

BMJ Open Disparities in health and access to healthcare between asylum seekers and residents in Germany: a population-based cross-sectional feasibility study

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ABSTRACT

Objectives: To assess disparities in health and healthcare between asylum seekers (AS) and residents in Germany as a proof of concept using European Core Health Indicators (ECHI).

Design: Population-based cross-sectional feasibility study.

Participants: All AS (aged 18 years or above) registered in three counties in Germany during a 3-month study period (N=1017). Cross-sectional data on the resident population were taken from the German Health Interview (2008–2011, N=8152), and the European Union Statistics on Income and Living Conditions (2012, N=23 065).

Outcome measures: Self-reported health status and healthcare access (utilisation and unmet medical need) in line with ECHI.

Method: Inequalities in health and access to healthcare were quantified both by crude and age-stratified/sex-stratified ORs with 95% CI using cross-tabulations.

Results: A total of N=156 AS (15.34%) participated in the study. Compared with residents, AS were significantly more likely to report a bad health status (OR=1.72 (1.23 to 2.41)), activity limitations (OR=1.97 (1.39 to 2.79)) or (only younger age groups) any chronic morbidity (18–24 years: OR=6.23 (2.62 to 14.57); 25–49 years: OR=2.05 (1.23 to 3.37)). AS had significantly lower odds for consulting any physician (OR=0.1 (0.07 to 0.16)) or general practitioners (OR=0.44 (0.31 to 0.62)), but higher odds for hospital admissions (OR=2.29 (1.54 to 3.34)), visits to psychotherapists (OR=4.07 (2.48 to 6.43)) and unmet needs (OR=3.74 (2.62 to 5.21)). The direction of healthcare-related associations was consistent across all strata despite variation in magnitude and statistical significance.

Conclusions: Quantifying disparities between AS and the resident population by means of selected ECHI proved to be feasible. The approach yielded first quantitative evidence for disparities in health and access to healthcare in the German context. Further research is needed to generate representative estimates, for example, by including AS in national health monitoring programmes.

Strengths and limitations of this study

- Our study is the first in Germany to explore and quantify disparities in access to healthcare between asylum seekers and the general population with regard to utilisation, health status and unmet medical need.
- A key strength of our study is the use of selected European Core Health Indicators (ECHI), which we translated and applied in the prevailing languages of the local asylum seekers population.
- The main limitations of our study are the restriction of the asylum seekers population to three counties in Germany, a comparably low response rate, lack of access to microdata for the reference population and an under-representation of female participants. Hence, the empirical results are not generalisable and should be interpreted cautiously.
- The applied health and healthcare indicators are self-reported measures, and may underlie a recall bias, and information may have been given according to social desirability due to power differentials between the researchers and participants.
- Further research is needed using representative clusters in Germany or other European countries, for example, in the scope of national health monitoring programmes.

INTRODUCTION

The right to seek international protection from persecution is embodied in the Universal Declaration of Human Rights.¹ In 2014, 1.2 million² individuals sought asylum worldwide. In 2013, the European Union (EU) received almost half a million asylum seekers (AS), a 32% increase since 2012.³ Thus, health systems in many European countries face new challenges in providing medical and social services to AS. The EU appreciates equity in health as a fundamental health strategy⁴ and guarantees medical and psychological care to AS,⁵ a vulnerable

group⁶ presenting with a high prevalence of mental health problems,^{7 8} and infectious^{9–11} and chronic diseases.^{12 13}

Access to healthcare for this vulnerable group is highly heterogeneous across Europe: 10 of 25 EU countries, including Germany as the country receiving the highest number of asylum applications worldwide,² have set up legal restrictions on access to healthcare for AS and de facto provide emergency care only.¹⁴

Since the 1990s, AS in Germany have been entitled to medical care under the Asylum Seekers' Benefits Act (*AsylbLG* sections 4 and 6).¹⁵ The law restricts access to healthcare to emergency medical care, treatment for acute and painful conditions, care during pregnancy and childbirth, and vaccinations and other 'indicated preventive measures' (*AsylbLG* section 4). Additional care (*AsylbLG* section 6) may be granted on formal request if the measures are deemed to be 'essential' to preserve health. These legal restrictions are coupled with bureaucratic barriers: access to any type of ambulatory or specialist care is conditional on the receipt of a healthcare voucher, which has to be granted by the local welfare agency after personal request by the AS.

Although these barriers have been existing in Germany for two decades,¹⁵ there is a dearth of quantitative research on health disparities and access to healthcare for this part of the population.^{8 16 17} This is aggravated by the exclusion of AS from routine health monitoring systems in Germany—an issue that renders inequalities in health and healthcare unquantifiable in Germany, as well as in many other countries.¹⁸ As such, knowledge on health and *actual* access to healthcare among AS in the European Union is still limited. Adding to this, different health systems and migration laws make international comparisons difficult.¹⁴

The aim of this study was to quantify disparities in health and access to healthcare between AS and the general population in Germany as a proof of concept using selected indicators from the list of European Core Health Indicators (ECHI). We used selected ECHI to assess health status, utilisation and unmet medical needs among AS, since these health system indicators can—*theoretically*—be applied to AS in every European country, and, at the same time, data on the resident local population as a reference group is available.

