.

Several studies of digital inclusion have used digital citizenship to analyse their data and material (Yildiz et al., 2020; Datta, 2018; Hintz et al., 2017). Some argue that digital citizenship tends to be a "catch-all phrase to describe an ideal" (Becker, 2019). A recent literature review of digital citizenship showed that it is seldom defined (Chen et al., 2021). Furthermore, the analyses often focus on participation on social media and a global community, rather than access to digital welfare services in a politically delimited community. The political and civil rights are emphasised over social rights. We argue that digital citizenship should move beyond personal responsibility and activism (Green, 2020), and agree that we should not focus on "stereotypical acts of citizenship (voting, joining a party, reading a manifesto)" (Couldry et al., 2014:615) but citizenship acts (Isin and Ruppert, 2015. One definition of digital citizenship is "the ability to participate in society online" (Mossberger et al. 2007:1). The focus on 'ability' runs the risk of neglecting motivation and attitudes, which are central (van Dijk, 2020). Participation can regard both rights and responsibilities of citizenship. Based on our analysis, we define digital citizenship as exercising political, civic, and social rights and responsibilities, and feeling included in digital society. As an illustration, a person can seek, find, understand and appraise health information in a global community like Google, but is only entitled to use digital welfare rights, like booking a doctor's visit, if a citizen or resident in a Swedish municipality is a registered BankID user.

Digital citizenship concerns digital inclusion, digital participation, and digital exclusion. Digital exclusion affects possibilities for inclusion in society in general, as well as trust in social institutions (van Dijk, 2020). A person who does not have access to technology such as a smartphone is at risk of exclusion from services provided by society (Swedish Agency for Participation, 2019), which in turn may affect trust. Several survey studies show that different ethnicities use the internet differently (Pew Research Center, 2015; Nishijima et al., 2017; Swedish Internet Foundation, 2018). A smartphone and internet access can be very important for migrants to get oriented in a new environment, to learn the new language and to keep in touch with relatives in other countries (Kaufmann, 2018; Shaker, 2018). But digital usage or competence in one area does not necessarily transfer to others (like eHealth), and extensive use of social media in one's mother tongue is perhaps not related to a sense of inclusion in digital society or the ability to access digital welfare services. We need more knowledge to understand the complexity of digital citizenship.

Previous studies of the digital divide and digital inclusion examine differences between age (Yu et al., 2018; Tsai et al., 2015), gender (van Deursen & Helsper, 2018), socioeconomic situation (Mossberger et al., 2007), and ethnicity (Shaker, 2018; van Dijk, 2020). Regarding differences between men and women, statistics indicate that differences in usage have decreased but the internet is used for different things (Swedish Internet Foundation, 2018). This is the reason we theorize that there will be no difference between gender. Danish statistics show that young people report that they find it hard to communicate with the public sector, but not using digital channels, while older people need help to use the digital self-services (Statistics Denmark, 2017). These studies and statistics indicate that exploring difference is of relevance. Furthermore, the studies of digital inclusion are often based on surveys (van Dijk, 2020; Mossberger et al., 2007). The attitudes and experiences of hard to survey groups, like the residents in marginalised neighbourhoods (Esaiasson et al., 2019; Berg & Johansson, 2016), are seldom heard, making it relevant to approach them. Political scientist Esaiasson and colleagues have used a survey method that aims at reaching residents in suburbs with high ethnic diversity, with mother tongues other than Swedish, and where residents may have lower trust towards governmental institutions (Esaiasson et al., 2019). This study is based on an application of their method to explore inclusion in the Swedish political (digital) community.

3. Skäggetorp: Characteristics of the studied neighbourhood

Skäggetorp is a marginalised neighbourhood in Linköping municipality, Sweden's fifth biggest municipality, with high ethnic diversity. In 2019 56% of the residents were born outside of Sweden (Linköping municipality, 2019a). The national figure in December 2019 was 19.6% (Statistics Sweden, 2020). Within Linköping municipality, the residents in Skäggetorp have the lowest average disposable income (Linköping municipality, 2018) and a low educational level, even though there are university students living there since it is close to Linköping University (Linköping municipality, 2019b). Skäggetorp is understood to have "low status among natives" (see Esaiasson et al., 2019:4). The housing is mainly rental apartments. Participation in elections among the residents is low. The Swedish Police (2019) categorise Skäggetorp as vulnerable, meaning that criminal activities influence daily life. This together makes the suburb a marginalised neighbourhood. Characterising the area and its residents as vulnerable or marginalised can be stigmatising but it is a vital

component of understanding the sense of belonging to society and digital society, as we will explore here. Since low-income groups tend to have lower socio-spatial mobility than middle and high-income groups in society, the low status is maintained. This is something that is seen all over Europe (Nieuwenhuis et al., 2020). This is another reason we hypothesise about difference and explore sense of inclusion, an issue that is not only relevant for immigrants, but which may be accentuated if the mother tongue is different from the majority language Swedish.

Since we are investigating eHealth, data from the local health centre in Skäggetorp is used. It indicates that registered residents of Skäggetorp use the public Digital Health Centre application to a low extent, compared to another socioeconomically strong neighbourhood in Linköping municipality, while the average number of doctor's visits per registered at the two health centres are equal (Region Östergötland, 2020a). To reap the benefits expected from digitalisation, as expressed above, inhabitants need to trust digital services and, not least, use them. At the local health centre in Skäggetorp the staff consider that many patients in the area do not comprehend Swedish well enough to complete the National Patient Survey for the local health centre, and do not have access to computers where the survey is available in different languages, which are dimensions of inclusion in eHealth. Thus, the results from the survey are not perceived as useful (Gerdien, 2017). In a conversation with medical staff at Skäggetorp health centre in 2019 within this study, they emphasised that their impression is that the developers of digital services, like the Digital Health Centre, do not understand that patients/residents in Skäggetorp need services through other channels. This can be understood as an example of institutions not being able to manage the different needs among citizens.

Sweden has long been regarded as "exemplary" in terms of social welfare and equality, and as an inclusive multicultural democracy (Ålund, Schierup & Neergaard, 2017). However, previous research on citizenship in Swedish neighbourhoods like Skäggetorp have focused on how residents are seen as passive and often not as part of the Swedish imagined community (Ekholm & Dahlstedt, 2020). There has been little research on digital citizenship, trust, and digital inclusion in marginalised neighbourhoods. Furthermore, analyses of the relationship between ethnic diversity and trust have been conducted at aggregated levels which ignore variation at the neighbourhood level (Dinesen & Sønderskov, 2018; Berg & Johansson, 2016).

4. eHealth as an example of Digital Citizenship

The eHealth services in this paper regard public welfare that citizens are entitled to, in their role as residents or citizens in a political community. Marshall (1973) called these services social rights, meaning welfare rights that enable inclusion in society. Following the mentioned call to widen the comprehension of eGovernment, the organisation of the public sector and administrative regions is relevant. All Swedish citizens are entitled to public health care for a fee that is subsidised by tax revenues. A citizen of a state within the European Union or the European Free Trade Association (EFTA), or with a residence permit to stay in Sweden, is entitled to the same health care. Asylum seekers and refugees without permission to remain, who are under the age of 18 have the right to the same health care, while those above the age of 18 are only entitled to emergency health care (see Nordic Co-operation, n.d.). Health care is the main responsibility of the regional authorities in Sweden. We focus on e-service that is part of the regional authority's remit.

There are both public and private providers of welfare and health care in Sweden, something that can be seen in digital applications, for example. Legal adjustments in 2014 in the Swedish Patient Act (SFS 2014:821) made it easier for users to visit health care centres in administrative regions other than where they are a resident. Due to the change, digital health care companies started to appear in Sweden, partly blurring the distinction between the private and public sector. Regional authorities have also started providing their own eHealth services. The distinctions between the public and private sector, or knowledge about how the welfare services are organised are not necessarily something the users need to know about to access the eHealth apps. Another example is the booking of appointments in the regional digital app or consulting private digital medical services. In distinction to the public regional app, some private alternatives offer consultations in different languages.

Skäggetorp is located in the regional administrative body called Region Östergötland. The ambition in Region Östergötland is to provide world-class health care and further develop digitalisation of both appointments and documentation (Region Östergötland, 2020b). Region Östergötland has developed its own digital health centre application which was called the Digital Health Centre during the data collection. Data on usage of a regional public Digital Health Centre app show that in 2019, when our field study was performed, we saw a total of 1567 doctor's visits. Of these, only 2 took place in Skäggetorp (Region Östergötland, 2020a). In comparison, 91 visits were made by registered patients at Kungsgatan health centre in central Linköping, with less ethnic diversity and stronger socioeconomic status, but similar in average physical doctor's visits at the health centre (Region Östergötland, 2020a). Low usage of public eHealth services suggests differences in attitudes and qualities of participation and inclusion in society. As Werbner (1999) and Young (1990) state, we need to pay attention to these differences and potential exclusion.

5. Method and Material

The field study including the survey as core method, was performed during November 2019 in Skäggetorp. According to research on hard to survey groups, low response rates should not be understood as something being wrong with the respondents, but rather that the researcher is using an unfit sampling method (Haan et al., 2014), which in turn may affect representativity (Gobo, 2011). Our aim was to find out what a population in a marginalised neighbourhood, that generally is underrepresented in surveys, and whom we thus know little about, use and think about digital services and eHealth. Andreß and Careja (2018) problematise the golden standard of random representative sampling from population lists, like obtaining relevant phone lists, for immigrant minorities. Since the residents are hard to survey (Prandner & Weichbold, 2019) and we aimed at increasing response rates, we chose 'centre sampling' (areas highly frequented by people with a specific marker), and 'random route' (based on a list of eligible streets in the neighbourhood), before random and representative sampling (ibid). Drawing on experience from Esaiasson et al. (2019), we adopted their sampling method of face-to-face survey interviews in different languages (Swedish, Somali, Arabic, Kurdish, Bosnian, English). The answers were completed on a digital tablet by the interviewer or the respondent, or alternatively on paper. Since we aimed at reaching digitally nonactive respondents as well, and due to the hard to survey character, a web survey would not be suitable. We did not collect personal data, in order to comply with research ethics. Studying digital

participation in diverse communities implies that the respondents' experiences are situated in both a unique local context and a global context with diasporas and global relations (Berg & Sigona, 2013).

To participate in the survey, the respondent must be above 18 years of age and live in Skäggetorp. Respondents were offered a small cash incentive of approximately 10 euro to spend at a local grocery store. The cash cheque distribution was administered by a student consultancy firm, where students who speak Arabic, Somalian and Kurdish were recruited. The Somalian consultant facilitated access to several organisations, where we practiced centre sampling. We constantly worked in teams consisting of researcher and consultant. We worked in the area at different hours of the day on all days of the week, although we were more active during daytime.

