

Tartu Ülikooli sotsiaalteaduslike rakendusüuringute keskus RAKE



RAKE

Report on Descriptive Analysis of Denmark
Part of EVAPREM Project
RAKE, University of Tartu



This study is commissioned as part of the EVAPREM project. The main goal of this project is to develop a universal and comprehensive model for evaluating the results of prevention measures implemented by the fire rescue boards of European countries.

This country-specific study of Denmark has been done at Centre for Applied Social Sciences (RAKE) of University of Tartu, Estonia.

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The Centre for Applied Social Sciences (RAKE) was established in the University of Tartu in 2007. The fundamental goal of RAKE is to offer society high-quality applied research and analyses in social sciences.

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INTRODUCTION

This report is a detailed descriptive analysis of Denmark which is one of the five countries studied under the EVAPREM project.

The aim of the project is to deepen our understanding of the effectiveness and efficiency of the prevention services considering the corresponding socio-economic environment. The project will provide robust evidence and analysis to support policy-makers in understanding the impact of prevention and supports policy-makers at different administrative levels in elaborating and reshaping the selection of prevention services with providing cost-effective evaluation tools.

The main beneficiaries of the project would be the organizations responsible for planning and implementing the prevention measures in their respective countries on the national and local level as well as safety actors in European level. The direct beneficiaries will be populations of the participating countries and indirectly countries who will be adapting and using the evaluation tool afterward.

The survey is conducted in the six municipalities of Frederiksborg County of Denmark. **Frederiksborg Brand og Redning** is the Danish partner of the EVAPREM project. Frederiksborg Brand og Rending (FBBR) is a fire and rescue service authority that unites six municipalities. It consists of 16 FRS brigades – 6 municipal FRS brigades, 4 voluntary FRS brigades, 5 FRS brigades owned and staffed by a contractor (FALCK) and one FRS brigade owned by Beredskab Øst and staffed by a contractor.

The task of FRS is to prevent, reduce and mitigate damage to persons, property, and environment by accidents and disasters, including acts of war or imminent threat thereof. The goal of prevention activities is to positively change the behavior of citizens. FRS in Denmark implements three types of fire prevention activities: informing, teaching, and counseling. These activities are mostly applied on the municipal level.

The sample size of the study is 428, which is efficiently collected from the six municipalities to reflect a wholesome characteristic of the Fredriksborg area of Denmark. Throughout the study, a **weighing factor** is maintained to produce the most accurate result. The survey was conducted between 19th April and 24th April 2018.

The project is financed by the European Union and serves also as a Flagship project of the European Union Strategy for the Baltic Sea Region (EUSBSR).

1. TECHNICAL INFORMATION REGARDING THE QUANTITATIVE SURVEY

The Respondent size of Denmark study is 428. All 428 respondents were asked the same set of questions (see Questionnaire attached). The survey was conducted in six municipalities of Denmark. The municipalities covered in the survey are Egedal, Furesø, Frederikssund, Gribskov, Halsnæs and Hillerød. The municipalities are marked with red color in the map of Denmark (See Figure 1).

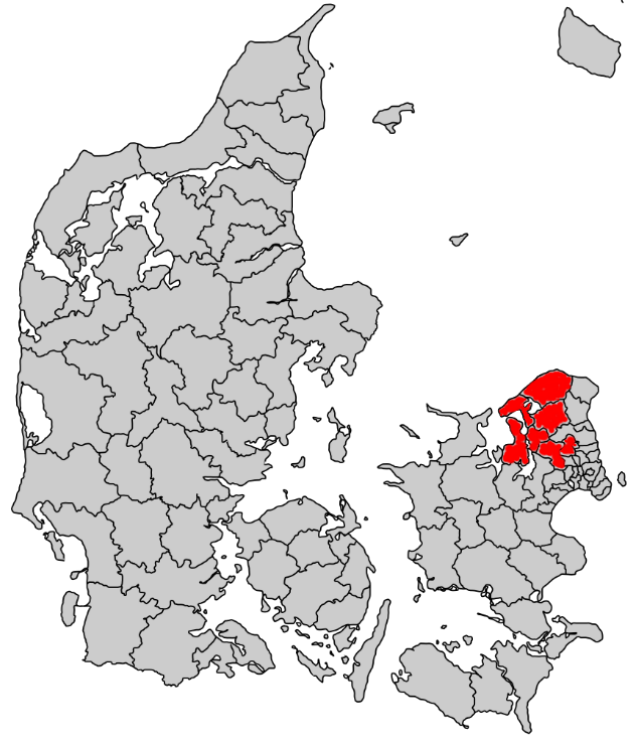
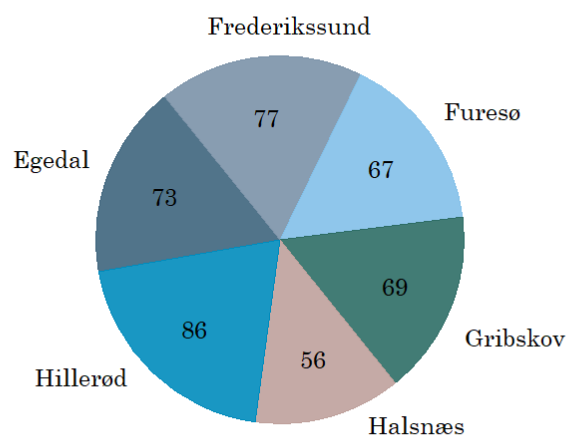


Figure 1. Denmark covered in the survey (in red)

Figure 2 shows the distribution of 428 respondents among different **municipalities** of Denmark. Hillerød has the highest number with 86 respondents while Halsnæs has the lowest respondent size with 56. The respondent size from six municipalities is in exact proportion to the population size of each municipality (see Table 1).

Municipality



Total Number of Respondents = 428

Figure 2. Municipality

Table 1. Number of respondents from six municipalities (population as of 1st April 2014).

Municipality	Respondents	Respondents (%)	Population	Population (%)
Hillerød	86	20%	48,728	20%
Frederikssund	77	18%	44,341	18%
Egedal	73	17%	42,297	17%
Gribskov	69	16%	40,850	16.5%
Furesø	67	16%	40,325*	16%
Halsnæs	56	13%	30,644	12.5%
TOTAL	428	100%	247,185	100%

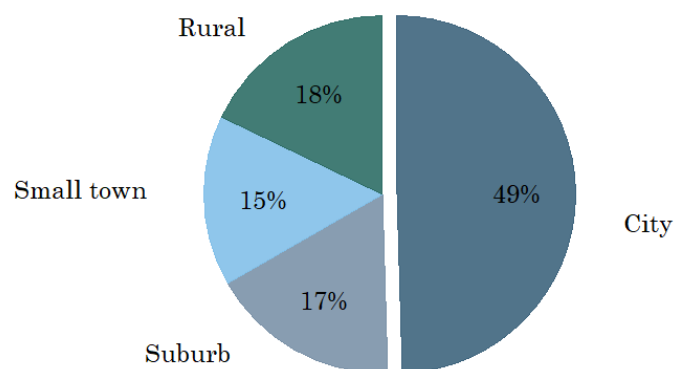
*Population data for Furesø municipality is from 1st April 2016.

From Table 1, it can be easily observed that the number of respondents from each municipality is in exact proportion to the population of these municipalities, this is done to ensure to achieve the representativeness from Frederiksborg region.

In addition to the region, the **city was also specified**. The city of Hillerød has the highest number of the respondents which is 61 (approximately 15% of the total sample size), followed by the city of Farum with 40 respondents.

The survey also focused on the **type of settlement** in which the respondent resides. Type of settlement is divided into four different groups. The groups are city areas, suburbs, small towns and rural areas. Almost half of the respondents have responded that they live in cities, the other half is approximately divided among suburbs, small towns, and rural areas (see Figure 3).