METHODS

Design

We performed a cross-sectional study with a full-census approach in (a convenient sample of) 3 of 44 counties in a Federal State in Germany (Baden-Württemberg), using a questionnaire with mainly standardised instruments in seven languages (German, English, French, Arabic, Persian, Serbian and Russian) tailored to the languages most frequently spoken among registered AS. Details on the translation process are provided in the web appendix.

Participants

AS were considered individuals who have applied for recognition as refugees in Germany and are awaiting decision on their application (*AsylVfG* section 55), or are 'tolerated' (*AufenthaltG* section 60) or hold a permit on humanitarian grounds (*AufenthaltG* section 25). AS aged 18 years and above were eligible to participate in the study. Data on the general population were taken from the first wave of the German Health Interview (DEGS1)¹⁹ from the years 2008 to 2011 and the Eurostat, EU Statistics on Income and Living Conditions (EU-SILC) from the year 2012.²⁰

Data collection and recruitment

Data were collected between October 2014 and February 2015, on the occasion of monthly payments of welfare benefits to AS either in the accommodation centre or in the Welfare Agency. The research team informed AS meeting the inclusion criteria in written and oral form about the voluntary nature of participation, and anonymity and confidentiality of data, emphasising that participation would neither influence the healthcare situation nor the asylum procedure or residence status. Demographic data on non-responders and reasons for declining participation were registered.

Measures of health

Health status was captured by three questions in line with ECHI and identical to the questions used in the survey in the German reference population (DEGS1):¹ self-rated health (on a 5-item Likert scale and dichotomised into 'Good' (very good/good) versus 'Bad' (fair/bad/very bad)),² the presence of any long-standing illness or health problem (yes/no) and³ any limitation in usual activities because of a health problem (yes/no).

Measurement of access

Access to care is a complex concept.²¹ The best proxies to measure access in a comprehensive way are health service utilisation and unmet need.²² We quantified utilisation of health services in line with ECHI (and identical to the wording used in the survey for the German reference population) as the proportion of AS reporting at least one visit to a physician (out-patient or in-patient), general practitioner (GP), psychotherapist, or a hospital, during the past 12 months. Unmet needs were operationalised as the proportion of AS reporting that, at least once in the previous 12 months, they felt they needed medical care but did not receive it. Conventional reasons for unmet need were supplemented by an additional category ('no healthcare voucher issued by welfare agency') to suit German regulations for access to care for AS.

Measurement of disparities in access

We assessed disparities in access to healthcare between AS and the general population following the principle of horizontal equity, which requires equal access to healthcare for those in equal need.²³ We considered

access as our principal outcome and served the concept of 'horizontal equity' by measuring differences in access between AS and the general population in respective strata of 'need' measured by age, sex and self-rated health.

Data analysis

We calculated absolute and relative frequencies for categorical variables, and means and SDs for continuous variables. Measures of health status for AS and the general population were stratified by sex and age, and those for access additionally by health status.

Differences in self-reported health and access between the two groups were assessed by means of χ^2 tests. We calculated ORs with 95% CIs by means of cross-tabulations to quantify (1) inequalities in self-reported health, and (2) inequalities in access for each stratum of 'need' between AS and the reference population. We performed a non-responder analysis to assess potential differences in sex and language between responding and non-responding AS. We further descriptively analysed relevant health/healthcare variables stratified by county (see web appendix) but refrained from further analytical approaches in this direction due to the exploratory design (small sample size/small number of counties). All analyses were conducted on unweighted data using STATA V.12.1.

Missing data

Missing data were treated as missing at random, and a complete case analysis was performed.

RESULTS

Of all 1017 AS who were registered in the three counties during the observation period, 614 (60.37%) could be approached, and N=156 participated in the study (response rate: 25.41%). Thus, 15.34% of the total population of AS registered in the three counties participated in the study (see web appendix). Mean age of the study population was 31.7 years (SD=10.5), and women were, on average, 3 years older than men (male: 31.0 (SD=9.5), female: 34.1 (SD=13.3)). Further details are summarised in [table 1](#).

Inequalities in self-reported health

The odds of reporting 'bad' general health was significantly higher for AS in the crude analysis (OR=1.72 (1.23 to 2.41)) and among male AS compared with men in the reference population (OR=2.03 (1.34 to 3.08)). No such difference was observed among women reporting 'bad' general health, any long-standing illness or chronic health problem ([table 2](#)). Compared with the general population, male AS were twice as likely to report the presence of a limitation in usual activities because of a health problem (OR=1.99 (1.28 to 3.07)).

Across all age strata, AS had a significantly higher incidence of reporting bad health status than did German

citizens, along with an increased incidence of suffering from chronic diseases and health limitations ([table 2](#)). At the same time, AS were significantly less likely to report good general health in the crude analysis and in all strata (except among women) ([table 2](#)).

