

**Zahnmedizinische Versorgung und Zahngesundheit von Asylsuchenden
in Halle (Saale)**

Dissertation

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Referat

Die vermehrte Zuwanderung von Asylsuchenden nach Deutschland führt zu einer erhöhten Anzahl an Patienten, deren Anforderungen an medizinischen Behandlungen von denen der einheimischen Bevölkerung abweichen. Zusätzlich ist für Asylsuchende der Zugang zur medizinischen Versorgung in Deutschland gesetzlich beschränkt.

Diese Arbeit hat das Ziel, Versorgungslücken aufzuzeigen, Aspekte des Gesundheitszustands von Asylsuchenden darzustellen und eine Datengrundlage für die weitere Forschung zu schaffen. Dafür soll ein Einblick in die Inanspruchnahme der Gesundheitsversorgung unter den Umständen eines eingeschränkten Zugangs gegeben werden.

Zu diesem Zweck wurden alle Personen erfasst, die im Jahr 2015 beim Sozialamt in Halle (Saale) registriert waren und Anspruch auf medizinische Leistungen nach dem Asylbewerberleistungsgesetz besaßen. Aus den Abrechnungsdaten des Sozialamtes und den Patientenakten des Departments für Zahn-, Mund- und Kieferheilkunde Halle (Saale) wurden Informationen bezüglich der Inanspruchnahme des Gesundheitssystems im ambulanten Bereich abgeleitet: beispielsweise die durchgeführten und abgerechneten Leistungen, gestellte Diagnosen, verschriebene Arzneimittel sowie die Gesamtkosten der Gesundheitsversorgung.

In der ambulanten Versorgung betrug die geschätzte Ein-Jahres-Prävalenz für den Besuch mindestens eines Arztes 67,5 % (95 %-Konfidenzintervall (CI): 65,1-69,9 %). Die beiden Diagnosen mit der höchsten Prävalenz lauteten „Akute Infektionen der oberen Atemwege“ (16,1 %; 95 %-CI: 14,5-18,0 %) und „Bauch- und Beckenschmerzen“ (15,6 %; 95 %-CI: 13,9-17,4 %). In Bezug auf die zahnmedizinische Versorgung ergaben sich im Durchschnitt pro untersuchtem Patient und Jahr 1,44 Behandlungsfälle (95 %-CI: 1,34-1,55) und 2,53 Zahnarztkontakte (95 %-CI: 2,33-2,74). Die Mehrheit der Patienten suchte einen Zahnarzt aufgrund von eindeutig lokalisierbaren (43,2 %; 95 %-CI: 38,7-47,7 %) oder nicht klar lokalisierbaren Schmerzen (32,0 %; 95 %-CI: 27,8-36,2 %) auf. Dabei lautete die am häufigsten gestellten Diagnose „Karies“ (n = 469; 98,7 %; 95 %-CI: 97,7-99,7 %). Im Bereich der zahnärztlichen Prophylaxe erhielten etwa 19 % aller Patienten eine Behandlung. Die Inanspruchnahme von medizinischen Leistungen ist unter Asylsuchenden geringer als bei gesetzlich Krankenversicherten in Deutschland.

In dieser Hinsicht sollte das Gesundheitssystem Elemente der Aufklärung zur Verbesserung der Gesundheitskompetenz der neuen Patientengruppen ausbauen und die Anwendung von prophylaktischen Maßnahmen verstärkt zum Einsatz bringen. Darüber hinaus sind weitere Anstrengungen erforderlich, um vorherrschende Hindernisse beim Zugang zur medizinischen Versorgung abzubauen.

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Einleitung

Historische Entwicklung des deutschen Sozialsystems

Deutschland besitzt das älteste Krankenversicherungssystem der Welt [1]. Sein Ursprung liegt im Einfluss des damaligen Reichskanzlers Otto von Bismarck. Mit der Einführung des "Gesetz[es] betreffend der Krankenversicherung der Arbeiter" am 15. Juni 1883 erhielten erstmals Beschäftigte bestimmter Branchen einen Rechtsanspruch auf gesetzliche Krankenversicherungsleistungen [2]. Diese beinhalteten neben einer kostenlosen ärztlichen Behandlung und Arzneimitteln unter anderem auch Kranken- und Sterbegeld [2]. Im Laufe der Zeit entstand so ein soziales Sicherungssystem, welches sich durch aufkommende Herausforderungen weiterentwickelte. Von ursprünglich 10 % gesetzlich Pflichtversicherten in der Bevölkerung stieg die Zahl bis heute auf etwa 88 % an [3]. Circa 10 % der deutschen Bevölkerung sind im Rahmen der privaten Krankenversicherung abgesichert und der übrige Anteil, wie beispielsweise Soldaten und Polizeibeamte in speziellen Programmen [1]. Dabei besteht die Möglichkeit, von der gesetzlichen Krankenversicherung in die private Krankenversicherung zu wechseln, wenn das Bruttojahresgehalt über der Versicherungspflichtgrenze liegt (Stand 2020: 62.550 €) [4].

Dieser historische Trend hin zu einer Absicherung von möglichst allen Bevölkerungsgruppen durch die Expansion staatlicher Sicherungssysteme erfuhr in den 1990er-Jahren einen Bruch: Im Vergleich zum Vorjahr verdoppelte sich 1992 die Anzahl an Asylsuchenden auf knapp 440.000 [5]. Daraufhin verabschiedeten Vertreter von Union, SPD und FDP eine Neuregelung des Asylrechts. Ziel des Asylbewerberleistungsgesetzes (AsylbLG) von 1993 war es, die Zuwanderung von Asylsuchenden nach Deutschland zu begrenzen und laut Beschlussempfehlung und Bericht des Deutschen Bundestages eine „[...] Asylmißbrauch begünstigende wirtschaftliche Anreizwirkung der bisherigen Regelungen über Sozialhilfe an Ausländer durch Neustrukturierung und Kürzung der Sozialhilfe für bestimmte Ausländergruppen zu mindern“ [6]. Die Gruppe der Leistungsberechtigten nach AsylbLG stellte sich durch die gesunkene Anzahl an Asylanträgen in den darauffolgenden Jahren eher als klein dar. Zum Vergleich: 1995 stellten rund 127.000 Menschen einen Asylerstantrag, 2007 hingegen nur noch rund 19.000 Menschen [7]. Damit war der Sachverhalt in der

öffentlichen Wahrnehmung nur noch wenig präsent. Dies änderte sich, als 2012 die Anzahl an Erstanträgen auf 64.539 stieg und sich damit um 41 % gegenüber dem Vorjahr erhöhte [5]. Laut Bundesamt für Migration und Flüchtlinge (BAMF) erreichte „[d]ie Zahl der Asylanträge [...] im Jahr 2015 einen historischen Höchststand“ [8]. Seitdem kam es in Deutschland erneut zu einer erhöhten Zuwanderung von Schutzsuchenden. Im Jahr 2015 stellten 476.649 Menschen in Deutschland einen Antrag auf Asyl [9]. Hauptherkunftsland war dabei mit 69 % aller Anträge Syrien, gefolgt von Afghanistan, Irak und Pakistan [8].

Regelungen der Kostenübernahme für medizinische Leistungen

Durch die Anwendung des AsylbLG werden Asylsuchende und Menschen mit Duldung aus dem deutschen Sozialsystem ausgegliedert. Zu letzteren zählen rechtskräftig abgelehnte Asylsuchende, die ausreisepflichtig sind, aber aus rechtlichen, dringenden humanitären oder persönlichen Gründen zunächst nicht abgeschoben werden [10]. Der Anspruch beider Gruppen auf staatliche Transferleistungen wird dabei anderen Regularien unterworfen als der restlichen Bevölkerung. Dabei sind alle Menschen, die Grundleistungen nach §§ 1 und 3 des AsylbLG erhalten leistungsberechtigt, werden jedoch nicht über die gesetzliche Krankenversicherung versichert, sondern besitzen einen gesonderten Status: Die Kostenübernahme für die gesundheitliche Versorgung wird in den ersten 18 Monaten des Aufenthaltes in Deutschland von den zuständigen staatlichen Stellen, in der Regel von den Sozialämtern der kreisfreien Städte und Landkreise, gewährleistet [11]. Erst nach Ablauf dieser Frist besteht gemäß § 2 AsylbLG ein Anspruch auf Leistungen entsprechend der Sozialhilfe, welche im medizinischen Bereich der Versorgung durch die gesetzliche Krankenversicherung gleichkommen. Die gesetzliche Grundlage des Leistungsumfangs wird durch §§ 4 und 6 des AsylbLG geregelt. Der Anspruch auf Kostenübernahme durch das Sozialamt wird dabei auf akute und schmerzhaftes Erkrankungen, Leistungen im Zusammenhang mit Schwangerschaft und Geburt sowie bestimmte Vorsorgemaßnahmen, wie zum Beispiel Impfungen, eingeschränkt [12]. Andere medizinisch notwendige Behandlungen können nach einem schriftlichen Antrag vom zuständigen Sozialamt übernommen werden, insofern sie für die Sicherung der Gesundheit des Patienten unerlässlich sind [13]. Notfallbehandlungen hingegen können ohne vorherigen Antrag abgerechnet werden [11]. Der Nachweis über

einen gültigen Versicherungsschutz erfolgt, abhängig vom zuständigen Bundesland, durch eine elektronische Gesundheitskarte oder einen Behandlungsschein [11]. In den Bundesländern Bremen, Berlin, Schleswig-Holstein und Nordrhein-Westfalen erhalten Asylsuchende bereits vor Eintritt in die gesetzliche Krankenversicherung eine elektronische Gesundheitskarte [14]. Dahingegen müssen beispielsweise in Sachsen, Sachsen-Anhalt, Baden-Württemberg und Bayern Behandlungsscheine bei Bedarf beantragt werden [15]. Diese werden vom Verwaltungspersonal des Sozialamtes ausgestellt. Die Vergabe lässt sich in zwei Vorgehensweisen unterscheiden: Zum einen können Asylsuchende auf Antrag Einzelbehandlungsscheine erhalten, die dann bei dem jeweiligen Arzt vorgelegt werden müssen [16]. Reicht jedoch eine Behandlung nicht aus, muss jede weitere Maßnahme vom Sozialamt erneut geprüft und genehmigt werden. Zum anderen besteht die Möglichkeit, pauschal Behandlungsscheine auszustellen, deren Gültigkeit sich auf das laufende Quartal erstreckt [16]. Eine ärztliche Behandlung kann nur dann über das Sozialamt abgerechnet werden, wenn sie auf einem Behandlungsschein basiert, der den Ärzten die Übernahme der Behandlungskosten durch das Sozialamt zusichert.

In Halle (Saale) werden Behandlungsscheine quartalsweise ausgestellt. Diese können von den Patienten dann bei einem Allgemein- oder Facharzt vorgelegt werden. Bei Bedarf müssen von diesem Arzt Überweisungen für weitere Arztbesuche ausgestellt werden. Ausnahme dabei bilden Behandlungen bei Zahnärzten, für die ein gesonderter Einzelbehandlungsschein vom Sozialamt ausgegeben wird [17].

Stand der Wissenschaft

Zur allgemeinen Inanspruchnahme des Gesundheitssystems durch Asylsuchende liegen Daten aus Deutschland und anderen europäischen Ländern, aber auch aus Australien und Kanada vor [18–21]. Dass Menschen dieser Personengruppe spezifischer medizinischer Behandlungen bedürfen und besondere Herausforderungen an die Versorgung stellen, zeigten bereits zahlreiche Studien: So traten psychiatrische Störungen [22–24], übertragbare Krankheiten [25–27] sowie Probleme der Gesundheit von Müttern [23, 28] in dieser Patientengruppe häufiger auf.

Es liegen außerdem internationale Daten zur Zahngesundheit von Asylsuchenden aus Algerien, Kanada, Australien und den USA vor [29–32]. Ebenso spezialisierte sich eine

systematische Literaturübersicht auf die Präsentation gesammelter Daten über Karieserkrankungen bei Asylsuchenden in EU-Aufnahmeländern wie beispielsweise Griechenland, Spanien, Belgien, Norwegen, Schweden, Deutschland und dem Vereinigten Königreich [33]. Die europäische Situation in Bezug auf den Gesundheitszustand und den Zugang zur Gesundheitsversorgung von Asylsuchenden ist jedoch heterogen und damit zwischen den einzelnen Ländern nur bedingt vergleichbar [34]. So minimiert sich die Datenlage im Bereich der zahnmedizinischen Versorgung speziell in Deutschland auf nur wenige Arbeiten. Eine explorative Literaturrecherche in PubMed ergab dafür (Stand 2020): eine unveröffentlichte Dissertation über Karies von Kindern von Asylsuchenden in Würzburg [35], eine klinische Studie zur Mundgesundheit, dem Versorgungsbedarf und deren Kosten in Greifswald [36] und drei in den Jahren 2017 und 2018 veröffentlichte Studien über die Mundgesundheit, -hygiene und die entstandenen Kosten [37–39]. Eine Studie aus einer Hamburger „walk-in clinic“ zeigte auf, dass zahnmedizinische Probleme der häufigste Überweisungsgrund sind [40]. Daten über die Zahngesundheit aus anderen Ländern zeigten eine erhöhte Prävalenz von Karies, Parodontitis und Gingivitis bei dieser speziellen Patientengruppe [29, 30, 41]. Unterschiedliche rechtliche Rahmenbedingungen scheinen hier eine wichtige Rolle zu spielen, weshalb die Daten nicht länderübergreifend verallgemeinert werden können.

Zielstellung

Die vorliegende Arbeit dient der Darstellung und Beschreibung der vorherrschenden Situation. Dabei sollen die folgenden Fragestellungen beantwortet werden: Wie viele Asylsuchende nahmen medizinische Leistungen in Anspruch? Aus welchem Grund suchten sie einen Zahnarzt auf? Welche Diagnosen wurden dabei am häufigsten gestellt? Durch welche Maßnahmen wird der Zugang zum deutschen Gesundheitssystem beeinflusst? Wie unterscheidet sich die Behandlung nach AsylbLG im Vergleich zur Versorgung durch die gesetzliche Krankenversicherung?

Neben diesen konkreten Fragestellungen hat diese Arbeit das Ziel, Versorgungslücken aufzuzeigen und eine Datengrundlage zu schaffen, die beispielsweise durch Präventionsangebote die Versorgungssituation von Asylsuchenden verbessert. Die dabei gebildete Datengrundlage dient als Möglichkeit des Vergleiches. Zusätzlich soll aufgezeigt werden, welche Aspekte des gesundheitlichen Zustands und der

Gesundheitsversorgung durch die Forschung bereits abgedeckt sind und das Bewusstsein dafür schärfen, an welcher Stelle noch zusätzlicher Forschungsbedarf besteht. Dafür soll mit den zugrundeliegenden Artikeln ein erster Einblick in die Inanspruchnahme der Gesundheitsversorgung unter den Umständen eines eingeschränkten Zugangs gegeben werden. Diese Arbeit verfolgt das Ziel, ein genaueres Bild der von Asylsuchenden in Anspruch genommenen medizinischen Leistungen zu vermitteln. Zu diesem Zweck werden die in Halle (Saale) aufgenommenen Daten dargestellt, wodurch ein Grundstein für potentiell daran anknüpfende Maßnahmen zur Verbesserung der Integration dieser Personengruppe in das Gesundheitssystem gelegt wird.

Überblick der Arbeit

Die hier vorliegende Arbeit gliedert sich in zwei Teile. Der erste Artikel beschreibt die medizinische Versorgung im gesamten ambulanten Sektor und wurde als „Outpatient health care utilization and health expenditures of asylum seekers in Halle (Saale), Germany - an analysis of claims data“ in *BMC Health Services Research* veröffentlicht. In diesem Teil des Projekts wird die Versorgungssituation genauer beleuchtet: Alle Gesundheitsleistungen, die Asylsuchende in Anspruch nahmen, wurden über das zuständige Sozialamt abgerechnet und dort archiviert. Diese Abrechnungsdokumente enthalten neben den personenbezogenen Daten auch die jeweils abgerechneten Beträge und Leistungen. Dazu zählen beispielsweise ambulante, stationär medizinische und zahnärztliche Behandlungen, sonstige therapeutische Leistungen und verschriebene Heil- und Hilfsmittel sowie Medikamente. Somit lässt sich aus diesen Akten ein umfassendes Bild der abgerechneten medizinischen Versorgungsleistungen ableiten. Durchgeführte Analysen stellen mit Hilfe deskriptiver Statistik die absoluten und relativen Häufigkeiten verschiedener Kennziffern dar. Zusätzlich wurden die Prävalenzen pro Personenjahr angegeben, um so die unterschiedlichen Beobachtungszeiträume zu berücksichtigen. Die Schätzungen stellen Ein-Jahres-Prävalenzen für die zugrunde liegende Bevölkerung in Bezug auf gestellte Diagnosen, durchgeführte Leistungen, verschriebene Medikamente sowie die Gesamtkosten der Gesundheitsversorgung dar.

Der zweite Teil wurde unter „Dental care for asylum-seekers in Germany: A retrospective hospital-based study“ im *International Journal of Environmental Research and Public Health* publiziert. Darin werden krankenhausbasierte epidemiologische Daten zum Thema der Zahngesundheit von Asylsuchenden in Halle (Saale) präsentiert. Datengrundlage bilden die handschriftlichen Patientenakten der Zahnklinik Halle (Saale), deren Informationen anonymisiert in eine Datenbank übertragen wurden. Für jeden Zahnarztkontakt wurden Informationen beispielsweise über die Gründe für die zahnmedizinische Behandlung, gestellte Diagnosen und durchgeführte Therapien aufgenommen. Zusätzlich wurden Nebeninformationen aus den Akten entnommen, wie etwa die Häufigkeit von Zahnarztbesuchen, Gründe für das Nichtstattfinden von Terminen und Mitteilungen bezüglich der Kostenübernahme beantragter Behandlungen. Mit Hilfe von deskriptiver Statistik werden die absoluten und relativen Häufigkeiten dieser Variablen dargestellt. Für eine bessere Vergleichbarkeit werden für die analysierten Variablen einerseits die Häufigkeit in Bezug auf alle Patienten und andererseits in Bezug auf die Personengruppe aller Asylsuchender, die 2015 Anspruch auf zahnmedizinische Leistungen besaßen, angegeben.

Beide Studien analysieren dabei dieselbe Personengruppe. Zugehörig sind alle Personen, die im Jahr 2015 für mindestens einen Tag bei dem Sozialamt in Halle (Saale) als Leistungsempfänger nach AsylbLG gemeldet waren. Basis der Überlegungen sind die Ansätze des ersten Artikels. Dieser skizziert die allgemeine epidemiologische Situation und steckt damit einen Rahmen für detailliertere Analysen ab. Darauf aufbauend wird im folgenden Artikel ein detaillierterer Blick auf die medizinische Versorgungssituation in Bezug auf die Zahngesundheit geworfen.

Publikationsteil

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Liste der einbezogenen Publikationen

1. Andreas Niedermaier, Anna Freiberg, Daniel Tiller, Andreas Wienke and Amand Führer
2. Anna Freiberg, Andreas Wienke, Lena Bauer, Andreas Niedermaier and Amand Führer

RESEARCH ARTICLE

Open Access

Outpatient health care utilization and health expenditures of asylum seekers in Halle (Saale), Germany - an analysis of claims data

Andreas Niedermaier^{1*} , Anna Freiberg¹, Daniel Tiller², Andreas Wienke¹ and Amand Führer¹**Abstract**

Background: Asylum seekers are a vulnerable group with special needs in health care due to their migration history and pre-, peri- and postmigratory social determinants of health. However, in Germany access to health care is restricted for asylum seekers by law and administrative regulations.

Methods: Using claims data generated in the billing process of health care services provided to asylum seekers, we explore their utilization of health care services in the outpatient sector. We describe the utilization of outpatient specialties, prevalences of diagnoses, prescribed drugs and other health care services, as well as total costs of health care provision.

Results: The estimated prevalence for visiting an ambulatory physician at least once per year was 67.5% [95%-Confidence-Interval (CI): 65.1–69.9%], with a notably higher prevalence for women than men. The diagnoses with the highest one-year prevalence were “Acute upper respiratory infections” (16.1% [14.5–18.0%]), “Abdominal and pelvic pain” (15.6% [13.9–17.4%]) and “Dorsalgia” (13.8% [12.2–15.5%]). A total of 21% of all prescriptions were for common pain killers. Women received more diagnoses across most diagnosis groups and prescribed drugs from all types than men. Less than half (45.3%) of all health care costs were generated in the outpatient sector.

Conclusion: The analysis of claims data held in a municipal social services office is a novel approach to gain better insight into asylum seekers’ utilization of health services on an individual level. Compared to regularly insured patients, four characteristics in health care utilization by asylum seekers were identified: low utilization of ambulatory physicians; a gender gap in almost all services, with higher utilization by women; frequent prescription of pain killers; and a low proportion of overall health care costs generated in the outpatient sector. Further research is needed to describe structural and individual factors producing these anomalies.

Keywords: Secondary data analysis, Claims data, Asylum seekers, Health care utilization, Health care expenditures, Restricted access

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Introduction

Background

Health care utilization is structured by health care needs on one hand and the availability of accessible, acceptable high quality health care services on the other [1]. In general, the health care needs of asylum seekers in Germany are very similar to those of the general population [2–4]. Nevertheless, due to upstream factors before, during and after migration [5, 6], asylum seekers are particularly vulnerable for a number of health risks [4, 5]. In consequence, there are some health care needs particular to asylum seekers [4, 7–10]: studies have shown higher prevalence of psychiatric disorders [11–13], communicable diseases [3, 14, 15], and problems of maternal health [12, 16].