In 2019 10,211 residents were registered in Skäggetorp, out of which approximately 7,000 were adults. Our goal was to ask 500 adult individuals (7% of the adult residents), which we did, and we achieved a 65% response rate with 323 respondents. There were a maximum of 83 questions that took between 10 and 40 minutes, or more for someone who needed help to understand the questions and the response alternatives, or wanted to share experiences related to the questions. The latter is an added value of the method since the interviewer obtains contextual information on digital participation regarding the respondents' reasoning about the questions and answers (see Gobo, 2011). The multilingual interview team was able to discuss the meaning of different words in the respondent's mother tongue. However, as has been pointed out in methodological literature, there is a risk of interviewer bias when performing face-to-face survey interviews (Halperin and Heath, 2012).

5.1. Experiences of using the method

While recruiting respondents in public spaces, such as at the shopping centre in the middle of Skäggetorp, we noticed that young people came and asked if they could participate to "make 10 euro", while this was not the case when we knocked on household doors. There is a high number of young respondents in our sample (28% of the respondents are in the age bracket 18-25). The response rate during the centre sampling was higher, compared with random route sampling.

Through the project we met people who may not have completed a survey if they had not been approached by an interviewer personally and/or an interviewer who speaks their mother tongue, and due to the cash cheque. Although the incentive was important for many, not the least to complete a survey with many questions, there were also some respondents who did not want the cash cheque. We also met people who do not use the internet and who initially felt that the study was not meant for them, but who participated after the interviewer explained that their experiences were of interest, since the survey is about digital inclusion.

During centre sampling, employees at organisations, local leaders and activists helped to explain what the survey questions were all about. From our meetings with representatives from local authorities and educational organisations, civic organisations, or job coaches, we gained insights into the way they fill the void of public offices as more and more services are digitalised, and how not all inhabitants understand the e-services. They become digital coaches, but they also help with tricky civic activities like filling out a survey or writing a personal letter for a job application.

In conclusion, the method is rewarding regarding knowledge about digital participation and inclusion as it contributes quantitative and qualitative data about hard to survey groups (Gobo, 2011).

5.2. Design of survey questions and analysis of data

The field study was part of a research project on sustainable digital participation and inclusion. Van Dijk's model (2020), which focuses on motivation, material access, competence, and use, was employed in the design of the questionnaire. Many questions in our survey were from the nationwide survey of internet usage called The Swedes and the Internet 2018. It has been performed annually since the year 2000 and has been part of the World Internet Project since 2010 (The Swedes and the Internet, 2019). The question about internet use in our survey prompted other questions about how and for what the respondents use the internet, and thus people who answered that they do not use the internet did not have to answer these. The use of BankID, a Swedish electronic identification system, is an indicator of inclusion in Swedish digital welfare society and was a central question. Several questions are from Esaiasson and his colleagues' survey on trust and social cohesion (2019). Some questions about the Digital Health Centre were added after conversations with the staff at the health centre in Skäggetorp. The questionnaire's background variables are used for descriptive disaggregated data.

The data and analysis in this article are a sample of the whole dataset from the field study and focus on attitudes and experiences of digital inclusion and eHealth. We work with disaggregated data to highlight differences among the respondents in the marginalised neighbourhood, and with the nationwide survey on digital participation and inclusion in 2019, to highlight differences between local and national levels. We also compare our data with data from the regional authorities concerning usage of the digital health app from 2019 (Region Östergötland 2020a), which shows that residents registered at the health centre in Skäggetorp use the app to a much lower level than other socioeconomically stronger neighbourhoods.

Respondents from one category regarding age or ethnicity, etc., might be much larger than another category, and therefore we present percentage in the following. We present the three major ethnonational categories in our survey. Regarding occupation we present 'Employed', 'Students', 'Jobseeker' (which is a euphemism for unemployed), 'Retired' and 'Other'. For age we have merged data from the two upper categories, 66-75 and 76+ to one category 66+, to increase the number of respondents in the category. When comparing our survey results with the nationwide survey, we use descriptive data in tables equal to how the Swedish Internet Foundation presents its data (2019). When analysing disaggregated data, we both use descriptive data and test for significant differences.

All analyses have been conducted in SPSS software (IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp). An examination of the data shows that the distribution is non-normal. This was done by inspecting skewness, kurtosis, Shapiro-Wilk's test, and a visual inspection of graphs. The normality of distribution varied depending on what variables that were tested, yet none were fully normal. Levene's test of homogeneity shows that equal variances can be assumed in some cases but not for all. Due to the characteristics (distribution and variance) of the data, significance was tested using Kruskal-Wallis 1-way ANOVA (k samples) analysis for all independent variables consisting of more than one category (age, ethnicity, occupation, education).

Pairwise comparisons were done for tests showing significant differences. Significant values in the pairwise comparison are adjusted by the Bonferroni correction for multiple tests. Mann-Whitney U (2 samples) analyses were done for the independent variable consisting of two categories (gender).

The data presented are based on different constructs of questions. Some include the alternatives 'Yes' and 'No'. Other questions use a scale from 5 (Yes, I agree) to 1 (No, I do not agree), or set alternatives, like 'Yes, completely' to 'No, not at all' (Dawson, 2017). All questions minus the question about 'Do you use the internet', contained the alternative 'I don't know'. For the survey in English, see Appendix 1.

6. Different Attitudes to and Experiences of Digital Citizenship

In this chapter we first compare the results from our survey in the neighbourhood of Skäggetorp with the nationwide survey The Swedes and the Internet 2019 (Swedish Internet Foundation, 2019), and then explore differences among the respondents in our survey.

6.1. Differences in internet use, smartphone access and BankID

Welfare services such as the Digital Health Centre and other public eHealth services, which are mediated through technology, are accessed using the internet. Having access to and using the internet is a basic element of digital inclusion (Van Dijk, 2020).

Table 1. Access to and usage of internet, smartphone and BankID.

	Skäggetorp*	**National****
Use the internet	87% (n=323)***	95% (n=2746)
Have a smartphone	81% (n=281)****	92% (n=2642)
Use BankID	86% (n= 281)*****	89% (n=2277)

*Table 1. *Our survey in Skäggetorp 2019. ** Swedish Internet Foundation 2019. *** 95% Confidence Interval for Yes, use the internet, lower ,828, upper ,905. ****95% Confidence Interval for Yes, have a smartphone, lower ,767, upper ,855 ***** Confidence Interval for Yes, use BankID, lower 81,5%, upper, 89,9%*

In our survey 87% of the respondents reported using the internet, while in the nationwide survey 95% reported this. The results indicate that internet usage in Skäggetorp is different from the usage in general in Sweden.

Another basic element of digital inclusion, according to van Dijk (2020), is having a computer or a smartphone. Many public organisations have applications that can be accessed on a smartphone. The Digital Health Centre can only be accessed as an application using a smartphone. Some private apps offer digital doctor's visits that are accessible by computer, and the National Patient Survey for

the public health centre was only available in different languages on a computer, according to Gerdien (2017). These examples show that for digital inclusion it matters what digital device a person has access to. Among the respondents in our survey, 81% report having a smartphone, in comparison to 92% in the nationwide survey, and 16% of our respondents reported not having one, which can be a clue towards understanding the low usage of the public eHealth app. As with the internet usage above, the results indicate a difference between the neighbourhood and the national survey, where the respondents in Skäggetorp report using the internet to a lower degree.

BankID is an electronic identification system used in Sweden for accessing public e-services provided by all administrative levels, from the municipality (e.g. contacts with schools) and the regional authorities (e.g. the Digital Health Centre app) to the state (e.g. Swedish Social Insurance Agency). BankID is also used by private organisations such as banks. In our survey 86% reported using BankID, while 89% reported using it in the nationwide survey. The difference is not very great, and smaller than the differences seen in Table 1 on usage of the internet and Table 2 about access to a smartphone. If we include those who reported not using the internet, which is needed to access BankID, then 25% in our survey reported that they do not use BankID or that they 'Don't know'.

6.2. Feeling included and trust in Skäggetorp and in nationwide data

In this paper we argue that digital citizenship should include feeling included in digital society and trust, beyond participation in social media and activism (see Green, 2020). Using public eHealth services requires access to digital technology, competence, and motivation, according to the model on what is required to decrease digital exclusion, presented by van Dijk (2020). Analyses of citizenship emanating from political science and political philosophy have addressed the feeling of inclusion in a community (Marshall, 1973; Kymlicka & Norman, 1994; Young, 1990; Werbner, 1999). We use these arguments to analyse the results from the question about feeling included in digital society, and not least, the number of respondents who report not feeling included at all in digital society.

Table 2. Feeling included in digital society.

	Yes, completely	**Yes, mainly**	**Yes, but only a little**	**No not at all**	**I don't know**
Skäggetorp*	22%	25%	22%	21%	10%
National**	27%	41%	20%	9%	3%

*Table 2. * Our survey, n=323 (all respondents in our survey). ** Swedish Internet Foundation 2019.*

In comparison with the nationwide survey, where 9% reported that they do not feel included at all, 21% reported this alternative in our survey. In the nationwide survey 88% of the respondents reported one of the three alternatives about feeling included in digital society. In our survey only 69% reported these alternatives. The difference is considerable, yet, the samples are different.

An aspect of interacting with the government and authorities on the internet, or using eHealth services, regards concerns about personal privacy and trust. This was accentuated in relation to the events surrounding the Cambridge Analytica scandal in 2017, or the Snowden case (Hintz et al., 2017), in discussions about surveillance and the management of personal data. As an example of management of health records in Sweden, in February 2019 Dobos published an article in the magazine Computer Sweden, revealing that 2.7 million Swedish phone calls to the state health system 1177.se, which is provided by all Swedish regions, became publicly available on the internet due to flaws in the system.

Table 3. Concern that Swedish authorities are breaching your personal privacy on the internet.

	5 (Yes, concerned)	**4**	**3**	**2**	**1 (No, not concerned)**	**I don't know**
Skäggetorp*	17%	12%	15%	29%	20%	7%
Skäggetorp*	29%		15%	49%		7%
National**	21%		22%	51%		6%

*Table 3. * Our survey n=323 (all respondents in our survey). ** Swedish Internet Foundation 2019.*

The results in Table 5 above show a difference between the neighbourhood and the national level when it comes to being concerned, 29% in the suburb compared to 21% at the national level, while the difference between the levels regarding not being concerned is very low. This difference is related to eHealth and digital inclusion, since concern about privacy breaches by authorities can be related to willingness to use eHealth services.