Disparities in access

We found significantly *lower* odds among AS relative to the general population across all strata of sex and general health status, as well as among participants aged 18–29 years, for visits to any physician (out-patient or in-patient) and to GPs, during the past 12 months ([table 3](#)). The results for age groups 50 years and above are not shown as they contained zero cell counts. The lowest odds for consulting a physician were found among female AS (OR=0.07 (0.03 to 0.22)), AS aged 18–29 years (OR=0.1 (0.05 to 0.2)) and those reporting a good health status (OR=0.07 (0.04 to 0.12)) relative to the reference population in respective strata of sex, age or health status.

Significantly *higher* odds among AS relative to the general population were found across all sex strata for hospital admissions, visits to psychotherapists and unmet medical needs. Age stratification showed significant differences in these outcomes among participants aged 18–29 years. The ORs in higher age groups were consistent with these results with respect to the direction of the association. It is important to note that the strength of associations in age-stratified analyses (especially in groups aged 18–29 years) were consistently higher compared with the crude estimates (except for visits to any physician), indicating a relevant confounding of inequalities in outcomes by age ([table 3](#)).

The subgroups with highest odds of hospital admissions relative to the reference population were female AS (OR=3.12 (1.36 to 6.7)) and AS aged 18–29 years (OR=3.72 (1.94 to 6.87)).

The odds of having experienced unmet medical needs were nearly fourfold higher among AS compared with the general population (OR=3.7 (2.62 to 5.21)), and about fivefold higher (OR=5.17 (1.99 to 12.52)) among AS aged 18–24 years ([table 3](#)). The higher ORs in age-stratified calculations and the lower ORs in sex-stratified calculations for women (OR=2.29 (1.01 to 4.86)) indicate confounding of inequalities in unmet needs by age (negative confounding) and sex (positive confounding). The most frequent reasons for unmet needs were financial barriers (66%), the decision to wait for an improvement of symptoms (38%) and long waiting lists (32%). Unmet needs due to lack of a health voucher were reported in 16% ([table 4](#)).

Non-responder

There were no significant sex differences between study participants and non-responders ($p=0.542$). The main reasons for non-response were 'language barriers' (44.4%) followed by 'lack of interest' (22.9%) (see web appendix).

Table 1 Descriptive characteristics of participating asylum seekers and their self-reported health status (N=156)