Even though these special needs of asylum seekers are well established in the literature and the German health care system is able to provide acceptable, high quality care, with the *Asylum Seekers' Benefits Act* (“*Asylbewerberleistungsgesetz*”, *ASBA*) German law creates barriers in access to health care [17]. The ASBA, passed into law in 1993, regulates the entitlement to health care for asylum seekers and people whose request for asylum was denied. The ASBA excludes this group from the statutory health insurance, appoints the municipal authorities with carrying health care costs and restricts entitlement to treatment to certain health care needs, namely, acute and painful conditions, as well as maternal care and certain preventative measures, e.g., vaccinations (§4) [17, 18]. Other treatments can be reimbursed if the social services office accepts written applications, arguing them as being essential in securing the patients' health (§6) [17].

The restrictions in the ASBA are worded vaguely and are subject to the interpretation of the local social services office. The local authorities are relatively free in how to organize these provisions, and the practical implementation and approval practices differ greatly from district to district [19], which is why an asylum seeker's chance of receiving adequate health care has been described as strongly depending on the chance of being distributed to a certain region in Germany [19, 20]. Some districts have chosen to task the statutory health insurance with organizing the cost reimbursement to the health care providers and have handed out electronic health insurance cards, equivalent to those of the statutory health insurance. In other districts, the municipal social services office hands out treatment vouchers on application for varying validity periods and differing coverage [19, 21]. The intricate process of voucher application and provision has to be passed by the asylum seeker in a time of illness, and it is as complicated by the asylum seekers' frequent lack of knowledge about the legal framework and its implementation, lack of

geographic mobility, and language barriers as the process of obtaining medical care afterwards. Therefore, it represents a significant barrier in access to health care for asylum seekers in itself [10, 19, 22]. In addition, the subsequent cost reimbursement process to the service providers creates wariness among physicians to treat asylum seekers as they fear not being reimbursed [19].

In addition, asylum seekers' access to health services in Germany is complicated by modulating factors that are shared with other groups of migrants. Studies have identified limited geographic mobility [10, 23], language barriers [10, 23–25], lack of knowledge about the health care system for asylum seekers [10, 24], care providers' lack of knowledge about their patients' legal situation and realities of life [19, 24, 26] and discrimination and racism [24, 25, 27] as factors hindering asylum seekers in accessing adequate health care.

These restrictions and barriers impair the utilization of health services [2, 3, 19], alienate patients from the health care system [9, 10] and increase overall costs of health care provision to this group in the long term [18, 22, 28]. Nevertheless, little is known about the specifics of the utilization of health care by asylum seekers and the effects of these restrictions and barriers.

While the described structural factors determine the realization of access to health care, more individual factors also influence the interaction between the asylum seekers and the health system. Health literacy, as the individuals' knowledge about health-related and health-seeking behaviour, may vary greatly among asylum seekers according to their educational background and origin country [29, 30]. Differing perceptions on the relations and roles of the asylum seeker and the care providers can lead to conflicts and hinder appropriate care [29, 31]. Conflicting perceptions on aetiologies and urgency of treatments have also been described to arise between patients and care providers from differing cultural backgrounds [10, 29, 31]. These “cultural factors” and their consequences for the clinical practise have been subject to debate [32–34].

Calls for monitoring of and data on health and health care utilization by this group have been voiced repeatedly [14, 35, 36] to improve the knowledge base and enable effective surveillance of the health status of this vulnerable group and the effects of policy decisions and interventions in health care for this population.

The local context

Halle (Saale) is a medium-sized city with approximately 240,000 inhabitants, located in the east of Germany. Being an urban area, the density of medical facilities is high, and public transport is readily available, different from other more rural districts, where limited mobility has been

described as a factor impairing asylum seekers' utilization of health care [10, 23, 37]. To our knowledge, other structural mediating factors of access to health care do not differ much from other districts in Germany.

In Halle (Saale), as in most districts in Saxony-Anhalt, the social services office hands out health vouchers [10], but different from other districts, these are handed out unconditionally once every quarter, and they are valid until the end of the quarter [38]. With these vouchers the treating physicians have the promise that treatments covered in §4 ASBA will be paid for, but more extensive elective treatment options such as hospital treatments or therapeutic remedies ("Heilmittel") have to be applied for in advance. Emergency treatments can be provided without prior application, but the care provider has to apply for cost reimbursement later. All these applications are then checked by the medically untrained staff of the social services office [10, 37]. If approved, the social services office reimburses the care providers after receiving the bills.

As the treatment vouchers handed out in Halle (Saale) have a longer period of validity than those handed out in other districts, and as they are handed out almost unconditionally, we consider it easier for asylum seekers from Halle (Saale) to access appropriate health care here than in most other districts that have implemented the voucher model. Yet the social services office still functions as a gate keeper compared to other districts that have tasked the statutory health insurance with handing out electronic health insurance cards to asylum seekers, facilitating access to adequate health care considerably as no application for a voucher is necessary in a time of illness.

Aims

With our study we want to answer the calls for contributions to the knowledge base about asylum seekers' health care utilization. This explorative study aims to describe the outpatient health care utilization by asylum seekers in Halle (Saale) and the total health expenditures for this population. By analysing claims data generated in the billing process of health services held by the municipal social services offices, we highlight the unique potential of this data source to monitor health care utilization by asylum seekers. Drawing on other sources of utilization data, we try to identify anomalies and generate hypotheses that warrant further research.

Empirical data on health care utilization by asylum seekers is essential to improve provision processes and health outcomes. With our study, we want to support policy makers and health care professionals in facilitating equitable access to health care for asylum seekers by contributing to a knowledge base about asylum seekers' health care utilization.

Methods

This retrospective study uses claims data of the social services office in Halle (Saale), Germany, to describe asylum seekers' utilization of health services in the year 2015. We analyse the contacts between asylum seekers and the health system, i.e., visited specialties, diagnosed morbidity, services provided such as prescribed medication or other treatments, and costs thereof. With this population-based data set, we can show frequencies, prevalences and other key characteristics of the utilization of health care on an individual level unrestrained by selection or recall bias.

Study population

Halle (Saale), Germany was chosen as a study site because of the pre-existing cooperation between our research group and the social services office that enabled access to the data. All asylum seekers registered with the social services office of Halle (Saale), Germany, and therefore entitled to provisions under the ASBA at any time in 2015 for at least 1 day were included in this analysis, whether they had received any medical services or not.

Data source

Because of the aforementioned organization of the provision and payment of health care for asylum seekers through the municipal social services offices, these offices hold not only the demographic data of each entitled asylum seeker but also the complete billing documents of all health care that is provided to this population. The bills are stored in the social services office in paper form. The information of the paper-based bills was entered into a MySQL-database through a custom-made web-based data entry form. The data were anonymized in the process of digitalization. Data cleansing and analyses were performed using SAS/STAT® 9.4 [39].

To quantify the error rate of typing in the data, 495 bills of ambulatory physicians with 96 variables of mixed types (dates, open-text, continuous) each were randomly selected for double data entry. A comparison of the two sets of data revealed an error rate of 0.35% on a per-variable basis, which was lower than comparable results from the literature [40].

Variables

For each individual matching the above-mentioned inclusion criteria, the social services office provided information on gender, date of birth, country of origin and first and, where available, last day of entitlement to services under the ASBA, from which we calculated time under observation in our study as days of entitlement in the year 2015.

Each recorded billing document contained information on the first date of contact with the billing doctor's

office or hospital, the name and specialization of the billing physician or hospital, procedure codes classified through the standardized classification manuals for ambulatory physicians (EBM) and dentists (BEMA), respectively [41, 42], diagnoses classified through ICD-10 [43], PZN-Codes for prescribed pharmaceuticals [44], other medical services described in text, and the costs that were billed with the social services office. Data in prescription documents of therapeutic remedies and medical aid products were recorded as classified in the statutory manuals *catalogue of non-physician care* ("Heilmittelkatalog") [45] and *catalogue of medical aid products* ("Hilfsmittelkatalog") [46], respectively.

Outpatient services are billed per case. A case is generated by at least one visit of the patient to one doctor or clinic in a quarter and contains all contacts and services provided during that quarter. Exempted from this rule are laboratory physicians, who are consulted by all other specialties for diagnostic tests and bill each set of diagnostic tests separately. Therefore, one patient can generate up to four cases with one ambulatory physician in one year, but a virtually unlimited number of cases with laboratory physicians. Physicians' specialties were taken from the identifying number unique to each ambulatory physician with the last two digits describing the physicians' specialty [47]. This number is noted on all prescriptions. On bills from ambulatory offices, this number was not available. For doctors' offices with more than one specialty, we derived the specialty from specialty-specific procedure codes in the EBM. For analysis, we grouped general practitioners, family doctors and internists who work as family doctors under the label "family doctors". In Germany, obstetrics and gynaecology is practised by a single specialty and are therefore not being differentiated here.

All specialties have to state legitimating diagnoses in their bills, except for laboratories and diagnostic radiologists. In the analysis of diagnoses, we counted how many patients received a unique diagnosis at least once in the whole year, discounting multiple diagnoses of the same disease and regardless of which physician made the diagnosis, as we could not differentiate if a diagnosis was made for multiple accounts of one illness or if it was ongoing. Physicians are required to qualify the diagnoses as either affirmed (G), suspected (V), ruled out (A) or "symptom free state after diagnosis" (Z). Except when stated otherwise, diagnosis codes were excluded that were qualified as a ruling out of this disease. Thus, we counted only reports of a suspected or affirmed diagnosis or of a symptom-free state following a diagnosis.

For pharmaceuticals, PZN-Codes that describe unique sold units were transcoded to the Anatomical Therapeutic Chemical (ATC) Classification System [48], which describes active ingredients grouped by area of therapeutic

use. For analysis, the fifth level was used for individual drugs and the second level for therapeutic subgroups. In this article, we took from inpatient bills only the billed costs and reason for admission, which qualifies emergency or regular cases [49].

Statistical procedures

For each analysis, we first provide descriptive statistics to show the crude absolute and relative frequencies of diagnoses and services. Second, we show rates per person-year to account for the vastly differing times of observation, as individual periods of entitlement do overlap with our study period differently. As the distributions of counted events among individuals were highly skewed, we then show percentages of the population having received a certain service or diagnosis at least once over the course of one year of observation. These percentages or one-year estimates are calculated by using Kaplan-Meier analysis to account for shorter observation times (See Supplement 2). These estimates represent administrative one-year prevalences for the underlying population for each diagnosis or service and are labelled as such.

Ethics approval

This secondary data analysis uses administrative data that fulfils all necessary requirements of the Federal data protection act of the Federal Republic of Germany. As this study only uses anonymized secondary data, according to national guidelines, no clearance by the ethics committee was necessary [50].

Results

Demography

In total, 4107 asylum seekers were included in the study (men: $n = 3004$, 73.1%; women: $n = 1103$, 26.9%). People originated from a total of 67 countries, most of them from Syria ($n = 1957$, 47.7%), Afghanistan ($n = 354$, 8.6%), Iran ($n = 180$, 4.4%), Somalia ($n = 173$, 4.2%) and Benin ($n = 168$, 4.1%). A total of 37 people were of unclear origin, and seven were stateless. The median time under observation during the year 2015 was 106 days (min: 1; max: 365). All 4107 people in sum contributed 1786.6 person-years (PY; men: 1307.5PY; women: 475.7PY) during the year 2015. Gender distribution was roughly even in age groups below 15 and above 45. Between age 15 to 45 years, men were overrepresented. More details on the demographic composition are given in Table 1.

Due to changes in the demography of people coming to Germany as asylum seekers during 2015, the study population's demography also changed in the course of the year. Most notably, the population grew from 1301 people with entitlement on January 1, 2015 to 3134

Table 1 Demographic characteristics of the study population

	Male		Female		All	
	n	%	n	%	n	%
Age						
0- < 5 yrs	154	3.75	158	3.85	312	7.6
5- < 10 yrs	118	2.87	119	2.9	237	5.77
10- < 15 yrs	110	2.68	64	1.56	174	4.24
15- < 20 yrs	344	8.38	92	2.24	436	10.62
20- < 25 yrs	655	15.95	134	3.26	789	19.21
25- < 30 yrs	601	14.63	164	3.99	765	18.63
30- < 35 yrs	424	10.32	124	3.02	548	13.34
35- < 40 yrs	249	6.06	95	2.31	344	8.38
40- < 45 yrs	154	3.75	48	1.17	202	4.92
45- < 50 yrs	113	2.75	32	0.78	145	3.53
50- < 55 yrs	42	1.02	25	0.61	67	1.63
55- < 60 yrs	17	0.41	20	0.49	37	0.9
60- < 65 yrs	9	0.22	11	0.27	20	0.49
> 65 yrs	14	0.34	17	0.41	31	0.75
Sum	3004	73.14	1103	26.86	4107	100
Country of origin						
Syria	1461	35.57	496	12.08	1957	47.65
Afghanistan	244	5.94	110	2.68	354	8.62
Iran	115	2.8	65	1.58	180	4.38
Somalia	109	2.65	64	1.56	173	4.21
Benin	141	3.43	27	0.66	168	4.09
India	88	2.14	33	0.8	121	2.95
Guinea-Bissau	101	2.46	15	0.37	116	2.82
Niger	94	2.29	7	0.17	101	2.46
Russian Federation	49	1.19	49	1.19	98	2.39
Iraq	61	1.49	35	0.85	96	2.34
Unknown/missing	26	0.63	11	0.27	37	0.9
Others	515	12.54	191	4.65	706	17.19
Sum	3004	73.14	1103	26.86	4107	100
Time under observation						
Less than 30 days	249	6.06	125	3.04	374	9.11
31-60 days	591	14.39	300	7.3	891	21.69
61-90 days	375	9.13	139	3.38	514	12.52
91-120 days	467	11.37	103	2.51	570	13.88
121-180 days	360	8.77	45	1.1	405	9.86
181-240 days	137	3.34	47	1.14	184	4.48
241-300 days	132	3.21	47	1.14	179	4.36
More than 300 days	693	16.87	297	7.23	990	24.11
Sum	3004	73.14	1103	26.84	4107	100

people on December 31, 2015. The percentage of Syrian nationals increased from 15.9% (January 1, 2015) to 47.2% (December 31, 2015).

Frequency of outpatient care

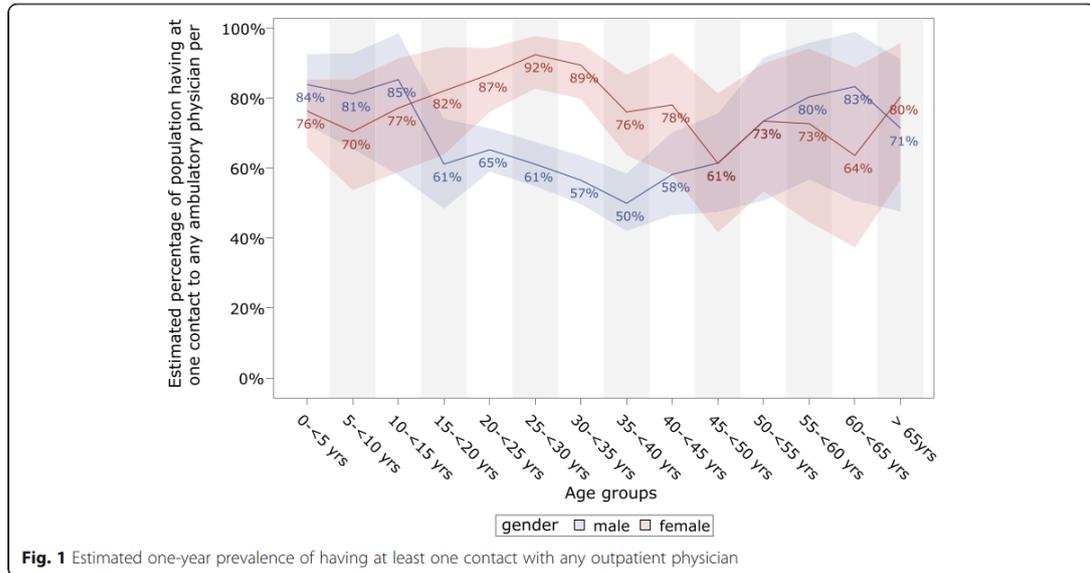
We recorded a total of 7809 billed cases from ambulatory physicians, 4555 for men and 3254 for women. This amounted to a rate of 437.9 ambulatory cases per 100 person-years (men: 348.4 cases/100PY; women: 684.0 cases/100PY) across all specialties, including visits to emergency departments. These cases were not evenly generated by all individuals. Only 46.5% of asylum seekers visited an ambulatory physician. After correction for shorter observation times through Kaplan-Meier analysis, the one-year prevalence of visiting an ambulatory physician at least once was 67.5% [65.1–69.9%]. This prevalence differs notably between age groups and gender: while 81.8% [77.9–85.5%] of women were estimated to have at least one contact with an ambulatory physician, only 62.5% [59.6–65.4%] of men had at least one contact. Similarly, 92.4% [82.7–97.8%] of all women between 25 and 30 years of age were estimated to have at least one visit to a physician, while middle-aged men (age 35 to 40) had the lowest prevalence (50.0% [42.0–58.5%]). Figure 1 shows the estimates of the age-related prevalence of people having at least one contact with an outpatient health care provider per year.

The distribution of case numbers generated by individual asylum seekers was highly skewed. While many asylum seekers did not generate a single case in one year of observation (32.5% [30.1–35.0%], very few (2.8% [1.9–3.9%]) had 20 or more cases.

Family doctors are the most consulted specialty. The one-year prevalence of people having at least one contact with a family doctor was 45.7% [43.3–48.1%]. Next are laboratory physicians (28.8% [26.5–21.2%]) and emergency departments (23.4% [21.4–25.6%]). We estimated that 65.0% [58.6–71.2%] of all patients younger than 18 years consulted a paediatrician at least once in one year, and 33.3% [29.1–38.0%] of all women of any age consulted a gynaecologist. Less than 1% (0.13% [0.04–0.44%]) of all asylum seekers visited a psychotherapist. Figure 2 shows the estimates of the one-year prevalences of having at least one contact to the most commonly consulted ambulatory specialties.

Diagnoses in outpatient care

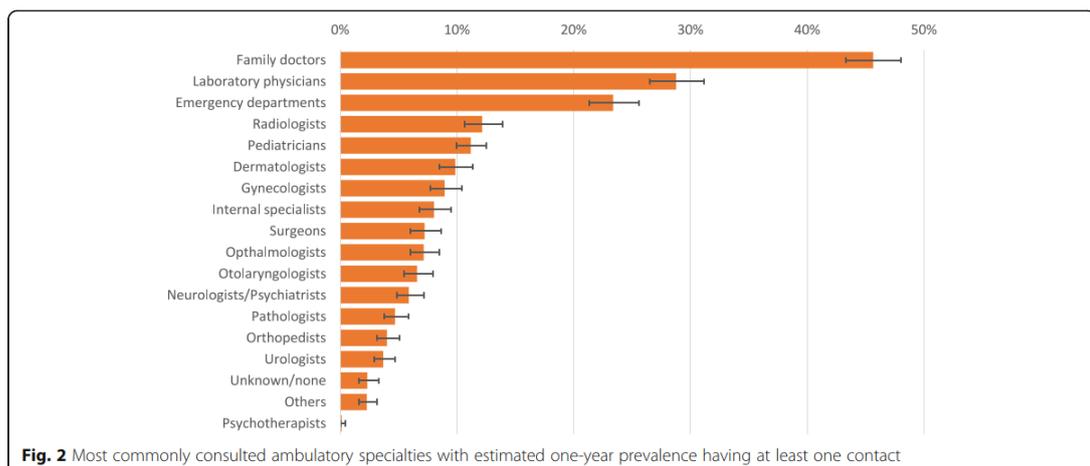
Of a total number of 17,100 ICD-10-coded diagnoses, 89.1% were marked as affirmed, 6.6% as suspected, 2.3% as ruled out and 1.4% as symptom-free. For 109 diagnosis codes (0.6%), this information was missing or invalid. In the following analyses, we excluded all diagnoses that were marked as ruled out.



The distribution of diagnosis frequencies per person was heavily skewed. While 64.1% of all persons of our study population were not once diagnosed by any ambulatory physician, 1.5% of all people received more than 20 unique diagnoses (Median: 0; third quartile: 3; maximum: 44).

The diagnosis with the highest one-year prevalence was “J06: Acute upper respiratory infections”: 16.1% [14.5–18.0%] of all asylum seekers received this diagnosis at least once per year. Next were conditions that are also common in the general German population [51, 52]: “R10:

Abdominal and pelvic pain” (15.6% [13.9–17.4%]) and “M54: Dorsalgia” (13.8% [12.2–15.6%]). The two psychiatric disorder groups “F32: Depressive episode” and “F43: Reactions to severe stress and adjustment disorders” were also diagnosed frequently with a one-year prevalence of 5.5% [4.5–6.7%] and 4.0% [3.2–5.0%]. In one year 2.8% [2.1–3.7%] of our study population was estimated to receive at least one diagnosis of the group of codes that describe Tuberculosis (A15–19). The estimated one-year prevalence of a diagnosis relating to of HIV (B20–24, U60, Z21) was 0.4% [0.2–0.8%].



Supplement 3 shows more detailed information on single diagnosis codes and diagnosis groups.

Analysis of chapters of the ICD-10 reflects the analysis of singular diagnosis codes. Table 2 shows estimated one-year prevalences of people having at least one diagnosis from each chapter, stratified for gender. The prevalences were notably higher for women than men in every chapter but one, with the largest difference in chapters “14: Diseases of the urinary system” and “3: Diseases of the blood, blood forming organs and the immune mechanism”. More men only were diagnosed with chapter “19: Injury, poisoning and certain other consequences of external causes”.