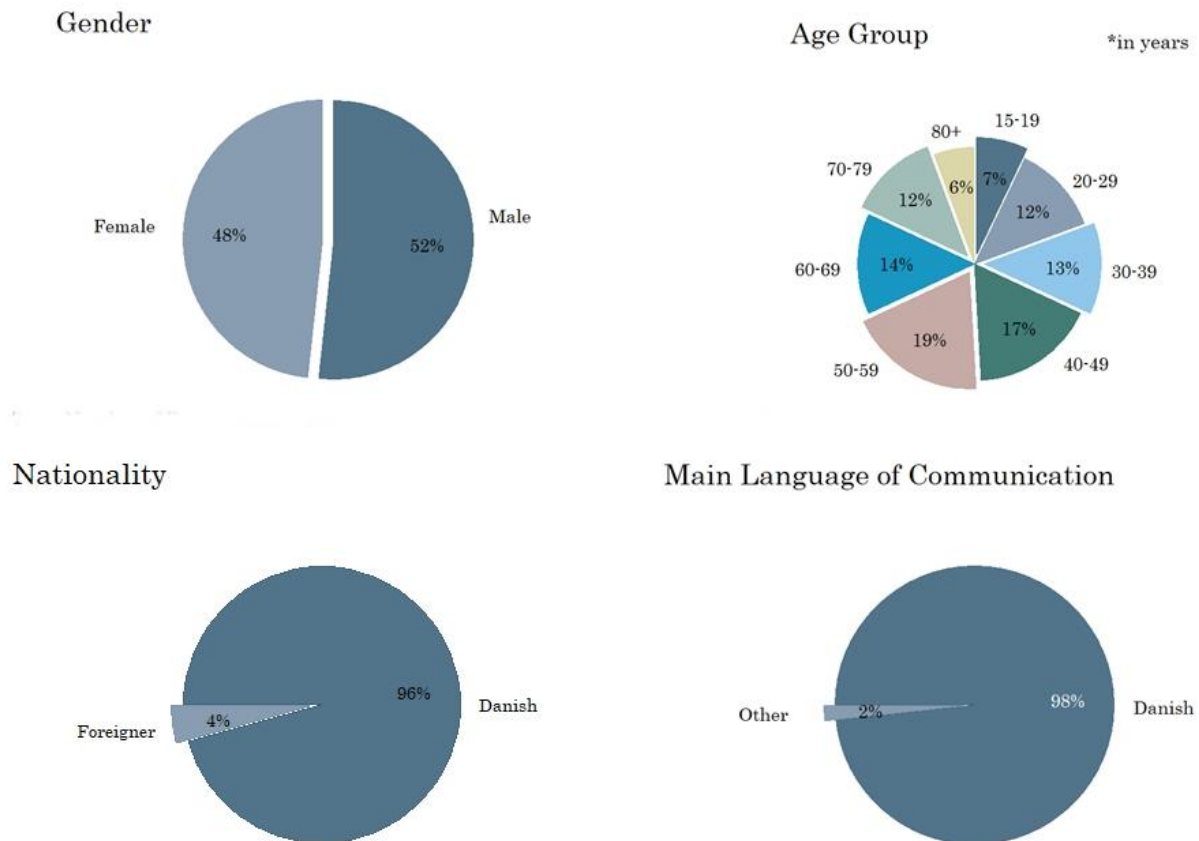
Type of Settlement



Total Number of Respondents = 428

Figure 3. Type of Settlement

Figure 4 represents the information regarding **gender, the main language of communication, nationality and age group** of the 428 respondents.



Total Number of Respondents = 428

Figure 4. Gender, Age group, Nationality and main language of communication

Respondents are almost equally divided on the basis of **gender**, there are 212 females (48% of the respondents) and 216 males (52% of the respondents).

In terms of **nationality**, 96% of the respondents are Danish while 4% answered that their nationality is other than Danish. 98% of the respondents identified Danish as their main **language** of communication while 2% said their main language of communication is other than Danish.

The respondents are evenly distributed among different **age groups**. The age groups are 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79 years and 80 years old and above (80+). By comparing the respondent size with the population pyramid of Denmark, it can be seen that the teenagers aged between (15-19) makes up the 6.1% of Denmark population but they are represented by 7% of the respondents in the study, while population aged between 30-59 represent almost half of the respondents while the share of people aged 30-59 is 40% in Denmark population data. Older people

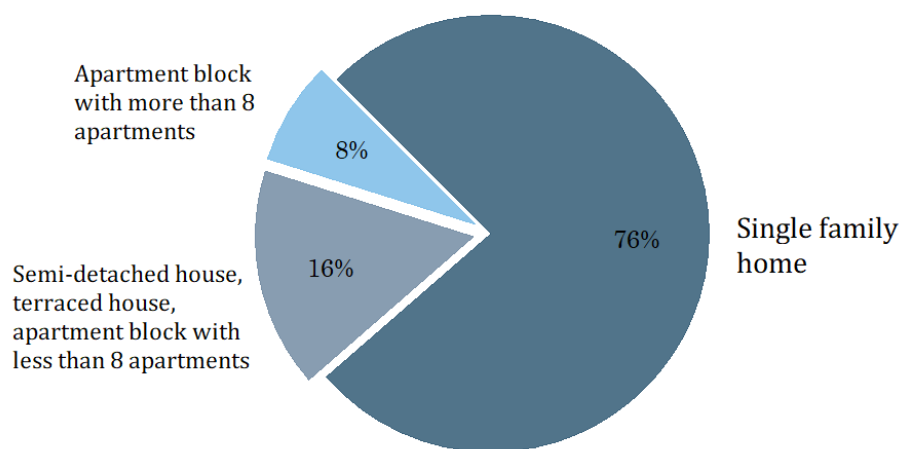
(People aged more than 60) makes up 25% of Denmark population but their share in the sample is 32%. Youth (aged between 20-29) represents 13.2% of the population of Denmark, but in the study, their share is 12% which is slightly below their share in the population (see Appendix for Denmark Age Pyramid 2017).

2. BACKGROUND OF THE RESPONDENTS

Figure 5 shows the **type of home** in which the respondent resides. There are three categories: first one is the Single-family house which is the most common one as 76% of the respondents reside in this type of home. The proportion of single-family house in Denmark is 42% (1.1 million dwellings out of 2.6 total dwellings)¹ but in our study, the proportion of single-family house is 76%, as the region under study has smaller towns and thus the level of single-family houses is higher than country average.

The second type of home is 'Semi-detached house, terraced house, apartment block with less than 8 apartments' which is the residence of 16% of respondents. The last one is an Apartment block with more than 8 apartments, 8% of respondents lives in this type of housing (see Figure 5).

Do you live in a ... ?



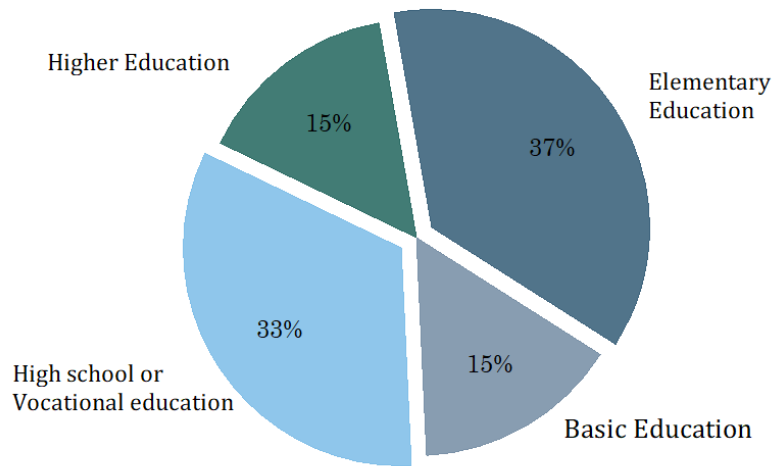
Total Number of Respondents = 428

Figure 5. Type of home

Figure 6 shows the **education level** of the respondents. Out of 428 respondents, 37% has Elementary education, 15% has a Basic education, 33% has the High School or Vocational Education while 15% have attained education level of Higher education (see Figure 6).

¹ Hans Kristensen, Housing in Denmark (Page-26), ISBN: 978-87-7296-246-7, Centre for Housing and Welfare – Realdania Research. (Kristensen, 2007)

Which education-level have you obtained?



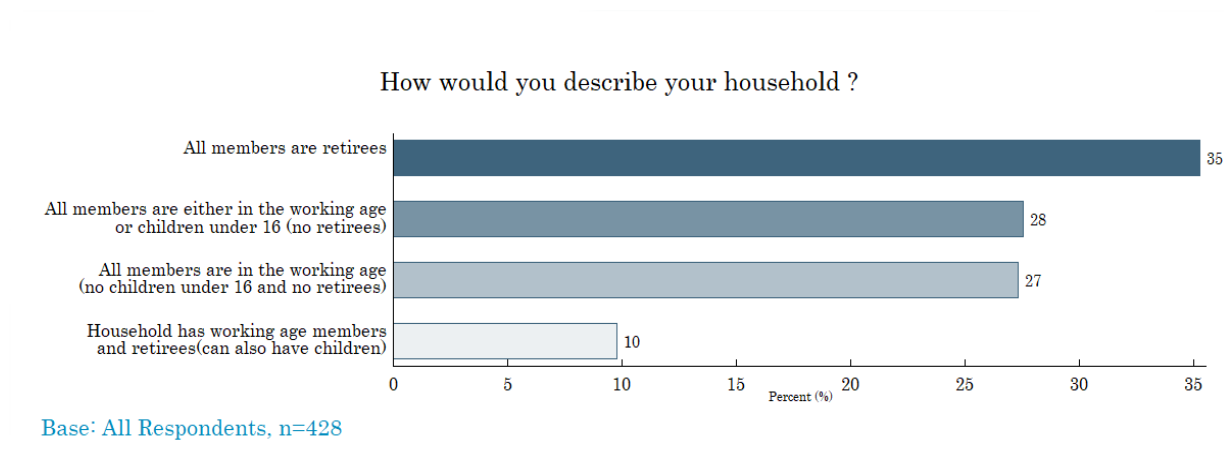
Total Number of Respondents = 428

Figure 6. Education level

Figure 7 and 8 give a structural composition of the family of the respondents.