| | Freq (col %) | | | Total | Freq (% of N) Missing per item |
|--|--------------|-----------|-------------------------|-----------|--------------------------------------|
| | Male | Female | Gender not specified | | |
| <i>Sociodemographic data</i> | | | | | |
| Place of residence | | | | | |
| County 1 | 31 (30.7) | 18 (51.4) | 12 (60) | 61 (39.1) | |
| County 2 | 29 (28.7) | 9 (25.7) | 3 (15) | 41 (26.3) | |
| County 3 | 41 (40.6) | 8 (22.9) | 5 (25) | 54 (34.6) | |
| N (%) | 101 (100) | 35 (100) | 20 (100) | 156 (100) | 0 (0.0) |
| Language | | | | | |
| English | 34 (33.7) | 6 (17.1) | 8 (40) | 48 (30.8) | |
| Persian | 18 (17.8) | 4 (11.4) | 2 (10) | 24 (15.4) | |
| Serbian | 17 (16.8) | 5 (14.3) | 1 (5) | 23 (14.7) | |
| German | 16 (15.8) | 14 (40) | 3 (15) | 33 (21.2) | |
| Arabic | 8 (7.9) | 3 (8.6) | 4 (20) | 15 (9.6) | |
| Russian | 5 (5) | 2 (5.7) | 1 (5) | 8 (5.1) | |
| French | 3 (3) | 1 (2.9) | 1 (5) | 5 (3.2) | |
| N (%) | 101 (100) | 35 (100) | 20 (100) | 156 (100) | 0 (0.0) |
| Age group (years) | | | | | |
| 18–29 | 48 (53.9) | 14 (53.8) | 0 (0) | 62 (53.9) | |
| 30–39 | 24 (27) | 4 (15.4) | 0 (0) | 28 (24.4) | |
| 40–49 | 13 (14.6) | 4 (15.4) | 0 (0) | 17 (14.8) | |
| 50–59 | 3 (3.4) | 2 (7.7) | 0 (0) | 5 (4.4) | |
| >60 | 1 (1.1) | 2 (7.7) | 0 (0) | 3 (2.6) | |
| N (%) | 89 (100) | 26 (100) | 0 (0) | 115 (100) | 41 (26.3) |
| Country of origin | | | | | |
| Iran | 10 (12.8) | 3 (10.3) | 0 (0) | 13 (12) | |
| Pakistan | 9 (11.5) | 3 (10.3) | 0 (0) | 12 (11.1) | |
| Gambia | 9 (11.5) | 1 (3.4) | 1 (100) | 11 (10.2) | |
| Macedonia | 8 (10.3) | 3 (10.3) | 0 (0) | 11 (10.2) | |
| Afghanistan | 9 (11.5) | 0 (0) | 0 (0) | 9 (8.3) | |
| Iraq | 5 (6.4) | 4 (13.3) | 0 (0) | 9 (8.3) | |
| Serbia | 6 (7.7) | 3 (10.3) | 0 (0) | 9 (8.3) | |
| Kosovo | 2 (2.6) | 5 (17.2) | 0 (0) | 7 (6.5) | |
| India | 6 (7.7) | 0 (0) | 0 (0) | 6 (5.6) | |
| Other | 14 (18.1) | 7 (23.9) | 0 (0) | 21 (19.4) | |
| N (%) | 78 (100) | 29 (100) | 1 (100) | 108 (100) | 48 (30.7) |
| Residential status | | | | | |
| Residence permit during asylum procedure | 29 (54.7) | 13 (50) | 0 (0) | 42 (53.2) | |
| Temporary residency status ('Duldung') | 19 (35.8) | 8 (30.8) | 0 (0) | 27 (34.2) | |
| Other | 5 (9.5) | 5 (19.2) | 0 (0) | 10 (12.7) | |
| N (%) | 53 (100) | 26 (100) | 0 (0) | 79 (100) | 77 (49.4) |
| Duration of stay in Germany in months | | | | | |
| Median (IQR) | 18.5 (7–41) | 7 (3–27) | NA | 16 (6–39) | |
| N | 86 | 29 | 0 | 115 | 41 (26.3) |
| Highest degree of education | | | | | |
| None | 14 (14.6) | 7 (20) | 0 (0) | 21 (15.7) | |
| Primary school | 24 (25) | 12 (34.3) | 0 (0) | 36 (26.9) | |
| Secondary school | 29 (30.2) | 6 (17.1) | 2 (66.7) | 37 (27.6) | |
| University | 28 (29.2) | 10 (28.6) | 0 (0) | 38 (28.4) | |
| Religious school | 1 (1) | 0 (0) | 1 (33.3) | 2 (1.5) | |
| N (%) | 96 (100) | 35 (100) | 3 (100) | 134 (100) | 22 (14.1) |
| <i>Self-reported health status</i> | | | | | |
| General state of health | | | | | |
| Very bad | 4 (4.1) | 0 (0) | 0 (0) | 4 (2.7) | |
| Bad | 20 (20.4) | 6 (17.6) | 3 (17.65) | 29 (19.5) | |
| Fair | 25 (25.5) | 8 (23.5) | 5 (29.41) | 38 (25.5) | |
| Good | 30 (30.6) | 14 (41.2) | 2 (11.8) | 46 (30.9) | |
| Very good | 19 (19.4) | 6 (17.6) | 7 (41.2) | 32 (21.5) | |
| N (%) | 98 (100) | 34 (100) | 17 (100) | 149 (100) | 7 (4.5) |

Continued

Table 1 Continued

| | Freq (col %) | | | | Freq (% of N) Missing per item |
|--------------------------------|--------------|-----------|-------------------------|-----------|--------------------------------------|
| | Male | Female | Gender not specified | Total | |
| Chronic morbidity | | | | | |
| Yes | 35 (38) | 17 (53.1) | 5 (26.3) | 57 (39.9) | |
| N (%) | 92 (100) | 32 (100) | 19 (100) | 143 (100) | 13 (8.3) |
| Long-term activity limitations | | | | | |
| Not limited | 46 (51.1) | 18 (54.5) | 3 (21.4) | 67 (48.9) | |
| Limited | 26 (28.9) | 11 (33.3) | 7 (50) | 44 (32.1) | |
| Strongly limited | 18 (20) | 4 (12.1) | 4 (28.6) | 26 (19) | |
| N (%) | 90 (100) | 33 (100) | 14 (100) | 137 (100) | 19 (12.2) |

Col %, column per cent; Freq, absolute frequency; NA, not applicable.

DISCUSSION

This is the first study to measure disparities in health and access to healthcare by comparing AS with the general population in Germany. Our approach serves as a proof of concept and provides a comprehensive method to measure the health status and healthcare access of AS. In light of the exploratory study design, we observed inequalities in access mainly expressed by reduced use of outpatient physicians and GPs. At the same time, AS were significantly more likely than the general population to report hospital admissions. These findings are in line with findings from other countries,^{24–26} which revealed inadequate access to GPs despite a precarious health state.

The evidence of our feasibility study supports previous claims¹⁵ that the restrictions on access to healthcare for AS in Germany may lead to delayed care and shift treatments from the less-expensive primary care sector to more-expensive sectors of care such as hospitals. To consult an outpatient physician, AS must hold a health voucher, which is granted by the Welfare Office after personal request. As a consequence of this high threshold to access primary care services, healthcare needs may be ‘suppressed’ until immediate inpatient treatment is required.

Yet, the recorded reasons for unmet medical need (table 4) show that AS experience other factors, such as financial barriers, as more hindering than the denial of a healthcare voucher. Further research should evaluate whether financial barriers relate to indirect costs of healthcare (eg, travel costs to reach a healthcare provider from the often remote AS shelters) or, rather, are due to a lack of knowledge about entitlements to services that are provided in the scope of the AsylbLG because AS erroneously think they need to pay for services.