Prescriptions

The 5346 analysed prescriptions contained a total of 7989 prescribed drugs. The identifying ATC-Code was missing or invalid in 1.85% ($n = 146$) of all data entries. A total of 1485 (36.1%) patients were prescribed at least one drug. The estimated prevalence of receiving at least one prescribed drug per year was 57.2% [54.7–59.7%] and was considerably higher for women (70.0% [65.5–

74.4%]) than for men (52.6% [49.7–55.6%]). A total of 1.3% [1.2–1.5%] of all asylum-seekers were estimated to receive more than 20 prescriptions in one year. One person received a maximum of 75 prescribed drugs. Per 100 person-years, this amounted to 448.0 prescribed drugs, with 366.2 prescribed drugs per 100 PY for men and 672.9 prescribed drugs per 100 PY for women.

The most frequently prescribed drug is Ibuprofen, with 14.1% of all prescriptions. More than one third of all people were estimated to receive at least one prescription of Ibuprofen in one year. Four of the seven most frequently prescribed drugs are also mostly prescribed as painkillers (Ibuprofen, Metamizole, Paracetamol, Diclofenac), together making up 21% of all prescriptions. Third ranks Xylometazoline, the active ingredient of nasal decongestants that is almost exclusively prescribed for children (97% of all prescriptions of Xylometazoline were for people of age < 15). The same is true for *Hederae heliis folium*, ranked 8th, which is the active ingredient of expectorant syrups. Mirtazapine ranks 6th, being a commonly prescribed antidepressant indicated for episodes of major depression. Supplement 4 shows the

Table 2 One-year prevalence of diagnoses by chapters of the ICD-10 (with 95% confidence intervals)

Diagnosis groups Chapter ICD-10	One-year prevalence		
	% of men [95%-CI]	% of women [95%-CI]	% of all [95%-CI]
1: Certain infectious and parasitic diseases	19.1 [17.0–21.6]	28.0 [23.9–32.6]	21.6 [19.6–23.7]
2: Neoplasms	2.6 [1.9–3.6]	10.9 [8.4–14.1]	4.9 [4.0–6.0]
3: Diseases of the blood, blood-forming organs and certain disorders inv. the immune mechanism	2.2 [1.5–3.2]	12.0 [9.4–15.4]	4.8 [3.9–6.0]
4: Endocrine, nutritional and metabolic diseases	5.4 [4.2–6.8]	17.9 [14.6–21.8]	8.7 [7.5–10.2]
5: Mental and behavioural disorders	11.8 [10.1–13.7]	21.1 [17.6–25.1]	14.2 [12.7–16.0]
6: Diseases of the nervous system	7.2 [5.9–8.8]	10.8 [8.3–14.0]	8.1 [6.9–9.6]
7: Diseases of the eye and adnexa	9.8 [8.2–11.6]	14.2 [11.2–17.9]	11.0 [9.6–12.7]
8: Diseases of the ear and mastoid process	4.4 [3.4–5.7]	8.8 [6.4–11.9]	5.6 [4.6–6.9]
9: Diseases of the circulatory system	5.2 [4.2–6.6]	12.0 [9.2–15.4]	7.1 [6.0–8.5]
10: Diseases of the respiratory system	24.5 [22.2–27.1]	36.1 [31.9–40.8]	27.6 [25.5–29.8]
11: Diseases of the digestive system	16.9 [14.8–19.3]	24.2 [20.6–28.4]	18.8 [17.0–20.8]
12: Diseases of the skin and subcutaneous tissue	14.9 [13.1–17.0]	25.3 [21.5–29.7]	17.7 [15.9–19.6]
13: Diseases of the musculoskeletal system and connective tissue	21.0 [18.8–23.5]	24.8 [21.2–29.0]	22.0 [20.0–24.0]
14: Diseases of the genitourinary system	7.7 [6.3–9.3]	39.9 [35.5–44.6]	16.0 [14.3–17.8]
15: Pregnancy, childbirth and the puerperium	–	15.9 [13.0–19.5]	4.2 [3.4–5.3]
16: Certain conditions originating in the perinatal period	0.3 [0.1–0.5]	0.4 [0.1–1.1]	0.3 [0.2–0.5]
17: Congenital malformations, deformations and chromosomal abnormalities	2.2 [1.5–3.3]	4.7 [3.1–7.0]	2.9 [2.2–3.8]
18: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	27.9 [25.4–30.6]	54.6 [49.8–59.5]	34.9 [32.5–37.3]
19: Injury, poisoning and certain other consequences of external causes	16.6 [14.5–18.9]	13.0 [10.1–16.5]	15.6 [13.9–17.5]
20: External causes of morbidity and mortality	0.3 [0.1–0.9]	0.3 [0.0–2.3]	0.3 [0.1–0.8]
21: Factors influencing health status and contact with health services	12.2 [10.5–14.2]	52.4 [47.6–57.4]	22.7 [20.7–24.8]
22: Codes for special purposes	6.8 [5.5–8.5]	15.0 [12.1–18.6]	8.9 [7.6–10.3]

Top 10 most prescribed drugs with percentages of all prescriptions and one-year prevalences of people receiving at least one prescription per person-year stratified by gender.

The findings for therapeutic subgroups reflect the frequencies of single drugs reported above. Antibacterials for systemic use are ranked second in this analysis, with an estimated 18.3% [16.5–20.3%] of all people treated at least once per year, but do not show up in the single drug analysis because of the multitude of subgroups and single drugs making up this group. The antiinflammatory and antirheumatic products (M01) prescribed here are mostly (88.8%) Ibuprofen (M01AE01) and psychoanaleptics (N06) prescribed here are exclusively antidepressants (N06A). Surprisingly, antimycobacterials (J07) rank 9th in frequency, with 3.1% of all prescriptions and 1.5% [1.0–2.2%] of all people being treated at least once in one year. Table 3 shows the most commonly prescribed drug groups with with percentages of all prescriptions and estimated one-year prevalences of receiving at least one prescription.

Others

Dentists

Our data contained 708 bills for dentist cases, amounting to 39.7 cases (males: 37.3; females: 46.2) per 100 person-years. These cases contained a total of 5063 reported procedure codes (classified through the BEMA [42]). Per case a mean of 7.1 procedure codes was reported (median: 5; Min 0; Max: 61). The most common procedure code was “Ä1: Consultation of a patient, even by telephone”, with 17.2% of all reported codes; 98.1% of all cases contained this code. Second in frequency was “40: Infiltration anaesthesia”, with 8.1% of all codes, and “32: Preparation of a root canal, per canal”, with 7.3% of all

reported codes, and 21.6% of all cases containing this code. Looking into subgroups of the BEMA, the most common subgroups were “101: Diagnostics and consultations”, with 99.0% of all cases containing procedure codes of this subgroup, “109: Anaesthesia”, reported in 55.9% of cases, and “102: X-ray radiography”, reported in 52.5% of all cases. A total of 22.7% of all cases contained only diagnostic procedure codes (Subgroups “101”, “102”). No cases contained prophylactic procedure codes (“103: Prophylactic procedures”). The estimated one-year prevalence of visiting a dentist at least once was 24.0% [22.0–26.1%].

Therapeutic remedies

A total of 188 prescriptions for therapeutic remedies were counted. Per 100 person-years 10.5 prescriptions of this kind were billed. Overall, 86.7% of these concerned physiotherapy, 8% occupational therapy, 3.2% speech therapy, and 2.2% others/unknown. 38.2% of all prescriptions were issued for problems of the spine (“WS”), 35.0% for problems of the extremities (“EX”), and 6.5% for problems with the central nervous system (“ZN”). These prescriptions contained 242 procedure codes according to EBM. The most common chapter was “05: Normal physical therapy, one-on-one”, with 31.9%, “12: Manual therapy”, with 18.2% and “01: Medical massages”, with 9.9% of all prescribed procedure code. A total of 12.8% of the prescribed therapeutic remedies were to be performed in a house call. The estimated one-year prevalence to receive a prescription of this kind at least once was 5.7% [4.6–7.1%].

Medical aid products

A total of 381 prescriptions for medical aid products were billed for the study population. The most frequent chapters were “08: Shoe inlays”, with 16.8% of all

Table 3 Most commonly prescribed drug groups with percentages of all prescriptions and estimated one-year prevalences of receiving at least one prescription

Prescribed drugs		Proportion	One-year prevalence		
Code	Group name	% of all prescriptions	% of men [95%-CI]	% of women [95%-CI]	% of all [95%-CI]
M01	Anti-inflammatory and antirheumatic products	15.9	33.2 [30.5–36.1]	41.1 [36.5–46.0]	35.3 [33.0–37.8]
J01	Antibacterials for systemic use	7.0	14.6 [12.7–16.7]	28.5 [24.5–33.1]	18.3 [16.5–20.3]
N02	Analgesics	6.3	14.0 [12.1–16.1]	25.0 [21.1–29.5]	17.1 [15.3–19.1]
A02	Drugs for acid related disorders	6.3	14.6 [12.6–16.8]	16.2 [13.2–19.8]	14.9 [13.3–16.7]
R05	Cough and cold preparations	5.7	7.2 [6.0–8.7]	14.2 [11.3–17.7]	9.1 [7.9–10.5]
R01	Nasal preparations	5.6	7.2 [5.9–8.9]	16.2 [13.2–19.8]	9.6 [8.3–11.1]
N06	Psychoanaleptics	4.6	3.8 [2.9–5.0]	7.8 [5.6–10.8]	4.9 [3.9–6.1]
N05	Psycholeptics	4.5	2.6 [1.8–3.6]	6.3 [4.3–9.2]	3.6 [2.8–4.7]
J04	Antimycobacterials	3.1	1.6 [1.0–2.5]	1.2 [0.6–2.5]	1.5 [1.0–2.2]
D07	Corticosteroids, dermatological preparations	3.1	7.0 [5.7–8.7]	10.8 [8.1–14.2]	8.1 [6.8–9.5]
J07	Vaccines	2.6	3.8 [2.8–5.2]	8.4 [6.0–11.7]	5.1 [4.1–6.4]

prescriptions, “03: Application aides,” with 15% and “15: Incontinence aides”, with 10.8% of all prescriptions. Per 100 person-years, 21.4 prescriptions were billed (male: 20.9; female: 22.7). The estimate to receive a prescription of a medical aid product at least once in one year was 5.7% [4.6–7.0%].

Miscellaneous

The 517 billing documents regarding regular and emergency inpatient care will be analysed in a separate article.

The 934 remaining bills were caused by emergency and other transport services (*n* = 729), translator services (*n* = 28), home care (*n* = 82), midwifery bills (*n* = 40), statutory screening for new-borns (*n* = 30), inpatient rehabilitation (*n* = 3) and others/unknown (*n* = 22).

Cost analyses

In 2015, the social services office in Halle (Saale), Germany paid 2,825,106.52 € for medical care for asylum seekers. Per observed person-year, this amounted to 1584.33€ (men: 1178.39€; women: 2700.05€). This amount was lowest for children of 5 to 9 years (779€ per person-year) and highest for asylum seekers above the age of 55 years (3377 €). For this analysis, one extreme outlier was excluded: a premature baby who accounted for costs of more than 280,000€ alone. Figure 3 shows the total health care costs per sector of care. Inpatient

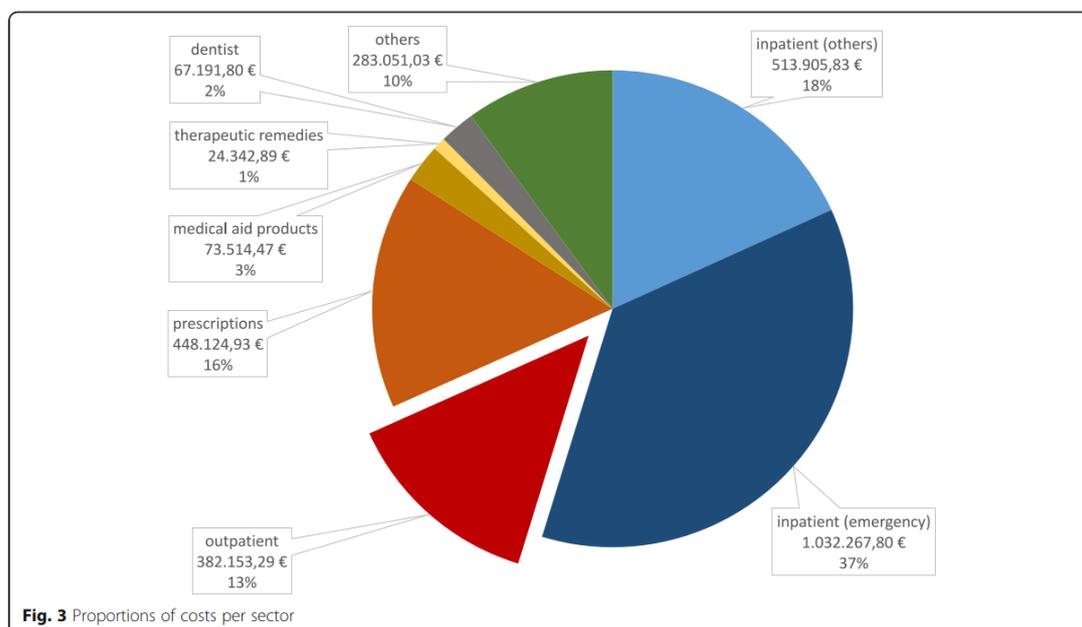
care in total amounted to more than half (54.7%) of all costs, and inpatient care reported as emergency admissions resulted in 37% of all costs. Costs for the subgroup “others” were costs for emergency and other transport (59.9%), rehabilitation (13.9%), home care (13.7%), midwifery costs (4.5%), translator costs (3.8%) and miscellaneous/unknown (4.1%).

Discussion

This study intended to describe health care utilization by asylum seekers and to identify characteristics in their utilization. To describe those in detail is an important first step to better understand how asylum seekers’ particular social and legal situation might affect their access to health care and, ultimately, their health. We identified four key characteristics that warrant further discussion: a low outpatient care utilization, the gender gap in most diagnoses and services, a large share of painkillers among all prescribed drugs and the total health care costs.

Low outpatient care utilization

Public health researchers have long highlighted the high importance of early primary and outpatient care in limiting the later burden of disease in general [53] and for asylum seekers and other vulnerable groups in particular [22, 54]. Accordingly, it has been shown that a strong focus on primary health care for asylum seekers reduces



health care costs to the public [55]. Access to health care for asylum seekers is complicated by structural factors such as language barriers or limited knowledge about the health system. In addition, with the exclusion of asylum seekers from the statutory health insurance through the ASBA and its various translations into practice, German health care policy has created artificial barriers in the access to health care for asylum seekers [10, 19, 37]. We suspect effects of these barriers in the utilization of health care services by our study population: When comparing our cohort of asylum seekers to the regularly insured German population [51], we found similar patterns in age and gender distribution contrasting consistently lower numbers of utilization of outpatient care across all age and gender groups. While among the regularly insured German population, more than 90% of all people visit an outpatient physician at least once in one year [51], at 67.5%, this prevalence was comparably low in our population. This might be assumed to show the “healthy migrant effect” [56], but a closer look reveals a more exact picture.

In detail, utilization of outpatient specialist care was lower than for the regularly insured population in every specialty [51], except for contacts to emergency departments [57]. Researchers have found high utilization of emergency care to be a result of inefficient and delayed ambulatory care and barriers in access to regular primary care [54, 58]. In emergency departments, as opposed to other outpatient offices, organizational barriers are low, as asylum seekers do not need health care vouchers there to receive treatment [59]. Limited knowledge about the structure of the German health system, with its separate inpatient and outpatient sectors and family doctors as designated first contact points for patients, also might lead asylum seekers to seek help in emergency departments first [58, 60, 61].

Despite many researchers reporting a high need for psychological care among refugees [11, 62–64], the prevalences of psychological diagnoses in our sample were low, and the proportion of people having contact with psychotherapists was extremely low. This might be explained by barriers in accessing psychological services and problems with reimbursement of psychotherapy by social security offices [62, 65]. In another publication, we expand on this topic by contrasting utilization data with data on actual health care needs in the same population to quantify this mismatch [66].

Gender gap

With almost all of the measurements of utilization that we looked at, we found a large gender gap, with women having higher rates of outpatient cases and proportionally more women having contact with physicians, being diagnosed more often and receiving more prescriptions.

This can only in part be explained through pregnancies and birth, as it holds true for almost all diagnosis groups and rates of health care services. These findings replicate other reports [21, 67, 68]. This might point towards lower access barriers for migrant women or higher health care needs, but we found no published research regarding this topic. More research is needed here to identify gender-specific modes of access and patterns of health care utilization among this population.

Medication

Among the prescribed drugs for our study population, we found a surprisingly large percentage of common pain killers together making up more than 20% of all drug prescriptions made out for our study population. More than one-third of our population received at least one prescription for Ibuprofen in one year, compared to approximately one-fifth of the regularly insured population [69]. Similar results have been reported by Kahl and Frewer [70] from a sample in a reception centre in Bavaria. As they have, we can only speculate about reasons for this anomaly. Diagnoses of disorders of the musculoskeletal system and of symptoms of nonspecific pain were prevalent.

Nonspecific pain is a symptom often reported among asylum seekers [10, 63]. This might result from pain being a frequent symptom of psychological and psychosomatic conditions [71]. Previous studies have shown a high unmet need of treatment of such conditions and a tendency among mentally ill asylum seekers to report with somatic symptoms [72]. Another explanation might lie in the wording of the ASBA, stating in its first paragraph that asylum seekers are entitled to treatment for “acute and painful conditions” [17], which might lead physicians towards treating symptomatically with pain medication, especially when in uncertainty about actual entitlement regulations for their patients [24] or when unwilling or unable to engage for their patients to facilitate equitable treatment and to overcome barriers in access to adequate health care [26, 37]. Researchers working on asylum seekers’ perceptions of the health care system have described frequent pain killer prescriptions as a symbol for “*the lack of interest of and the rejection by the health care system*” [73], as they found pain killer prescription being a common trait among failed doctor-patient interactions with asylum seekers [37].

Cost analyses

With regard to cost analyses, our findings for total cost per person-year are similar to findings by other researchers [18, 22, 65] in being much lower than for the regularly insured population in Germany, where the yearly total health expenditures per person in 2015 was reported to be 3019€ [74]. Bozorgmehr et al. [22]

reported the total health care cost per person-year for asylum seekers in the German mean to be 1606€ in 2013. Bauhoff et al. [65] looked at a similar data source of a similar cohort of asylum seekers in 2016 who had access not through health care vouchers but who were handed an Electronic Health Insurance Card (EHIC), considerably facilitating access to health care [2]. With 1534 €, the total annual health care costs per person-year for our cohort were almost 20% lower than for Bauhoff et al.'s cohort of asylum seekers, at 1884€ [65]. Herein, the biggest relative differences are found in outpatient care and dentist costs. These are the sectors where organizational barriers in access are highest due to the local implementation of the ASBA and that were less cost-intensive in our cohort.

While this seems to support the rationale in restricting access to health care for asylum seekers to minimize costs to be carried by the German state [75], we are wary of this interpretation for reasons of ethics and economics. First, saving money by artificially creating an underprovision seems to be unethical to us and many others. Second, many researchers have argued that inadequate provision of primary and preventative care before [8], during [6] and after the flight [2, 10, 14, 59] would cause a shift in health services to later, more severe stages of disease and thereby to emergency care and the inpatient sector, ultimately making health care provision to this population more costly in the long term [2, 19, 22, 59]. We believe our data show signs of this shift in the analysis of costs per sector of care: more than half of all costs for our study population were generated in the inpatient sector compared to figures for the regularly insured, ranging from 25 to 39% [65, 74]. We also see a high share of costs generated through emergency hospitalization. This is in line with former research, showing high prevalences of hospitalization [67, 76] and high costs of inpatient health-care [54, 65] among asylum seekers. To reverse this shift back to the cost-efficient arena of primary and preventative care, this calls for initiatives to provide timely and adequate care both in the receiving country and along the migration routes to reduce the morbidity and health care costs in the long term [22, 28]. Further research is needed to investigate the causes and extent of preventable hospitalization among asylum seekers through restricted access to health care. We intend to give a more in-depth analysis of the data concerning regular and emergency inpatient care in a future publication.

Strengths and limitations

Asylum seekers' access to health care has been a controversial topic for many years. Nevertheless, scientific studies on the health-related effects of restricting access to health care have been scarce until now. With this

article, we want to provide a first insight into health care utilization under circumstances of restricted access to health care structured through the ASBA and the provision of health vouchers to define a starting point for further analyses. As a major strength of our study, we consider that by using claims data from a social services office, we chose an approach that has thus far not been employed to generate data on asylum seekers' health. With this population-based approach, we can show frequencies, prevalences and other key characteristics of the utilization of health care on an individual level, unrestrained by selection or recall bias. Our findings point to certain unmet health care needs among asylum seekers and can provide a baseline, to which similar data from different districts with different structural characteristics or from different time spans or data taken from other populations can be compared to evaluate measures to improve health outcomes among this vulnerable population.

However, the presented data alone do not allow for inferences about reasons for anomalies or characteristic patterns in health care utilization. The utilization of health care services is not congruent with the actual health care needs [72] and differs under differently structured modes of access [19]. Therefore, our data have to be interpreted against the backdrop of the local policies and conditions. In another publication, we contrast utilization data with data on actual health care needs, highlighting this difference between health care needs and utilization [66].