6.3. Concern about authorities breaching personal privacy on the internet

Below we present and analyse disaggregated data from the neighbourhood, to explore differences regarding eHealth as part of digital citizenship among the respondents. Based on our sample methods, some categories have more respondents than others. The number of respondents in each category is presented in the caption of the figure. To be transparent with the distribution of replies over the scale 5-1 for each eHealth related variable, we present them based on crosstabulations in the figures. The distribution is often non-normal. In all the figures the alternative 'I don't know' in the question is excluded. We then test if there are significant differences between the categories to test our hypotheses. Previous research on digital citizenship has pointed out how digital data collection and processing among different stakeholders in society has complicated the image of how people participate in society by using digital technologies (Hintz et al., 2017). This is in line with the argument that the digitalisation of society and public services contributes not only to empowerment of citizens but also to the risk of digital exclusion (van Dijk, 2020).

In the following charts we present disaggregated data on how the respondents have answered a question on being concerned about internet surveillance such as the Swedish state and authorities breaching their personal privacy on the internet. All 323 respondents in our survey answered this question.

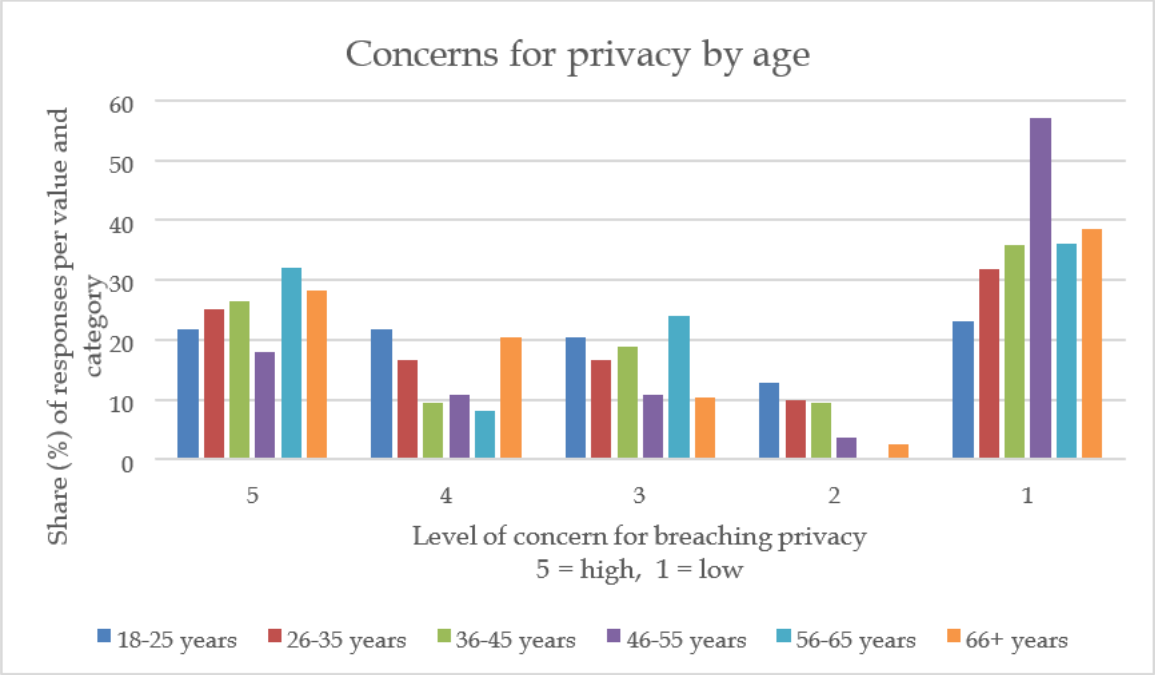

Figure 1. Concern about breaching personal privacy and age. Percentage per reported value on scale. 5-1 18-25 years n=78 (100%), 26-35 years n=60 (100%), 36-45 years n=53 (100%); 46-55 years n=28 (100%); 56-65 years n=25 (100%); 66+ years n=38 (100%). Total n=282.

Figure 1 indicates minor differences by age in the three younger age categories. Age category '46-55 years' report the lowest concern. We also see that 5 and 1 are more frequently reported than 4-2. The majority of the respondents belong to the three younger age categories.

Table 4. Concern about breaching personal privacy and age. Kruskal-Wallis mean rank.

Age	n	Mean Rank
18-25	78	150,37
26-35	60	144,12
36-45	53	138,41
46-55	28	111,84
56-65	25	146,82
66+	39	145,46
Total	283	

Table 5. Concern about breaching personal privacy and age. Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**283**
Test Statistic	5,252a,b
Degree of Freedom	5
Asymptotic Sig.(2-sided test)	,386

The test shows no significant differences across samples despite a lower mean rank for age group 46-55 and a higher mean rank for age group '18-25'.

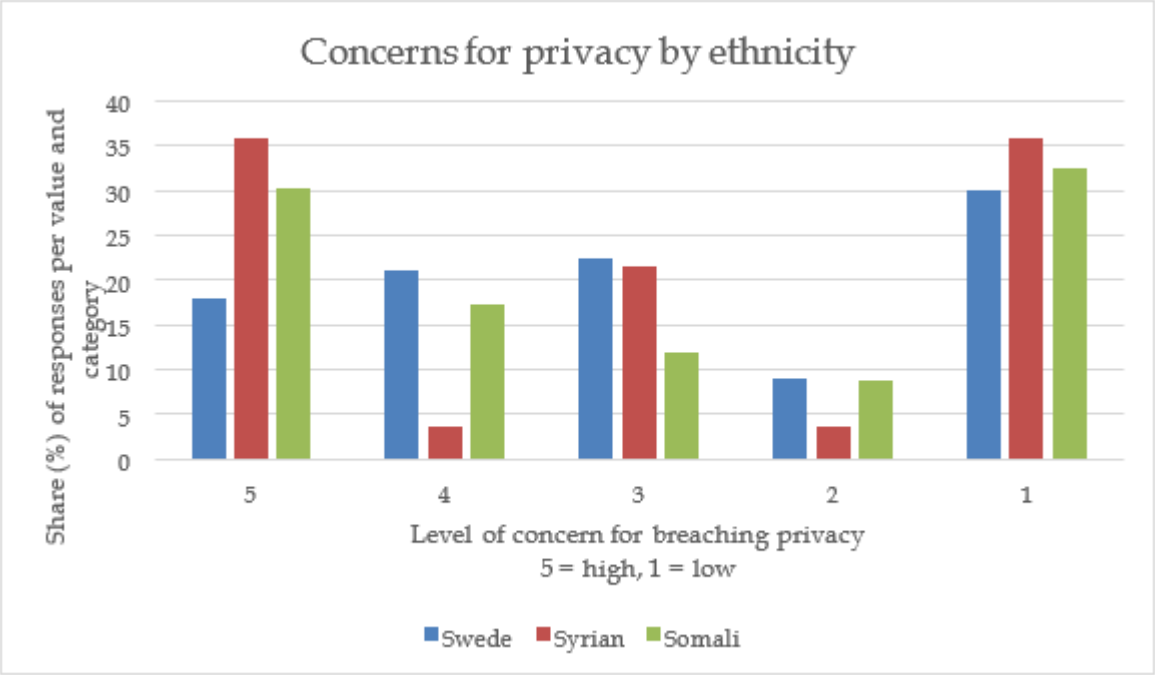

Figure 2. Concern about breaching privacy and ethnicity. Percentage per reported value on scale 5-1. Swedes n=67 (100%), Syrians n=28 (100%, Somalis n=93 (100%), Total n=188.

The number of respondents differ between the categories. The three biggest ethnic categories are 'Somalis', 'Swedes', and 'Syrians'. The largest ethnic group in our survey is 'Somalis'. Both 'Syrians' and Somali tend to report 5 and 1 more, while 1 is the most frequent reply by the 'Swedes'. There are differences in the way the 'Swedes' have reported in relation to 'Syrians' and 'Somalis'.

Table 6. Concern about breaching privacy and ethnicity. Kruskal-Wallis mean rank.

Ethnicity	n	Mean Rank
Swedes	67	90,66
Syrian	28	95,71

Somali	93	96,90
Total	188	

Table 7. Concern about breaching privacy and ethnicity. Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**188**
Test Statistic	,562a,b
Degree of Freedom	2
Asymptotic Sig.(2-sided test)	,646

The test shows no significant differences between ethnic categories. Mean ranks are similar.

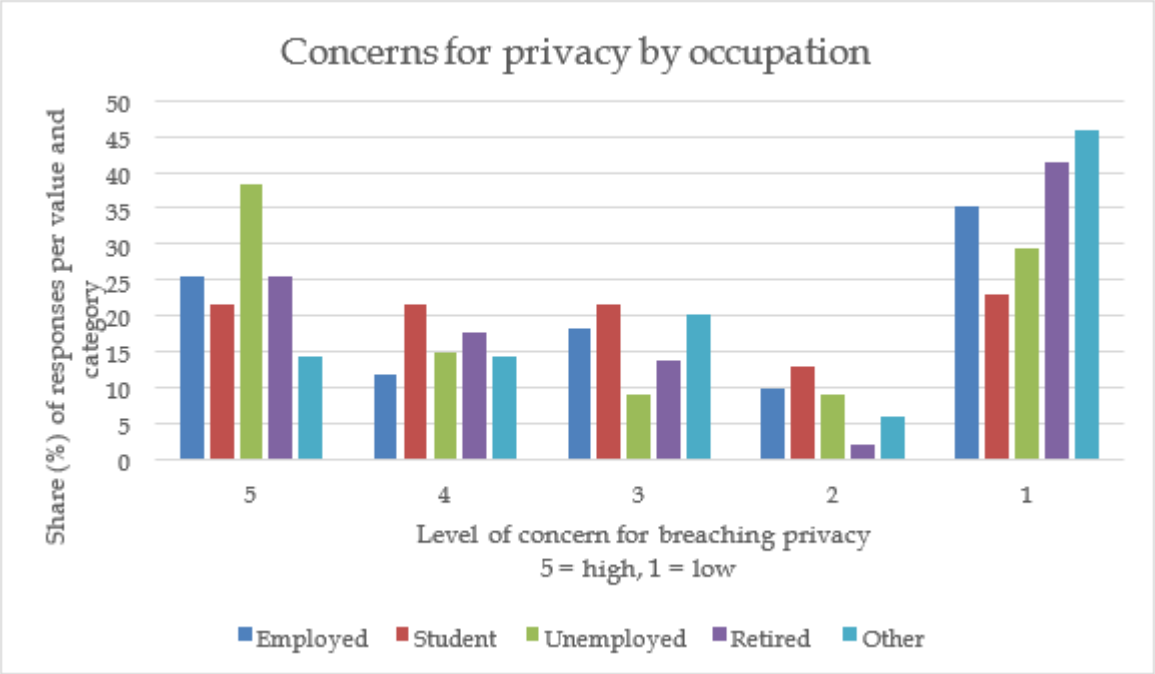

Figure 3. Concern about breaching privacy and occupation. Percentage per reported value on scale 5-1. Employed n=94 (100%), Student, n=70 (100%), Unemployed n=34 (100%), Retired n=51 (100%), Other n=35 (100%). Total n=284.

