

1.1. Contacts with the healthcare system (number of contacts and at least one contact): emergency department (population aged 18+) (EQ-4)

1.1.1. Documentation sheet

Description	EQ-4 At least one contact with the healthcare system (emergency department) (population aged 18+) Number of contacts with the healthcare system (emergency department) (population aged 18+)
Calculation	<p>We analyse inequity in emergency department (ED) contacts over the past 12 months. Two types of utilisation are examined consecutively: the probability of an ED contact and the number of ED contacts given at least one contact.</p> <p>The fairness gap of each individual (aged 18+) in the EU-SILC survey is calculated (see methodological note on equity in healthcare use). Next, systematic differences in the fairness gap by socioeconomic group are evaluated by:</p> <ul style="list-style-type: none"> • Differences in the fairness gap by socioeconomic status, e.g. income or educational attainment, in comparison to the general population. • Differences in the fairness gap for specific (vulnerable) population subgroups (e.g. single parents, beneficiaries of increased reimbursement, individuals with severe material deprivation), in comparison to the general population. • The (absolute) concentration index, which is a summary score of the inequity in the distribution of the fairness gap along a socioeconomic dimension (e.g. income distribution, educational attainment).
Rationale	See methodological note on equity in healthcare use
Data source	Linked micro-data: EU-SILC & IMA – AIM & RIZIV – INAMI, years 2018, 2019, 2020, 2021. This is individual level data from respondents of the EU-SILC data from Statbel (Algemene Directie Statistiek – Direction générale Statistique – Statistics Belgium) enriched with their healthcare consumption data from IMA – AIM and municipality level data on healthcare supply from RIZIV – INAMI. KCE report 334 for years 2012, 2016 ¹
Technical definitions	<p>The calculation of the fairness gap and definition of socioeconomic and other population groups are described in the methodological note on equity in healthcare use</p> <p>Definition of ED contacts</p> <ul style="list-style-type: none"> • one of the following nomenclature codes (variable ss00020 in IMA – AIM GZSS database): 590516, 590531, 590553, 590575, 590590, 590612, 590634, 590656, 590671, 590693, 590715, 590730, 590752, 590774, 590796, 590811
International comparability	No
Limitations	See methodological note on equity in healthcare use
Dimension	Equity

Related indicators

EQ-1 Contacts with the healthcare system (number of contacts and at least one contact): general practitioner, medical specialist, emergency department (population aged 18+)

EQ-2 Contacts with the healthcare system (number of contacts and at least one contact): general practitioner (population aged 18+)

EQ-3 Contacts with the healthcare system (number of contacts and at least one contact): medical specialist (population aged 18+)

EQ-5 Contacts with the healthcare system (number of contacts and at least one contact): inpatient hospitalisation (population aged 18+)

A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS)

A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents 16+, EU-SILC)

Reviewers

Carine Van de Voorde (KCE)

1.1.2. Results – at least one emergency department (ED) contact

Evolution over time in the probability to have at least one ED contact

Table 1 shows the evolution over time of the probability to have one or more ED contacts in the past year. There was no information available on the share of the population that has visited the ED, hence only the probability of an ED visit among individuals in the EU-SILC/IMA-AIM sample is reported, both for the entire sample and the sample restricted to adults. We find that about the same share of the population visited an ED in 2012 (15.6%) and 2021 (15.2%), with a higher contact rate in 2016-2019 and a lower rate in 2020. This value is lower when restricting the sample to the population aged 18 or more, which is used in the regression and inequity analysis, fluctuating between 13.9% and 16.2%.

Table 1 – Evolution (2012-2021) of the probability to have one or more ED contacts in the past year

Sample	2012	2016	2018	2019	2020	2021
Survey (all)	15.6%	17.4%	17.2%	17.0%	14.2%	15.2%
Survey (18+)	14.9%	16.0%	16.2%	16.0%	13.9%	14.5%