Figure 7 represents the **labor market status of the respondent's family**. In 35% of the respondents, all the family members are retired. 27% of the respondents only have working members (no retirees or children), 28% of the respondents either have all working member or children. 10% of the respondents have working members and retirees and may also have children.

73% of the respondents said that they have either children or retirees or both in their household. The focus of our study is children and elderly people (retirees) who are the most vulnerable to a fire accident. The policymakers should formulate the policy keeping in mind the relative vulnerabilities of different risk groups, e.g. children and elderly people (see Figure 7).



Base: All Respondents, n=428

Figure 7. Labour market status

Figure 8 shows the **household size of the respondents**. 41% of the respondents just have 2 members in the household, while 22% just had one. The proportion of 3-member household and 4-member household is 13% and 16% respectively. Just 8% of the respondents have a relatively large of 5 or more than 5 family members in the household (see Figure 8).

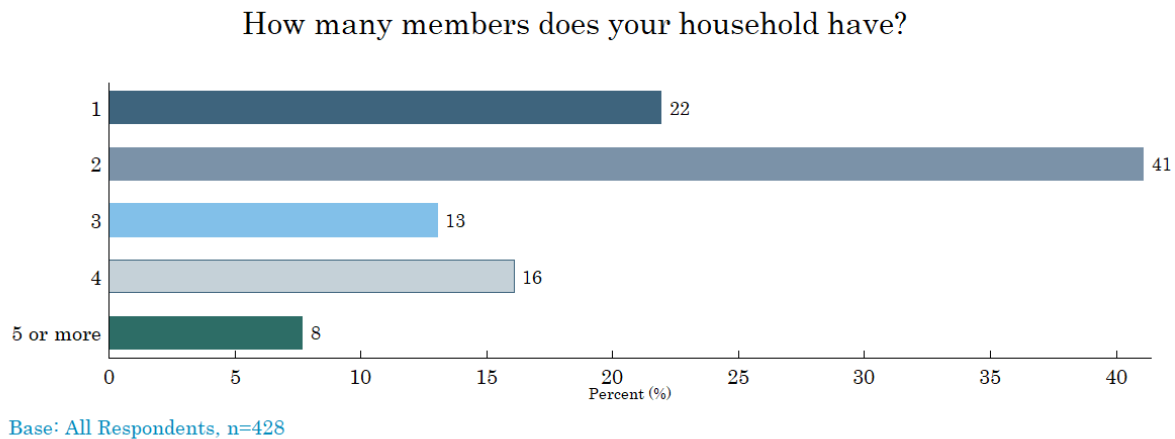


Figure 8. Household size

Figure 9 represent the **current employment status of the respondents**. Almost half (46%) of the respondents are wage workers, while 38% of the respondents are retired. 4% are self-employed and 3% are students. 1% of the respondents are unemployed. Out of 428, 1 person is on child care leave (home with children), while 1 person is just at home (see Figure 9).

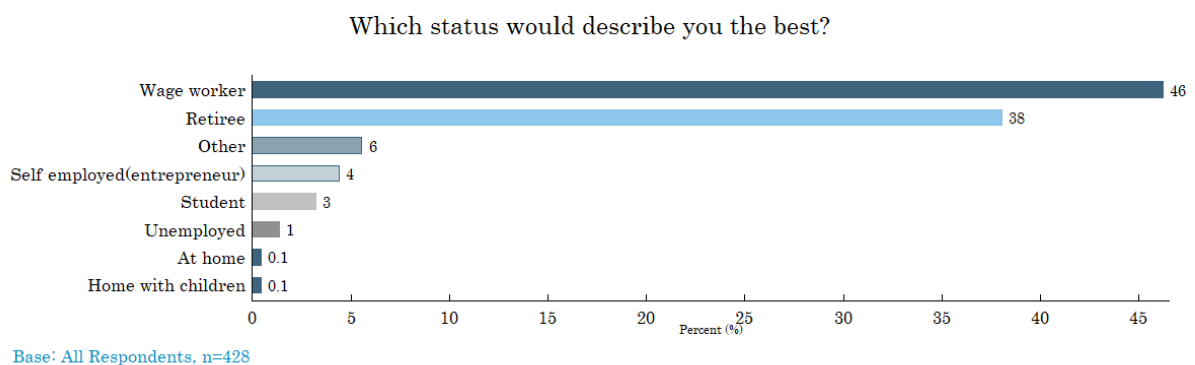
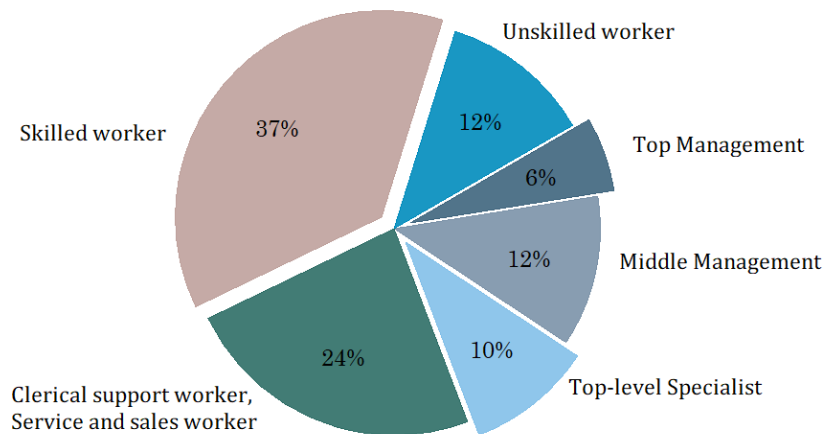


Figure 9. Employment Status

Out of 428 respondents, 217 are currently working. Figure 10 shows the **different position at which 217 working people are employed**. 37% of the respondents are skilled workers, while 12% are unskilled workers. Top- and middle-level management position has been taken by 6% and 12% of the

respondents respectively. 24% of the respondents works on the clerical level. 10% of the respondents work as top-level specialists (see Figure 10).

In which position are you working?

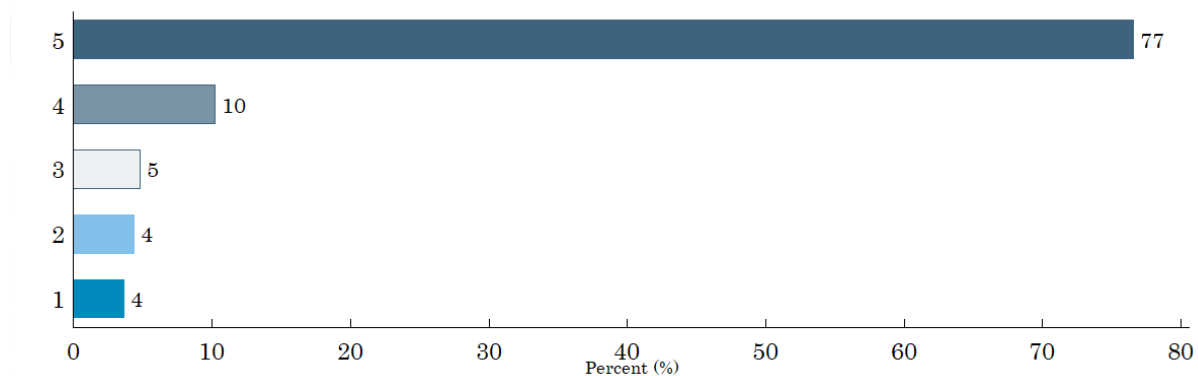


Base: Only those respondents who are working currently, n=217

Figure 10. Position of the working respondent

Figure 11 shows **the per capita income level of the respondents**. More than three-quarter of the respondents have the highest per capita income (5 is the highest level of income, see Figure 11).

How high was your households' income per member?



Base: All Respondents, n=428

Figure 11. Income level

Figure 12 displays the **participatory level of the respondents in a different type of activities**.

Regarding **attending cultural events (such as theatres, cinemas, museums, libraries, art exhibitions, concerts) or participating in non-professional cultural activities**, 30% of respondents answered that they are doing it "very often" or "quite often". Most often participation in this kind of activities are less

frequent (answers “sometimes” or “very seldom” were marked by 63%). 8% of the population replied that they never visit such events.

According to the study data carrying out some **household improvement projects (like renovation, decoration, spring cleaning, gardening, repairing)** is relatively popular activity from the list: “very often” and “quite often” in such projects are involved 54% of respondents, 39% answered “sometimes” or “very seldom”, while 6% admitted that they do not perform such kind of projects at all.