Another reason for the overutilisation of hospitals may stem from the legal regulation that emergency services can be consulted without the individual being in possession of a health voucher. Difficulties in comprehending the complex host country’s health system may also enhance the preference to seek help in hospitals.

The odds of having experienced foregone care and unmet medical need among AS were approximately four times the odds of unmet needs in the resident population. It is notable that the subgroup under 30 years of age, even though presenting the highest odds for bad general health and chronic illnesses, reported the lowest odds for access to primary care. This is in stark contrast to the non-AS migrant population, which uses primary care services more frequently than the German population.²⁷ This means that language or cultural barriers alone cannot explain the disparities in access found in our study, although these may aggravate the barriers set up by legal restrictions.

Our results suggest that utilisation of psychotherapists is higher among AS compared with the general population. As refugees are known to present with a high prevalence of psychiatric disorders, this utilisation pattern may reflect the higher needs among AS. The pattern may also be explained by a provision of ancillary mental health services by non-governmental and charitable organisations. In the studied counties, no non-governmental funded healthcare services, particularly psychological services, were available to AS. But we cannot rule out that such existing services have been used in other counties, so it is possible that ancillary services provided by non-governmental and charitable organisations may account for the increased use of psychotherapists in the sample. We may also not conclude that AS have better access to mental care without comparing groups with equal mental needs—an aspect that was not sufficiently covered by the instruments in our survey.

Strengths and limitations

The main strength of our study is that we deployed a survey explicitly designed for the purpose of assessing disparities in health and access to healthcare. We measured access comprehensively in its two dimensions: realised access (utilisation) and non-access (unmet medical needs). We thereby shed light on both sides of the proverbial coin when analysing disparities in access to healthcare for AS in Germany. With our approach, we

Table 2 OR and 95% CIs for measures of self-reported health status between asylum seekers and the general population in Germany, stratified by age and sex

| | Asylum seekers | | German population† (reference) | | OR OR (95% CI) | p Value* |
|---------------------------------------|----------------|--------|--------------------------------|--------|-----------------------------|----------|
| | N (%) | Total‡ | N (%) | Total‡ | | |
| <i>General health status: 'Good'§</i> | | | | | | |
| Total | 78 (52.4) | 149 | 45 340 (65.5) | 69 222 | 0.58 (0.42 to 0.81) | 0.0008 |
| Gender | | | | | | |
| Male | 49 (50) | 98 | 22 671 (67) | 33 837 | 0.49 (0.32 to 0.75) | 0.0004 |
| Female | 20 (58.8) | 34 | 22 646 (64) | 35 385 | 0.8 (0.39 to 1.72) | 0.5298 |
| Age (years) | | | | | | |
| 18–24 | 18 (66.7) | 27 | 5438 (90.4) | 6015 | 0.19 (0.08 to 0.48) | <0.0001 |
| 25–49 | 35 (44.9) | 78 | 21 598 (78.4) | 27 549 | 0.23 (0.14 to 0.36) | <0.0001 |
| 50–64 | 1 (100) | 1 | 9842 (57.1) | 17 236 | NA | – |
| <i>General health status: 'Bad'§</i> | | | | | | |
| Total | 71 (47.7) | 149 | 23 951 (34.6) | 69 222 | 1.72 (1.23 to 2.41) | 0.008 |
| Gender | | | | | | |
| Male | 49 (50) | 98 | 11 166 (33) | 33 837 | 2.03 (1.34 to 3.08) | 0.0004 |
| Female | 14 (41.2) | 34 | 12 739 (36) | 35 385 | 1.24 (0.58 to 2.59) | 0.5298 |
| Age (years) | | | | | | |
| 18–24 | 9 (33.3) | 27 | 511 (9.6) | 6015 | 5.32 (2.09 to 12.55) | <0.0001 |
| 25–49 | 43 (55.1) | 78 | 5978 (21.6) | 27 549 | 4.44 (2.77 to 7.15) | <0.0001 |
| 50–64 | 0 (0) | 1 | 7411 (42.9) | 17 236 | NA | – |
| <i>Chronic diseases¶</i> | | | | | | |
| Total | 57 (39.9) | 143 | 24 647 (36.9) | 66 793 | 1.13 (0.8 to 1.6) | 0.4638 |
| Gender | | | | | | |
| Male | 35 (38) | 92 | 11 939 (36.5) | 32 709 | 1.07 (0.68 to 1.66) | 0.7589 |
| Female | 17 (53.1) | 32 | 12 713 (37.3) | 34 084 | 1.91 (0.89 to 4.1) | 0.0643 |
| Age (years) | | | | | | |
| 18–24 | 12 (46.2) | 26 | 703 (12.1) | 5812 | 6.23 (2.62 to 14.57) | <0.0001 |
| 25–49 | 28 (38.9) | 72 | 6288 (23.7) | 26 533 | 2.05 (1.23 to 3.37) | 0.0025 |
| 50–64 | 2 (0.4) | 5 | 7389 (44.7) | 16 605 | 0.83 (0.07 to 7.23) | 0.8365 |
| <i>Limitations**</i> | | | | | | |
| Total | 70 (51.1) | 137 | 22 515 (34) | 66 222 | 1.97 (1.39 to 2.79) | 0.0001 |
| Gender | | | | | | |
| Male | 44 (48.9) | 90 | 10 551 (32.5) | 32 464 | 1.99 (1.28 to 3.07) | 0.0009 |
| Female | 15 (45.5) | 33 | 11 984 (35.5) | 33 758 | 1.51 (0.71 to 3.18) | 0.2323 |
| Age (years) | | | | | | |
| 18–24 | 9 (36) | 25 | 553 (9.6) | 5759 | 5.3 (2.05 to 12.78) | <0.0001 |
| 25–49 | 37 (50.7) | 73 | 5387 (20.4) | 26 406 | 4.01 (2.46 to 6.53) | <0.0001 |
| 50–64 | 4 (66.7) | 6 | 6820 (41.3) | 16 513 | 2.84 (0.41 to 31.43) | 0.2017 |