This chart indicates minor differences between the largest ethnic categories. The category 'Retired' is connected to age and indicates that the respondent, unless pertaining to early retirement, is at least 65 years old. Respondents who reported that they are 'Unemployed', the smallest sample, express the highest concern. This result indicates trust towards the Swedish state and authorities, even if the high number of concerned 'Unemployed' should be acknowledged. Almost 40% have reported 5.

Table 8. Concern about breaching privacy and occupation. Kruskal-Wallis mean rank.

Occupation	n	Mean Rank
Employed	94	139,81
Student	70	150,71
Unemployed	34	160,26
Retired	51	139,48
Other	35	120,44
Total	284	

Table 9. Concern about breaching privacy and occupation. Independent Samples Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total N	**284**
Test Statistic	5,322a,b
Degree of Freedom	4
Asymptotic Sig.(2-sided test)	,256

The test shows no significant differences across samples. Despite a lower mean rank for category 'Other' and higher for category 'Unemployed'.

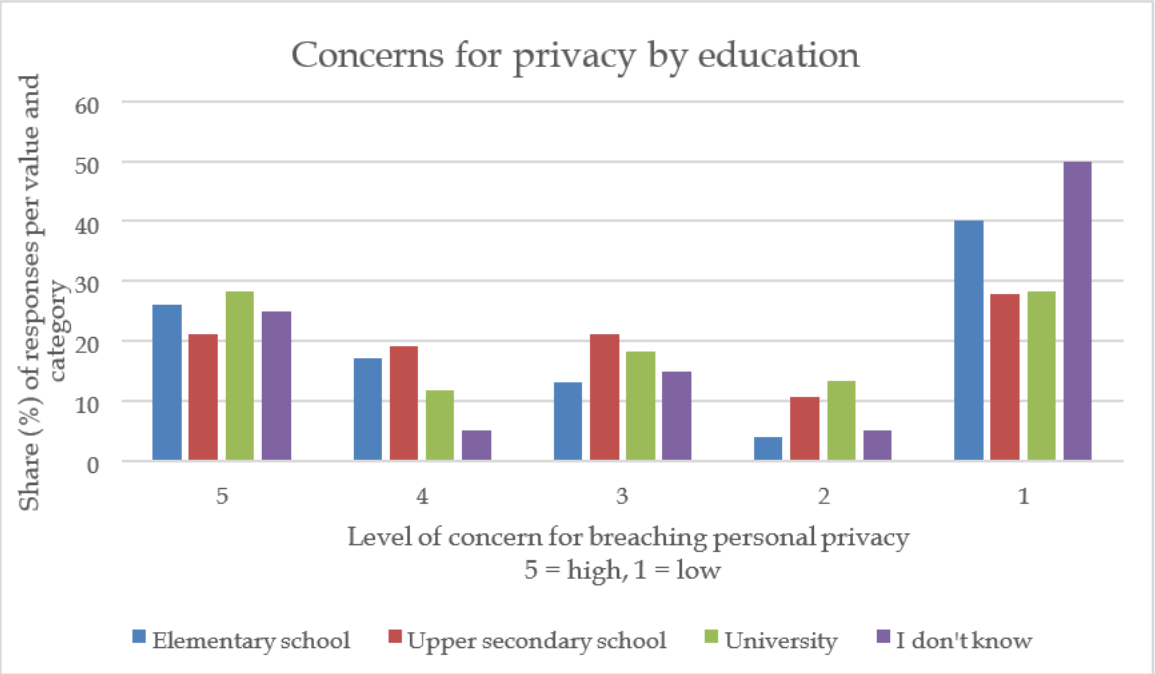

Figure 4. Concerned for breaching privacy and education. Percentage per reported value on scale 5-1. Elementary school n=100 (100%), Upper secondary school n=104 (100%); University or higher n=60 (100%). I don't know n=20 (100%). Total n=284.

The results show some differences between the two categories with the lowest and highest educational level. During our fieldwork, some respondents found it hard to answer the question about educational level because they had not completed their schooling, but there was no such alternative for the survey question. Other respondents said that they had not been to school at all. These respondents either reported having the lowest educational level, 'Elementary school', or 'Don't know'.

Table 10. Concern about breaching privacy and education. Kruskal-Wallis mean Rank.

Education	**n**	**Mean Rank**
Elementary school	100	140,10
Upper secondary School	104	145,38
University	60	147,88
I don't know	20	123,40
Total	284	

Table 11. Concern about breaching privacy and education. Independent Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**284**
Test Statistic	1,657a,b
Degree of Freedom	3
Asymptotic Sig.(2-sided test)	,646

The test shows no significant differences across samples. Despite lower mean rank for category 'I don't know' and higher for category 'University'.

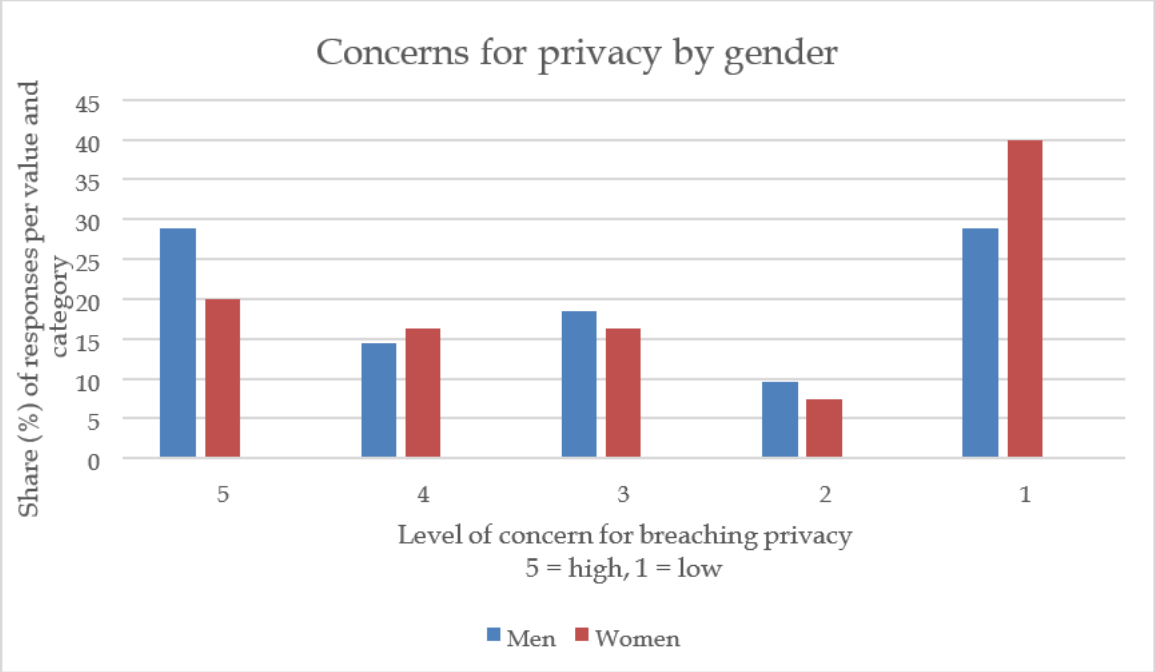

Figure 5. Concern about breaching privacy and gender, percentage per reported value on scale 5-1. Male n=146 (100%), Female n=135 (100%), Total n=281.

Women reported 1 to a higher degree than men, and 5 to a lower, but the distribution between 51 shows little differences beyond that. Women report less concern that the Swedish state and authorities are breaching their personal privacy, which can be interpreted as them expressing more trust than men.

Table 12. Concern about breaching personal privacy and gender. Mann-Whitney U mean Rank.

Gender	n	Mean Rank
Male	146	149,70
Female	135	131,49
Total	281	

Table 13. Concern about breaching personal privacy and gender. Mann-Whitney U sig. test.

Total n	**281**
Mann-Whitney U	8585,000
Wilcoxon W	17765,000
Test Statistic	8585,000
Standard Error	658,376
Standardized Test Statistic	-1,929
Asymptotic Sig.(2-sided test)	,054

The test shows no significant difference across samples. Category 'Male' has a higher mean rank. Before moving on to the next section, it is relevant to comment that none of the tests showed significant differences, and only hypothesis h5 was verified. It is reasonable to believe that concern about the state and authorities breaching personal privacy is not a reason for not using the digital health centre app, even if there were differences see in Table 3.

6.4. Trust towards the health centre

We have already argued that digital citizenship and digital inclusion relate to more than just access to technology. If citizens do not trust governmental institutions and worry about their personal privacy, then their sense of digital inclusion may be hampered. In the following we present data on trust in the health centre. The question was formulated without any reference to digital services or eHealth, and referred to the health centre as a local institution. Out of all the respondents in the survey, 62% answered either 5 or 4 on the question about trust in the health centre, on a 5-grade scale where 5 represents the highest level of trust. The question was posed to all respondents in the survey.