56% also answered that when they go **shopping**, they “very often” or “quite often” **choose products based on extra qualities (such as health impact, ecological footprint, your type of brand, local origin, fair trade)**. 26% said that they do it “sometimes” or “very seldom”, while 9% have not done it at all.

When asked how often they **go out with their friends or acquaintances (to the cafe, restaurant, nightclub, pub)**, only 32% thought that it is “very often” or “quite often”. More than half (63%) answered that it happens less frequently (answers “sometimes” or “very seldom”) and 5% answered that they never do it (see Figure 12).

Please describe how often do you perform these activities

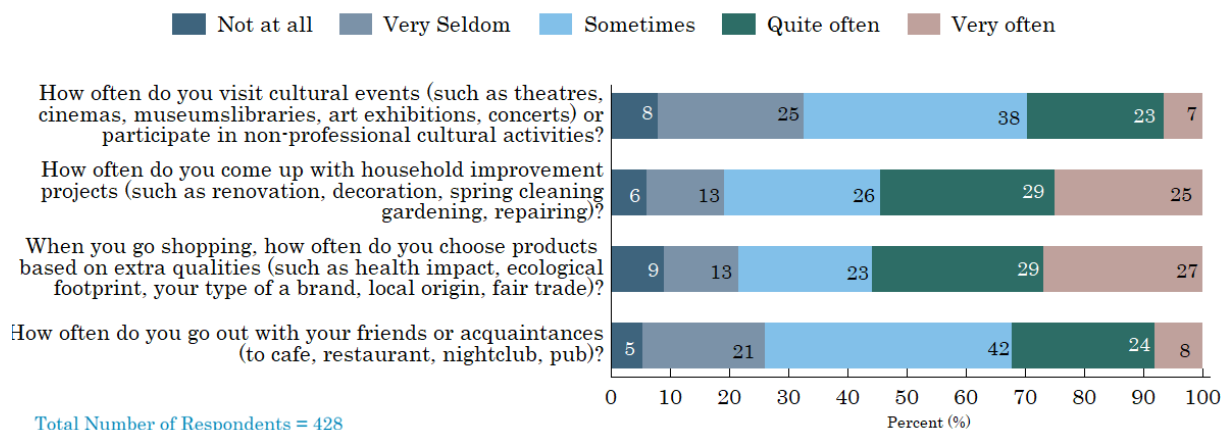
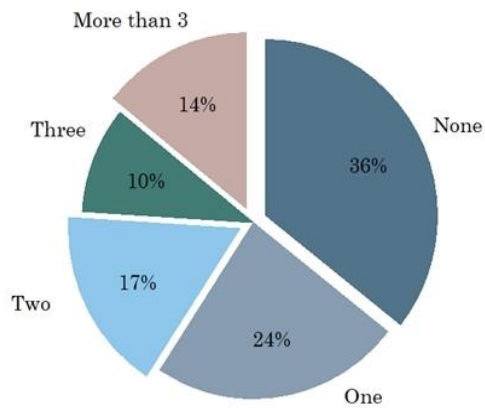


Figure 12. Participation in activities

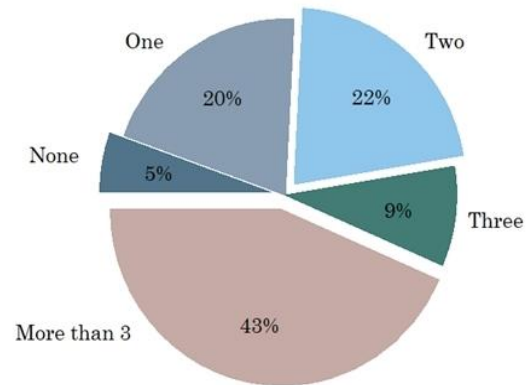
Characterizing their **involvement in different kinds of civic organizations**, 36% answered that they do not take any part in this activity at all. 24% mentioned that they participate in one, 17% - in two, 10% - in three, while 14% answered that they are members of or take part in more than three organizations (see Figure 13).

According to survey data, 5% of the population do not follow **the news** at all. At least once a day the actual information is received by 95% of respondents: 20% answered that they read, watch or listen to the news once a day, 22% - that they do it twice a day, 9% - three times per day, while 43% replied that they do it more than 3 times a day (see Figure 13).

How many different civic organizations do you take part in or are a member of (such as societies of profession, hobbies, sports clubs, religion, communities, people of special needs, or other NGOs)?



How many times per day do you usually keep up with (read, watch or listen to) the news?



Total Number of Respondents = 428

Figure 13. Membership and News

3. MAIN RESULTS OF THE QUANTITATIVE SURVEY

Majority of the respondents, 56% recognized the **smoke detector's fire alarm**. 13% of respondents indicated that it is some kind of danger-risk alarm, 1% - that it is a sound of the security/burglar alarm, 1% - that it is the alarm of the empty battery of a smoke detector or a similar device. About one-fifth of the respondent said it is some other sound. 10% said they cannot recognize it (see Figure 14).

Assuming you hear this sound [the smoke detector fire alarm will be played], what is the issue?

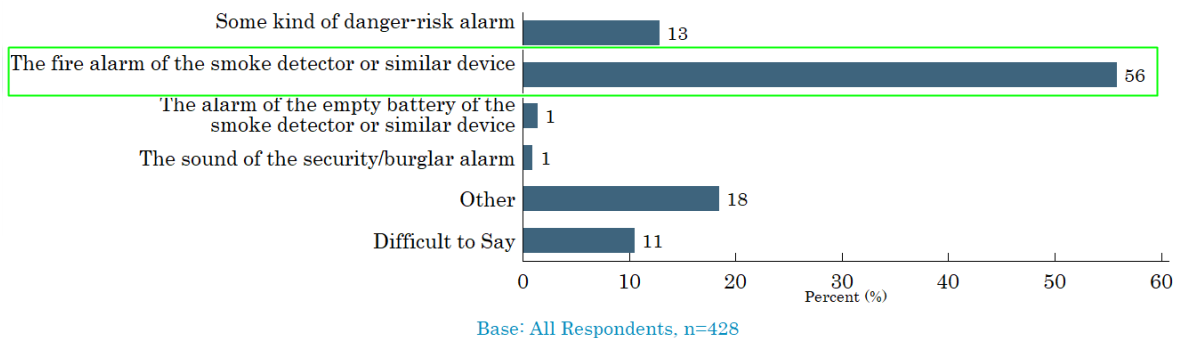


Figure 14. The sound of the smoke detector fire alarm

The **smoke detectors sound of an empty battery**, in turn, recognized by 21% of study participants. 4% considered the sound to be an alarm for some kind of danger-risk, 1% - the sound of the security/burglar alarm, but 4% - a fire alarm of a smoke detector or a similar device. About 40% said it is some other sound while for 38% said it is difficult to say. So, about 80% of the respondents failed to recognize the sound of an empty battery (see Figure 15).

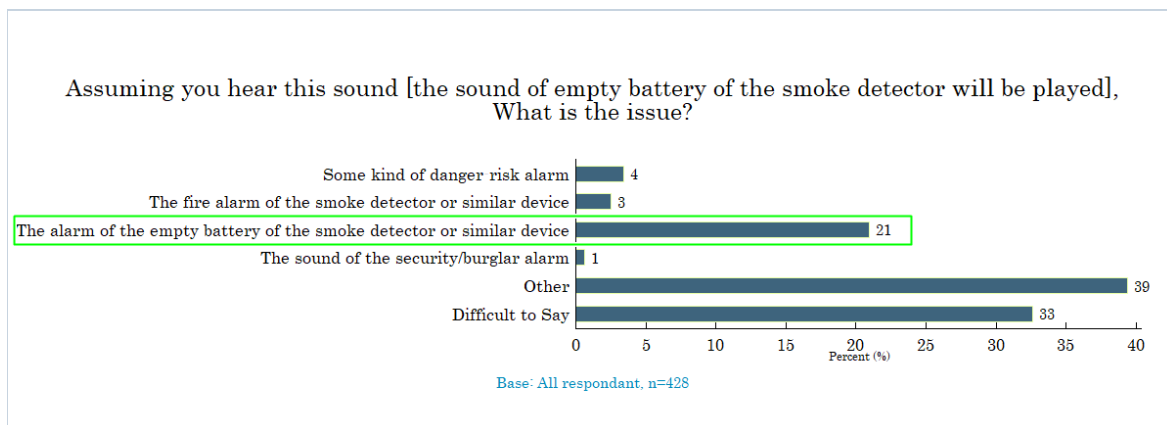


Figure 15. Empty battery alarm

Asked **whether during the last year they have discussed the fire safety and how to act in case of the fire**, the majority (61%) of respondents marked that none of these topics have been discussed at their home. 32% of respondents indicated that the fire safety issues have been discussed and 27% noted that proper behaviour in case of the fire has been discussed at home. In total, the fire safety related discussion took place in just 37% of the households (see Figure 16).