Our study population matched the general demographics of people coming to Germany as asylum seekers during that time in age and gender distribution, with young and male asylum seekers dominating the sample [77]. With regard to origin countries, similar to the national statistics, Syrian and Afghan nationals also dominated our study population. However, all nationalities from the Balkan states (Albania, Kosovo, Serbia) were largely missing from our sample. These countries are considered "safe origin countries" by the German government, and applicants from these countries are usually not distributed to the districts but have to stay in the reception centres until their deportation. In turn, West African nationalities (Somalia, Benin, Guinea-Bissau, Niger) were overrepresented. Applicants from these countries had the longest durations of entitlement, i.e., asylum processes, and may thus be overrepresented. Asylum seekers are distributed into the regions in Germany based on the "Königsteiner Schlüssel", an allocation formula that calculates the number of asylum seekers to be taken in by each region according to its tax yield and its population count. While we know from informal discussions that the distribution of asylum seekers to the different federal states is additionally

influenced by their nationality (with less-common nationalities being clustered in some federal states), we were not able to officially receive confirmation of these processes from the authorities in charge. Nevertheless, we do not assume that there is a strong association between nationality and health status and therefore consider the potential for bias arising from this problem to be rather small. The gender and age distribution, with a focus on male and younger participants, limits comparability to the population of the regularly insured in Germany.

Furthermore, interpretation of secondary data is limited by its origin [78]. Claims data are generated not for the purpose of research, but for billing of medical services, and therefore might be biased through the financial interest of service providers. Diagnosis codes on provider bills have to be noted to legitimate billed procedures and services; thus, diagnosis numbers may overestimate the true prevalence [51, 52]. However, our data on prescriptions only contains those documents that were turned in to pharmacies, but not those that were prescribed but never turned in. These data therefore only describe the drugs that were actually handed out to the asylum seekers in pharmacies. The data also do not contain information on prescription-free drugs and drugs that were given out as part of a hospital stay; thus, our figures may misrepresent true drug use to some extent [52].

Because of the structure of the data, we could not calculate certain characteristics that we had deemed important. We could not calculate the exact number of contacts between asylum seekers and physicians, as the billed cases can contain a number of contacts between care provider and patient. When looking at diagnoses we also could not differentiate between ongoing cases of one illness and multiple recurrences of the same disease so as to show incidences. This is a common problem also faced by other researchers using similar claims data [52, 69]. We drew on their work and also calculated one-year prevalences of diagnoses and utilization of different services to be able to compare our findings and to not underestimate the true figures.

Conclusion

Empirical data on health care utilization by asylum seekers is essential to improve provision processes and outcomes. As of yet, German policy decisions on the health care of asylum seekers have not followed medical reasoning or empiric evidence and, thus, have had effects adverse to asylum seekers' health. Germany has both accepted access to health care [79] as a human right and its implementation as its' duty under EU law [80]. This means providing accessible, acceptable and high-quality health care to all those who need it is not only a moral obligation, but a legal one. As health professionals, we

want to support the process towards health equity by contributing to a knowledge base about asylum seekers' health care utilization. With this analysis of claims data held by the municipal social services office, we presented an exploration of a novel data source for monitoring utilization of health care by asylum seekers. With four characteristics in patterns of health care utilization, we identified fields of interest for further research: low outpatient care utilization, a substantial gender gap in utilization of almost all services and diagnosis groups, high shares of pain medication in drug prescriptions and a high share of costs being generated in the inpatient sector. We created a baseline, to which data from different districts of populations can be compared to. Further research regarding utilization under differently structured modes of access to health care and individual perceptions of the health system and barriers, as well as actual health care needs of asylum seekers, is needed to identify reasons for these characteristics and to deduce evidence-based measures to improve health care provision to asylum seekers.

Supplementary information

Supplementary information accompanies this paper at <https://doi.org/10.1186/s12913-020-05811-4>.

Additional file 1. Additional information on the asylum process in Germany.

Additional file 2. Exemplary Kaplan-Meier analysis illustrating the method used in obtaining one-year prevalences.

Additional file 3. Additional data on prevalences by single diagnoses and diagnosis groups.

Additional file 4. Additional data on the Top 10 most prescribed single drugs.

Abbreviations

CI: Confidence interval; ASBA: Asylum seekers benefits act ("*AsylbLG*", "*Asylbewerberleistungsgesetz*"); EBM: Uniform valuation scale for ambulatory physicians ("*Einheitlicher Bewertungsmaßstab*"); BEMA: Valuation scale of dentistry services ("*Bewertungsmaßstab zahnärztlicher Leistungen*"); ICD-10: International Classification of Diseases and Related Health Problems, 10th revision; PZN: Central pharmaceutical number ("*Pharmazentralnummer*"); ATC: Anatomical Therapeutic Chemical Classification System; PY: Person-year; HIV: Humane immunodeficiency virus; EHC: Electronic health insurance card; ZAS: Central reception centre for asylum seekers ("*Zentrale Anlaufstelle für Asylbewerber*")

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Authors' contributions

AN and AF2 conceived the concept and design of the study. AF2, DT and AW were responsible for realization of data access. AN, AF2, DT, AW made substantial contributions to the conception and design of the study. AN collected, edited and analysed the claims data and drafted this article. AN,

AF1, DT, AW, AF2 were involved in critical revision for important intellectual content. AN, AF1, DT, AW, AF2 read and approved the final manuscript.

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Availability of data and materials

The data that support the findings of this study were obtained from the social services office, City of Halle (Saale), Germany (address: Fachbereich Soziales, Südpromenade 30, 06128 Halle (Saale), Germany), but restrictions apply to the availability of these data, which were used under license for the current study and therefore are not publicly available. Data are, however, available from the authors upon reasonable request and with written permission of the social services office, City of Halle (Saale), Germany.

Ethics approval and consent to participate

As this study only uses anonymized secondary data, according to national guidelines, no clearance by the ethics committee was necessary [50].

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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References

- UN Committee on Economic, Social and Cultural Rights. General Comment No. 14 (2000) The right to the highest attainable standard of health (article 12 of the International Covenant on Economic, Social and Cultural Rights): SUBSTANTIVE ISSUES ARISING IN THE IMPLEMENTATION OF THE INTERNATIONAL COVENANT ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS. Geneva: Economic and Social Council; 2000 Aug 11. General Comment 14 [cited 2020 Feb 19]. Available from: URL: <https://digitalibrary.un.org/record/425041>.
- Claassen K, Jäger P. Impact of the Introduction of the Electronic Health Insurance Card on the Use of Medical Services by Asylum Seekers in Germany. *Int J Environ Res Public Health*. 2018;15(5):856.
- Rechel B, Mladovsky P, Ingleby D, Mackenbach JP, McKee M. Migration and health in an increasingly diverse Europe. *Lancet*. 2013;381(9873):1235–45.
- Burnett A, Peel M. Health needs of asylum seekers and refugees. *BMJ*. 2001;322(7285):544–7.
- Norredam M, Mygind A, Krasnik A. Access to health care for asylum seekers in the European Union—a comparative study of country policies. *Eur J Pub Health*. 2006;16(3):286–90.
- Abubakar I, Aldridge RW, Devakumar D, Orcutt M, Burns R, Barreto ML, et al. The UCL–Lancet Commission on migration and health: the health of a world on the move. *Lancet*. 2018;392(10164):2606–54.
- Gavranidou M, Niemiec B, Magg B, Rosner R. Traumatische Erfahrungen, aktuelle Lebensbedingungen im Exil und psychische Belastung junger Flüchtlinge. *Kindheit und Entwicklung*. 2008;17(4):224–31.
- Jesuthasan J, Sönmez E, Abels I, Kurmeyer C, Gutermann J, Kimbel R, et al. Near-death experiences, attacks by family members, and absence of health care in their home countries affect the quality of life of refugee women in Germany: a multi-region, cross-sectional, gender-sensitive study. *BMC Med*. 2018;16(1):15.
- Aumüller J, Bretl C. Lokale Gesellschaften und Flüchtlinge: Förderung von sozialer Integration: Die kommunale Integration von Flüchtlingen in Deutschland. Berlin: Berliner Institut für Vergleichende Sozialforschung; 2008. [cited 2020 Mar 26]. Available from: URL: https://www.desi-sozialforschung-berlin.de/wp-content/uploads/Kommunale_Integration_von_Fluechtlingen.pdf.
- Spura A, Kleinke M, Robra B-P, Ladebeck N. Wie erleben Asylsuchende den Zugang zu medizinischer Versorgung? *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2017;60(4):462–70.
- Führer A, Eichner F, Stang A. Morbidity of asylum seekers in a medium-sized German city. *Eur J Epidemiol*. 2016;31(7):703–6.
- van Oostrum IEA, Goosen S, Uitenbroek DG, Koppelaar H, Stronks K. Mortality and causes of death among asylum seekers in the Netherlands, 2002–2005. *J Epidemiol Community Health*. 2011;65(4):376–83.
- Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *Lancet*. 2005;365(9467):1309–14.
- Frank L, Yesil-Jürgens R, Razum O, Bozorgmehr, Kayvan, Schenk, et al. Gesundheit und gesundheitliche Versorgung von Asylsuchenden und Flüchtlingen in Deutschland. *J Health Monitoring*. 2017;2:24–47.
- Russo G, Vita S, Miglietta A, Terrazzini N, Sannella A, Vullo V. Health profile and disease determinants among asylum seekers: a cross-sectional retrospective study from an Italian reception Centre. *J Public Health (Oxf)*. 2016;38(2):212–22.
- Gewalt SC, Berger S, Szecsenyi J, Bozorgmehr K. "If you can, change this system" -Pregnant asylum seekers' perceptions on social determinants and material circumstances affecting their health whilst living in state-provided accommodation in Germany - a prospective, qualitative case study. *BMC Public Health*. 2019;19(1):287.
- Deutscher Bundestag. Asylbewerberleistungsgesetz in der Fassung der Bekanntmachung vom 5. August 1997 (BGBl. I S. 2022), das zuletzt durch Artikel 4 des Gesetzes vom 12. Dezember 2019 (BGBl. I S. 2652) geändert worden ist: (AsylBLG). Available from: URL: <https://www.gesetze-im-internet.de/asylblg/AsylBLG.pdf>.
- Burmester F. Medizinische Versorgung der Leistungsberechtigten nach §5 4 und 6 AsylBLG über eine Krankenkasse. *Public Health Forum*. 2015;23(2):106–8.
- Razum O, Wenner J, Bozorgmehr K. Wenn Zufall über den Zugang zur Gesundheitsversorgung bestimmt: Geflüchtete in Deutschland. *Gesundheitswesen*. 2016;78(11):711–4.
- Bozorgmehr K, Razum O, Szecsenyi J, Maier W, Stock C. Regional deprivation is associated with the distribution of vulnerable asylum seekers: a nationwide small area analysis in Germany. *J Epidemiol Community Health*. 2017;71(9):857–62.
- Müllerschön J, Koschollek C, Santos-Hövenner C, Kuehne A, Müller-Nordhorn J, Bremer V. Impact of health insurance status among migrants from sub-Saharan Africa on access to health care and HIV testing in Germany: a participatory cross-sectional survey. *BMC Int Health Hum Rights*. 2019;19(1):10.
- Bozorgmehr K, Razum O. Effect of restricting access to health care on health expenditures among asylum-seekers and refugees: a quasi-experimental study in Germany, 1994–2013. *PLoS One*. 2015;10(7):e0131483.
- Behrens B, Groß V. Auf dem Weg in ein "normales Leben"? Eine Analyse der gesundheitlichen Situation von Asylsuchenden in der Region Osnabrück; Forschungsergebnisse des Teilprojektes "Regionalanalyse"; "SPuK – Sprache und Kultur: Grundlagen für eine effektive Gesundheitsversorgung". Osnabrück: Universität Osnabrück, FB Erziehungs- und Kulturwissenschaften; 2004. Available from: URL: http://www.forschungsnetzwerk.at/downloadpub/Equal_gesundheitliche_situation_asylsuchende_osnabrueck.pdf.
- Führer A, Eichner F. Verloren im Räderwerk: Eine interdisziplinäre Studie zur Gesundheit und medizinischen Versorgung von Asylsuchenden in Halle (Saale). Halle; 2015 [cited 2020 Mar 26]. Available from: URL: https://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publicationen/verloren_im_raederwerk_studie.pdf.
- Davidson N, Skull S, Burgner D, Kelly P, Raman S, Silove D, et al. An issue of access: delivering equitable health care for newly arrived refugee children in Australia. *J Paediatr Child Health*. 2004;40(9–10):569–75.
- Führer A. "Da muss sich jemand anders kümmern" – Die medizinische Versorgung von Asylsuchenden als Herausforderung für eine bio-psycho-soziale Medizin. *Gesundheitswesen*; 2019.
- Schunck R, Reiss K, Razum O. Pathways between perceived discrimination and health among immigrants: evidence from a large national panel survey in Germany. *Ethn Health*. 2015;20(5):493–510.
- Trummer U, Novak-Zezula S, Renner A, Wilczewska I. 2.10-P10Cost savings through timely treatment for irregular migrants and European Union citizens without insurance. *Eur J Public Health*. 2018;28(suppl_1):cky048–61.

29. O'Donnell CA, Higgins M, Chauhan R, Mullen K. "They think we're OK and we know we're not". A qualitative study of asylum seekers' access, knowledge and views to health care in the UK. *BMC Health Serv Res*. 2007;7:75.
30. Philipp M, Melchert P, Renaud D. Welche gesundheitsbezogenen Informationen brauchen Geflüchtete? *Präv Gesundheitsf*. 2018;13(3):203–10.
31. Karger A, Lindtner-Rudolph H, Mroczynski R, Ziem A, Joksimovic L. Wie fremd ist mir der Patient? *Z Psychosom Med Psychother*. 2017;63(3):280–96.
32. Fassin D. *Culturalism As Ideology*. In: Makhlouf-Obermeyer C, editor. *Cross-Cultural Perspectives on Reproductive Health*. Oxford: Oxford University Press; 2001. p. 300–17.
33. Kleinman A, Benson P. Anthropology in the clinic: the problem of cultural competency and how to fix it. *PLoS Med*. 2006;3(10):e294.
34. Holmes SM. The clinical gaze in the practice of migrant health: Mexican migrants in the United States. *Soc Sci Med*. 2012;74(6):873–81.
35. Biddle L, Menold N, Bentner M, Nöst S, Jahn R, Ziegler S, et al. Health monitoring among asylum seekers and refugees: a state-wide, cross-sectional, population-based study in Germany. *Emerg Themes Epidemiol*. 2019;16:3.
36. Razum O, Bunte A, Gilsdorf A, Ziese T, Bozorgmehr K. Gesundheitsversorgung von Geflüchteten: Zu gesicherten Daten kommen. *Dtsch Arztebl International*. 2016;15(2):62. Available from: URL: <https://www.aerzteblatt.de/int/article.asp?id=174787>.
37. Scott P. Black African asylum seekers' experiences of health care access in an eastern German state. *Intl J of Migration, H and SC*. 2014;10(3):134–47.
38. Kassenärztliche Vereinigung Sachsen-Anhalt. Sozial- und Jugendämter Sachsen-Anhalt mit Besonderheiten bei Asylbewerbern: Stand 02.06.2016; 2016.
39. SAS/STAT Software: Copyright 2020. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. Version 9.4 of the SAS System for Windows. Cary; 2020.
40. Büchtele G, Och B, Bolte G, Weiland SK. Single vs. double data entry. *Epidemiology*. 2005;16(1):130–1.
41. KBV Kassenärztliche Bundesvereinigung. Einheitlicher Bewertungsmaßstab (EBM): Stand: 4. Quartal 2015. Berlin; 2015 [cited 2020 Mar 26]. Available from: URL: https://www.kbv.de/media/EBM-2009-Archiv_2.zip.
42. Kassenzahnärztliche Bundesvereinigung. BEMA: Einheitlicher Bewertungsmaßstab für zahnärztliche Leistungen gemäß § 87 Abs. 2 und 2h SGB V; Anlage A zum BMV-Z; 2018 [cited 2019 Jun 17]. Available from: URL: <https://www.kzbv.de/gebuehrenverzeichnisse.334.de.html>.
43. Deutsches Institut für Medizinische Dokumentation und Information. ICD-10-GM Version 2015: Systematisches Verzeichnis; Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme, 10. Revision; 2014 [cited 2020 Mar 26]. Available from: URL: <https://www.dimdi.de/dynamic/downloads/klassifikationen/icd-10-gm/vorgaenger/icd10gm2015.zip>.
44. Informationsstelle für Arzneispezialitäten – IFA GmbH. Richtlinien für die Zuteilung von Pharmazentralnummern; 2019. [cited 2020 Mar 26]. Available from: URL: https://www.ifaffm.de/mandanten/1/documents/02_ifa_anbieter/richtlinien/IFA-Richtlinien_Zuteilung_von_PZN_DE.pdf.
45. Gemeinsamer Bundesausschuss. Richtlinie über die Verordnung von Heilmitteln in der vertragsärztlichen Versorgung: (Heilmittel-Richtlinie/Heilm-RL); letzte Änderung vom 19.09.2019. Berlin; 2020. Bundesanzeiger 96 [cited 2020 Feb 19]. Available from: URL: <https://www.g-ba.de/richtlinien/12/>.
46. Gemeinsamer Bundesausschuss. Richtlinie über die Verordnung von Hilfsmitteln in der vertragsärztlichen Versorgung: (Hilfsmittel-Richtlinie/Hilfsm-RL); zuletzt geändert am 22. November 2019. Berlin; 2020. Bundesanzeiger [cited 2020 Feb 19]. Available from: URL: <https://www.g-ba.de/richtlinien/13/>.
47. KBV Kassenärztliche Bundesvereinigung. Richtlinie der Kassenärztlichen Bundesvereinigung nach § 75 Absatz 7 SGB V zur Vergabe der Arzt-, Betriebsstätten- sowie der Praxisnetznummern; 2017 [cited 2020 Mar 26]. Available from: URL: http://www.kbv.de/media/sp/Arztnummern_Richtlinie.pdf.
48. Fricke U, Günther J, Zawinell A, Zeidan R. ATC-Klassifikation mit Tagesdosen für den deutschen Arzneimittelmarkt des GKV-Arzneimittelindex im Jahr 2015; 2015 [cited 2020 Mar 26]. Available from: URL: https://www.wido.de/fileadmin/Dateien/Bilder/Publikationen_Produnkte/Arzneimittel-Klassifikation/wido_arz_atc_gkv-ai_2015.pdf.
49. GKV-Spitzenverband. Anlage 1 zur § 301-Vereinbarung: Datensätze für die Datenübermittlung 15. Fortschreibung; 2018. Available from: URL: https://www.gkv-datenaustausch.de/media/dokumente/leistungserbringer_1/krankenhaeuser/anlage_1/1_anl1-40.pdf.
50. Swart E, Gothe H, Geyer S, Jaunzeme J, Maier B, Grobe TG, et al. Gute Praxis Sekundärdatenanalyse (GPS): Leitlinien und Empfehlungen. *Gesundheitswesen*. 2015;77(2):120–6.
51. Grobe TG, Steinmann S, Szecsenyi J. *Arztreport 2017: Schriftenreihe zur Gesundheitsanalyse [Band 1]*. Berlin: Barmer GEK; 2017.
52. Klauber J, Günster C, Gerste B, Robra B-P, Schmacke N. *Versorgungsreport 2013/2014: Schwerpunkt: Depression*. Stuttgart: Schattauer; 2014. (Versorgungs-Report2013/14).
53. Caminal J. The role of primary care in preventing ambulatory care sensitive conditions. *Eur J Pub Health*. 2004;14(3):246–51.
54. Banham D, Karnon J, Densley K, Lynch JW. How much emergency department use by vulnerable populations is potentially preventable?: a period prevalence study of linked public hospital data in South Australia. *BMJ Open*. 2019;9(1):e022845.
55. Anderson M, Albala SA, Patel N, Lloyd J, Mossialos E. Building the economic case for primary health care: a scoping review; 2018. Technical Series on Primary Health Care.
56. Helgesson M, Johansson B, Nordquist T, Vingård E, Svartengren M. Healthy migrant effect in the Swedish context: a register-based, longitudinal cohort study. *BMJ Open*. 2019;9(3):e026972.
57. Klauber J, Geraedts M, Friedrich J, Wasem J, editors. *Krankenhaus-Report 2017: Schwerpunkt: Zukunft gestalten*. Stuttgart: Schattauer; 2016.
58. Hargreaves S, Friedland JS, Gothard P, Saxena S, Millington H, Eliahoo J, et al. Impact on and use of health services by international migrants: questionnaire survey of inner city London A&E attenders. *BMC Health Serv Res*. 2006;6:153.
59. Wenner J, Razum O, Schenk L, Ellert U, Bozorgmehr K. Gesundheit von Kindern und Jugendlichen aus Familien mit ungesichertem Aufenthaltsstatus im Vergleich zu Kindern mit und ohne Migrationshintergrund: Auswertung der KiGGS-Daten 2003-06. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2016; 59(5):627–35.
60. Green G, Davison C, Bradby H, Krause K, Mejias FM, Alex G. Pathways to care: how superdiversity shapes the need for navigational assistance. *Social Health Illn*. 2014;36(8):1205–19.
61. Hadjkiss EJ, Renzaho AMN. The physical health status, service utilisation and barriers to accessing care for asylum seekers residing in the community: a systematic review of the literature. *Aust Health Rev*. 2014;38(2):142–59.
62. Baron J, Drehsen T, Tahirovic A, Siami H, Mohammed L, Cordes T. Traumatisiert. Ausgrenzt. Unterversorgt.: Versorgungsbericht zur Situation von Flüchtlingen und Folteropfern in den Bundesländern Sachsen, Sachsen-Anhalt und Thüringen; 2014.
63. Gerritsen AAM, Bramsen I, Devillé W, van Willigen LHM, Hovens JE, van der Ploeg HM. Physical and mental health of afghan, Iranian and Somali asylum seekers and refugees living in the Netherlands. *Soc Psychiatry Psychiatr Epidemiol*. 2006;41(1):18–26.
64. Satinsky E, Fuhr DC, Woodward A, Sondorp E, Roberts B. Mental health care utilisation and access among refugees and asylum seekers in Europe: a systematic review. *Health Policy*; 2019.
65. Bauhoff S, Göppfarth D. Asylum-seekers in Germany differ from regularly insured in their morbidity, utilizations and costs of care. *PLoS One*. 2018; 13(5):e0197881.
66. Führer A, Kalfa V, Mikolajczik R, Wienke A. A yawning gap: Asylum-seekers' health care needs and outpatient treatment for psychological complaints; Poster zum 6. Forschungstag der Universitätsmedizin Halle. Halle: Universitätsklinikum Halle (Saale); 2019.
67. Gerritsen AAM, Bramsen I, Devillé W, van Willigen LHM, Hovens JE, van der Ploeg HM. Use of health care services by afghan, Iranian, and Somali refugees and asylum seekers living in the Netherlands. *Eur J Pub Health*. 2006;16(4):394–9.
68. Wetzke M, Happle C, Vakilzadeh A, Ernst D, Sogkas G, Schmidt RE, et al. Healthcare Utilization in a Large Cohort of Asylum Seekers Entering Western Europe in 2015. *Int J Environ Res Public Health*. 2018;15(10):2163.
69. Grandt D, Schubert I. *Barmer GEK Arzneimittelreport 2016: Analysen zur Arzneimitteltherapie und Arzneimitteltherapiesicherheit*; 2016.
70. Kahl F, Frewer A. Medizinische Versorgung von neu angekommenen Asylsuchenden in Erlangen: Eine Studie zum Medikamenteneinsatz mit besonderem Blick auf Psychopharmaka. *Psychother Psychosom Med Psychol*. 2017;67(3–04):119–25.
71. Liedl A, Knaevelsrud C. PTBS und chronische Schmerzen: Entstehung, Aufrechterhaltung und Zusammenhang – ein Überblick Schmerz. 2008;22(6):644–51.
72. Laban CJ, Gernaat HBPE, Komproe IH, de Jong JTMV. Prevalence and predictors of health service use among Iraqi asylum seekers in the Netherlands. *Soc Psychiatry Psychiatr Epidemiol*. 2007;42(10):837–44.