Bold figures indicate 95% confidence intervals that are either <1 or >1.

ORs indicate the odds of measures of self-reported health among asylum seekers relative to those of the general population in Germany (reference group). ORs could not be calculated due to empty cells (zero cell count). N (%): absolute frequency and percentage of persons reporting at least one visit during the past 12 months.

*p Value of a χ^2 test, assessing the null hypothesis that there is no difference in the proportion of the outcome between the two groups.

†Source of data for the general resident population in Germany: Eurostat, EU Statistics on Income and Living Conditions 2012.

‡Number of respondents per item.

§'How is your health in general?'

¶'Do you have any long-standing illness or (long-standing) health problem? Longstanding means health problems that have lasted or are expected to last for 6 months or more.'

**'For at least the past 6 months, to what extent have you been limited because of a health problem in activities people usually perform?' EU, European Union; NA, not applicable.

have generated the first *quantitative* evidence for disparities in access between AS and the general population in Germany since the introduction, in 1993, of legal restrictions on access to healthcare for this population group.²⁸

The main limitation of our study is that it was confined to three large counties in a Federal State of

Germany. These counties were conveniently selected from all 44 counties in the State, mainly because collaborations with the local administration could be established in these areas—a 'conditio sine qua non' in terms of accessing the population of AS in attempts to conduct a population-based study. As such, our findings are generalisable to the three counties, but may not be

representative for the Federal State or for the whole of Germany. Research into health and healthcare of AS is challenged by the lack of (timely) denominator data.¹⁸ This adds to the fact that we cannot make statements on

the generalisability towards the whole Federal State. AS represent a group where accessibility is difficult, a methodological obstacle, which is also apparent in comparable response rates in other countries.²⁹ Language,

Table 3 OR and 95% CIs for the use of healthcare services and for unmet medical need between asylum seekers and the general population in Germany, stratified by age, sex and general health status