If you think about the last YEAR, has the fire safety, and how to act in case of the fire, been discussed at your home?

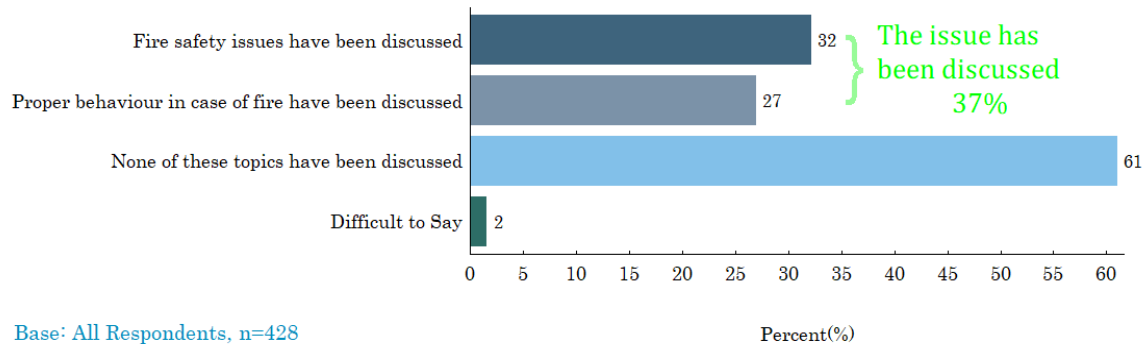


Figure 16. Fire safety discussion

*Since each respondent could mark more than one answer, the total percentage of the graph exceeds 100%.

When asked **how interested they are in receiving information on fire safety**, in general, 33% said that they are interested (“very interested” and “relatively interested”). The lack of interest (“not interested at all” and “relatively not interested”) was admitted by the majority of 61% of the participants of the study (see Figure 17).

How interested are you in receiving information about fire safety, assuming this will be delivered from a preferred medium?

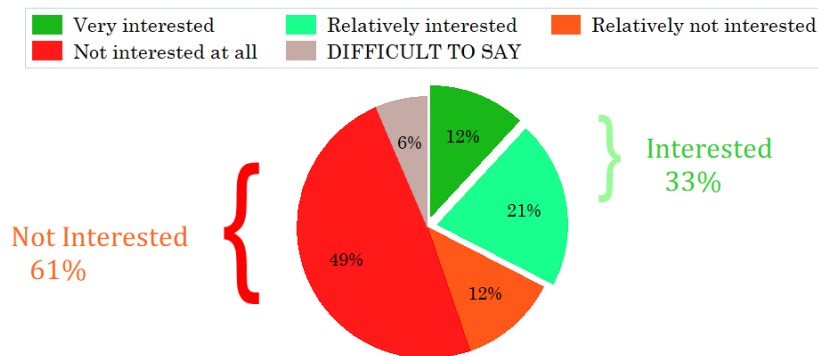
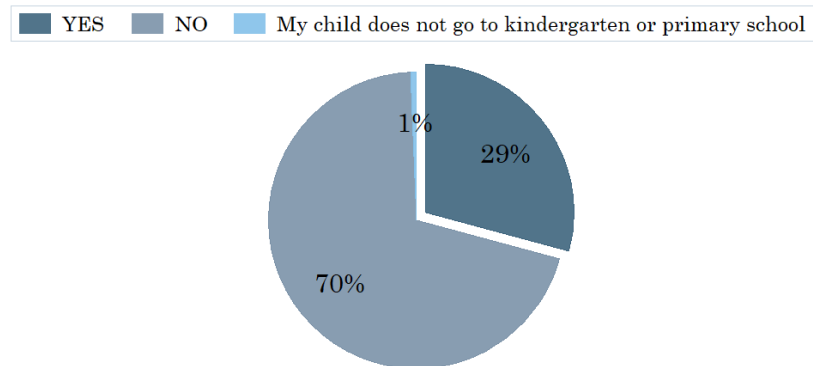


Figure 17. Fire safety information

When asked **whether they have children aged 5-15 in their household**. 28% of the respondents answered in affirmative while 72% said that they do not have children aged between 5-15 years. Respondents who replied that there are children aged between 5 and 15 in their household (n=107) were asked to indicate whether they have **received information on fire safety from their children** who attend a kindergarten or a primary school, 29% of respondents replied that they have received it. About 70% of study participants who replied that there are children aged between 5 and 15 in their household answered that the information on fire safety from their children has not been received. 1% of the respondents said that their children do not go to kindergarten or primary school (see Figure 18).

Have you received information regarding fire safety from your children from kindergarten or from primary school?

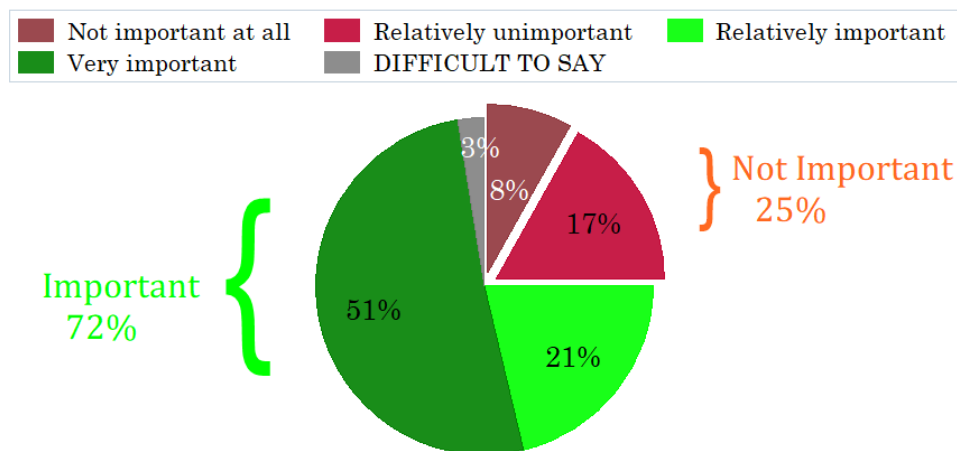


Base: Respondents who has a child at home aged 5-15 years, n=107

Figure 18. Fire safety in school

According to the survey, 72% of respondents replied that it is **important** (answers “very important” and “relatively important”) **to have a fire extinguisher in their home**. The opposite opinion (answers “relatively unimportant” and “not important at all”) have 25% of study participants (see Figure 19).

How do you assess the importance of fire extinguisher at your home?



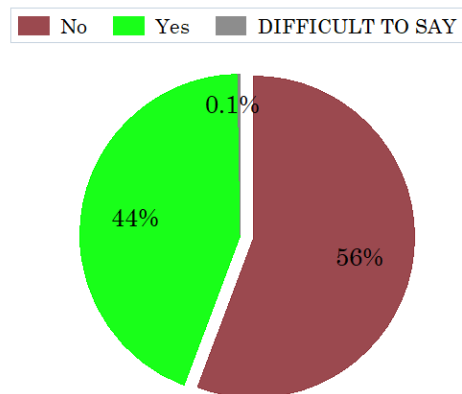
Base: All Respondents, n=428

Figure 19. Importance of fire extinguisher

Asked whether or not they **have a fire extinguisher in their home**, 44% of respondents replied that they have one, but 56% - that they do not. While 2 out of 428 respondents said it is difficult to say whether they have a fire extinguisher at home or not (see Figure 20).

There is a statistically significant difference between the groups who think that fire extinguisher is important and actually having one at home in comparison to those who do not think it is important and do not have it at home (χ^2 -test = 64.4 with a probability of 0.000 at $p=0.05$). So, one can conclude that if the respondents say that fire extinguisher is important then they are more likely to have a fire extinguisher.

Is there a fire extinguisher in your home? (in case of an apartment a fire extinguisher inside the apartment)

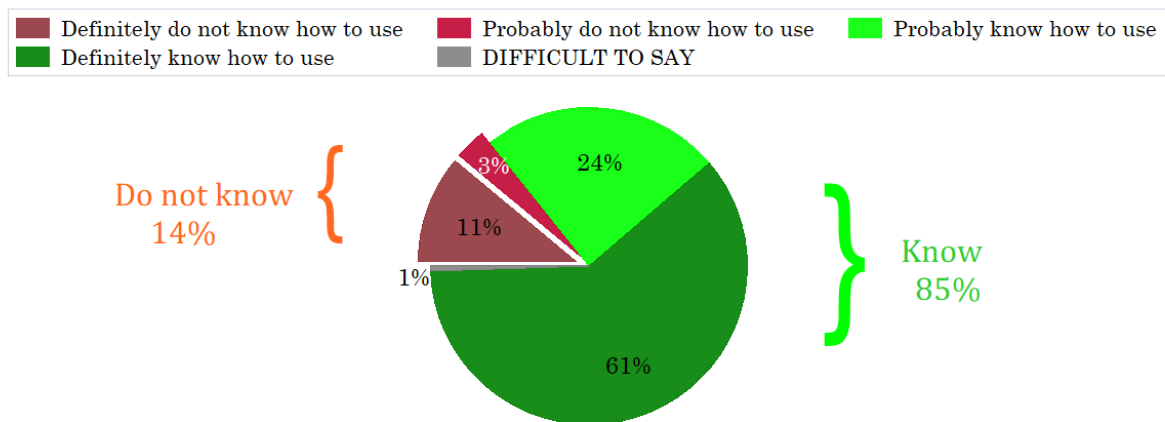


Base: All Respondents, n=428

Figure 20. Availability of fire extinguisher

In total, 85% of respondents indicated that they have **competence in using fire extinguisher** (answers “definitely know how to use” and “probably know how to use”) and 14% noted that they do not know how to use it (answers “definitely do not know how to use” and “probably do not know how to use”). While 1% said it is difficult to ascertain their competence in using a fire extinguisher (see Figure 21).