73. van Dijk R, Bala J, Öry F, Kramer S. "Now we have lost everything": Asylum seekers in the Netherlands and their experiences with health care. *Medische Antropologie*. 2001;13(2):284–300.
74. Bundesministerium für Gesundheit. Finanzergebnisse der GKV: Vorläufige Rechnungsergebnisse 1.-4. Quartal 2015; 2016 [cited 2019 Aug 21]. Available from: URL: <https://www.bundesgesundheitsministerium.de/themen/krankenversicherung/zahlen-und-fakten-zur-krankenversicherung/finanzergebnisse.html>.
75. Deutscher Bundestag 12. Wahlperiode. Entwurf eines Gesetzes zur Neuregelung der Leistungen an Asylbewerber: Gesetzentwurf der Fraktionen der CDU/CSU und F.D.P.; Drucksache 12/4451; 1993 [cited 2020 Feb 19]. Available from: URL: <http://dipbt.bundestag.de/doc/btd/12/044/1204451.pdf>.
76. Kohlenberger J, Buber-Ennser I, Rengs B, Leitner S, Landesmann M. Barriers to health care access and service utilization of refugees in Austria: evidence from a cross-sectional survey. *Health Policy*. 2019;123(9):833.
77. Bundesamt für Migration und Flüchtlinge. Das Bundesamt in Zahlen 2015: Asyl, Migration und Integration; 2016 [cited 2020 Mar 26]. Available from: URL: <https://www.bamf.de/SharedDocs/Anlagen/DE/Statistik/BundesamtinZahlen/bundesamt-in-zahlen-2015.pdf>.
78. Swart E, Ihle P, Gothe H, Matusiewicz D, editors. *Routinedaten im Gesundheitswesen: Handbuch Sekundärdatenanalyse: Grundlagen, Methoden und Perspektiven*. 2nd Auflage ed. Bern: Verlag Hans Huber; 2014.
79. United Nations. International Covenant on Economic, Social and Cultural Rights; 1966 [Cited 2019 Jun 3]. Available from: URL: <https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx>.
80. Directive 2013/33/EU of the European Parliament and of the Council: laying down standards for the reception of applicants for international protection (recast). Brussels; 2013. Official Journal of the European Union [cited 2020 Feb 19]. Available from: URL: <https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX%3A32013L0033>.

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Article

Dental Care for Asylum-Seekers in Germany: A Retrospective Hospital-Based Study

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Abstract: *Background:* The growing immigration to Germany led to more patients whose medical needs are divergent from those of the domestic population. In the field of dental health care there is a debate about how well the German health system is able to meet the resulting challenges. Data on asylum-seekers' dental health is scarce. This work is intended to reduce this data gap. *Methods:* We conducted this retrospective observational study in Halle (Saale), Germany. We included all persons who were registered with the social welfare office (SWO) in 2015 and received dental treatments. From the medical records, we derived information such as complaints, diagnoses, and treatments. *Results:* Out of 4107 asylum-seekers, the SWO received a bill for 568 people. On average, there were 1.44 treatment cases (95%-CI: 1.34–1.55) and 2.53 contacts with the dentist per patient (95%-CI: 2.33–2.74). Among those, the majority went to the dentist because of localized (43.2%, 95%-CI: 38.7–47.7) and non-localized pain (32.0%, 95%-CI: 27.8–36.2). The most widespread diagnosis was caries ($n = 469$, 98.7%, 95%-CI: 97.7–99.7). *Conclusion:* The utilization of dental care is lower among asylum-seekers than among regularly insured patients. We assume that the low prevalence rates in our data indicate existing access barriers to the German health care system.

Keywords: secondary data analysis; asylum seekers; dental health care utilization; oral health

1. Introduction

1.1. Background

During the last years, a considerable increase in immigration occurred in Germany. Consequently, the growing immigration has led to more patients whose native language is not German and whose medical needs diverge from those of the domestic population [1]. This results from differing legal and socio-cultural determinants of health [2]. While engaging for their specific medical needs, new challenges for the healthcare system to integrate asylum-seekers arise. The last years saw a substantial increase in research connected to migration and health, but there is still a huge gap in the scientific knowledge about dental care.

1.2. State of the Science

This lack of scientific evidence is problematic due to the massive undersupply of dental health care, which has been reported by civil society actors [3]. In a statement on the care of asylum-seekers, the Bundeszahnärztekammer (BZÄK), therefore, points out that in the event of ethical conflicts, dentists must follow the ethical standards of the model professional code [4]. The debate on this complex of problems is made more difficult by the fact that the data situation on the care of asylum-seekers in

Germany is generally patchy, especially in the dental field. Data on the dental health of asylum-seekers are available from Algeria, Canada, Australia, and the USA [5–8]. They show a high prevalence of caries, periodontitis, and gingivitis by asylum-seekers. An exploratory literature review in PubMed does not include many comparable studies from Germany. The exceptions are an unpublished dissertation on caries by children of asylum-seekers in Würzburg [9], a clinical trial on the oral health of asylum-seekers in Greifswald [10], and three oral health studies of refugees published in 2017 and 2018 [11–13]. All studies agree with the international literature in that caries are more frequent among asylum-seekers than in the corresponding age groups of patients of the receiving countries' populations.

Data on the general use of the health care system by asylum-seekers are available from a number of European countries such as Germany, the Netherlands, and Ireland, and from Australia, the USA, and Canada [14–17]. Different legal frameworks seem to play a major role here, which is why the data cannot be easily generalized across countries.

1.3. Legal Context

In Germany, access of asylum-seekers to the health system is regulated by the Asylum-Seekers' Benefits Act (AsylbLG). Therein, the range of services for the duration of the asylum procedure (or the first 15 months of stay in Germany) is limited in comparison to patients in the statutory health insurance (GKV), though the degree of limitations is a matter of dispute among lawyers [18]. While § 4 AsylbLG stipulates the coverage of costs for the treatment of (among others) "acute illnesses and pain" and explicitly excludes costs for prosthetic dentistry, § 6 AsylbLG allows the coverage of costs for "other services" if they are "necessary to maintain and safeguard health" [19,20].

In Saxony-Anhalt, where this study took place, asylum-seekers are not issued an electronic health insurance card (EHIC), as regularly insured patients are. They need a so-called medical treatment voucher (MTV) before they can use medical services. These are issued by the "administrative staff of the social welfare office" and assure physicians that treatment costs will be covered by the social welfare office [21]. Medical treatment vouchers (MTVs) for dental care are valid only once and for a short time and must be presented to the doctor. Follow-up consultations require a new MTV. The prescription of medication, as well as hospitalizations, need a written consent of the social welfare office in advance [22]. These administrative procedures build up barriers in access to dental health, since patients, as well as dentists and their practice teams often do not know how the care according to the Asylum-Seekers' Benefits Act should be implemented [23]. In addition, the approach of social welfare offices in cost absorption differs from district to district and between federal states [24]. This creates an inconsistent situation in dental care for asylum-seekers, from which dentists and patients suffer. For the dentists it is not even always guaranteed that their services will be financially rewarded. This creates a complex and often unclear situation. Data on asylum-seekers' dental care utilization can help to disentangle this complex situation.

1.4. Aims

The aim of this study is to provide an in-depth picture of the dental services utilized by asylum-seekers. Hereby, we aim to quantify the utilization of dental health services, the complaints leading to visits at the dental clinic, the diagnoses made by the dentist, and the treatments resulting from it.

2. Materials and Methods

This was a retrospective observational study. Before the commencement of data collection, ethics approval was sought from and granted by the Ethics Committee of the Medical Faculty of Martin-Luther-University Halle-Wittenberg (reference number: 2018-84).

2.1. Inclusion and Exclusion Criteria

This study included all persons who were registered with the social welfare office in Halle (Saale), Germany, as asylum-seekers at any time in 2015 for at least 1 day and received any dental care while registered as asylum-seekers. This information was generated based on billing data. The files of asylum-seekers fulfilling these inclusion criteria were retrieved pseudonymously based on their file number. All persons whose files could not be found were excluded.

2.2. Data Source

The reviewed period was from 1 January 2015–31 December 2015 at the Dental Department at Martin-Luther-University Halle-Wittenberg, Halle, Germany. The data were obtained from handwritten medical reports, which were available in paper form.

2.3. Data Collection

The data collection took place from April until August 2019. The medical reports were stored in the outpatient department and the central medical record archive. After anonymization, the data were entered into a SQL-database.

2.4. Variables

Date of birth and date of treatment was excerpted from the front page of the medical reports. The date of treatment was differentiated by ambulatory treatment at the Dental Department and treatments at the Emergency Department of a hospital. For each ambulatory dentist contact, information on the following questions was collected: The reasons for medical attendance, diagnoses, classified procedure codes (BEMA), prescribed pharmaceuticals, and if the patients kept the appointment or why it failed. The drugs were recorded according to the standard Anatomical Therapeutic Chemical (ATC) classification. The BEMA fee classification describes the standard of evaluation of dental services and forms the base for accounting within the statutory health insurance in Germany. Some medical reports contained additional information in terms of requests for cost reimbursement by the social welfare office. These included details about which treatment was requested and if the caseworker decided to approve or refuse the claim. In case of treatment at the Emergency Department, medical reports comprised a file note. The letter of referral informed about diagnoses, procedure codes, prescribed pharmaceuticals, and instructions for follow-up treatment.

2.5. Statistical Analysis

We reported absolute and relative frequencies and their 95% confidence intervals. Hereby different denominators were used: First, for all of the analyzed variables, we reported the frequencies in relation to all patients, i.e., all asylum-seekers who were eligible for inclusion in the study and whose file could be found. These frequencies displayed the prevalence of the variable in question for those who successfully gained access to the health care system. Since asylum-seekers face many barriers to access, it must be assumed that there are asylum-seekers who needed dental treatment but were not seen by a dentist. Therefore, the second type of frequency used all asylum-seekers as a denominator to estimate the minimal prevalence in the whole population of asylum-seekers.

We differentiated in the frequency of treatments between treatment cases and dentist contacts. One treatment case included all treatments of a patient due to the same medical problem. Therefore, one treatment case might comprise more than one dentist contact.

Since this was an exploratory approach, in line with current guidelines, no statistical tests were performed [25]. Analyses were performed in SAS (Cary, North 219, CA, USA).

3. Results

3.1. Demography

Out of the 4107 asylum-seekers potentially eligible for dental care in 2015, the social welfare office received a bill concerning dental care for 568 people. Of those, 93 files could not be found, thus overall, the files of 475 people were retrieved that formed the study sample. Thereof, some files were fragmentary ($n = 25$) or contained information from a year other than 2015 ($n = 26$). In sum, we analyzed 83.6% of the files of all asylum-seekers who received dental care in 2015, which equals to 11.6% of all asylum-seekers registered in 2015. Patients came from 29 different countries, most frequently from Syria (39.4%), Afghanistan (9.7%), Iran (8.0%), and Somalia (6.1%). More than 50% of the included asylum-seekers were between 20 and 34 years of age. Table 1 presents more demographic characteristics of the asylum-seekers.

Table 1. Demographic characteristics of the study population.

Characteristic		All Patients $n = 475$	All Asylum-Seekers $n = 4107$
Gender, n (%)	Female	134 (28.2)	1103 (26.9)
	Male	341 (71.8)	3004 (73.1)
Country of origin, n (%)	Syria	187 (39.4)	1957 (47.7)
	Afghanistan	46 (9.7)	354 (8.6)
	Iran	38 (8.0)	180 (4.4)
	Somalia	29 (6.1)	173 (4.2)
	Guinea-Bissau	21 (4.4)	116 (2.8)
	Russian Federation	21 (4.4)	98 (2.4)
	Eritrea	18 (3.8)	83 (2.0)
	India	14 (3.0)	121 (2.9)
	Kosovo	14 (3.0)	88 (2.1)
	Benin	11 (2.3)	168 (4.1)
	unknown	4 (0.8)	28 (0.7)
	others	72 (15.2)	741 (18.0)
Age group in years, n (%)	$0 \leq 5$	6 (1.3)	322 (7.9)
	$5 \leq 10$	25 (5.3)	238 (5.8)
	$10 \leq 15$	14 (3.0)	171 (4.2)
	$15 \leq 20$	41 (8.6)	467 (11.4)
	$20 \leq 25$	86 (18.1)	795 (19.4)
	$25 \leq 30$	99 (20.8)	746 (18.2)
	$30 \leq 35$	71 (15.0)	535 (13.0)
	$35 \leq 40$	55 (11.6)	340 (8.3)
	$40 \leq 45$	28 (5.9)	195 (4.8)
	$45 \leq 50$	29 (6.1)	147 (3.6)
> 50	21 (4.4)	151 (3.7)	

3.2. Dental Health Care Utilization

In the year 2015, there were 1203 arranged appointments with a dentist as part of the 424 treatment cases. On average, there were 1.44 treatment cases (95%-CI: 1.34–1.55) and 2.53 contacts (95%-CI: 2.33–2.74) with the dentist per patient. The maximum treatment cases varied from 0–8. About 10.7% of health records contained information from a year other than 2015 or were fragmentary because, for example, patients left before they were treated ($n = 51$). With 59.4%, the largest number of patients came because of one dental health-related treatment case ($n = 282$). Less than 6.1% of the patients required more than 3 treatment cases. More details are given in Figure 1. Seventeen patients received at least once a dental treatment at the Emergency Department (3.6%).

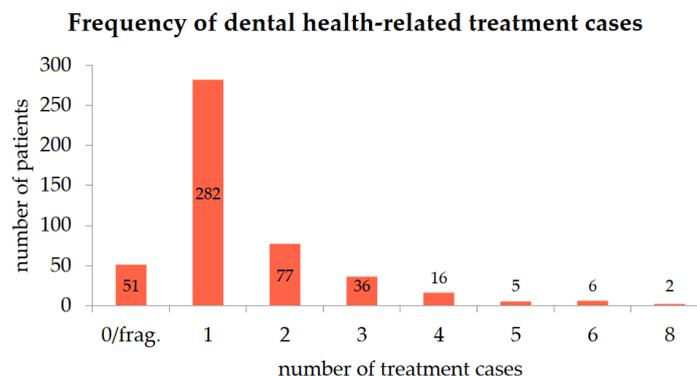


Figure 1. Frequency of treatment cases for dental care. Most patients had only one treatment case.

In the year 2015, appointments failed in 217 cases. Reasons were unexcused absence ($n = 53$, 24.4%) and postponed appointments due to communication problems and the need to summon a translator ($n = 55$, 25.4%). In 26 cases (12.0%), patients who came without a medical treatment voucher were sent home. In addition, some patients left before they were treated ($n = 14$, 6.5%), were late ($n = 10$, 4.6%), or stopped the treatment for reasons of fear ($n = 7$, 3.2%). Other reasons were that the social welfare office had to be consulted first to clarify questions about the insurance status or about treatments to be approved; treatment cancellations, and others (6.5%, 4.6%, and 12.9%, respectively).

3.3. Clinical Presentations

3.3.1. Discomfort

Localized and non-localized pain were the most common complaints leading to a consultation with the dentist (43.2% and 32.0%, respectively). Many treatment reasons were classified in the patient file as unspecified or unknown (30.7%). A large number (22.3%) of treatment appointments took place at the patient’s own request. Comparably few people came because of denture discomfort (4.2%) or with indolent disorders (10.7%). Other complaints were dental problems like insufficient fillings, eating difficulties, gingival bleeding, and temperature-sensitivity (7.8%, 4.8%, 4.0%, and 3.4%, respectively). More details are given in Figure 2.

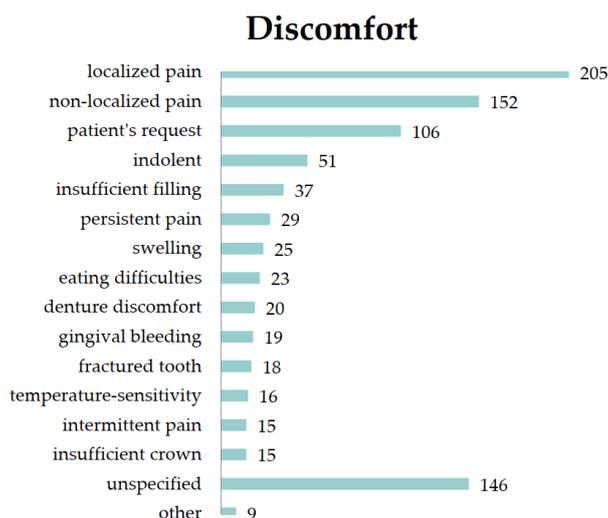


Figure 2. Absolute frequency of dental discomfort. Pain is the most common complaint.

3.3.2. Diagnoses

The most widespread diagnosis was caries with 469 cases (98.7% of all patients). These were classified into 8 sub-categories, depending on the recurrence and severity code. The most common form of the occurring caries was deep caries ($n = 107$, 22.5%). About 21% of all carious disease were classified as primary caries or as carious lesions ($n = 100$, $n = 101$). In relation to all patients, 96 cases of deep complicated caries (20.2%) were counted. In 275 cases (57.9%), patients showed poor teeth conditions. Furthermore, there were 139 cases (29.3%) of teeth deemed not worthy of preserving. 115 treatments (24.2%) were due to periodontitis. The two forms were differentiated, whereof apical periodontitis was most frequent ($n = 80$, 16.8% of all patients). In sum, 108 filling defects (22.7%) and 102 root canal prepared teeth (21.5%) were counted. In addition, 67 cases of pulpitis (14.1%) were registered, from which 64 were irreversible (13.5%). Fifty cases of accretion (10.5%) were recorded, composed of one half each plaque and calculus. In 37 medical examinations (7.8%), the doctors observed gingivitis. There were 32 treatments caused by inflammation (6.7%) like gumboils, fistulas, deep periodontal pockets, or cysts. The frequencies of different diagnoses are given in Table 2.

Table 2. Frequency of asylum-seekers' diagnoses.