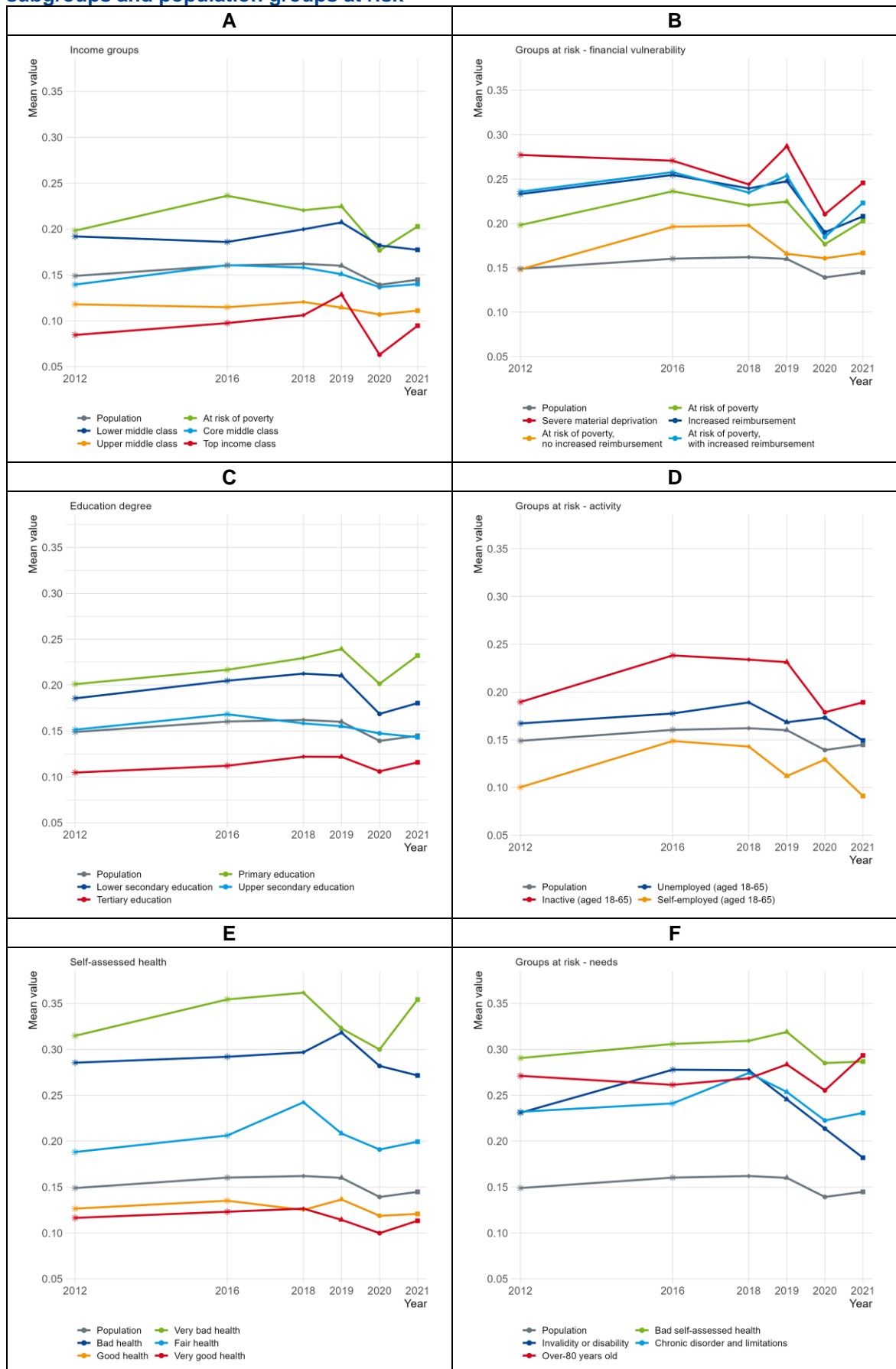
Amounting to 15% of the population, the group of individuals with at least one ED contact is limited. When zooming in on particular subgroups, there might be some random variation that interferes with the observed trends. This should be borne in mind when analysing the results in Figure 1^a presenting the evolution of the probability to have one or more ED contacts in the past year for a variety of population subgroups (adult population). These are the crude trends, without a correction for healthcare needs.

^a Note the analysis is based on a survey sample and that results for some population subgroups are based on a small number of observations (e.g.

First, we find that most population subgroups follow the general trend in the adult population. Second, we find important variation by groups of income and educational attainment, with the contact rates in the lowest income/education group twice as high as in the highest income/education group (panels A & C). Third, a high probability of having an ED contact in the past year (over 20%) is not only associated with high care needs, but also with financial vulnerability (panels A, B, F). One of the highest probabilities is observed for individuals in households with severe material deprivation, a group with a relatively lower probability to have a healthcare contact (GP, medical specialist or ED) in the past year (panel B, see EQ-1). Material deprivation appears to be more strongly associated with the probability of an ED contact than being at risk of poverty. Also, unemployed individuals have a contact rate above the population average (panel D).

over-80 years old, very bad self-assessed health, at risk of poverty without increased reimbursement, etc.). This may lead to fluctuations over time due random variation that interferes with the observed trends.

Figure 1 – Evolution (2012-2021) of the probability to have at least one ED contact for different subgroups and population groups at risk



Overview inequity over time for different population subgroups

Figure 2 and Figure 3 show how the probability to have an ED contact in the past year in various population subgroups differs from the population average when looking at inequality as well as inequity. When analysing inequity, a correction is made for healthcare needs.^b In Figure 2, population groups are defined based on categories of equivalized income, categories of educational attainment, and categories of self-assessed health. In Figure 3, specific vulnerable population subgroups are considered.

The figures can be read as follows. Values to the left of the vertical line indicate that the population subgroup has a lower probability of having an ED contact than the population average. Values to the right of the vertical line, on the other hand, indicate a higher probability than the population average. In addition to an evaluation in terms of the population average, it is possible to make a comparison over time for a specific population subgroup or a comparison of different subgroups.