How do you assess your competence in using fire extinguisher?

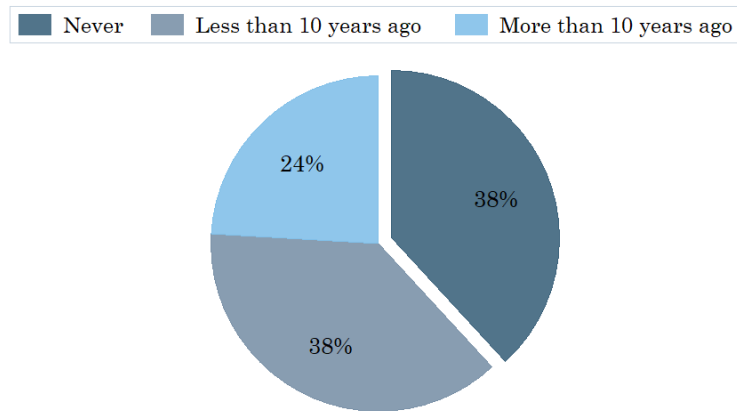


Base: All Respondents, n=428

Figure 21. Competence in using fire extinguisher

When asked to indicate when was **the last time they have used a fire extinguisher in training or in the real situation**, 38% of respondents replied that they have never used it. 38% indicated that they have used a fire extinguisher less than 10 years ago, but 24% have had such an experience more than 10 years ago (see Figure 22).

When was the last time you used a fire extinguisher, in training or real situation?

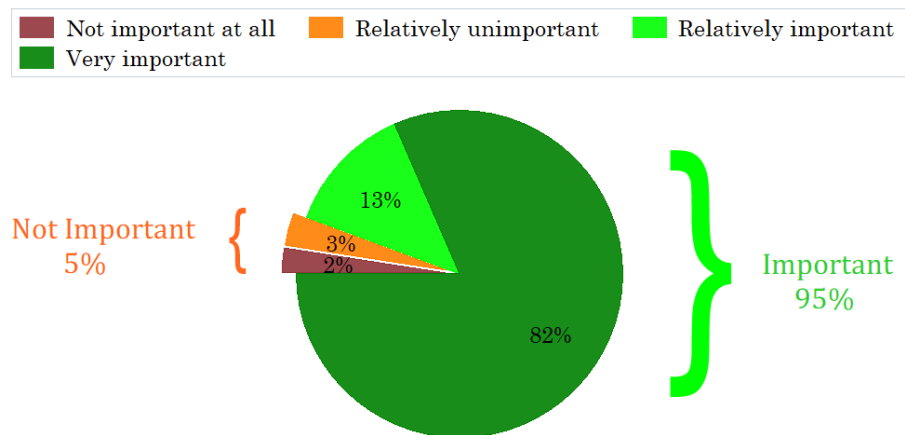


Base: All Respondents, n=428

Figure 22. Last using a fire extinguisher

According to the survey, **95%** of respondents replied that it is **important** (answers “very important” and “relatively important”) **to have a smoke detector at home**. The opposite opinion (answers “relatively unimportant” and “not important at all”) had just 5% of study participants (see Figure 23).

How do you assess the importance of smoke detector at your home?



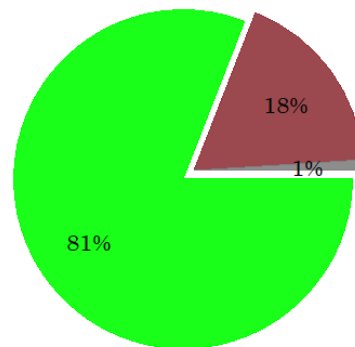
Base: 3 Respondents didnt answer. So, n=425

Figure 23. Importance of smoke detector

More than four-fifths (81%) of respondents indicated that **they have a smoke detector in their home**. The fact that there is no smoke detector was mentioned by 18% of the study participants (see Figure 24).

Has smoke detector or other fire detection device been installed at the ceiling of your current home? [This might be also a part of the security system]

Yes No DIFFICULT TO SAY



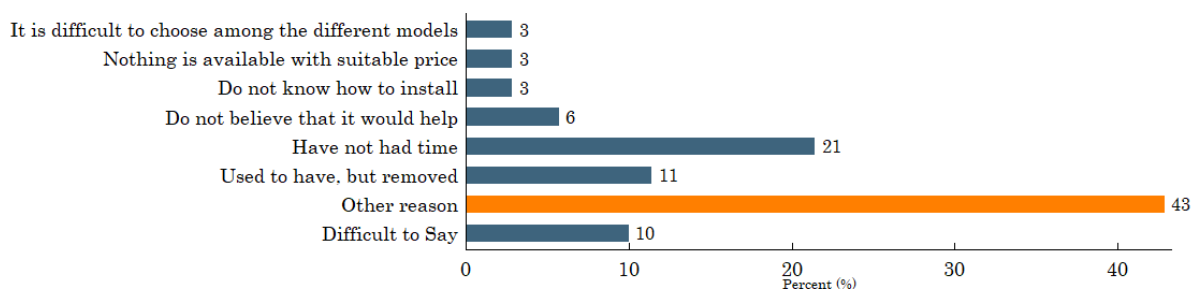
Base: All Respondents, n=428

Figure 24. Smoke detector in the home

The relationship between respondents who said that they think that smoke detector is important and those who also replied that they have smoke detector installed in their home is statistically significant (χ^2 -test = 54.4 with a probability of 0.000 at $p=0.05$). Thus, one can conclude that if the respondents says that smoke detector is important then they are more likely to have it installed in their home.

The respondents who indicated that they **do not have a smoke detector** in their home (n=70) were asked to name the main reasons for that. The data shows that the most frequently respondents mentioned lack of time (21%), but 6% do not believe that smoke detector would help and 11% of them used to have it but now it is removed. 3% mentioned that they do not know how to install it, 3% indicated that it is difficult to choose what would be the best buy (which manufacturer or model), 3% - that nothing is available with suitable price. 10% said it is difficult to say why they do not have it. Almost half, 43%, cited another reason for not installing the smoke detectors (see Figure 25).

Which of the following statements is the main reason you have not installed smoke detector in your home?



Base: Respondents who do not have smoke detector at their home, n=70

Figure 25. Main reason for not installing smoke detector

As the **other reasons which are cited by the 43% (29 out of 70) of the respondents** 11 out of 29 said that they have not thought about installing it, laziness is closely followed with 10 respondents. 6 respondents said it is not important to install the smoke detector and 2 of the respondent cited financial difficulty.

In answering the question “**When you think about the last month (30 days), have you or someone from your household controlled the working condition of the smoke detector (pushing the test button)?**”, 29% of respondents who have a smoke detector marked that they have done it by themselves and 10% - that somebody else from the household have done so. More than half (56%) of respondents indicated that nobody has controlled the working condition of the smoke detector during the last month (see Figure 26).

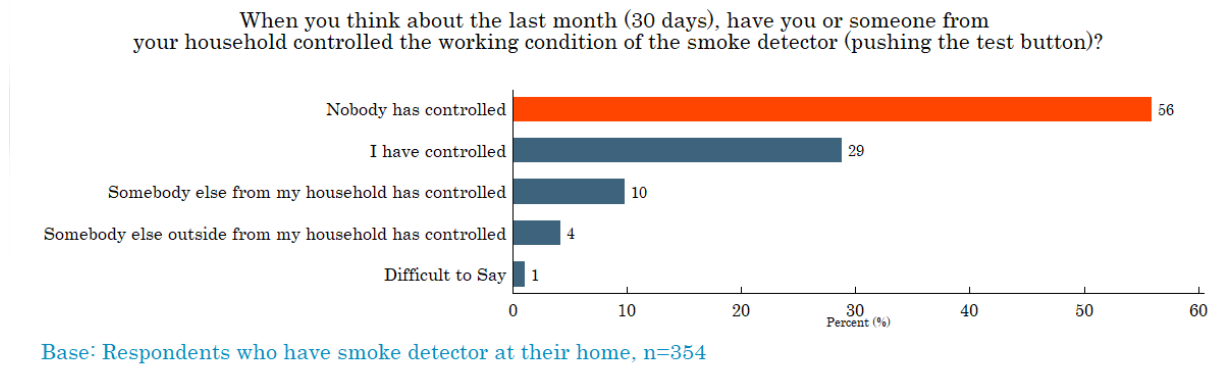


Figure 26. Pushing test button

Asked about doing **smoke detector’s maintenance in the last month** to the respondent who has smoke detectors in their home and it was controlled in last 30 days (n=152), 44% of respondents indicated that they have changed the batteries. 28% of respondents marked that the smoke detector has been cleaned with a piece of cloth. 41% respondents indicated that they have done no maintenance (see Figure 27).