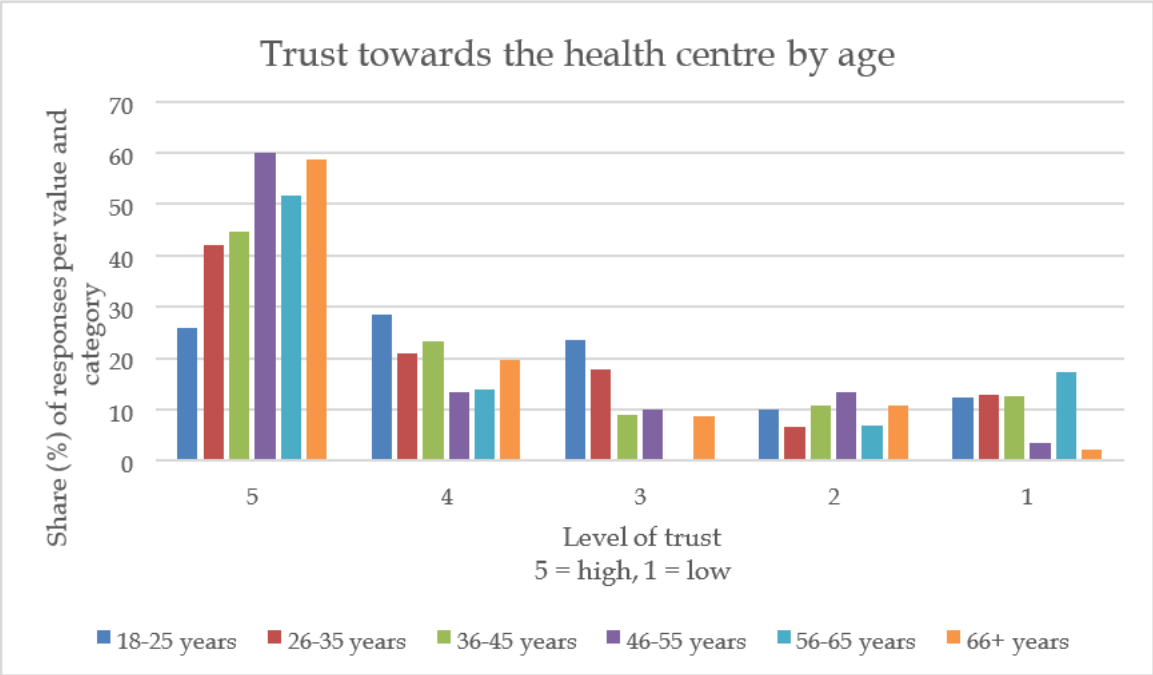

Figure 6. Trust towards the health centre and age. Percentage per reported value on scale 5-1. 18-25 years n=81 (100%), 26-35 years n=62 (100%), 36-45 years n=56 (100%), 46-55 years n=30 (100%), 56-65 years n=29 (100%), 66+ years n=46 (100%). Total n=304.

Figure above indicates a difference between age categories regarding their trust towards the health centre. Older people seem to trust the health centre to a higher degree.

Table 14. Trust towards the health centre and age. Kruskal-Wallis mean Rank.

Age	n	Mean Rank
18-25	81	127,83
26-35	62	149,33
36-45	56	153,46
46-55	30	176,92
56-65	29	157,38
66+	46	180,05
Total	304	

*Table 15. Trust towards the health Centre and age. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1 -Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.*
(18-25)-(26-35)	-21,503	14,092	-1,526	,127	1,000
(18-25)-(36-45)	-25,628	14,514	-1,766	,077	1,000
(18-25)-(56-65)	-29,552	18,072	-1,635	,102	1,000
(18-25)-(45-55)	-49,090	17,849	-2,750	,006	,089
(18-25)-(66+)	-52,227	15,418	-3,387	,001	,011
(26-35)-(36-45)	-4,125	15,396	-,268	,789	1,000
(26-35)-(56-65)	-8,049	18,788	-,428	,668	1,000
(26-35)-(46-55)	-27,586	18,573	-1,485	,137	1,000
(26-35)-(66+)	-30,724	16,251	-1,891	,059	,880
(36-45)-(56-65)	-3,924	19,106	-,205	,837	1,000
(36-45)-(46-55)	-23,461	18,895	-1,242	,214	1,000
(36-45)-(66+)	-26,599	16,618	-1,601	,109	1,000
(56-65)-(46-55)	19,537	21,748	,898	,369	1,000
(56-65)-(66+)	-22,675	19,802	-1,145	,252	1,000
(46-55)-(66+)	-3,138	19,598	-,160	,873	1,000

The test shows that there are significant differences between category '18-25 years' (lower mean rank, lower trust) and '66+ years' (higher mean rank, higher trust).

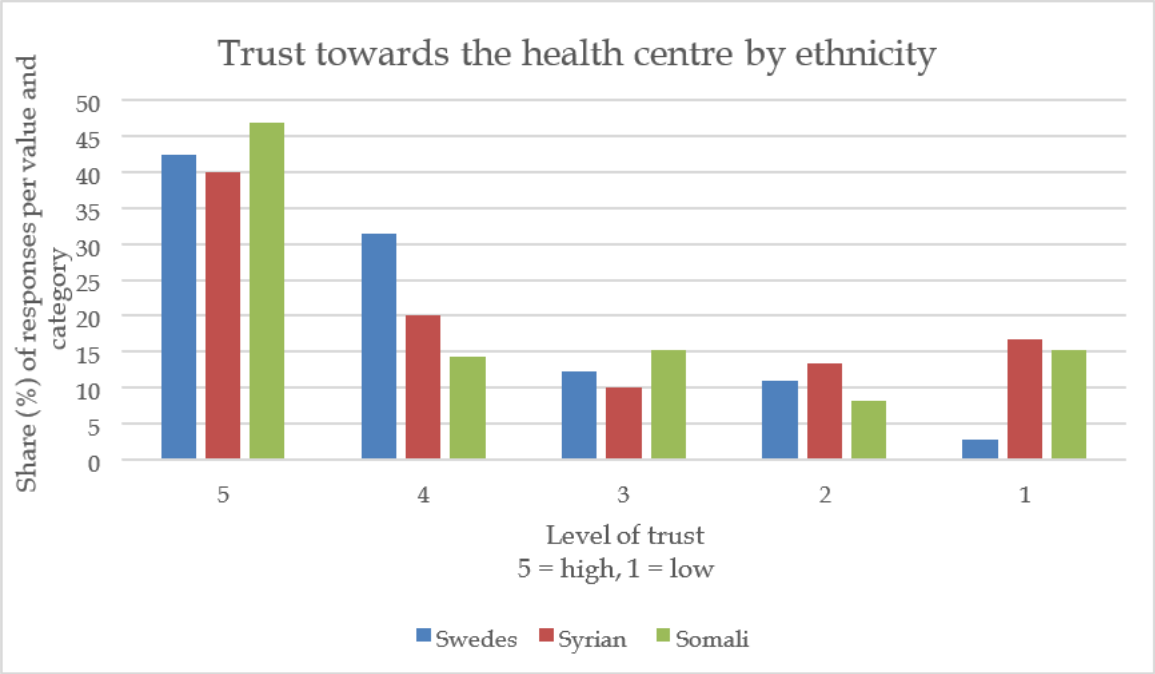

Figure 7. Trust towards the health centre and ethnicities. Percentage per reported value on scale 5-1. Swedes n=73, (100%); Syrians n=30, (100%), Somalis n=98 (100%). Total n=201.

'Swedes' in Skäggetorp express somewhat higher trust in the health centre than the 'Syrians'. Just like expressed regarding the question about concern for privacy and surveillance.

Table 16. Trust towards the health centre and ethnicity. Kruskal-Wallis mean rank.

Ethnicity	n	Mean Rank
Swede	73	106,12
Syrian	30	92,85
Somali	98	99,68
Total	201	

Table 17. Trust in health centre and ethnicity. Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**201**
Test Statistic	1,342a,b
Degree of Freedom	2
Asymptotic Sig.(2-sided test)	,511

The test shows no significant difference between the samples. Mean ranks are similar.

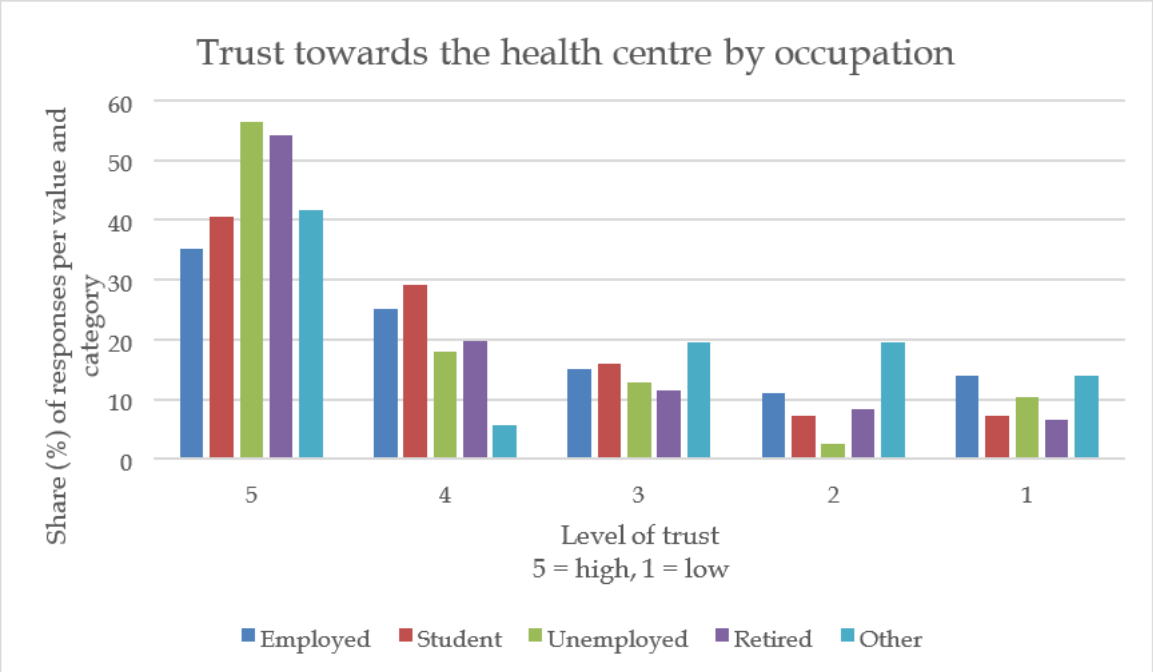

Figure 8. Trust towards the health centre and occupation. Percentage per reported value on scale 5-1 Employed n=100 (100%), Student, n=69 (100%), Unemployed n=39 (100%), Retired n=61 (100%), Other n=11 (100%). Total n=303.

'Employed' and 'Unemployed' seem to express somewhat higher trust than the other categories.

Table 18. Trust towards the health centre and occupation. Kruskal-Wallis mean rank.

Occupation	n	Mean Rank
Employed	100	138,60
Student	69	155,41
Unemployed	39	173,53
Retired	61	171,31
Other	36	135,10
Total	305	

Table 19. Trust towards the health centre, and occupation. Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**305**
Test Statistic	9,916a
Degree of Freedom	4

Asymptotic Sig.(2-sided test)	,042

The first level shows a significant difference, and therefore a second, pairwise test is run. Categories 'Other' and 'Employed' have a lower mean rank than 'Unemployed' and 'Retired'.

*Table 20. Trust towards the health Centre and occupation. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1 -Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.*
Other-Employed	3,508	16,277	,216	,829	1,000
Other-Student	20,316	17,218	1,180	,238	1,000
Other-Retired	36,214	17,601	2,058	,040	,396
Other-Unemployed	38,428	19,356	1,985	,047	,471
Employed-Student	-16,808	13,106	-1,282	,200	1,000
Employed-Retired	-32,706	13,605	-2,404	,016	,162
Employed-Unemployed	-34,921	15,810	-2,209	,027	,272
Student-Retired	-15,898	14,718	-1,080	,280	1,000
Student-Unemployed	-18,113	16,777	-1,080	,280	1,000
Retried-Unemployed	2,214	17,170	,129	,897	1,000

The pairwise comparison where the significance values are adjusted by the Bonferroni correction show no significant differences.