In both Figure 2 and Figure 3, we find that, for most population subgroups, disparities are less pronounced once a correction is made for healthcare needs, i.e. the deviations from the population average are lower in the inequity scenario compared to inequality. This is especially true for subgroups based on age and (self-assessed) health status.

We conclude

- **w.r.t. education:** there is a social gradient in the probability to have an ED contact with higher/lower contact rates among individuals with lower/higher educational attainment that remains after correction for healthcare needs (column inequality and inequity).
- **w.r.t. income group:** there is a social gradient in the probability to have an ED contact with contact rates increasing with income that remains after correction for healthcare needs (column inequality and inequity).
- **w.r.t. self-assessed health:** individuals in fair, bad and very bad self-reported health have a higher probability of having an ED contact, while

the opposite is true for individuals with very good health (column inequality). Such differences are strongly reduced when a correction for healthcare needs is made (column inequity).

- **w.r.t. specific vulnerable groups:** after correction for healthcare needs, there is a higher probability of having an ED contact in the past year in nearly all financially vulnerable population groups (column inequity). The higher probability is particularly pronounced for individuals in households with severe material deprivation, beneficiaries of increased reimbursement, individuals in single parent households and individuals in households with children at risk of poverty (column inequity). For the majority of population groups, the trend is improving over time.

^b The output of the regression analysis on which the correction is based is available upon request.

Figure 2 – Inequality and inequity in the probability to have an ED contact in the past year: difference between the general population and population subgroups based on education, income and self-assessed health

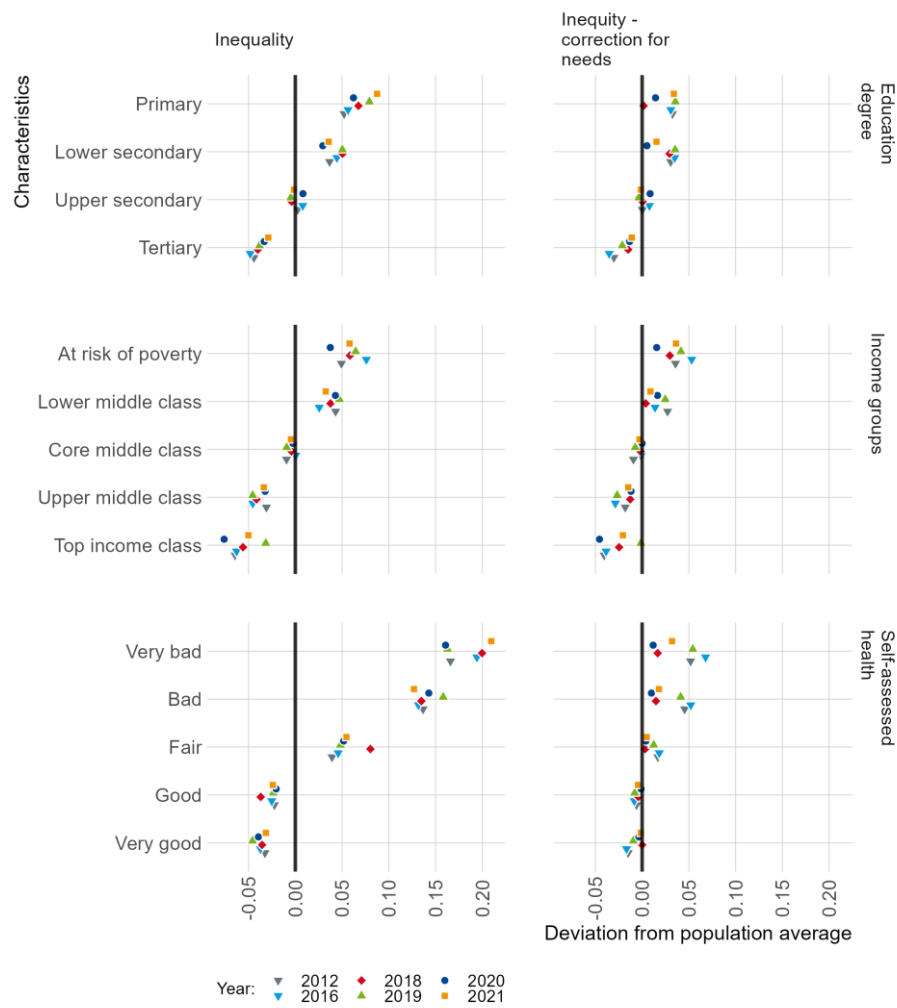
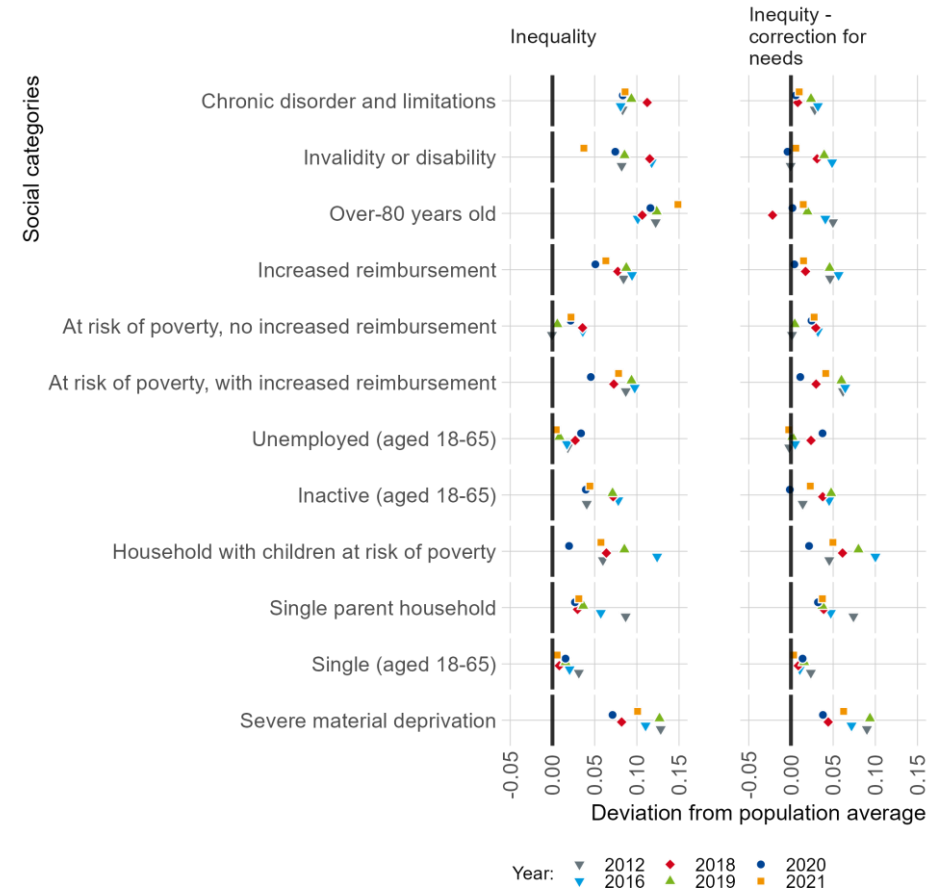