Diagnosis	Subgroup	Absolute Frequency	Proportion in All Patients [%] (95%-CI)	Proportion in All Asylum-Seekers [%] (95%-CI)
Caries		469	98.7 (97.7–99.7)	11.4 (8.5–14.3)
	Primary caries	100	21.1 (17.4–24.8)	2.4 (1.0–3.8)
	Secondary caries	51	10.7 (7.9–13.5)	1.2 (0.2–2.2)
	Incipient caries	2	0.4 (0–1.0)	0.1 (0–0.4)
	Cariosus lesion	101	21.3 (17.6–25.0)	2.5 (1.1–3.9)
	Moderate caries	12	2.5 (1.1–3.9)	0.3 (0–0.8)
	Deep caries	107	22.5 (18.7–26.3)	2.6 (1.2–4.0)
	Deep complicated caries	96	20.2 (16.6–23.8)	2.3 (1.0–3.6)
Periodontitis ¹		115	24.2 (20.3–28.1)	2.8 (1.3–4.3)
	Apical periodontitis	80	16.8 (13.4–20.2)	2.0 (0.7–3.3)
	Marginal periodontitis	25	5.3 (3.3–7.3)	0.6 (0–1.3)
	Periodontitis (unclassified)	10	2.1 (0.8–3.4)	0.2 (0–0.6)
Pulpitis		67	14.1 (11.0–17.2)	1.6 (0.5–2.7)
	Irreversible pulpitis	64	13.5 (10.4–16.6)	1.6 (0.5–2.7)
	Reversible pulpitis	3	0.6 (0–1.3)	0.1 (0–0.4)
Gingivitis		37	7.8 (5.4–10.2)	0.9 (0.1–1.7)
Defective restorations		108	22.7 (18.9–26.5)	2.6 (1.2–4.0)
Root canal prepared		102	21.5 (17.8–25.2)	2.5 (1.1–3.9)
Poor teeth conditions		275	57.9 (53.5–62.3)	6.7 (4.5–8.9)
	Teeth not worthy of preserving ²	139	29.3 (25.2–33.4)	3.4 (1.8–5.0)
	Retained/Remnant root	74	15.6 (12.3–18.9)	1.8 (0.6–3.0)
	Insufficient dentition	38	8.0 (5.6–10.4)	0.9 (0.1–1.7)
	Lack of oral hygiene	24	5.1 (3.1–7.1)	0.6 (0–1.3)
Prosthetic replacement inflammation		17	3.6 (1.9–5.3)	0.4 (0–1.0)
		32	6.7 (4.5–8.9)	0.8 (0–1.6)
	Gumboil	11	2.3 (1.0–3.6)	0.3 (0–0.8)
	Cyst	6	1.3 (0.3–2.3)	0.2 (0–0.6)
	Deep periodontal pocket	7	1.5 (0.4–2.6)	0.2 (0–0.6)
	fistula	8	1.7 (0.5–2.9)	0.2 (0–0.6)
Accretion		50	10.5 (7.7–13.3)	1.2 (0.2–2.2)
	Plaque	24	5.1 (3.1–7.1)	0.6 (0–1.3)
	Calculus	26	5.5 (3.4–7.6)	0.6 (0–1.3)
Miscellaneous		311	65.5 (61.2–69.8)	7.6 (5.2–10.0)
	Aftertreatment	138	29.1 (25.0–33.2)	3.4 (1.8–5.0)
	Uncomplaining	61	12.8 (9.8–15.8)	1.5 (0.4–2.6)
	Unspecified	26	5.5 (3.4–7.6)	0.6 (0–1.3)
	No communication possible	25	5.2 (3.2–7.2)	0.6 (0–1.3)
	Other	61	12.8 (9.8–15.8)	1.5 (0.4–2.6)

¹ There was no consistent subdivision into “chronic or acute”/“localized or generalized” forms in the medical records. Therefore, we only differentiated according to the cause of origin. ² There are several reasons why a tooth is classified as “not worth preserving,” such as carious destruction, root infection of a dead tooth, or a tooth fracture. A clear assignment is not possible; therefore, an additional category was created.

3.3.3. Treatments

435 asylum-seekers had contact with the dental clinic and received at least one dental consultation or examination (10.6% of all asylum-seekers). During their therapy, at least 274 patients were administered local anesthetics (6.7%), and 169 patients were treated with root canal therapy (4.1%). In a minimum of 111 cases, surgical interventions were performed (2.7%), and 67 asylum-seekers received minimal interventions (1.6%).

In some fields, the frequencies of treatments differed between the genders. Of all men, only 55 got a prophylactic treatment (1.8%), whereas 35 of all women got one (3.2%). Similarly, cavity drills and fillings were performed on 108 men (3.6%) and 59 women (5.4%). Within the scope of radiography more men ($n = 198$, 6.6%) than women ($n = 59$, 5.4%) were X-rayed. More details are given in Table 3.

Table 3. Frequency of treatment procedures *.

	Absolute		Total	All Patients (%)	All Asylum-Seekers (%)		
	Male	Female			Male	Female	Total
Clinical examination and consultation	310	125	435	91.6	10.3	11.3	10.6
Radiography	198	59	257	54.1	6.6	5.4	6.3
Prophylaxis (all)	55	35	90	19.0	1.8	3.2	2.2
Prophylaxis (age 6–17 years)	14	9	23	5.1	4.3	4.5	4.4
Tooth preparation and filling	108	59	167	35.2	3.6	5.4	4.1
Pulp and root canal treatment	122	47	169	35.6	4.1	4.3	4.1
Extraction	100	34	134	28.2	3.3	3.1	3.3
Surgical intervention	84	27	111	23.4	2.8	2.5	2.7
Minimal intervention	45	22	67	14.1	1.5	2.0	1.6
Anaesthesia	203	71	274	57.7	6.8	6.4	6.7

* The uniform assessment standard for dental services (BEMA) is divided into five parts. Part one (preservative and surgical performance and x-ray performance) is described in detail here. No information was provided in the available files on services from part two (broken jaw, TMJ disorders) and part four (systematic treatment of periodontal disease). Only one patient was treated with services from part three (orthodontic treatment). A small proportion of the patients received services according to part five (restoration of dentures and dental crowns).

3.4. Assumption of Costs

Overall, 102 requests for the assumption of costs, according to § 6 AsylbLG were counted. Thereof, 73 were approved, 18 were rejected, and 11 outcomes were unknown (71.6%, 17.6%, and 10.8% respectively). 71.6% of the requests concerned root canal therapy, of which 86.3% were accepted, and 6.9% were refused.

In contrast, 72.7% of the claims for detachable prosthesis were declined. In addition, two out of three crowns and the one requested bridgework were turned down. All applications on prosthodontic adjustment ($n = 2$), translator work ($n = 2$), and coinsurance exemption ($n = 2$) were accepted. More details are given in Figure 3.

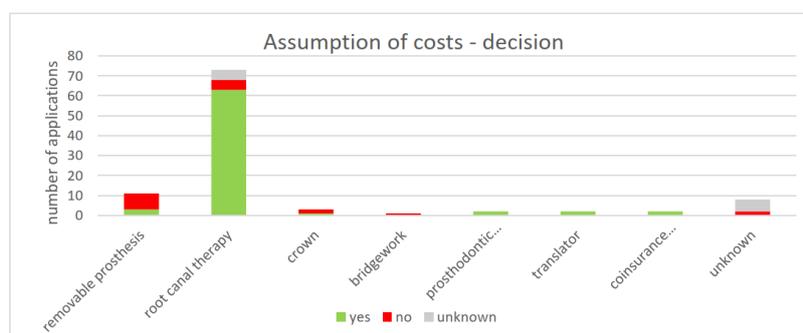


Figure 3. Decisions by the social welfare office to cover the cost of dental treatment applications. The majority of claims concerns root canal therapy and most of them were approved.

4. Discussion

This study aimed at describing dental care utilization and dental treatment of asylum-seekers. Hereby, our results are in line with findings already described in the literature: As in the German multicentre cross-sectional study [10], pain is a very common complaint and the leading cause for dental consultations. Estimating the prevalence of tooth pain in the population, a prevalence of roughly 10% of all asylum-seekers was calculated. This is higher than in the previously mentioned study, where 5% of patients reported suffering pain. The higher prevalence in our cohort might be explained by different modes of data collection. In the comparative study, acute pain was defined as “existing pain with an acute need for treatment” at the time of the cross-sectional examination, while the prevalence given in our study relates to a period of one year. It should also be mentioned that there might be a reporting bias because the AsylbLG emphasizes the treatment of pain over other treatment reasons, which might lead to overreporting of pain in patient files.

The most frequent underlying reasons for the patients’ complaints are caries, poor oral hygiene, and periodontal illness. This finding converges with other studies in western countries [26–28].

When estimating the minimal prevalence of caries in the whole population of asylum-seekers, our prevalence is much smaller compared to other studies. Solyman et al. [11], for instance, found a caries-prevalence of 80%. Thus, it was assumed that the prevalence of caries diagnosed in the health care sector greatly underestimates the prevalence of caries in the population and assumes a substantial number of unreported cases who did not report to the dentist even though they have caries.

This might be attributed to various factors: In the international literature, underdeveloped healthcare systems in countries of origin, challenges of understanding the new healthcare system, and language barriers are found to be the most important barriers to access [26,29–31]. They restrict the utilization at the patient, provider, and system-level [32], and complicate access by means of social isolation [33]. In addition, “a general low emphasis on oral health and promotion during the resettlement period” [11] has been noted. In addition, the common approach to resettling asylum-seekers in rural and remote areas where access to care is already poor further complicates their access to (dental) health care. Crocombe et al. showed, for instance, for the Australian context that people living in areas outside of the capital were less likely to have seen a dentist in the past 12 months [34]. Especially in the case of vulnerable populations such as asylum-seekers, these social determinants of oral health are known to conspire to restrict patients’ agency in health-related choices [35] and should, therefore, be the prime target for public health interventions [36].

Similarly, for the German context, different studies also have shown that a large number of access barriers such as language difficulties (especially related to seeking health care), limited transportation options, and isolation make it difficult for asylum-seekers to receive dental help in the German health system [13,33,37]. As already outlined in the introduction, the legal situation entails a number of administrative barriers that make access to dental care more difficult for asylum-seekers compared to regularly insured patients. An exploratory study from Germany reports that the “paper chase” made it almost impossible for patients to see a doctor immediately [37].

In sum, these factors conspire to make access to dental care very difficult for many patients and increase the risk that potential patients are not treated. According to a cross-sectional study, about “Assessment of oral health and cost of care for a group of refugees in Germany”, this creates discrimination in the health care of asylum-seekers [13].

Another issue highlighted in our study is preventive care. Check-ups at the dentist are an important precautionary measure for the prevention and early detection of possible tooth, mouth, and jaw diseases [38]. The different preventive care measures vary according to the age of the patient: Children aged between 6 and 17 years should receive individual dental prophylaxis services. They include checking of oral hygiene, inspection of the condition of the gum, thorough removal of soft dental plaque, and fissure sealing of the molars. For patients over eighteen years of age, the prophylaxis includes a half-yearly dental check-up and the removal of calculus [39].

The number of used medical services in the range of prophylaxis is lower among asylum-seekers than among patients in the statutory health insurance: 72% of all regularly insured people made a claim on at least one dentist consultation per year [40], whereas only 11% of asylum-seekers did. Just as well, the difference between prophylactic services is obvious. Compared to 66% of children in the statutory health insurance, only 4% of the children of asylum-seekers received preventive medical examinations. Similarly, among adults, only 2% of asylum-seekers—compared to 49% of regularly insured adults—received preventive check-ups.

A qualitative study from the United States explored through focus groups, how cultural factors affected access to preventive oral health care among ethnic minority groups, and what those cultural factors are. The authors see the main challenge in dental-related health literacy and concluded a “[l]ack of knowledge and beliefs about primary teeth [which] created barriers to early preventive care in all groups” [41]. The concept of routine preventive visits for teeth was not well-established among the participants. They held the view that just incipient complaints necessitate a consultation at a dentist [41]. Moreover, the majority belief assumed that primary teeth have a limited function and dispensable importance. Additionally, stress and fear resulting from previous dental experiences came restrictive to the fore [41]. A cross-sectional study from Germany [11] describes the opinion of asylum-seekers about the relationship between oral and general health. In the process, they determined that “less than one third believed in the relationship (. . .) and less than half believed they should have regular check-ups by a dentist”. Precautionary care also includes self-performed oral hygiene measures. The research showed that they were low among the participants [11].

For the medical care of the asylum-seekers, it is important that the suppliers have clarity about which treatments in the health service they get refunded. Because doctors often are unsure about the legal context concerning cost absorption for asylum-seekers’ health care [42], they are unsettled under which conditions costs for dental treatments will be reimbursed by the department of social security [43]. We hypothesize that as a result, acute pain treatments were given priority, and dental prevention was neglected. Considering our findings and the literature, this seems to be part of a vicious cycle: Preventive check-ups could be an important step to change asylum-seekers’ health literacy and sensitize them for the benefits of such check-ups, but if providers do not offer these check-ups for reasons of cost absorption this chance will be missed and utilization will remain low. Considering that the efficacy of dental prevention is proven in a number of studies [13,44], the attempt to save money by cutting down on prevention might turn out to be very costly for the health care system in the long run.

Our study also focuses on carious diseases and their therapy. The number of fillings applied to regularly insured patients is 28%, 7 times as high as compared to asylum-seekers. In addition, the share of 9% of extractions in regularly insured patients is about 3 times as high as the corresponding number in asylum-seekers. The comparatively low treatment frequency depicts a contrast to the high count of diagnosed carious diseases.

A report by the health insurance company BARMER assumes that a filled tooth previously was infested by caries. Thus, the authors interpret the prevalence of people with at least one filling as an indicator for the occurrence of caries requiring treatments [40].

The assumption that the number of placed fillings can be used to determine the number of caries cases cannot be confirmed in this case: If a dentist detects a carious disease, there are several ways to treat it. The treatment depends on the severity of the caries. If the tooth is still in good condition, a filling can be placed [45,46]. A root canal treatment is recommended for deep caries that has reached the pulp. In some cases, the tooth may be so badly damaged by the caries that the tooth must be extracted. The decision about the therapy is made by the attending dentist. The aim of a dentist is the preservation of teeth. Thus, not every caries can be treated with a filling. In case of deep caries with pulp opening, a root canal treatment must be administered. “Teeth not worthy of preserving” are usually drawn due to their severe carious infestation. Both treatments do not contain any filling therapy. Therefore, the BARMER report systematically underestimates the prevalence of caries. The following section presents arguments for overestimating and underestimating caries prevalence. A factor is

whether detected forms of caries are treated at all. A carious disease is not always accompanied by pain [47]. Patients refuse treatment in such cases because they believe that without pain, no therapy is necessary [41]. In addition, the costs for tooth-colored filling materials are higher than metal-colored fillings [48,49]. In the anterior tooth area, the social welfare office covers the costs for tooth-colored composite fillings. In the posterior region, the costs for amalgam fillings are covered. In spite of the proven survival superiority of metal-colored fillings in some clinical scenarios [45], the current study found some patients who refuse this treatment option. The refusal is due to the controversies regarding mercury safety [50] and the aesthetic look [48,51]. It happens that patients do not attend another appointment after the diagnosis has been made. Reasons for this are, for example, a removal or even fear of treatment [52].

Before certain treatments, dentists must obtain approval from the social welfare office to cover the costs. The social welfare office's decision on whether to approve or reject advance cost estimates for dental treatment varies: It is noticeable that the costs of some patients were covered and others were not, even though they concerned the same procedures.

The Bundeszahnärztekammer (BZÄK) published an information sheet providing an overview of the underlying legal regulations and general information on billing and treatment: It highlights, that the efforts of the responsible authorities to save costs should not impair dental health care [4]. The Kassenzahnärztliche Bundesvereinigung (KZBV) also criticizes the legal exception of asylum-seekers from regular care procedures and reprimands that case workers are not adequately trained to assess the need for medical treatment and, therefore, should not be in charge to make such potentially far-reaching decisions.

Through § 6 and the associated assumption of "all other costs", the usage of the AsylbLG is a question of interpretation. Different from other federal states, for example, Bavaria, Saxony-Anhalt, had no official guidelines with approved dental treatments until 2017 [53]. Some therapy procedures could only be claimed after previous consultation and approval by the social welfare office. This procedure implies the danger of the development of different approval practices by individual caseworkers and between different social welfare offices [54]. Thilo Fehmel holds the same opinion in his report "The scope for decision in Social benefits law" and refers to the diversity of implementation practice in the regional interpretation of the AsylbLG [55]. The role of caseworkers' discretion is also reflected in our data: While most claims for cost absorption were approved, some are not, even for the same complaints.

Limitations

Our study was limited by the fact that it only contains data from the available medical reports. The data were written by different people and with different levels of detail. Some treatments were done by students and others by dentists since the university clinic serves research and teaching. There is a possibility that treatments have been carried out, which were intended for the students to practice but which would normally not have been paid for by the social welfare office.

Some age groups are underrepresented in our cohort. Only a few patients were older than 50 years of age, thus we grouped them together. Children under the age of 5 were also poorly represented. The number of women was less than the number of men. The middle age groups were strongly represented.

5. Conclusions

The utilization of dental care is lower among asylum-seekers than among regularly insured patients. We assume that the low prevalence rates in our data indicate existing access barriers to the German health system. As a result, not all symptomatic asylum-seekers have access to dental care. Our study depicts that pain is the most common reason for asylum-seekers to visit a dentist, while prophylaxis is virtually absent. The health care system should increase the use of preventive care, in which elements of education to improve patients' health literacy and governmental efforts to actively lower access barriers are essential. Beyond that, our findings highlight that further efforts are needed to reduce administrative barriers in access to dental care.

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References

1. Brzoska, P.; Razum, O. Herausforderungen einer diversitätssensiblen Versorgung in der medizinischen Rehabilitation. *Rehabilitation* **2017**, *56*, 299–304. [[CrossRef](#)] [[PubMed](#)]
2. Razum, O.; Geiger, I.; Zeeb, H.; Ronellenfisch, U. Gesundheitsversorgung von Migranten. *Dtsch. Ärzteblatt* **2004**, *101*, 2882–2887.
3. Dribbusch, B. Interimsprothese statt Brücke. 2. 10. 2015. Available online: <https://taz.de/Aerztliche-Versorgung-von-Fluechtlingen/!5233590/> (accessed on 15 April 2019).
4. Bundeszahnärztekammer. *Zahnärztliche Behandlung von Asylbewerbern: Rechtlicher Kontext*; Bundeszahnärztekammer: Berlin, Germany, 2015.
5. Almerich-Silla, J.M.; Montiel-Company, J.M.; Ruiz-Miravet, A. Caries and dental fluorosis in a western Saharan population of refugee children. *Eur. J. Oral Sci.* **2008**, *116*, 512–517. [[CrossRef](#)] [[PubMed](#)]
6. Kingsford Smith, D.; Szuster, F. Aspects of tooth decay in recently arrived refugees. *Aust. N. Z. J. Public Health* **2000**, *24*, 623–626. [[CrossRef](#)]
7. Macdonald, M.E.; Keboa, M.T.; Nurelhuda, N.M.; Lawrence, H.P.; Carnevale, F.; McNally, M.; Singhal, S.; Ka, K.; Nicolau, B. The Oral Health of Refugees and Asylum Seekers in Canada: A Mixed Methods Study Protocol. *Int. J. Environ. Res. Public Health* **2019**, *16*, 542. [[CrossRef](#)]
8. Reza, M.; Amin, M.; Sgro, A.; Abdelaziz, A.; Ito, D.; Main, P.; Azarpazhooh, A.; Amin, M.S. Oral Health Status of Immigrant and Refugee Children in North America: A Scoping Review. *J. Can. Dent. Assoc.* **2016**, *82*, 1488–2159.
9. Strasen, T. *Untersuchungen zur Zahngesundheit an Kindern der Würzburger Gemeinschaftsunterkunft für Flüchtlinge und Asylbewerber*; Julius-Maximilians-Universität Würzburg: Würzburg, Germany, 2013.
10. Splieth, C.H.; Takriti, M.; Ali Al-Ani, A.T. *Studie Mundgesundheits Fluechtlinge: Flüchtlinge in Deutschland—Mundgesundheits, Versorgungsbedarfe und deren Kosten*; DGZMK, KZVBV, BZÄK: Frankfurt, Germany, 2017.
11. Solyman, M.; Schmidt-Westhausen, A.M. Oral health status among newly arrived refugees in Germany: A cross-sectional study. *BMC Oral Health* **2018**, *18*, 1. [[CrossRef](#)]
12. Erdsiek, F.; Waury, D.; Brzoska, P. Oral health behaviour in migrant and non-migrant adults in Germany: The utilization of regular dental check-ups. *BMC Oral Health* **2017**, *17*, 84. [[CrossRef](#)]
13. Goetz, K.; Winkelmann, W.; Steinhäuser, J. Assessment of oral health and cost of care for a group of refugees in Germany: A cross-sectional study. *BMC Oral Health* **2018**. [[CrossRef](#)]
14. Laban, C.J.; Gernaat, H.B.P.E.; Komprou, I.H.; de Jong, J.T.V.M. Prevalence and predictors of health service use among Iraqi asylum seekers in the Netherlands. *Soc. Psychiatry Psychiatr. Epidemiol.* **2007**, *42*, 837–844. [[CrossRef](#)] [[PubMed](#)]
15. Toar, M.; O'Brien, K.K.; Fahey, T. Comparison of self-reported health & healthcare utilisation between asylum seekers and refugees: An observational study. *BMC Public Health* **2009**. [[CrossRef](#)]
16. Hadgkiss, E.J.; Renzaho, A.M.N. The physical health status, service utilisation and barriers to accessing care for asylum seekers residing in the community: A systematic review of the literature. *Aust. Health Rev.* **2014**, *38*, 142–159. [[CrossRef](#)]