When you think about the last month (30 days), have you or someone from your household maintained the smoke detector, done the following actions?

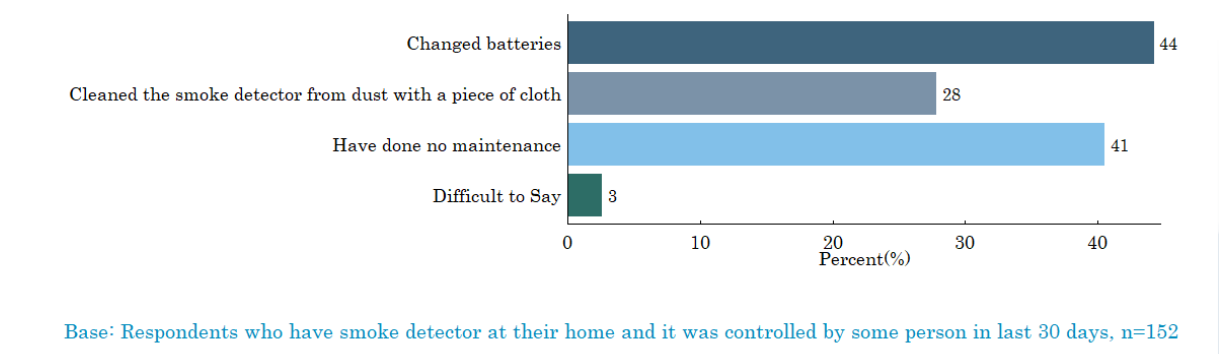
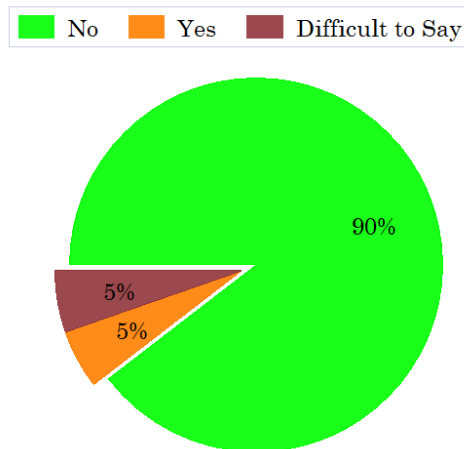


Figure 27. Maintenance of smoke detector

According to the study, 90% of respondents indicated that they have perfect **electrical wiring** in their home, but 5% - said that there is some fault in the electrical wiring system. While 5% said that it is difficult to answer this question (see Figure 28).

Does your home have faulty electrical wiring?

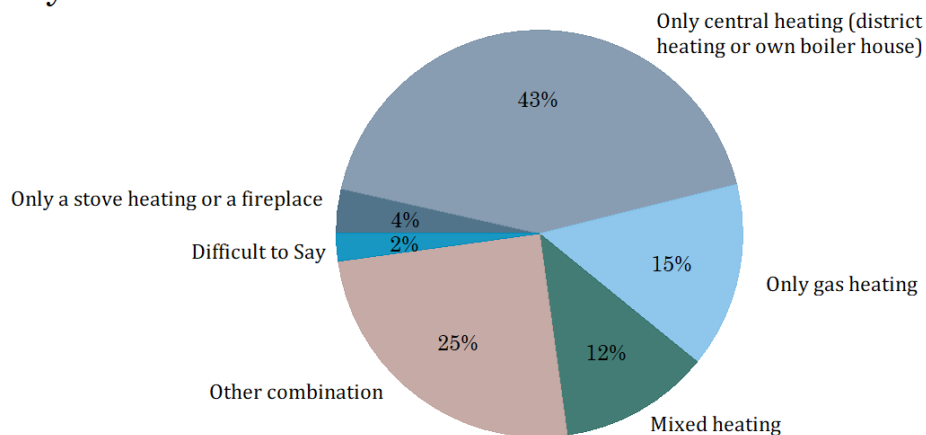


Base: All Respondents, n=428

Figure 28. Electrical wiring condition

Regarding a **type of heating in their home**, 43% of respondents noted that there is only central heating in their housing, 4% - that there is only a stove heating or a fireplace, 15% - that there is only gas heating, and 12% indicated that there is a mixed heating in their housing. One-fourth (25%) said they have other combination of the heating system (see Figure 29).

Does your home have...

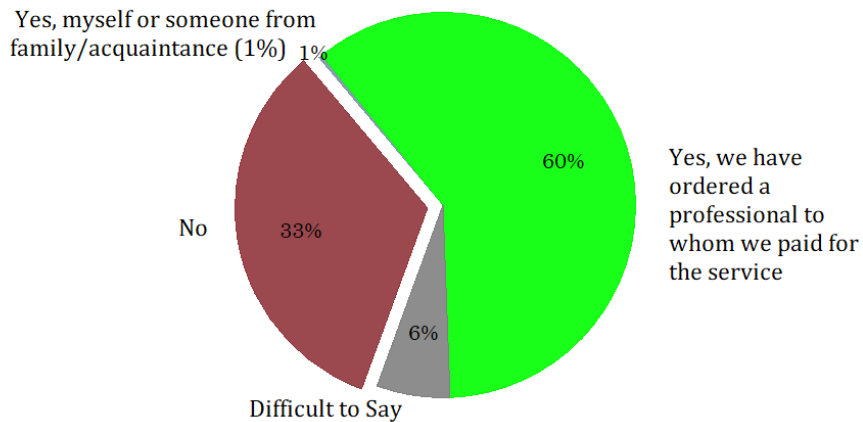


Base: All Respondents, n=428

Figure 29. Type of Heating System

Out of 140 respondents who have a stove (or a fireplace), gas or mixed heating system, 61% of respondents marked that someone has **swept chimneys of their heating system in the last two years**: Just 1% of respondents whose house has gas heating, stove heating or a fireplace responded that they or someone from their family/acquaintances has swept the chimneys, while 60% have paid to a professional for this service. 33% of the study participants indicated that no one has cleaned chimneys in the last two years (see Figure 30).

Have you or someone else swept the chimneys of your heating system in the last two years?

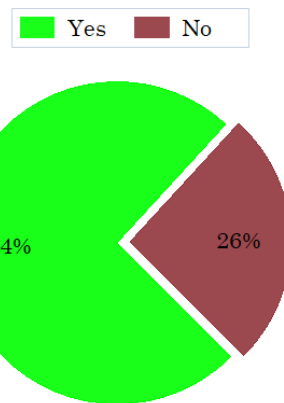


Base: Respondents whose house has stove(or a fireplace)heating, gas heating or a mixed heating. So, n=140

Figure 30. Swept the chimneys

Respondents, whose house is equipped with gas heating, stove heating or a fireplace and who have swept chimneys by themselves or it has been done by someone of family/acquaintances or no one has done it in the last two years, were asked whether **they have hired a professional in the last five years to clean the chimneys and inspect the heating system**. The survey shows that 74% have done it and 26% have not paid to a professional for this service in the past five years (see Figure 31).

Thinking back to five last years, have you ordered a professional to sweep your chimneys and inspect the heating system?



Base: Respondents whose house has stove(or a fireplace)heating, gas heating or a mixed heating and has swept the chimney by themselves or by someone from family/acquaintance have swept or have ordered a professional service to sweep the chimney. n=84

Figure 31. Responses of respondents whose chimney was not swept by professional in last 2 years

Asked **whether they or someone from their household sometimes smokes indoors** 7% answered that they themselves smoke indoors, but 4% - that a member of the household does it. Another 14% mentioned that they or someone from the household smokes but not indoors. 76% of respondents answered that there are no smokers in the household. Overall just 9% of the respondents said the smoking is done inside (see Figure 32).