Figure 3 – Inequality and inequity in the probability to have an ED contact in the past year: difference between the general population and specific vulnerable population subgroups

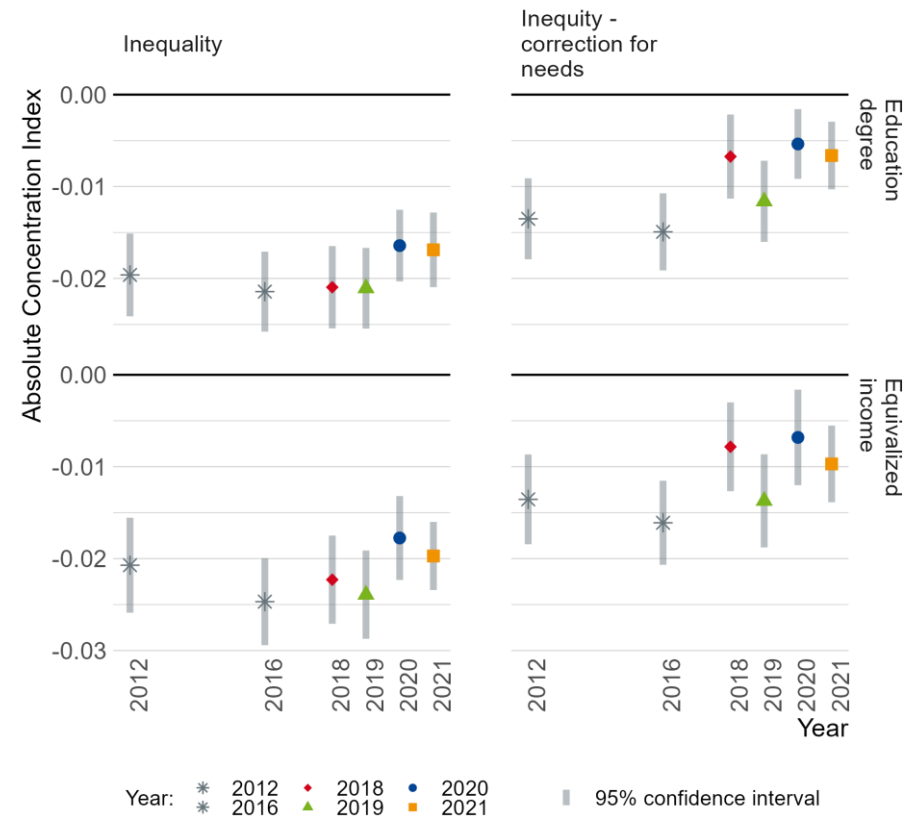


Systematic socioeconomic inequity as measured by the concentration index

Figure 4 shows the absolute concentration index of the needs-corrected probability to have an ED contact in the past year to education and (equivalized) income. The absolute concentration index takes into account the entire distribution of care use in a similar way as the Gini index. Negative values of the concentration index should be interpreted as higher needs-corrected probabilities of having an ED contact concentrated among individuals with lower educational attainment or lower income. Positive values indicate higher needs-corrected probabilities for individuals with higher educational attainment and higher income.