17. Razum, O.; Reiss, K.; Breckenkamp, J.; Kaufner, L.; Brenne, S.; Bozorgmehr, K.; Borde, T.; David, M. Comparing provision and appropriateness of health care between immigrants and non-immigrants in Germany using the example of neuraxial anaesthesia during labour: Cross-sectional study. *BMJ Open* **2017**. [CrossRef] [PubMed]
18. Jäger, F.; Thomé, H. Leitfaden Alg II/Sozialhilfe von A.Z. In *Ein praktischer Ratgeber für alle, die Arbeitslosengeld II/Sozialhilfe beziehen müssen und über Ihre Rechte informiert werden wollen*; Digitaler Vervielfältigungs- und VerlagsService: Frankfurt, Germany, 2016.
19. Asylum-Seekers' Benefits Act, Paragraph 4. Available online: <https://www.gesetze-im-internet.de/asylblg/4.html> (accessed on 15 January 2020).
20. Asylum-Seekers' Benefits Act, Paragraph 6. Available online: <https://www.gesetze-im-internet.de/asylblg/6.html> (accessed on 15 January 2020).
21. Medizinische Flüchtlingshilfe Göttingen E. V. Healthcare Voucher. Available online: <http://gesundheitsgefuechtete.info/en/healthcare-voucher/> (accessed on 25 November 2019).
22. Bundesministerium für Gesundheit. *Health Guide: For asylum seekers in Germany*, 3rd ed.; Task Force Migration und Gesundheit Referat Z24: Berlin, Germany, 2016.
23. Albaum, C. *Pressemitteilung: Klare und flächendeckende Rechtsgrundlagen statt Flickenteppich in der Versorgung*; Kassenzahnärztliche Bundesvereinigung: Berlin, Germany, 2015.
24. Razum, O.; Wenner, J.; Bozorgmehr, K. Wenn Zufall über den Zugang zur Gesundheitsversorgung bestimmt: Geflüchtete in Deutschland. *Gesundheitswesen* **2016**, *78*, 711–714. [CrossRef] [PubMed]
25. Wasserstein, R.L.; Schirm, A.L.; Lazar, N.A. Moving to a World Beyond " $p < 0.05$ ". *Am. Stat.* **2019**, *73*, 1–19. [CrossRef]
26. Keboa, M.T.; Hiles, N.; Macdonald, M.E. The oral health of refugees and asylum seekers: A scoping review. *Glob. Health* **2016**, *12*, 59. [CrossRef]
27. Ghiabi, E.; Matthews, D.C.; Brilliant, M.S. The oral health status of recent immigrants and refugees in Nova Scotia, Canada. *J. Immigr. Minor. Health* **2014**, *16*, 95–101. [CrossRef]
28. Cote, S.; Geltman, P.; Nunn, M.; Lituri, K.; Henshaw, M.; Garcia, R.I. Dental caries of refugee children compared with US children. *Pediatrics* **2004**, *114*, e733–e740. [CrossRef]
29. Zeidan, A.J.; Khatri, U.G.; Munyikwa, M.; Barden, A.; Samuels-Kalow, M. Barriers to Accessing Acute Care for Newly Arrived Refugees. *West J. Emerg. Med.* **2019**, *20*, 842–850. [CrossRef]
30. Van Loenen, T.; Van Den Muijsenbergh, M.; Hofmeester, M.; Dowrick, C.; Van Ginneken, N.; Mechili, E.A.; Angelaki, A.; Ajdukovic, D.; Bakic, H.; Pavlic, D.R.; et al. Primary care for refugees and newly arrived migrants in Europe: A qualitative study on health needs, barriers and wishes. *Eur. J. Public Health* **2018**, *28*, 82–87. [CrossRef]
31. Antonipillai, V.; Baumann, A.; Hunter, A.; Wahoush, O.; O'Shea, T. Impacts of the Interim Federal Health Program reforms: A stakeholder analysis of barriers to health care access and provision for refugees. *Can. J. Public Health* **2017**, *108*, e435–e441. [CrossRef] [PubMed]
32. Scheppers, E.; van Dongen, E.; Dekker, J.; Geertzen, J.; Dekker, J. Potential barriers to the use of health services among ethnic minorities: A review. *Fam. Pract.* **2006**, *23*, 325–348. [CrossRef] [PubMed]
33. Green, M. Language Barriers and Health of Syrian Refugees in Germany. *Am. J. Public Health* **2017**, *107*, 486. [CrossRef] [PubMed]
34. Crocombe, L.A.; Stewart, J.F.; Barnard, P.D.; Slade, G.D.; Roberts-Thomson, K.; Spencer, A.J. Relative oral health outcome trends between people inside and outside capital city areas of Australia. *Aust. Dent. J.* **2010**, *55*, 280–284. [CrossRef] [PubMed]
35. Farmer, P.; Sen, A. *Pathologies of Power: Health, Human Rights, and the New War on the Poor*; University of California Press: Berkeley, CA, USA, 2009.
36. Marmot, M. Social determinants of health inequalities. *Lancet* **2005**, *365*, 1099–1104. [CrossRef]
37. Spura, A.; Kleinke, M.; Robra, B.P.; Ladebeck, N. Wie erleben Asylsuchende den Zugang zu medizinischer Versorgung? *Bundesgesundheitsbl* **2017**, *60*, 462–470. [CrossRef]
38. BARMER. Zahnvorsorge bei Erwachsenen—Prävention und Bonuspunkte durch regelmäßige Zahnarztbesuche. 2018. Available online: <https://www.barmer.de/unsere-leistungen/leistungen-a-z/praevention-und-vorsorge/zahnvorsorge-bei-erwachsenen-9902> (accessed on 31 January 2020).

39. Siemens-Betriebskrankenkasse. Zahnvorsorgeuntersuchungen für Kinder. Available online: <https://www.sbk.org/beratung/leistungen/zahngesundheit/zahnvorsorge/zahnvorsorgeuntersuchungen-fuer-kinder/> (accessed on 15 January 2020).
40. Rädcl, M.; Bohm, S.; Priess, H.W.; Walter, M. *BARMER Zahnreport 2017: Schriftenreihe zur Gesundheitsanalyse*; Asgard Verlagsservice GmbH: Berlin, Germany, 2017.
41. Hilton, I.V.; Stephen, S.; Barker, J.C.; Weintraub, J.A. Cultural factors and children's oral health care: A qualitative study of carers of young children. *Community Dent. Oral Epidemiol.* **2007**, *35*, 429–438. [[CrossRef](#)]
42. Führer, A. Asylbewerberleistungsgesetz: Abrechnung versus ärztliche Ethik. *Dtsch. Ärzteblatt* **2016**, *113*. Available online: <https://www.aerzteblatt.de/archiv/178776/Asylbewerberleistungsgesetz-Abrechnung-versus-aerztliche-Ethik> (accessed on 10 January 2019).
43. Reinke, R. *Leitfaden zur medizinischen Versorgung von Flüchtlingen mit Behinderung*; Amadeu Antonio Stiftung: Berlin, Germany, 2016.
44. Epping, B. Medizinische Versorgung von Flüchtlingen: Teure Hürden. *Z. Orthopädie Unf.* **2017**, *155*, 129–134. [[CrossRef](#)]
45. Afrashtehfar, K.I.; Emami, E.; Ahmadi, M.; Eilayyan, O.; Abi-Nader, S.; Tamimi, F. Failure rate of single-unit restorations on posterior vital teeth: A systematic review. *J. Prosthet. Dent.* **2017**, *117*, 345–353. [[CrossRef](#)]
46. Afrashtehfar, K.I.; Ahmadi, M.; Emami, E.; Abi-Nader, S.; Tamimi, F. Failure of single-unit restorations on root filled posterior teeth: A systematic review. *Int. Endod. J.* **2017**, *50*, 951–966. [[CrossRef](#)] [[PubMed](#)]
47. Van de Rij, L.J.M.; Stoop, C.C.; Weijenberg, R.A.F.; de Vries, R.; Feast, A.R.; Sampson, E.L.; Lobbezoo, F. The Influence of Oral Health Factors on the Quality of Life in Older People: A Systematic Review. *Gerontologist* **2019**. [[CrossRef](#)] [[PubMed](#)]
48. Rasines Alcaraz, M.G.; Veitz-Keenan, A.; Sahrman, P.; Schmidlin, P.R.; Davis, D.; Iheozor-Ejiofor, Z. Direct composite resin fillings versus amalgam fillings for permanent or adult posterior teeth. *Cochrane Database Syst. Rev.* **2014**, *3*. [[CrossRef](#)] [[PubMed](#)]
49. Roulet, J.F. Benefits and disadvantages of tooth-coloured alternatives to amalgam. *J. Dent.* **1997**, *25*, 459–473. [[CrossRef](#)]
50. Mikhailichenko, N.; Yagami, K.; Chiou, J.Y.; Huang, J.Y.; Wang, Y.H.; Wei, J.C.C.; Lai, T.J. Exposure to Dental Filling Materials and the Risk of Dementia: A Population-Based Nested Case Control Study in Taiwan. *Int. J. Environ. Res. Public Health* **2019**, *16*, 3283. [[CrossRef](#)]
51. Umesi, D.C.; Oremosu, O.A.; Makanjuola, J.O. Amalgam phase down: Baseline data preceding implementation in Nigeria. *Int. Dent. J.* **2019**. [[CrossRef](#)]
52. Heidari, E.; Andiappan, M.; Banerjee, A.; Newton, J.T. The oral health of individuals with dental phobia: A multivariate analysis of the Adult Dental Health Survey, 2009. *Br. Dent. J.* **2017**, *222*, 595–604. [[CrossRef](#)]
53. Gruber, D. *Leistungsverzeichnis für die Leistungsberechtigten nach § 1 AsylbLG*; Kassenzahnärztliche Vereinigung Bayerns (KZVB): München, Germany, 2015.
54. Köber, C. Bayern regelt Zahnmedizin für Flüchtlinge. 09.10.2015. Available online: <https://www.zm-online.de/news/politik/bayern-regelt-zahnmedizin-fuer-fluechtlinge/> (accessed on 28 October 2019).
55. Fehmel, T. Entscheidungsspielräume im Sozialleistungsrecht—Konsequenzen für die Soziale Arbeit. *Z. Soz.* **2017**. [[CrossRef](#)]



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Diskussion

Im Folgenden diskutiere ich vor dem Hintergrund der vorliegenden Literatur die finanzielle Aufwendung Deutschlands für das eigene Gesundheitssystem, dessen Einordnung im weltweiten Vergleich sowie die unterschiedliche Inanspruchnahme und die Hindernisse für Asylsuchende im Zugang zur medizinischen Versorgung in Deutschland unter dem Asylbewerberleistungsgesetz.

Finanzielle Aufwendung

Das deutsche Gesundheitssystem gehört zu den kostenintensivsten Gesundheitssystemen der Welt [1]. Für Gesundheitsleistungen wurden im Jahr 2015 etwa 11,2 % des Bruttoinlandsproduktes ausgegeben [42]. Im Vergleich zu allen OECD-Staaten (Organisation for Economic Cooperation and Development) steht Deutschland damit nach den USA mit 16,7 %, Frankreich mit 11,5 % und der Schweiz mit 11,4 %, an vierter Stelle [42]. Die durchschnittlichen Gesundheitsausgaben der OECD-Staaten lag im selben Jahr bei 8,7 % [42]. Damit betragen sie, gemessen am Bruttoinlandsprodukt, in Deutschland folglich knapp 2,5 Prozentpunkte mehr als im Durchschnitt. Die laufenden Gesundheitsausgaben spiegeln dabei den Verbrauch an Dienstleistungen und Waren des Gesundheitswesens wider. Neben öffentlichen und privaten Ausgaben für medizinische Leistungen fließen auch Kosten für die Gesundheitsverwaltung und Programme zur Förderung von Prävention und Gesundheit der Bevölkerung mit ein [43].

Einordnung des deutschen Gesundheitssystems

Die relativ hohen Ausgaben für das deutsche Gesundheitssystem und die in der Einleitung geschilderte flächendeckende Absicherung der Bevölkerung durch Krankenversicherungen führt in der Gesamtheit zu einer guten Funktionsweise des allgemeinen Gesundheitssystems [44].

Im internationalen Vergleich kommen voneinander unabhängige Studien zu abweichenden Bewertungen des deutschen Gesundheitssystems. Die Begründung liegt darin, dass die Leistungsfähigkeit der verschiedenen Gesundheitssysteme mit unterschiedlichen Methoden analysiert und unterschiedliche Untersuchungsschwerpunkte in den Studien gesetzt wurden [45]. So richteten

Mackenbach et al. ihr Augenmerk in der 2013 veröffentlichten Studie beispielsweise auf die politische Zusammensetzung der Regierung, das Nationaleinkommen und ethnische Zugehörigkeiten [46]. In einer vom Robert Koch-Institut durchgeführten Studie lagen die Untersuchungsschwerpunkte hingegen auf sozioökonomischen Faktoren, Befragungen zur Sicht der betroffenen Patienten, dem allgemeinen Gesundheitszustand der Bevölkerung und den Leistungen des zugehörigen Gesundheitssystems [1]. Es existieren keine klaren Regeln zur Quantifizierung der Qualität von Gesundheitssystemen. Jedoch gibt es zahlreiche Studien, die eine Wertung vornehmen. Eine Studie von Beske et al. lobte die überdurchschnittliche Effizienz des deutschen Gesundheitssystems in der Schriftenreihe des Fritz-Beske-Instituts für Gesundheits-System-Forschung Kiel [47]. Gemessen am „World Health Report 2000 – Health Systems: Improving Performance“, welcher im Jahr 2000 von der Weltgesundheitsorganisation veröffentlicht wurde, liegt Deutschland auf Platz 14 von 191 untersuchten Ländern [48]. In einer weiteren Studie von Barber, Fullman et al. 2017 wurden 195 Länder verglichen: Deutschland erreicht dort den 20. Platz [49]. Die OECD schätzte die medizinische Versorgungsqualität Deutschlands 2007 als mittelmäßig ein [50]. Konkrete Kritikpunkte äußerte der Parallelbericht der Zivilgesellschaft in Form eines gesammelten Reports an die CESCR (Ausschuss für wirtschaftliche, soziale und kulturelle Rechte). Darin wurde auf das Recht auf Gesundheit für Nicht-Staatsangehörige zum sechsten Periodischen Bericht der Bundesrepublik Deutschland über die Umsetzung des Internationalen Paktes über wirtschaftliche, soziale und kulturelle Rechte verwiesen. Der Parallelbericht legte außerdem dar, dass es spezielle Personengruppen gibt, für die der Zugang zur Gesundheitsversorgung nicht diskriminierungsfrei gewährleistet wird [51]. Auffallend dabei sind die dargestellten Zugangsbeschränkungen für nichtdeutsche EU-Bürger, Asylsuchende und Migranten ohne Papiere [51]. Diese Zugangsbeschränkungen können ebenfalls auf deutsche Staatangehörige ohne Krankenversicherung zutreffen.

Die in dem Parallelbericht und anderen Kritiken am deutschen Gesundheitssystem aufgezeigten Versorgungsdefizite finden sich in den dieser Dissertationsschrift zugrundeliegenden Arbeiten wieder. Hier zeigt sich, dass die Inanspruchnahme von medizinischen Leistungen bei Asylsuchenden geringer ausfällt als bei der gesetzlich krankenversicherten Bevölkerung. Während zum Beispiel 67,5 % der leitungsberechtigten Asylsuchenden jährlich mindestens einmal einen niedergelassenen

Arzt aufsuchten, waren es in der regulär versicherten Vergleichsbevölkerung mehr als 90 % der Menschen [52]. Eine retrospektive Längsschnittstudie über die Inanspruchnahme von Krankenhausleistungen in Spanien zeigte ebenfalls auf, dass Ausländer das öffentliche Krankenhaus tendenziell weniger nutzen als die einheimische Bevölkerung [53]. Einige Autoren schlussfolgerten daraus, dass die Inanspruchnahme des Gesundheitssystems durch Asylsuchende nicht mit deren tatsächlichen Bedarfen übereinstimmt und damit für diese Bevölkerungsgruppe eine Unterversorgung besteht [52, 54, 55]. Dies zeigt sich in unseren Daten deutlich in Bezug auf die Zahngesundheit: So nahmen weniger als 14 % aller berechtigten Asylsuchenden in Halle (Saale) die Möglichkeit der Durchführung zahnmedizinischer Behandlungen in Anspruch [56]. Im Bereich der klinischen Untersuchung und Beratung - Leistungsbereich „Diagnostische und Beratungsleistungen“ spiegelt sich dies ebenfalls wider. Während ca. 11 % aller Asylsuchenden Leistungen aus diesem Fachbereich erhielten, waren es in der regulär versicherten deutschen Bevölkerung etwa 72 % [56]. Bei 98,7 % der vorstelligen Asylsuchenden wurde eine Form von Karies diagnostiziert [56]. Dieser große Anteil an Karies unter allen Behandlungsanlässen lässt auf weitere, noch unerkannte behandlungsbedürftige Personen der Kohorte schließen, da kariöse Erkrankungen meist erst im fortgeschrittenen Stadium Schmerzen verursachen und eine schmerzvorbeugende Behandlung durch das AsylbLG ausgeschlossen wird [33]. Ähnliche Ergebnisse wurden von Høyvik et al. berichtet, welche bei 89,4 % der Asylsuchenden in Norwegen mindestens einen Zahn mit einem kariösen Defekt diagnostizierten [57]. Solyman und Schmidt-Westhausen stellten in ihrer Querschnittsstudie in Deutschland bei 87,5 % der Studienteilnehmer unbehandelte Karieserkrankungen fest [37].

Hindernisse in der medizinischen Versorgung

Vor dem Hintergrund der Tatsache, dass das deutsche Gesundheitssystem für einen Großteil der Bevölkerung gut funktioniert, stellt sich die Frage, wie und aus welchen Gründen bestimmte Patientengruppen von dieser guten Versorgung ausgeschlossen werden. Betroffene können beispielsweise gesetzlich oder in der Praxis von wirksamen Deckungsmechanismen ausgeschlossen werden und haben daher keinen angemessenen Zugang zum Gesundheitssystem. Gesetzliche Einschränkungen können

sich aus dem Zeitraum ergeben, in dem Asylsuchende nur ein Anrecht auf die Kostenübernahme einer eingeschränkten Versorgung besitzen. Dieser wurde im August 2019 von 15 auf 18 Monate angehoben [59, 60] und ist damit länger als die ursprüngliche Dauer von 12 Monaten in den Jahren von 1994-1996 [61]. Die Einschränkung des Versorgungsanspruchs auf akute und schmerzhaftes Erkrankungen, Leistungen in Zusammenhang mit Schwangerschaft und Geburt sowie auf vereinzelte Vorsorgemaßnahmen, führt für viele potenzielle Behandlungsanlässe zu einem Ausschluss aus dem System. Hinzukommende, vorherrschende Zugangsbarrieren erschweren Asylsuchenden den Zugang zu medizinischer Versorgung. Priebe et al. 2011 stellten die acht größten Hindernisse für die medizinische Versorgung dar: „Sprachbarrieren, Schwierigkeiten bei der Organisation der Versorgung von Patienten ohne Krankenversicherung, soziale Benachteiligung und traumatische Erfahrungen, mangelnde Vertrautheit mit dem Gesundheitssystem, kulturelle Unterschiede, unterschiedliche Auffassungen von Krankheit und Behandlung, negative Einstellungen bei Mitarbeitern und Patienten und mangelnder Zugang zur Krankengeschichte“ [62]. Zusätzlich befinden sich einige Aufnahmezentren in geografisch abgelegenen Gebieten mit schlechter Anbindung an den Nahverkehr, sodass Kontakte mit dem Gesundheitssystem oftmals nur eingeschränkt möglich und mit hohem zeitlichen Aufwand für die Patienten verbunden sind [63, 64].

Eine weitere Schwierigkeit bei der Organisation der Versorgung von Asylsuchenden in den ersten Monaten ihres Aufenthalts ist die Abhängigkeit von Behandlungsscheinen [65]. Eine Maßnahme zum Abbau dieser Problematik wäre die flächendeckende Einführung einer elektronischen Gesundheitskarte (eGK). Obwohl die Nutzung einer eGK für alle Beteiligten die medizinische Versorgung von Asylsuchenden erleichtern kann, wird sie nicht bundesländerübergreifend eingesetzt. Dabei zeigte Hamburg die Vorteile der Übertragung der medizinischen Versorgung der Grundleistungsberechtigten nach dem AsylbLG auf eine Krankenkasse bereits auf: Nach der Einführung der eGK am 01. Juli 2012 kam es „[...] zu erheblichen Erleichterungen sowohl im ministeriellen als auch im operativen Bereich [...]“ [66]. Durch die Einbindung der Krankenkasse war eine Ausstellung von Einzelfallbewilligungen durch die zuständige Behörde nicht mehr notwendig. Die ebenfalls entfallene Direktabrechnung entlastete die Zentrale

Abrechnungsstelle [66]. Letztendlich belief sich „[d]as gesamte Kostenvermeidungsvolumen [auf] somit insgesamt rd. 1,6 Mio. Euro pro Jahr“ [66].

Schlussfolgerung

Deutschland verpflichtet sich nach Artikel 21 der EU-Richtlinie 2013/33/EU, die besonderen Bedürfnisse Schutzbedürftiger zu gewährleisten [67]. Jedoch existiert kein Standardverfahren zur Ermittlung dieser besonderen Bedürfnisse, wodurch die Situation nicht den Anforderungen der EU-Richtlinie entspricht [68]. Der UN-Ausschuss für wirtschaftliche, soziale und kulturelle Rechte äußert sich dazu im sechsten periodischen Bericht kritisch [69]. Für ihn erscheinen die fehlenden Leitlinien als Grund für den beschränkten medizinischen Zugang von Asylsuchenden in den ersten 15 Monaten des Aufenthaltes in Deutschland als problematisch [69]. Dabei weist der UN-Ausschuss Deutschland auf die Einhaltung der Pflichten der Staaten gegenüber Flüchtlingen und Migranten im Rahmen des internationalen Paktes über wirtschaftliche, soziale und kulturelle Rechte hin [70]. Es sind weitere Anstrengungen erforderlich, um die vorherrschenden Hindernisse beim Zugang zur medizinischen Versorgung abzubauen. Die ungenaue rechtliche Grundlage führt außerdem dazu, dass wichtige Vorsorgeuntersuchungen nicht erbracht werden und dadurch in den Hintergrund geraten. Studien belegen jedoch, dass präventive Behandlungen essentiell für die Erhaltung der Gesundheit von Patienten sind und sich dadurch zum Beispiel Krankenhausaufenthalte verhindern lassen würden [71, 72], welche wiederum eine Rolle bei der Kostengestaltung der Versorgung spielen [73]. Dies könnte zusätzlich positiv durch die Einführung der eGK für Asylsuchende unterstützt werden. Sie zeigt für den Leistungserbringer Vorteile, wie zum Beispiel mehr Sicherheit und Erleichterungen bei der Abrechnung über die Krankenkassen [64]. Außerdem bringt sie für die Nutzer mehr Normalität mit sich [66] und „Asylsuchende erhalten eine menschenwürdigere medizinische Versorgung“ [74]. Um dies für Asylsuchende zu erreichen, müssen sie umfassender in das bestehende Sozialsystem integriert werden. Es sollte sichergestellt werden, dass es zu einer Ausdehnung der Übernahme der Präventionsmaßnahmen und der Versorgung hin zu dem Niveau der restlichen Bevölkerung kommt. Ein Bericht des Robert Koch-Instituts stützt sich auf Oesterreich und Ziller und empfiehlt „[z]ahnmedizinische Präventionsmaßnahmen [...] lebenslang, altersspezifisch und risikogruppenorientiert [auszurichten], um bei der Mundgesundheit die Chancengleichheit in allen sozialen Gruppen zu fördern“ [75].