| | Asylum seekers | | German population (reference) | | OR OR (95% CI) | p Value* |
|---|----------------|--------|-------------------------------|--------|-----------------------------|----------|
| | N (%) | Total‡ | N (%) | Total‡ | | |
| <i>At least one visit to a physician (outpatient or inpatient) during the past 12 months†</i> | | | | | | |
| Total | 119 (76.3) | 156 | 7543 (96.6) | 7784 | 0.1 (0.07 to 0.16) | <0.0001 |
| Gender | | | | | | |
| Male | 79 (73.1) | 108 | 3515 (95.2) | 3692 | 0.14 (0.09 to 0.22) | <0.0001 |
| Female | 29 (82.9) | 35 | 4031 (98.5) | 4092 | 0.07 (0.03 to 0.22) | <0.0001 |
| Age (years) | | | | | | |
| 18–29 | 44 (71) | 62 | 1005 (96.2) | 1045 | 0.1 (0.05 to 0.2) | <0.0001 |
| 30–39 | 25 (89.3) | 28 | 953 (96.5) | 988 | 0.31 (0.09 to 1.66) | 0.0486 |
| 40–49 | 17 (100) | 17 | 1442 (96.1) | 1500 | NA | – |
| Self-reported health | | | | | | |
| Good | 52 (66.7) | 78 | 5993 (96.6) | 6204 | 0.07 (0.04 to 0.12) | <0.0001 |
| Bad | 62 (87.3) | 71 | 1547 (97.9) | 1580 | 0.15 (0.07 to 0.37) | <0.0001 |
| <i>At least one visit to a general practitioner during the past 12 months†</i> | | | | | | |
| Total | 98 (62.8) | 156 | 6179 (79.4) | 7782 | 0.44 (0.31 to 0.62) | <0.0001 |
| Gender | | | | | | |
| Male | 65 (64.4) | 101 | 2830 (76.7) | 3690 | 0.55 (0.36 to 0.86) | 0.004 |
| Female | 24 (68.6) | 35 | 3355 (82) | 4092 | 0.48 (0.22 to 1.09) | 0.0402 |
| Age (years) | | | | | | |
| 18–29 | 35 (56.5) | 62 | 816 (78.1) | 1045 | 0.36 (0.21 to 0.64) | 0.0001 |
| 30–39 | 22 (78.6) | 28 | 752 (76.1) | 988 | 1.15 (0.45 to 3.51) | 0.7633 |
| 40–49 | 13 (76.5) | 17 | 1175 (78.4) | 1499 | 0.9 (0.27 to 3.8) | 0.8488 |
| Self-reported health | | | | | | |
| Good | 43 (55.1) | 78 | 4757 (76.7) | 6202 | 0.37 (0.23 to 0.6) | <0.0001 |
| Bad | 51 (71.8) | 71 | 1379 (87.3) | 1580 | 0.37 (0.21 to 0.67) | 0.0002 |
| <i>At least one visit to a psychotherapist during the past 12 months†</i> | | | | | | |
| Total | 24 (15.5) | 155 | 335 (4.3) | 7782 | 4.07 (2.48 to 6.43) | <0.0001 |
| Gender | | | | | | |
| Male | 16 (15.8) | 101 | 118 (3.2) | 3690 | 5.7 (3.02 to 10.16) | <0.0001 |
| Female | 6 (17.1) | 35 | 217 (5.3) | 4092 | 3.69 (1.24 to 9.18) | 0.002 |
| Age (years) | | | | | | |
| 18–29 | 14 (22.6) | 62 | 42 (4) | 1045 | 6.97 (3.27 to 14.06) | <0.0001 |
| 30–39 | 3 (10.7) | 28 | 60 (6.1) | 988 | 1.86 (0.35 to 6.35) | 0.3153 |
| 40–49 | 3 (17.6) | 17 | 70 (4.7) | 1499 | 4.37 (0.79 to 16.16) | 0.0129 |
| Self-reported health | | | | | | |
| Good | 6 (7.8) | 77 | 186 (3) | 6202 | 2.73 (0.96 to 6.36) | 0.0152 |
| Bad | 16 (22.5) | 71 | 130 (8.2) | 1580 | 3.24 (1.68 to 5.94) | <0.0001 |
| <i>At least one admission to a hospital during the past 12 months†</i> | | | | | | |
| Total | 39 (25.3) | 154 | 998 (12.9) | 7739 | 2.29 (1.54 to 3.34) | <0.0001 |
| Gender | | | | | | |
| Male | 22 (22) | 100 | 455 (12.4) | 3673 | 1.99 (1.17 to 3.27) | 0.0043 |
| Female | 11 (32.4) | 34 | 541 (13.3) | 4066 | 3.12 (1.36 to 6.7) | 0.0012 |
| Age (years) | | | | | | |
| 18–29 | 18 (29.5) | 61 | 105 (10.1) | 1039 | 3.72 (1.94 to 6.87) | <0.0001 |
| 30–39 | 6 (21.4) | 28 | 93 (9.5) | 982 | 2.61 (0.84 to 6.84) | 0.0359 |
| 40–49 | 4 (25) | 16 | 134 (9) | 1491 | 3.38 (0.78 to 11.32) | 0.0272 |
| Self-reported health | | | | | | |
| Good | 15 (19.7) | 76 | 567 (9.2) | 6168 | 2.43 (1.27 to 4.36) | 0.0017 |
| Bad | 22 (31) | 71 | 377 (24) | 1571 | 1.42 (0.81 to 2.43) | 0.1793 |

Continued

Table 3 Continued

| | Asylum seekers | | German population (reference) | | OR OR (95% CI) | p Value* |
|---|----------------|--------|-------------------------------|--------|-----------------------------|----------|
| | N (%) | Total‡ | N (%) | Total‡ | | |
| Experienced unmet need during the past 12 months§ | | | | | | |
| Total | 63 (43.4) | 145 | 3967 (17.2) | 23 065 | 3.7 (2.62 to 5.21) | <0.0001 |
| Gender | | | | | | |
| Male | 42 (44.7) | 94 | 1960 (17.8) | 11 044 | 3.74 (2.43 to 5.75) | <0.0001 |
| Female | 11 (31.4) | 35 | 2007 (16.7) | 12 021 | 2.29 (1.01 to 4.86) | 0.0197 |
| Age (years) | | | | | | |
| 18–24 | 9 (34.6) | 26 | 146 (9.3) | 1573 | 5.17 (1.99 to 12.52) | <0.0001 |
| 25–49 | 36 (48) | 75 | 1722 (20.2) | 8504 | 3.64 (2.24 to 5.89) | <0.0001 |

ORs indicate the odds of measures of health service utilisation and unmet needs among asylum seekers relative to those of the general population in Germany (reference group). ORs could not be calculated due to empty cells (zero cell count). N (%): absolute frequency and percentage of persons reporting at least one visit during the past 12 months.