The results in Figure 4 show that there are both socioeconomic inequalities and inequities in the probability to have an ED contact in the past year regarding income (pro-poor: in favour of low-income individuals) and educational attainment (in favour of low-educated individuals). After correction for healthcare needs, the measured inequities are smaller than the inequalities, but go in the same direction. The inequities have reduced over time.

Figure 4 – Evolution (2012-2021) of socioeconomic inequality and inequity in the probability to have an ED contact in the past year as measured by the absolute concentration index for subgroups based on education and income



Key points

- Around 15% of the population visited the emergency department in the past 12 months, with a higher contact rate in 2016-2019 and a lower rate in 2020. A high probability of having an ED contact in the past year (over 20%) is not only associated with high care needs, but also with financial vulnerability and in particular material deprivation. Contact rates in the lowest income/education group are twice as high as in the highest income/education group.
- After correction for needs, inequities in the probability to have an ED contact remain. Social gradients are found with respect to income and educational attainment with contact rates inversely related to income and obtained education degree. A higher probability of having an ED contact in the past year is found in nearly all financially vulnerable population groups, but is particularly pronounced for individuals in households with severe material deprivation, beneficiaries of increased reimbursement, individuals in single parent households and individuals in households with children at risk of poverty. For the majority of population groups, the trend is improving over time.
- The concentration index demonstrates systematic inequities by educational attainment (in favour of low-educated individuals) and income (pro-poor: higher contact rates among low-income individuals). The inequities have reduced over time.

1.1.3. Results – number of ED contacts

Evolution over time in the number of ED contacts in the past year

Table 2 and Figure 5 show the evolution over time of the number of ED contacts in the past year for individuals with at least one contact. No population benchmark was available, so only survey estimates are reported. Among the individuals included in the EU-SILC/IMA-AIM sample, we find an average annual number of contacts of around 1.3-1.4. Between 74% (2016) and 79% (2020) of the individuals with an ED contact had only one such contact and another 15% to 17% had two contacts. The number of ED contacts is similar when restricting the sample to the adult population.

Table 2 – Evolution (2012-2021) of the number of ED contacts in the past year

Sample	2012	2016	2018	2019	2020	2021
Survey (all)	1.33	1.38	1.37	1.37	1.32	1.38
Survey (18+)	1.32	1.36	1.33	1.35	1.31	1.37