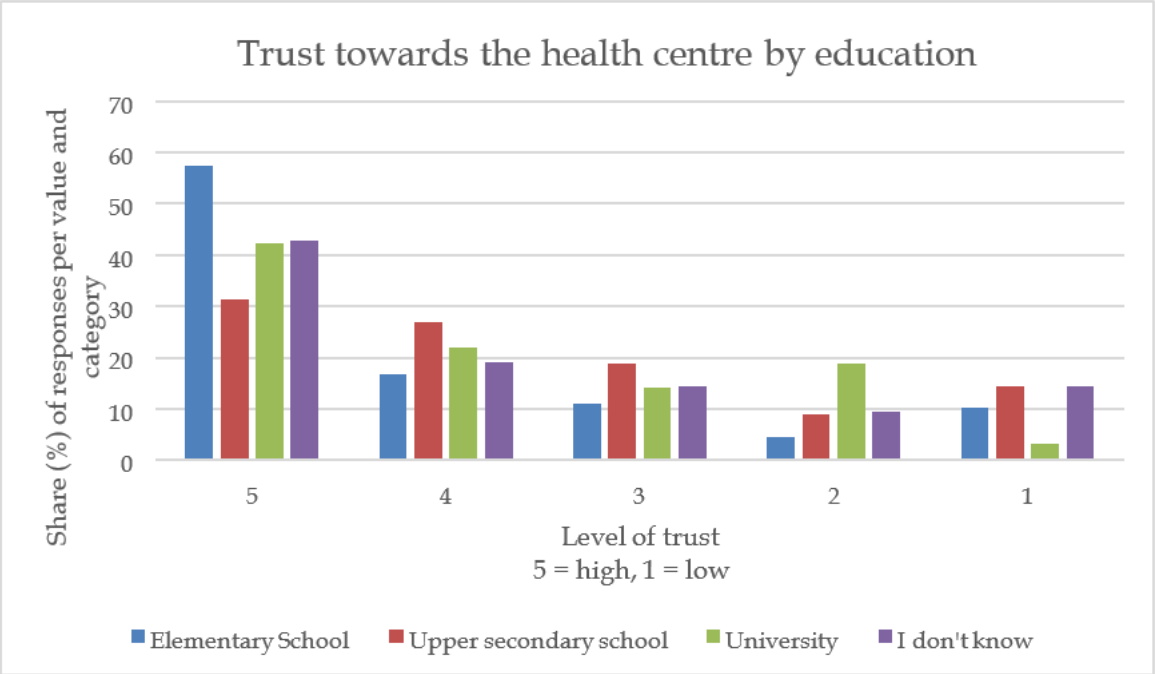

Figure 9. Trust towards the health centre and education. Percentage per reported value on scale 5-1 Elementary school n=108 (100%); Upper secondary school n=112 (100%); University or higher n=64 (100%); I don't know n=21 (100%). Total n=305.

Respondents reporting 'Elementary school' as highest educational level seem to express highest trust.

Table 21. Trust towards the health centre and education. Kruskal-Wallis mean Rank.

Education	n	Mean Rank
Elementary school	108	173,64
Upper secondary school	112	134,36
University	64	152,48
I don't know	21	147,83
Total	305	

*Table 22. Trust towards the health Centre and education. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1 -Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.*
Upper secondary-I don't know	-13,476	19,914	-,677	,499	1,000
Upper secondary-University	-18,127	13,122	-1,381	,167	1,000
Upper secondary-Elementary	39,286	11,294	3,479	,001	,003
I don't know-University	4,651	21,060	,221	,825	1,000
I don't know-Elementary	25,810	19,972	1,292	,196	1,000
University-Elementary	21,159	13,211	1,602	,109	,655

The test shows that there are significant differences between 'Elementary school' (higher mean rank, higher trust) and 'Upper secondary school' levels (lower mean rank, lower trust).

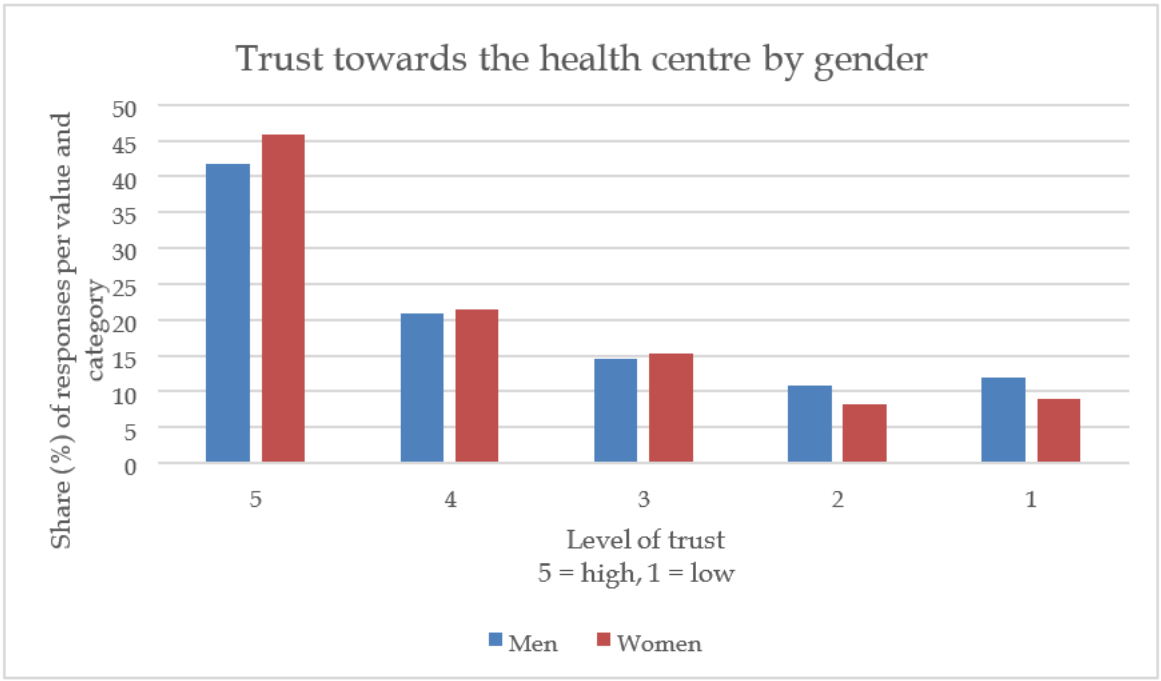

Figure 10. Trust towards the health centre and gender. Percentage per reported value on scale 5-1. Male n=158 (100%); Female n=144 (100%). Total n=302.

Women report a slightly higher trust towards the health centre.

Table 23. Trust towards the health centre and gender. Mann-Whitney U mean rank.

Gender	n	Mean Rank
Male	158	149.99
Female	144	156,45
Total	302	

Table 24. Trust towards the health centre and gender. Mann-Whitney U sig. test.

Total n	**302**
Mann-Whitney U	12089,000
Wilcoxon W	22529,000
Test Statistic	12089,000
Standard Error	719,696
Standardized Test Statistic	,991
Asymptotic Sig.(2-sided test)	,322

The test shows no significant difference across sample. Category 'Female' has a somewhat higher mean rank.

In summary, the tests regarding trust in the primary health centre in Skäggetorp show significant differences for Age and for Educational level.

6.5. Willingness to use public Digital Health Centre

As shown above, few citizens who are registered at the health centre in Skäggetorp use the public Digital Health Centre app for appointments (Region Östergötland, 2020a), they use private health apps to a lower degree than socioeconomically stronger neighbourhoods in Linköping (Region Östergötland, 2020c), and the nationwide patient survey had a lower response rate in Skäggetorp compared to other neighbourhoods in the region (Gerdien, 2017). It is therefore interesting to map the attitude to or motivation for using the eHealth service Digital Health Centre. We take attitude to be similar to motivation for using the app.

The question was posed to respondents who reported using the internet in our survey. Among the respondents using the internet, 52% reported alternative 5 or 4 on the grade scale, where 5 represented the highest willingness to use the app. The difference between actual usage and willingness is considerable (Region Östergötland, 2020a).

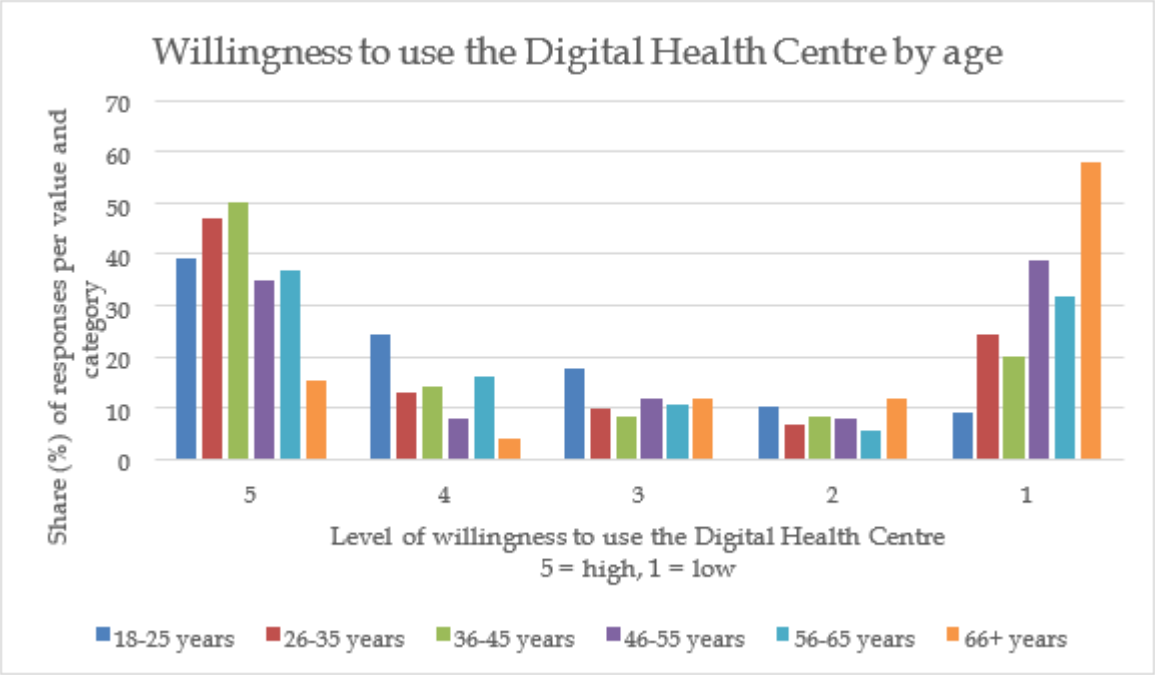

Figure 11. Willingness to use the Digital Health Centre and age. Percentage per reported value on scale. 18-25 years n=79 (100%), 26-35 years n=62 (100%), 36-45 years n=50 (100%), 46-55 years n=26 (100%), 56-65 years n=19 (100%), 66+ years n=25 (100%). Total n=263.