*p Value of a χ^2 test, testing the null hypothesis that there is no difference in the proportion of the outcome between the two groups.

‡Source of data for the general population in Germany: German Health Interview and Examination Survey for Adults (DEGS1).

‡Number of respondents per item.

§Source of data for the general population in Germany: Eurostat, EU Statistics on Income and Living Conditions 2012.

EU, European Union; NA, not applicable.

literacy and communication difficulties apart, the low participation rate may also be explained by a fear of governments and anxiety arising from persecution in the country of origin or destination. Using more participatory methods for data collection (eg, through peer-researchers) may help increase the response rates and improve validity of the empirical results.

Further limitations of our study result from the study design itself. First, we used information on health and

healthcare indicators for the reference population from past population-based surveys. However, using surveys that captured all variables needed for our analysis of disparities in health and access to care resulted in a lack of up-to-date microdata. This limited our analysis—we could perform stratified cross-tabulations, but without simultaneously being able to consider the influence of multiple variables influencing the observed disparities. Age-stratified analyses generated larger ORs compared with the ORs of the crude analyses of all ages combined. This indicates a negative confounding by age, which should be kept in mind when interpreting results of the crude analyses (ie, not considering the effects of age on inequalities in outcomes leads to underestimation of the ‘true’ effect in the crude analyses). Future surveys among AS should be conducted in parallel to or ideally be integrated into the health surveys among the general population (as aforementioned).

Second, the self-reported indicators underlie a recall bias by asking for contact with physicians during the past 12 months.³⁰ Using only self-reported health items may imply social desirability, particularly among AS whose residence status might at least partially depend on their health status. A systematic bias may lie in the linguistic difficulty of the health and healthcare indicators selected from the ECHI list. This may have caused a filtering effect in favour of more highly educated people. However, about 43% of all the AS who participated in our study reported ‘no degree’ (15.7%) or ‘primary school’ (26.9%) as highest educational attainment (see web appendix), which means that this potential filtering effect may be negligible in our study. Although each measurement item was translated by two professional translators, some questions might not be culturally adaptable.

Furthermore, approaching AS in the frame of their monthly payments led to an under-representation of women in the sample, as men generally pick up the

Table 4 Self-reported reasons for unmet medical need among asylum seekers (N=145)

| | Total Frequency (% of N) | Missing per item |
|--|--------------------------|------------------|
| Unmet need | | |
| Yes | 63 (43.5) | |
| Total | 145 (100) | 11 (7.1) |
| Reasons for unmet need | | |
| Financial barriers | 33 (66) | |
| Waiting for improvement of symptoms | 19 (38) | |
| Waiting lists | 16 (32) | |
| No good physician known | 14 (28) | |
| Fear of doctors | 11 (22) | |
| No healthcare voucher | 8 (16) | |
| Long distance | 7 (14) | |
| Lack of time | 3 (6) | |
| Other reasons | 10 (20) | |
| Total number of persons reporting reasons* | 50 (100) | 13 (20.6)† |

%, percentage of asylum seekers choosing respective response option over all asylum seekers who answered this item; N, absolute number of asylum seekers reporting.

*Frequencies and percent do not add to total due to multiple answers.

†Asylum seekers reporting unmet need without specifying a reason.

money for the entire family. The gender ratio (male:female) of our sample (2.9:1) does not reflect the gender distribution of AS in Germany (1.6: 1). This means that asylum-seeking women were under-represented in our survey and that our estimates of disparities in health may underestimate the true magnitude of disparities between women.

Although the survey instruments were deployed in seven languages, we still faced language barriers with many AS, particularly those from Pakistan and Turkey; this could not be anticipated during the time of study preparation.

The empirical results of our study should thus be interpreted in light of its exploratory character and the methodological limitations. Nevertheless, our findings underline the need to include AS in national health monitoring systems in Germany, and eventually other European countries, on a regular basis. Our approach, conducted as a proof of concept, should be enhanced by more sophisticated sampling methods (eg, cluster sampling according to the proportional distribution of AS) and scaled-up, in order to assess inequalities in health and healthcare provision among AS across the whole country. The indicators used in this study are valid items and have been used in many international surveys,³¹ but further research in refugee populations is needed (nationally and internationally) to assess validity and reliability for the purpose of generating representative quantitative estimates of disparities in access and in access to healthcare.

CONCLUSIONS

This study provides a method to assess self-reported health status and access to healthcare among AS comparable to that used for the resident population in Germany. The approach showed a high acceptability among participants and may serve as a model for future surveys implemented on a larger scale. In view of the exploratory study design, we found evidence for stark disparities in health and access to healthcare between AS in the three counties and the general population in Germany.

Compared with the resident population, AS showed an unfavourable pattern of access to healthcare characterised by a lower use of primary care services, higher hospitalisations and unmet needs across all strata of age, sex and health status. There is an urgent need to strengthen primary care services for this population, and to monitor their health and access to healthcare on a routine basis.

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CS, SJ and KB participated in the writing of the manuscript. All the authors approved the final version for publication.

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