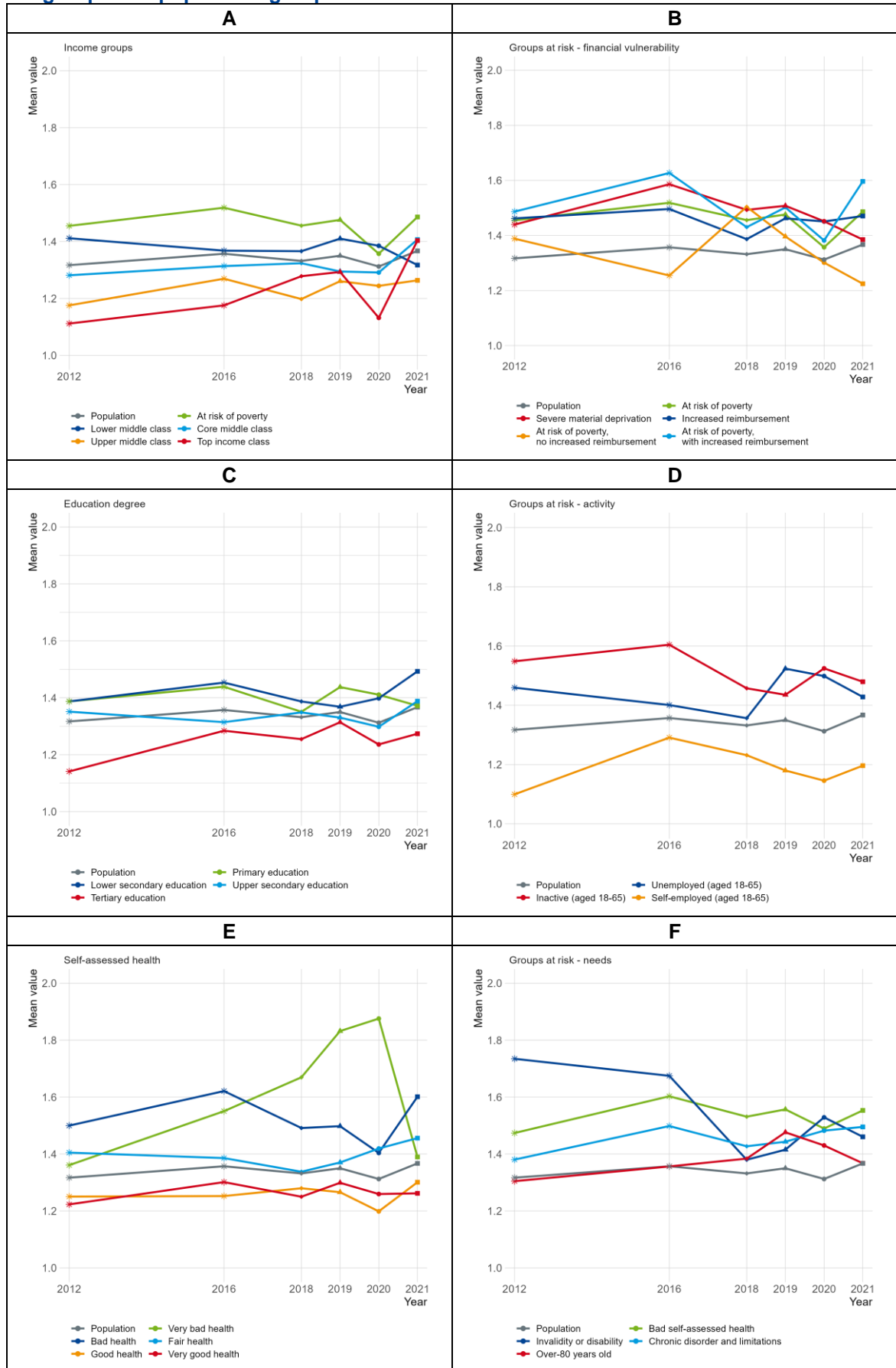
Amounting to 15% of the population, the group of individuals with ED contacts is limited. When zooming in on particular subgroups, there might be some random variation that interferes with the observed trends. Figure 5^c shows the evolution of the number of ED contacts conditional on having at least one contact for a variety of population subgroups (adult population). These are the crude trends, without a correction for healthcare needs.

The population groups which have a higher probability of going to an ED (Figure 1) generally also have a higher number of ED contacts. A higher number of ED contacts is observed for individuals with a bad health status (panels E & F), individuals at risk of poverty (panels A & B) and material deprivation (panel B), individuals with low educational attainment (panel C) and individuals in inactivity or unemployment (panel D). Individuals aged 80 or more have a higher probability of going to an ED, but do not have a higher number of ED contacts on average (panel F).

^c Note the analysis is based on a survey sample and that results for some population subgroups are based on a small number of observations (e.g.

over-80 years old, very bad self-assessed health, at risk of poverty without increased reimbursement, etc.). This may lead to fluctuations over time due random variation that interferes with the observed trends.

Figure 5 – Evolution (2012-2021) in the number of ED contacts in the past year for different subgroups and population groups at risk



Overview inequity over time for different population subgroups

Figure 6 and Figure 7 show how the number of ED contacts in various population subgroups differs from the population average when looking at inequality as well as inequity. When analysing inequity, a correction is made for healthcare needs.^d In Figure 6, population groups are defined based on categories of equivalized income, categories of educational attainment, and categories of self-assessed health. In Figure 7, specific vulnerable population subgroups are considered.

The figures can be read as follows. Values to the left of the vertical line indicate that the population subgroup has a lower number of ED contacts than the population average. Values to the right of the vertical line, on the other hand, indicate a higher number of contacts than the population average. In addition to an evaluation in terms of the population average, it is possible to make a comparison over time for a specific population subgroup or a comparison of different subgroups.

In both Figure 6 and Figure 7, we conclude that there are only small differences between inequalities and inequities in the number of ED contacts, implying that there is relatively little variation (as already mentioned, about 75% of individuals with an ED contact had only one such contact) and that the variation is less associated with health status than other determinants. We conclude, however, that there are inequities with respect to education and income groups in that lower income groups and low-educated individuals have a higher number of contacts. Nearly all financially vulnerable population groups have a higher number of contacts than can be explained by their health status alone. In some cases there is a positive evolution over time, i.e. the average is evolving towards the population average (e.g. individuals with severe material deprivation), but in others the situation is deteriorating (e.g. individuals at risk of poverty with increased reimbursement).

Systematic socioeconomic inequity as measured by the concentration index

Figure 8 shows the absolute concentration index of the needs-corrected number of ED contacts in the past year to education and (equivalized) income. The absolute concentration index takes into account the entire distribution of care use in a similar way as the Gini index. Negative values of the concentration index should be interpreted as a higher needs-corrected number of ED contacts concentrated among individuals with lower educational attainment or lower income. Positive values indicate a higher needs-corrected number of ED contacts for individuals with higher educational attainment and higher income.