The Figure indicates a major difference between age categories regarding their attitude towards using the Digital Health Centre. The younger age categories reported higher willingness to use the Digital Health Centre in comparison to the age category '66+ years'. Age differences regarding use of and attitude towards digital services, have been prevalent in previous studies, and our data indicate that it is the case in Skäggetorp too. The survey question did not include any icon of the app and did not ask if the respondents had ever used it, and respondents could possibly have interpreted the question as relating to private eHealth services.

Table 25. Willingness to use the Digital Health Centre and age. Kruskal-Wallis mean Rank.

Age	n	Mean Rank
18-25	79	143,84
26-35	62	138,34
36-45	50	144,73
46-55	26	113,02

56-65	19	123,79
66+	26	76,37
Total	262	

*Table 26. Willingness to use the Digital Health Centre and age. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1 -Sample 2	**Test Statistic**	**Std. Error**	**Std. Test Statistic**	**Sig.**	**Adj. Sig.***
(66+)-(46-55)	36,654	20,112	1,822	,068	1,000
(66+)-(56-65)	47,424	21,886	2,167	,030	,454
(66+)-(26-35)	61,973	16,943	3,658	,000	,004
(66+)-(18-25)	67,476	16,396	4,116	,000	,001
(66+)-(36-45)	68,365	17,533	3,899	,000	,001
(46-55)-(56-65)	-10,770	21,886	-,492	,623	1,000
(46-55)-(26-35)	25,319	16,943	1,494	,135	1,000
(46-55)-(18-25)	30,823	16,396	1,880	,060	,902
(46-55)-(36-45)	31,711	17,533	1,809	,071	1,000
(56-65)-(26-35)	14,549	19,015	,765	,444	1,000
(56-65)-(18-25)	20,052	18,529	1,082	,279	1,000
(56-65)-(36-45)	20,941	19,543	1,072	,284	1,000
(26-35)-(18-25)	5,503	12,304	,447	,655	1,000
(26-35)-(36-45)	-6,391	13,783	-,464	,643	1,000
(18-25)-(36-45)	-,888	13,105	-,068	,946	1,000

There are significant differences between Age category '66+ years' (lower mean rank, less willing) and '18-25', '26-35', and '36-45 years' (higher mean ranks, more willing).

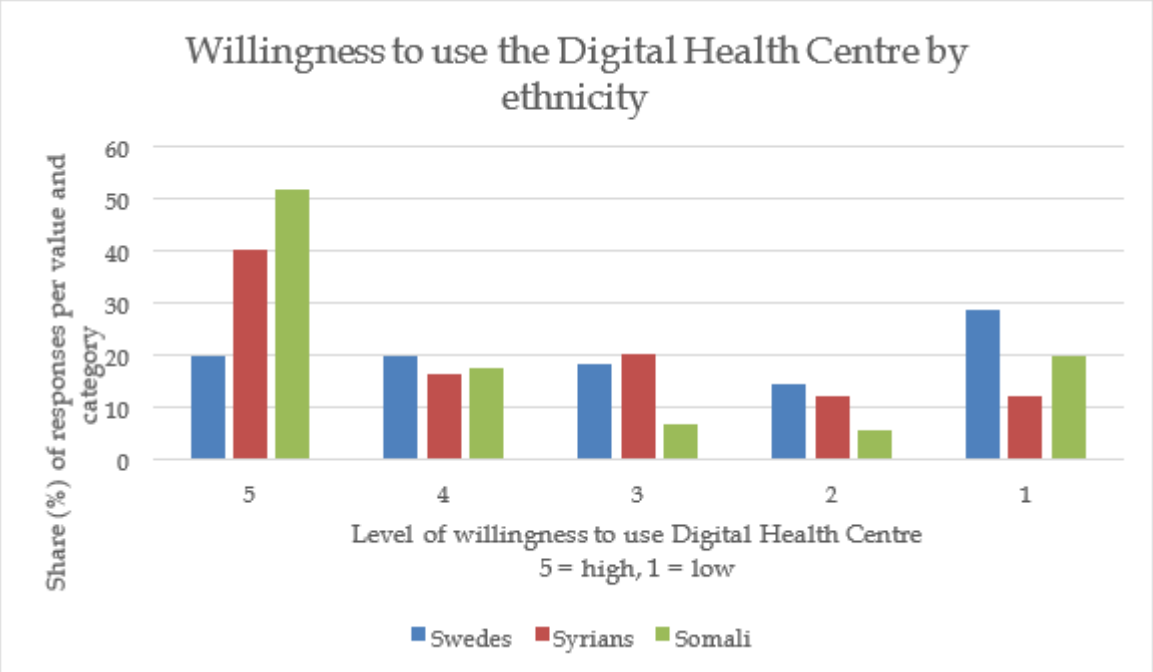

Figure 12. Willingness to use the Digital Health Centre and ethnicity. Percentage per reported value on scale 5-1. Swedes n=56 (100%); Syrians n=25 (100%); Somalis n=93 (100%). Total n=174.

As we see above, 'Somalis' express higher willingness to use the Digital Health Centre than 'Swedes', and slightly higher than 'Syrians'. There are few 'Syrians' respondents compared to 'Somalis' and 'Swedes'. A possible explanation for the low usage of the Digital Health Centre app in Skäggetorp compared to other neighbourhoods, is the high ethnic diversity and different mother tongues in Skäggetorp (Linköping municipality, 2019a). However, our descriptive data indicate that age is more important for willingness to use the app compared to the major ethnicities. 'Swedes' stating less willingness to use the app could be understood as a result of the category having more elderly respondents than 'Syrians', and 'Somalis'.

Table 27. Willingness to use the Digital Health Centre and ethnicity. Kruskal-Wallis mean rank.

Ethnicity	n	Mean Rank
Swede	56	68,54
Syrian	25	90,94
Somali	93	97,99
Total	174	

*Table 28. Willingness to use the Digital Health Centre and age. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1 -Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.*
Swede-Syrian	-22,404	11,621	-1,928	,054	,162
Swede-Somali	-29,459	8,172	-3,605	,000	,001
Syrian-Somali	-7,055	10,884	-,648	,517	1,000

The test shows significant differences between 'Swedes' (lower mean rank, less willing) and 'Somalis' (higher mean rank, more willing).

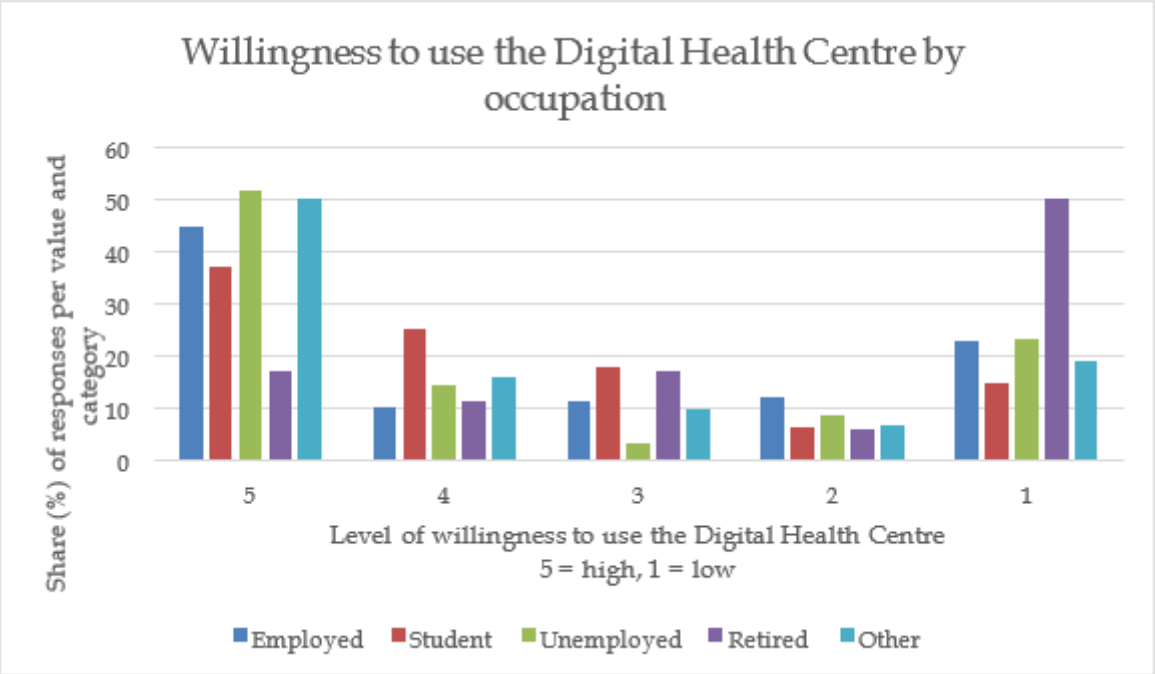

Figure 13. Willingness to use the Digital Health Centre and occupation. Percentage per reported value on scale 5-1. Employed n=92 (100%), Student, n=68 (100%), Unemployed n=35 (100%), Retired n=36 (100%), Other n=32 (100%). Total n=263.

Respondents who are at home with children are included in the category 'Other'. 50% of the categories 'Unemployed', and 'Other', report 5, while the opposite is the case for 'Retired', where 50% report 1 on the scale.

Table 29. Willingness to use the Digital Health Centre and occupation. Kruskal-Wallis mean rank.

Occupation	n	Mean Rank
Employed	92	134,51
Student	68	138,76
Unemployed	35	144,50
Retired	36	87,42
Other	32	146,91
Total	263	

*Table 30. Willingness to use the Digital Health Centre and occupation. Pairwise comparison (Bonferroni). Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. *Significance values have been adjusted by the Bonferroni correction for multiple tests.*

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Statistic	Test	Sig.	Adj. Sig.*
Retired-Employed	47,089	14,303	3,292		,001	,010
Retired-Student	51,348	14,996	3,424		,001	,006
Retired-Unemployed	57,083	17,271	3,305		,001	,009
Retired-Other	-59,490	17,677	-3,365		,001	,008
Employed-Student	-4,259	11,636	-,366		,714	1,000
Employed-Unemployed	-9,995	14,449	-,692		,489	1,000
Employed-Other	-12,401	14,932	-,830		,406	1,000
Student-Unemployed	-5,735	15,136	-,379		,705	1,000
Student-Other	-8,142	15,597	-,522		,602	1,000
Unemployed-Other	-2,406	17,795	-,135		,892	1,000

The test shows significant differences between 'Retired' (lower mean rank, less willing) and all other categories (higher mean ranks, more willing).