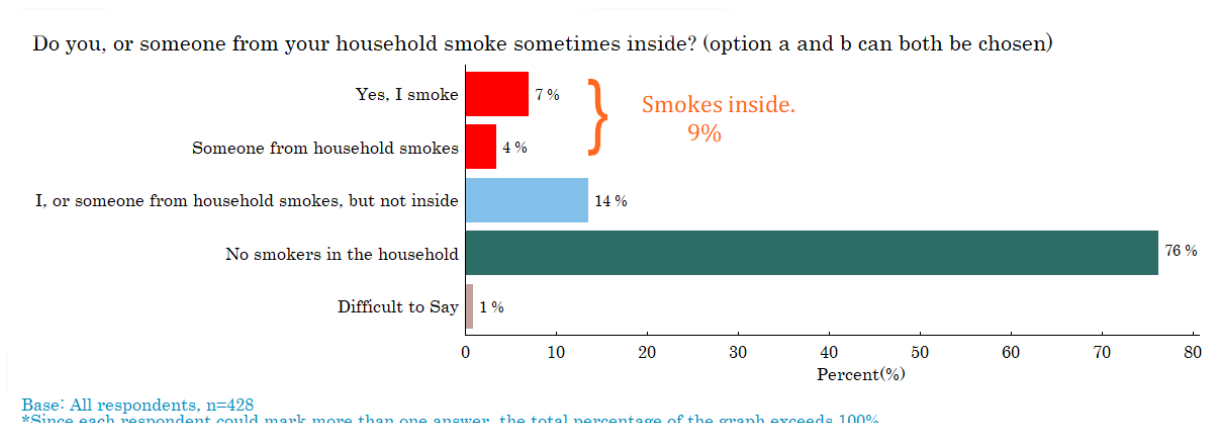


Figure 32. Smoking

According to the survey, in the case of **fire 92% of respondents would call 112** which is the correct emergency number to dial in case of a fire emergency. Number 114 would be called by 2% of respondents, 2% would call 118, 1% - number 113. It should be noted that 5% (21 out of 428) of respondents abstained from naming a specific phone number to which they would call in the case of fire.

When asked “**Thinking back to two last years, have you come across any activity provided by a fire authority?**”. According to the survey, 82% of respondents have not come across to activities provided by a fire authority. 7% of the respondents say that they have been attending fire evacuation drill. 6% said that they have to attend the schooling, 2% have seen the media campaign and 1% has been visited at home by officials of the fire authority. 12% responded that they have come across another type of activities organized by fire authority (see Figure 33).

Thinking back to two last years, have you come across to any activity provided by a fire authority?

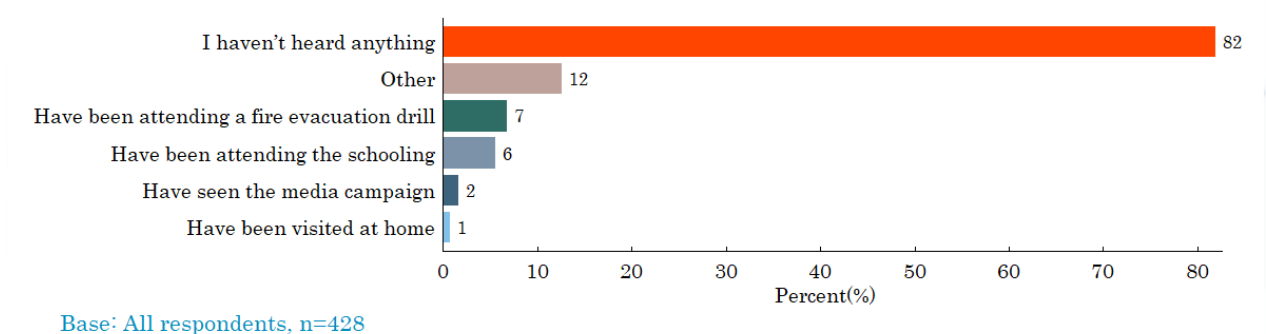
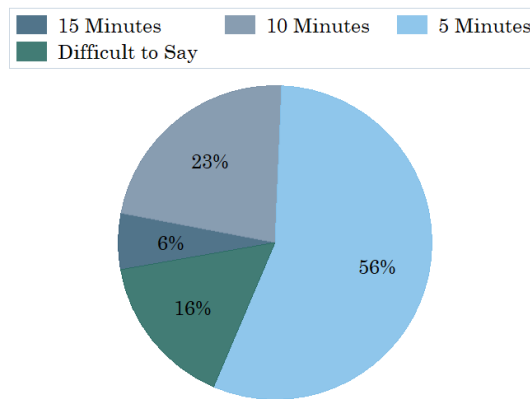


Figure 33. Activities by fire Authority

6 respondents who said they have seen the **media campaign** organized by the fire authority, specification was asked. Their responses were “Cannot remember “, “Security “, “You should be aware of candles”, “It would be smart to have a smoke detector “, “It was important information “, and “About fire safety course for youth”.

When asked “How long can a **sleeping person survive in case a fire starts** in the very same room?”, 16% answered that they do not know. Majority (56%) respondents chose the **correct** answer that a sleeping person would survive for 5 minutes. Still - 23% believed that the right answer is 10 minutes, and 6% thought that in such conditions a sleeping person would be able to survive even longer – for 15 minutes (see Figure 34).

How long can a sleeping person survive in case a fire starts in the very same room?

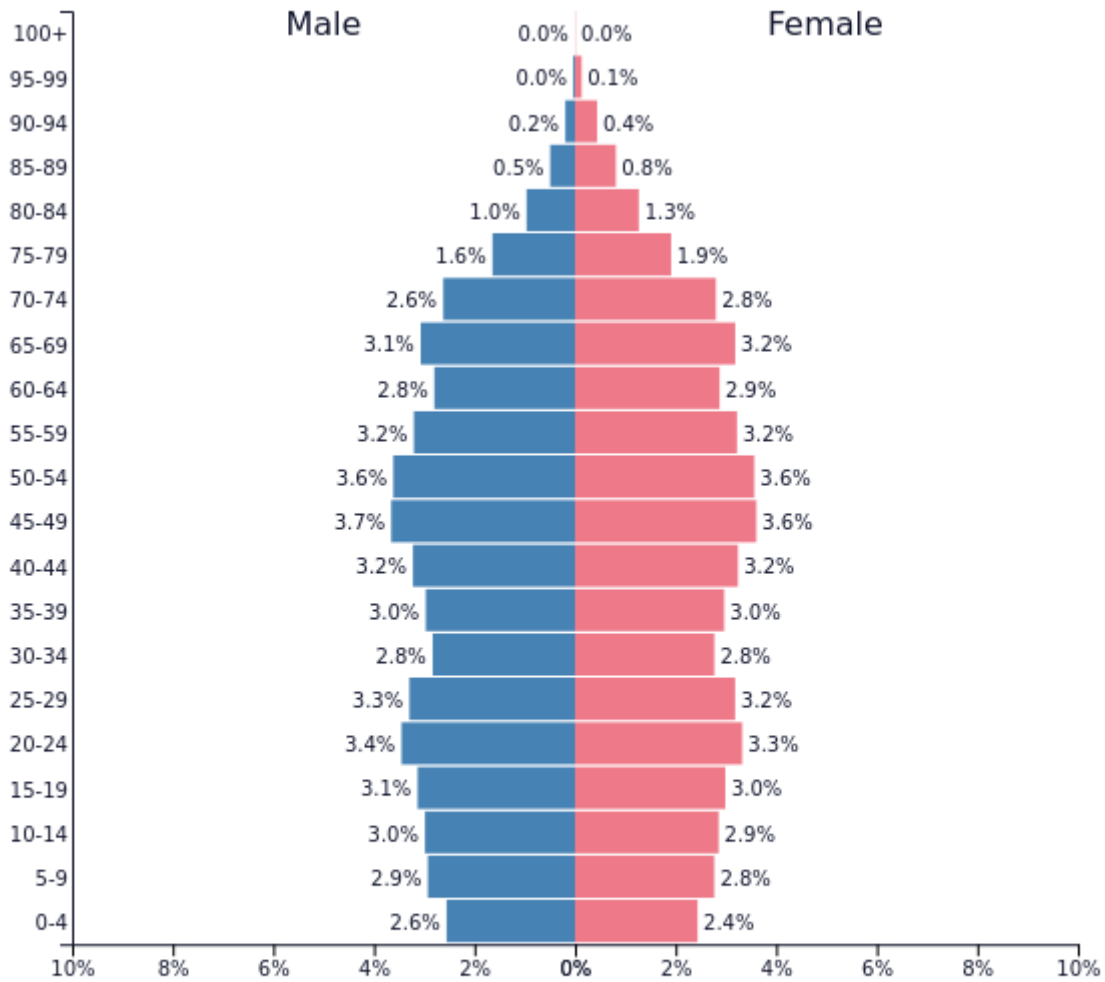


Base: All respondents. So, n=428

Figure 34. Survival in case of fire

APPENDIX

Population Pyramid of Denmark -2017



Denmark - 2017
Population: **5,711,836**