The results in Figure 8 reveal the presence of small, but significant, socioeconomic inequalities and inequities in the number of ED contacts both with respect to educational attainment (in favour of lower educated individuals) and income (pro-poor: in favour of low-income individuals).

^d The output of the regression analysis on which the correction is based is available upon request.

Figure 6 – Inequality and inequity in the number of ED contacts in the past year: difference between the general population and population subgroups based on education, income and self-assessed health

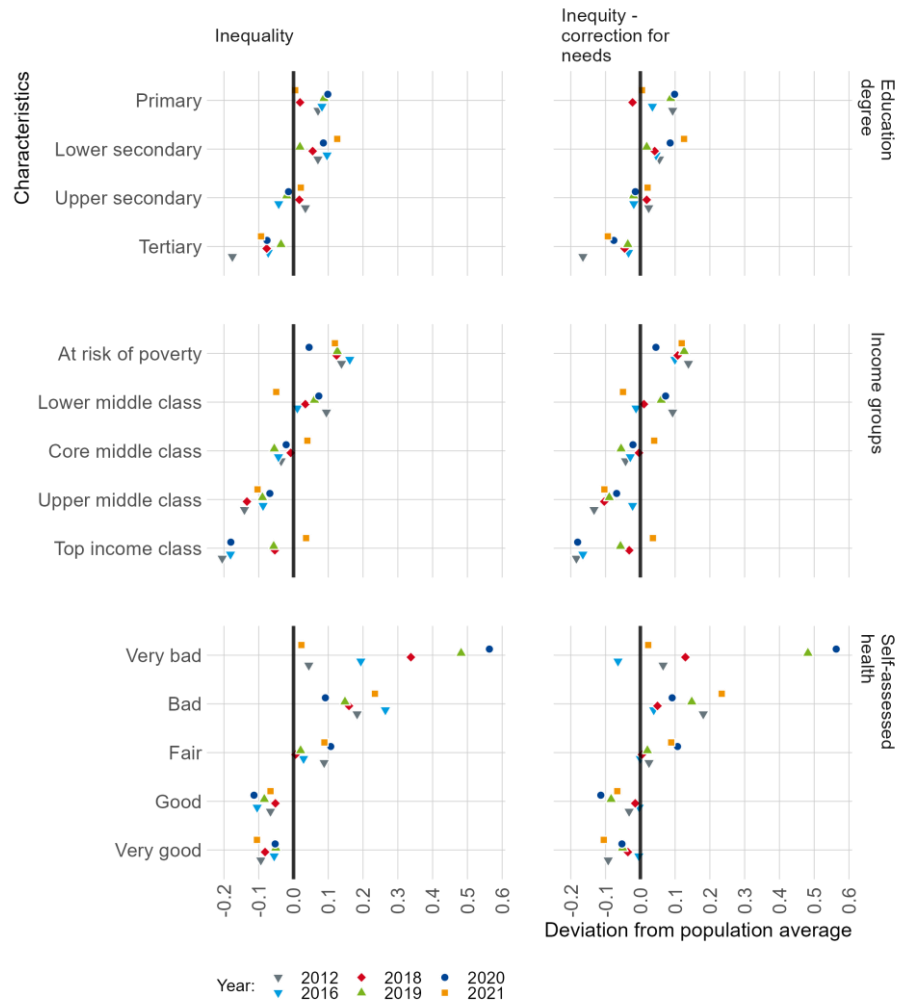


Figure 7 – Inequality and inequity in the number of ED contacts in the past year: difference between the general population and specific vulnerable population subgroups