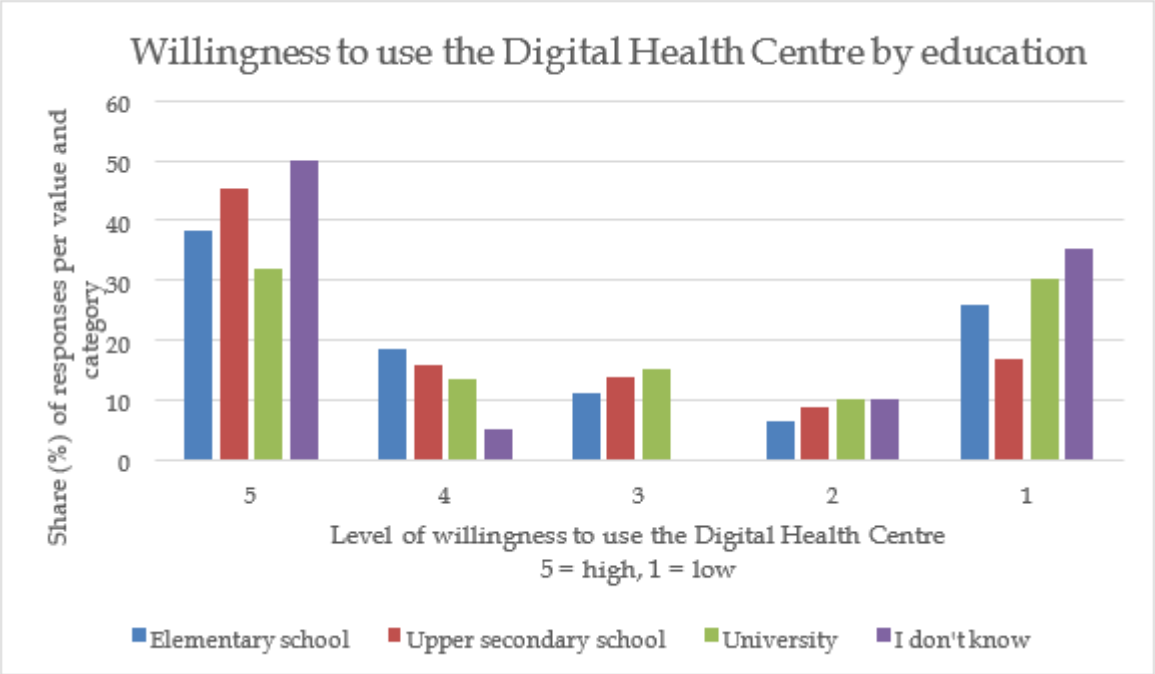

Figure 14. Willingness to use the Digital Health Centre and education. Percentage per reported value on scale 5-1. Elementary school n=81 (100%), Upper secondary school n=102 (100%), University or higher n=60 (100%), I don't know n=20 (100%). Total n=263.

Among the two categories with more respondents, those who reported 'Upper secondary school' stated the highest willingness to use the Digital Health Centre.

Table 31. Willingness to use the Digital Health Centre and education. Kruskal-Wallis mean rank.

Education	**n**	**Mean Rank**
Elementary school	81	130,20
Upper secondary school	102	142,34
University	60	117,27
I don't know	20	130,78
Total	263	

Table 32. Willingness to use the Digital Health Centre and education. Kruskal-Wallis sig. test. The test statistic is adjusted for ties.

Total n	**263**
Test Statistic	4,575a,b
Degree of Freedom	3

Asymptotic Sig. (2-sided test)	,206

The test shows no significant differences between the educational levels. The category 'University' has the lowest mean rank.

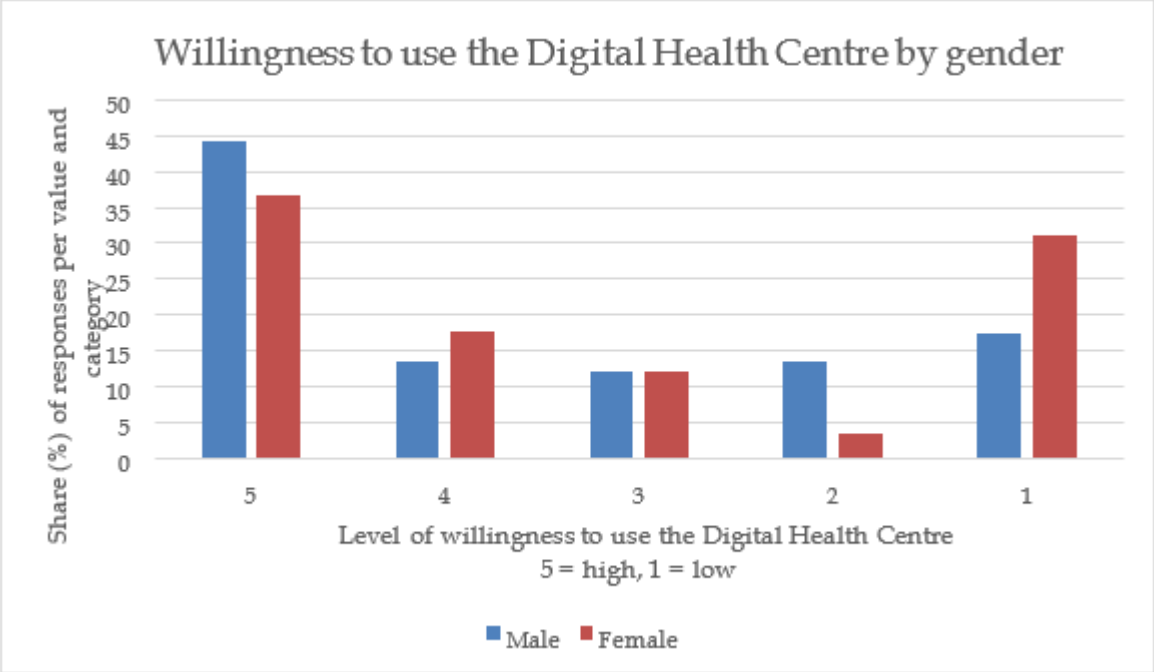

Figure 15. Willingness to use the Digital Health Centre and gender. Percentage per reported value on scale 5-1. Male n=134 (100%); Female n=126 (100%). Total n=260.

'Females' report 1 to a higher degree than 'Males', while 'Males' report 5 to a higher degree. 'Females' are less willing to use the Digital Health Centre. They report 3 to the same extent. Nevertheless, it is interesting to compare with the question about trust in the health centre, where 'Females' reported slightly higher trust than 'Males' (Figure 20), and to note that 'Females' reported being slightly less concerned about breaches of personal privacy (Figure 9).

Table 33. Willingness to use the Digital Health Centre and gender. Mann-Whitney U mean rank.

Gender	n	Mean Rank
Male	134	137.00
Female	126	123,58
Total	260	

Table 34. Willingness to use the Digital Health Centre and gender. Mann-Whitney U Sig test.

Total n	**260**
Mann-Whitney U	7570,500
Wilcoxon W	15571,500
Test Statistic	7570,500
Standard Error	579,554
Standardized Test Statistic	-1,504
Asymptotic Sig. (2-sided test)	,133

The test shows no significant differences across samples. 'Male' have a somewhat higher mean rank.

In summary, the results verify our hypothesis h5 that there are no prominent differences between men and women. There are significant differences between 'Swedes' and 'Somalis' regarding willingness to use the Digital Health Centre, which verify hypothesis h2.

7. Conclusions

In this study we have investigated digital citizenship by exploring differences in usage, digital inclusion, and eHealth services in a marginalised neighbourhood in Sweden, where residents are considered to be hard to survey. We analyse the data by applying theories about welfare rights, difference, and inclusion in a political community.

By comparing our survey results from Skäggetorp with a Swedish nationwide survey, we observed differences for all the variables regarding digital access and using the internet, using BankID, and having a smartphone. While the differences vary between the variables, the respondents in the neighbourhood always reported lower usage, which verified hypothesis h1, there are differences between the residents' attitudes towards eHealth services, and nationwide data. The concern about that the Swedish state and authorities are breaching personal privacy, i.e., about trust, is greater in the neighbourhood. The biggest difference is found in data about the feeling of exclusion from digital society – 9% in Sweden compared to 21% in Skäggetorp. We have argued that focus on social rights and difference can help comprehend how feeling included is vital in a democratic society, and thus, that it is important for digital citizenship in general and eHealth services in particular. This may be a clue in our search for answers to the question about the low usage of the public eHealth service in Skäggetorp in comparison to other neighbourhoods in the region. The percentage of respondents who report feeling excluded from digital society, compared to the reported access and usage of the internet, smartphones and BankID etc., indicates that the feeling relates to more than just technological access and usage. It implies that digital citizenship should incorporate a sense of being included in a political (digital) community. This can be analysed in further studies.

We used disaggregated data for age, gender, educational level, occupation, and ethnonationality to explore difference in the neighbourhood. Our hypotheses were that (h2) there are significant differences in attitudes towards eHealth services between ethnonational groups within the sample, which was verified regarding significant differences between 'Swedes' and 'Somalis'; (h3) there are significant differences between occupational groups within the sample, which was verified regarding the category 'Retired'; (h4) there are significant differences between age groups within the sample, which was verified regarding significant differences between respondents aged 66 years and above; (h5) there are no significant differences between gender within the sample, which was verified throughout the studied variables.

Significant differences concerning the willingness to use the Digital Health Centre were found across the age groups. Another interesting result is the differences regarding attitude between the categories, like 'Swedes' express higher trust in the health centre than 'Somalis', while 'Somalis' express a higher willingness to use the Digital Health Centre.

Since the survey was performed before the Covid-19 pandemic, there are several areas that could be investigated further, following the rapid transition to digital channels and services as a means to manage the spread of infection and to stay healthy. How has the sense of exclusion from digital society played out during the pandemic, for example, and to what extent can different patterns in usage of the public health centre app be observed between a neighbourhood like Skäggetorp and other neighbourhoods with higher socioeconomic status, as well as between age, gender, educational level, occupation, and ethnicities within the neighbourhood? These are all relevant questions for furthering the research on digital citizenship and digital inclusion, during the pandemic and after.

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Appendix 1

Survey in English, Skäggetorp, available at: https://blog.liu.se/digitala-kompetenser/wp-admin/post.php?post=215&action=edit

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