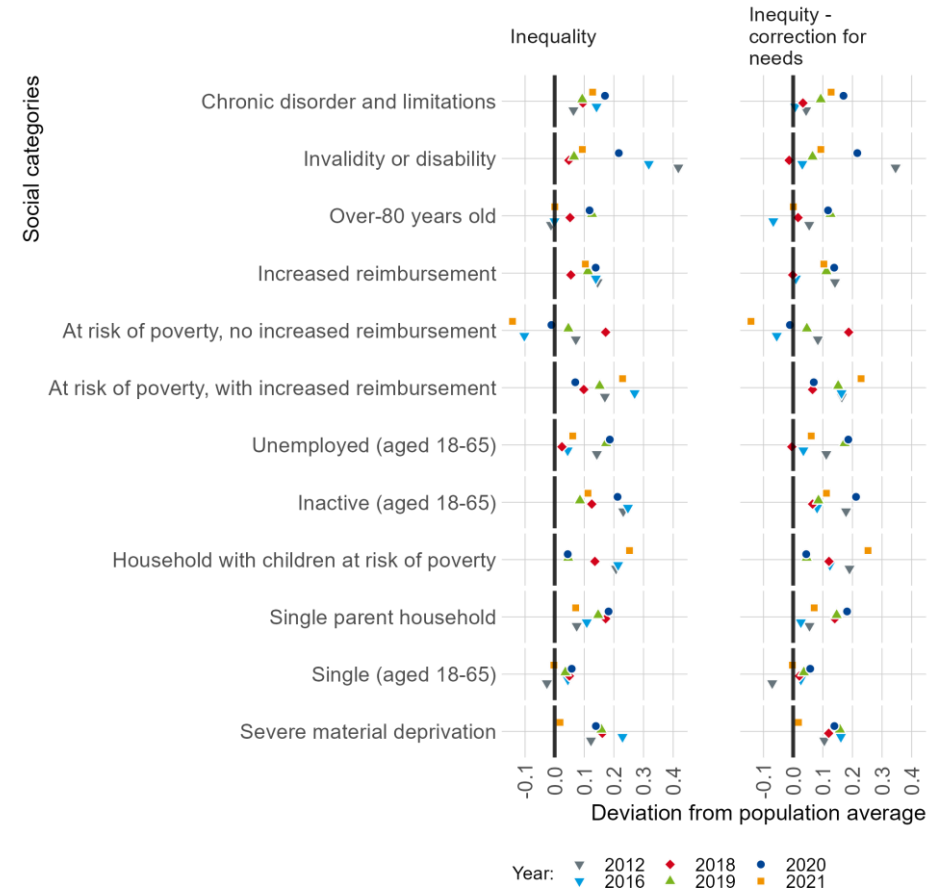
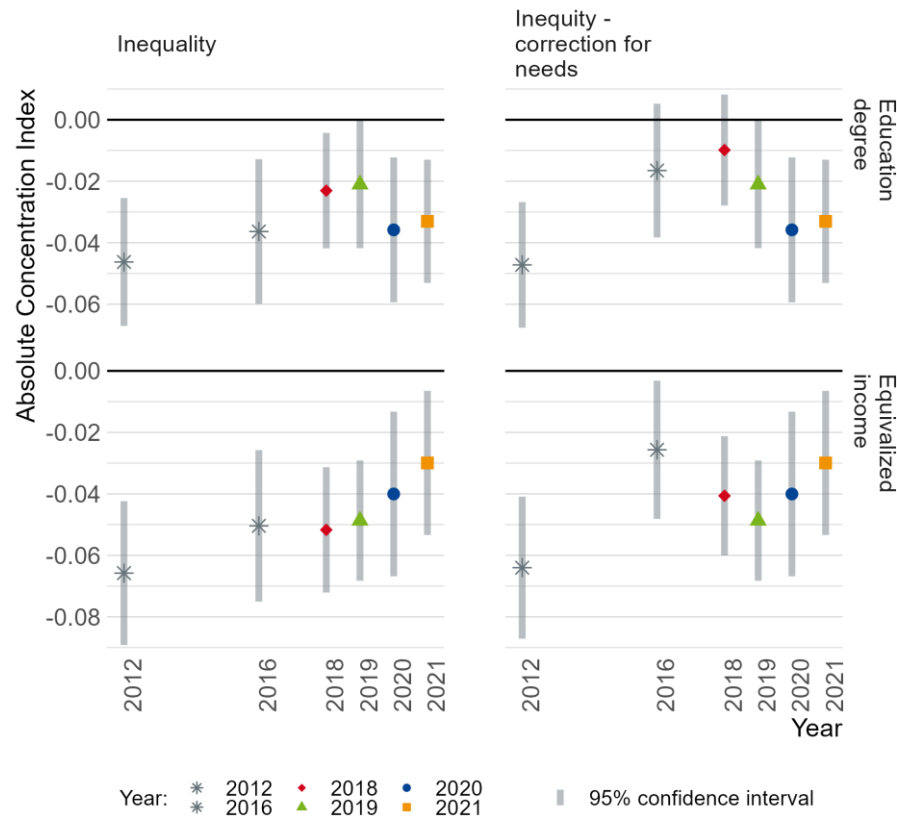


Figure 8 – Evolution (2012-2021) of socioeconomic inequality and inequity in the number of ED contacts in the past year as measured by the absolute concentration index for subgroups based on education and income



Key points

- The average number of ED contacts (among those with at least one ED contact) was around 1.3-1.4 per year with about 75% of the individuals turning to the ED for care having one contact and an additional 15% two contacts. The population groups that have a higher probability of going to an ED generally also have a higher number of ED contacts.
- Only small differences between inequalities and inequities are found, implying that there is relatively little variation in the number of ED contacts and that the variation is only to a limited extent associated with health status.
- The concentration index demonstrates small, but significant, socioeconomic inequities in the number of ED contacts both with respect to educational attainment (in favour of lower educated individuals) and income (pro-poor: in favour of low-income individuals).

References

1. Bouckaert N, Maertens de Noordhout C, Van de Voorde C. Health System Performance Assessment: how equitable is the Belgian health system? Health Services Research (HSR). Brussel: Belgian Health Care Knowledge Centre (KCE); 2020. KCE Reports 334 Available from: <https://doi.org/10.57598/R334C>