Literaturverzeichnis

1. OECD/European Observatory on Health Systems and Policies. Deutschland: Länderprofil Gesundheit 2017, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brüssel; 2017. doi:10.1787/9789264285200.
2. König von Preußen. Deutsches Reichsgesetzblatt Band 1883, Nr. 9, Seite 73 - 104; 15. Juni 1883.
3. Bundesministerium für Gesundheit. Geschichte der gesetzlichen Krankenversicherung. Verfügbar unter: <https://www.bundesgesundheitsministerium.de/themen/krankenversicherung/grundprinzipien/geschichte.html>. Accessed 19 Mar 2020.
4. Die Techniker. Wie hoch ist die Versicherungspflichtgrenze? Verfügbar unter: <https://www.tk.de/techniker/leistungen-und-mitgliedschaft/informationen-versicherte/veraenderung-berufliche-situation/freiwillige-krankenversicherung-tk/haeufige-fragen-fuer-freiwillig-versicherte/hoehe-versicherungspflichtgrenze-2006988>. Accessed 16 Apr 2020.
5. Bundeszentrale für politische Bildung. Hintergrund aktuell: Asylkompromiss 1993. Verfügbar unter: <https://www.bpb.de/politik/hintergrund-aktuell/160780/asylkompromiss-24-05-2013>. Accessed 27 Mar 2020.
6. Beschlußempfehlung und Bericht des Ausschusses für Familie und Senioren (13. Ausschuß): Drucksache 12/5008. Bonn; 24.05.1993.
7. Bundeszentrale für politische Bildung. Asylanträge in Deutschland. Verfügbar unter: <https://www.bpb.de/gesellschaft/migration/flucht/zahlen-zu-asyl/265708/asylantraege-und-asylsuchende>. Accessed 27 Mar 2020.
8. Bundesamt für Migration und Flüchtlinge. Migrationsbericht 2015. Verfügbar unter: https://www.who.int/whr/2000/en/whr00_en.pdf. Accessed 19 Mar 2020.
9. Bundeszentrale für politische Bildung. Flucht und Asyl: Grundlagen. Verfügbar unter: <https://www.bpb.de/gesellschaft/migration/kurzdosiers/224616/flucht-und-asyl-grundlagen>. Accessed 27 Mar 2020.
10. Bundesministerium des Inneren, für Bau und Heimat. Asyl- und Flüchtlingspolitik in Deutschland. Verfügbar unter: <https://www.bmi.bund.de/DE/themen/migration/asyl-fluechtlingsschutz/asyl-fluechtlingsschutz/asyl-fluechtlingsschutz-node.html>. Accessed 21 Aug 2020.
11. Bundesministerium für Gesundheit, Task Force Migration und Gesundheit, Referat Z 24 „Migration, Integration, Demografie und Gesundheit“. Ratgeber Gesundheit: für Asylsuchende in Deutschland. 3rd ed. Berlin; Juni 2016.
12. Bundesministerium der Justiz und für Verbraucherschutz, Bundesamt für Justiz. Asylbewerberleistungsgesetz § 4: § 4 Leistungen bei Krankheit, Schwangerschaft und Geburt.

13. Bundesministerium der Justiz und für Verbraucherschutz, Bundesamt für Justiz. Asylbewerberleistungsgesetz § 6: § 6 Sonstige Leistungen.
14. Krankenkassennetz. Asylbewerber/ Flüchtlinge: Rechtliche Grundlagen. Verfügbar unter: <https://www.krankenkasseninfo.de/personengruppen/asyl-flucht/>. Accessed 27 Mar 2020.
15. Amtsblatt der Europäischen Union. Regelung in den Bundesländern - Gesundheit für Geflüchtete. Verfügbar unter: <https://eur-ex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:180:0096:0116:DE:PDF>. Accessed 25 Aug 2020.
16. Medizinische Flüchtlingshilfe Göttingen e. V.. Healthcare voucher. Verfügbar unter: <http://gesundheit-gefluechtete.info/en/healthcare-voucher/>. Accessed 25 Nov 2019.
17. Aktiv für Flüchtlinge Rheinland-Pfalz. Gesundheitsversorgung. Verfügbar unter: <http://www.aktiv-fuer-fluechtlinge-rlp.de/rechtliches/gesundheitsversorgung/>. Accessed 27 Mar 2020.
18. Zinah E, Al-Ibrahim HM. Oral health problems facing refugees in Europe: a scoping review. *BMC Public Health*. 2021;21:1207. doi:10.1186/s12889-021-11272-z.
19. Toar M, O'Brien KK, Fahey T. Comparison of self-reported health & healthcare utilisation between asylum seekers and refugees: an observational study. *BMC Public Health* 2009. doi:10.1186/1471-2458-9-214.
20. Hadgkiss EJ, Renzaho AMN. The physical health status, service utilisation and barriers to accessing care for asylum seekers residing in the community: a systematic review of the literature. *Aust Health Rev*. 2014;38:142–59. doi:10.1071/AH13113.
21. Razum O, Reiss K, Breckenkamp J, Kaufner L, Brenne S, Bozorgmehr K, Borde T, David M. Comparing provision and appropriateness of health care between immigrants and non-immigrants in Germany using the example of neuraxial anaesthesia during labour: cross-sectional study. *BMJ Open* 2017. doi:10.1136/bmjopen-2017-015913.
22. Führer A, Eichner F, Stang A. Morbidity of asylum seekers in a medium-sized German city. *Eur J Epidemiol*. 2016;31:703–6. doi:10.1007/s10654-016-0148-4.
23. van Oostrum IEA, Goosen S, Uitenbroek DG, Koppelaar H, Stronks K. Mortality and causes of death among asylum seekers in the Netherlands, 2002-2005. *J Epidemiol Community Health*. 2011;65:376–83. doi:10.1136/jech.2009.087064.
24. Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. doi:10.1016/S0140-6736(05)61027-6.
25. Rechel B, Mladovsky P, Ingleby D, Mackenbach JP, McKee M. Migration and health in an increasingly diverse Europe. *The Lancet*. 2013;381:1235–45. doi:10.1016/S0140-6736(12)62086-8.

26. Frank L, Yesil-Jürgens R, Razum O, Bozorgmehr K, Schenk L, Gilsdorf A, et al. Gesundheit und gesundheitliche Versorgung von Asylsuchenden und Flüchtlingen in Deutschland. *Journal of Health Monitoring* 2017. doi:10.17886/RKI-GBE-2017-005.
27. Russo G, Vita S, Miglietta A, Terrazzini N, Sannella A, Vullo V. Health profile and disease determinants among asylum seekers: a cross-sectional retrospective study from an Italian reception centre. *J Public Health (Oxf)*. 2016;38:212–22. doi:10.1093/pubmed/fdv049.
28. Gewalt SC, Berger S, Szecsenyi J, Bozorgmehr K. “If you can, change this system” -Pregnant asylum seekers’ perceptions on social determinants and material circumstances affecting their health whilst living in state-provided accommodation in Germany - a prospective, qualitative case study. *BMC Public Health*. 2019;19:1–14. doi:10.1186/s12889-019-6481-2.
29. Almerich-Silla JM, Montiel-Company JM, Ruiz-Miravet A. Caries and dental fluorosis in a western Saharan population of refugee children. *Eur J Oral Sci*. 2008;512–7. doi:10.1111/j.1600-0722.2008.00583.x.
30. Kingsford Smith D, Szuster F. Aspects of tooth decay in recently arrived refugees. *Australien and New Zealand journal of public health*. 2000;24:623–6. doi:10.1111/j.1467-842x.2000.tb00529.x.
31. Ghiabi E, Matthews DC, Brillant MS. The oral health status of recent immigrants and refugees in Nova Scotia, Canada. *J Immigr Minor Health*. 2014;16:95–101. doi:10.1007/s10903-013-9785-9.
32. Reza M, Amin M, Sgro A, Abdelaziz A, Ito D, Main P, Azarpazhooh A, Amin MS. Oral Health Status of Immigrant and Refugee Children in North America: *J Can Dent Assoc*. 2016;82:g3.
33. Bhusari S, Ilechukwu C, Elwishahy A, Horstick O, Winkler V, Antia K. Dental Caries among Refugees in Europe: A Systematic Literature Review. *Int J Environ Res Public Health*. 2020;17:9510. doi:10.3390/ijerph17249510.
34. Lebano A, Hamed S, Bradby H, Gil-Salmerón A, Durá-Ferrandis E, Garcés-Ferrer J, et al. Migrants’ and refugees’ health status and healthcare in Europe: a scoping literature review. *BMC Public Health*. 2020;20:1–22. doi:10.1186/s12889-020-08749-8.
35. Strasen T. Untersuchungen zur Zahngesundheit an Kindern der Würzburger Gemeinschaftsunterkunft für Flüchtlinge und Asylbewerber. Univ., Diss., Würzburg; 2013.
36. Splieth CH, Takriti M, Ali Al-Ani AT. Studie Mundgesundheit Fluechtlinge: Flüchtlinge in Deutschland - Mundgesundheit, Versorgungsbedarfe und deren Kosten. Verfügbar unter: https://www.bzaek.de/fileadmin/PDFs/b/Studie_Mundgesundheit_Fluechtlinge.pdf. Accessed 9 Aug 2020.
37. Solyman M, Schmidt-Westhausen A-M. Oral health status among newly arrived refugees in Germany: a cross-sectional study. *BMC Oral Health*. 2018;18:1. doi:10.1186/s12903-018-0600-9.

38. Erdsiek F, Waury D, Brzoska P. Oral health behaviour in migrant and non-migrant adults in Germany: the utilization of regular dental check-ups. *BMC Oral Health*. 2017;17:84. doi:10.1186/s12903-017-0377-2.
39. Goetz K, Winkelmann W, Steinhäuser J. Assessment of oral health and cost of care for a group of refugees in Germany: a cross-sectional study. *BMC Oral Health* 2018. doi:10.1186/s12903-018-0535-1.
40. Schäfer I, Oltrogge JH, Pruskil S, Mews C, Schlichting D, Jahnke M, et al. Referrals to secondary care in an outpatient primary care walk-in clinic for refugees in Germany: results from a secondary data analysis based on electronic medical records. *BMJ Open* 2020. doi:10.1136/bmjopen-2019-035625.
41. Keboa MT, Hiles N, Macdonald ME. The oral health of refugees and asylum seekers: a scoping review. *Global Health*. 2016;12:59. doi:10.1186/s12992-016-0200-x.
42. Organisation for Economic Cooperation and Development. National Accounts - Main aggregates, Gross domestic product (GDP). Verfügbar unter: <https://stats.oecd.org/Index.aspx?ThemeTreeId=9>. Accessed 8 Aug 2020.
43. Organisation for Economic Cooperation and Development. Gesundheit auf einen Blick 2009: OECD-Indikatoren: Pro-Kopf-Gesundheitsausgaben; 2009. doi:10.1787/20791887.
44. Lauerer M, Emmert M, Schöffski O. Die Qualität des deutschen Gesundheitswesens im internationalen Vergleich - Ein systematischer Review. *Gesundheitswesen*. 2013;75:483–91. doi:10.1055/s-0032-1331719.
45. Robert Koch-Institut (Hrsg.) (2015). Gesundheit in Deutschland. Gesundheitsberichterstattung des Bundes. Gemeinsam getragen von RKI und Destatis. RKI. Berlin. doi:10.17886/rkipubl-2015-003.
46. Mackenbach JP, McKee M. A comparative analysis of health policy performance in 43 European countries. *Eur J Public Health*. 2013;23:195–201. doi:10.1093/eurpub/cks192.
47. Beske F, Drabinski T, Golbach U. Leistungskatalog des Gesundheitswesens im internationalen Vergleich: Eine Analyse von 14 Ländern. Band I. Struktur, Finanzierung und Gesundheitsleistungen. Kiel: Schmidt & Klaunig; 2005.
48. World Health Organization. The World health report 2000: health systems: improving performance. Geneva; 2000.
49. Barber RM, Fullman N, Sorensen RJD, Bollyky T, McKee M, Nolte E, et al. Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990-2015: a novel analysis from the Global Burden of Disease Study 2015. *The Lancet*. 2017;390:231-66. doi:10.1016/S0140-6736(17)30818-8.
50. Organisation for Economic Cooperation and Development. Health at a Glance 2007: OECD Indicators. Paris; 2007.

51. Ärzte der Welt e.V. - Médecins du Monde/Doctors of the World Germany. Parallel report to the CESCR on the Right to Health for non-nationals. Verfügbar unter: https://www.klinikum.uni-heidelberg.de/fileadmin/medizinische_klinik/Abteilung_2/Sektion_Allgemeinmedizin/pdf/Parallel_report_CESCR_Right_to_Health_non-nationals_July2018.pdf, Accessed 27 Mar 2020.
52. Niedermaier A, Freiberg A, Tiller D, Wienke A, Führer A. Outpatient health care utilization and health expenditures of asylum seekers in Halle (Saale), Germany - an analysis of claims data. *BMC Health Serv Res.* 2020;20:1–15. doi:10.1186/s12913-020-05811-4.
53. Ben CW, Abad JM, Arribas F, Andrés E, Rabanaque MJ. Public hospital utilization by the foreign population in Aragon, Spain (2004-2007). *Gaceta sanitaria* 2011. doi:10.1016/j.gaceta.2011.02.006.
54. Laban CJ, Gernaat HB, Komproe IH, De JJT. Prevalence and predictors of health service use among Iraqi asylum seekers in the Netherlands. *Soc Psychiatry Psychiatr Epidemiol* 2007. doi:10.1007/s00127-007-0240-x.
55. Gardemann J, Mashkooi K. Zur Gesundheitssituation der Flüchtlingskinder in Münster. Statistische und epidemiologische Darstellung einiger ausgewählter Gesundheitsindikatoren anlässlich einer Erhebung bei 178 Flüchtlingskindern unter 15 Jahren in allen städtischen Übergangseinrichtungen. *Gesundheitswesen (BVÖGD)*. 1998 Nov;60(11):686-93.
56. Freiberg A, Wienke A, Bauer L, Niedermaier A, Führer A. Dental Care for Asylum-Seekers in Germany: A Retrospective Hospital-Based Study. *Int J Environ Res Public Health*. 2020;17:2672. doi:10.3390/ijerph17082672.
57. Høyvik AC, Lie B, Am Grjibovski, Willumsen T. Oral Health Challenges in Refugees from the Middle East and Africa: A Comparative Study. *J Immigr Minor Health* 2019. doi:10.1007/s10903-018-0781-y.
58. Saadeh R, Cappelli D, Bober-Moken I, Cothron A, La Torre M de. Assessing Oral Health Status, Practices, and Access to Care among War-Affected Refugees Living in San Antonio, Texas. *Eur J Dent.* 2020;14:371–9. doi:10.1055/s-0040-1710400.
59. Wissenschaftliche Dienste, Deutscher Bundestag. Änderungen bei Sozialleistungen in den letzten zwei Jahren für Ausländer. Aktenzeichen: WD 6 - 3000 - 005/16. 8. Februar 2016.
60. Bundesgesetzblatt Jahrgang 2019 Teil I Nr. 31. Drittes Gesetz zur Änderung des Asylbewerberleistungsgesetzes. Verfügbar unter: https://www.bmas.de/SharedDocs/Downloads/DE/Gesetze/drittes-gesetz-zur-aenderung-des-asylbewerberleistungsgesetzes.pdf?__blob=publicationFile&v=2. Accessed 25 Aug 2020.
61. Georg Thieme Verlag KG Stuttgart, Epping B. „Wer den Zugang zur medizinischen Versorgung einschränkt, zahlt drauf“. *Z Orthop Unfall.* 2017;155:257–61. doi:10.1055/s-0043-103416.

62. Priebe S, Sandhu S, Dias S, Gaddini A, Greacen T, Ioannidis E, et al. Good practice in health care for migrants: views and experiences of care professionals in 16 European countries. *BMC Public Health*. 2011;11:1–12. doi:10.1186/1471-2458-11-187.
63. Scott P. Black African asylum seekers' experiences of health care access in an eastern German state. *International Journal of Migration, Health and Social Care*. 2014;10:134-147UR. Verfügbar unter: <https://www.econstor.eu/handle/10419/190839>. doi:10.1108/IJMHC-11-2013-0043.
64. Kidane YS, Ziegler S, Keck V, Benson-Martin J, Jahn A, Gebresilassie T, Beiersmann C. Eritrean Refugees' and Asylum-Seekers' Attitude towards and Access to Oral Healthcare in Heidelberg, Germany: A Qualitative Study. *Int J Environ Res Public Health* 2021. doi:10.3390/ijerph182111559.
65. Spura A, Kleinke M, Robra B-P, Ladebeck N. Wie erleben Asylsuchende den Zugang zu medizinischer Versorgung?. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2017;60:462–70. doi:10.1007/s00103-017-2525-x.
66. Freie und Hansestadt Hamburg, Behörde für Arbeit, Soziales, Familie und Integration. Gesundheitsversorgung Ausländer: Bericht zum Fachtag am 8. Dezember 2014 in der Landesvertretung Hamburg in Berlin. Verfügbar unter: <https://www.hamburg.de/contentblob/4465734/2b6390d955d620e7208827deda3f4fd1/data/gesundheitsversorgung-auslaender.pdf>. Accessed 27 Aug 2020.
67. Amtsblatt der Europäischen Union. Richtlinie 2013/33/EU des Europäischen Parlaments und des Rates vom 26. Juni 2013 zur Festlegung von Normen für die Aufnahme von Personen, die internationalen Schutz beantragen. 29.6.2013.
68. Deutsches Institut für Menschenrechte. Entwicklung der Menschenrechtssituation in Deutschland Juli 2016 – Juni 2017. Bericht an den Deutschen Bundestag gemäß § 2 Absatz 5 DIMRG. Berlin; 2017.
69. United Nations Economic and Social Council. Concluding observations on the sixth periodic report of Germany: E/C.12/DEU/CO/6; 27 November 2018.
70. Committee on Economic, Social and Cultural Rights. E/C.12/2017/1. Verfügbar unter: <https://undocs.org/en/E/C.12/2017/1>. Accessed 28 Dec 2020.
71. Bauhoff S, Göppfarth D. Asylum-seekers in Germany differ from regularly insured in their morbidity, utilizations and costs of care. *PLoS ONE*. 2018;13:e0197881. doi:10.1371/journal.pone.0197881.
72. Lichtl C, Lutz T, Szecsenyi J, Bozorgmehr K. Differences in the prevalence of hospitalizations and utilization of emergency outpatient services for ambulatory care sensitive conditions between asylum-seeking children and children of the general population: a cross-sectional medical records study (2015). *BMC Health Serv Res*. 2017;17:731. doi:10.1186/s12913-017-2672-7.

73. Bozorgmehr K, Razum O. Effect of Restricting Access to Health Care on Health Expenditures among Asylum-Seekers and Refugees: A Quasi-Experimental Study in Germany, 1994-2013. PLoS ONE. 2015;10:e0131483. doi:10.1371/journal.pone.0131483.
74. Niedersächsisches Ministerium für Soziales, Gesundheit und Gleichstellung. Die elektronische Gesundheitskarte für Flüchtlinge. Verfügbar unter: https://www.ms.niedersachsen.de/startseite/elektronische_gesundheitskarte_fluechtlinge/die-elektronische-gesundheitskarte-fuer-fluechtlinge-143425.html. Accessed 27 Mar 2020.
75. RKI, Destatis. Gesundheitsberichterstattung des Bundes: Gesundheit in Deutschland. Berlin; November 2015.

Thesen

1. Von 4107 Leistungsberechtigten nach dem Asylbewerberleistungsgesetz wurden im Jahr 2015 für 568 Personen zahnmedizinische Behandlungen über die zuständige Kostenstelle abgerechnet.
2. Im Durchschnitt gab es pro Asylsuchendem 1,44 Behandlungsfälle (95 %-CI: 1,34-1,55) und 2,53 Konsultationen (95 %-CI: 2,33-2,74) bei einem Zahnarzt in der Zahnklinik in Halle (Saale).
3. Lokalisierbare und nicht lokalisierbare Schmerzen waren die häufigsten Beschwerden, die zu einer Vorstellung in der Zahnklinik führten (43,2 % bzw. 32,0 %).
4. Unter allen behandelten Asylsuchenden lautet die am häufigsten gestellte Diagnose Karies (98,7 %; 95 %-CI: 97,7-99,7 %).
5. Die rechtliche Situation bringt eine Reihe von administrativen Hindernissen mit sich, die den Asylsuchenden den Zugang zu zahnmedizinischer Versorgung erschweren.
6. Vorsorgeuntersuchungen könnten ein wichtiger Schritt sein, um die Gesundheitskompetenz von Asylsuchenden zu verbessern und sie für die Vorteile dieser zu sensibilisieren.

Erklärungen

Erklärung zu früheren Promotionsversuchen

Ich erkläre, dass ich mich an keiner anderen Hochschule einem Promotionsverfahren unterzogen bzw. eine Promotion begonnen habe.

Erklärung zum Wahrheitsgehalt der Angaben

Ich erkläre, die Angaben wahrheitsgemäß gemacht und die wissenschaftliche Arbeit an keiner anderen wissenschaftlichen Einrichtung zur Erlangung eines akademischen Grades eingereicht zu haben.

Eidesstattliche Erklärung

Ich erkläre an Eides statt, dass ich die Arbeit selbstständig und ohne fremde Hilfe verfasst habe. Alle Regeln der guten wissenschaftlichen Praxis wurden eingehalten; es wurden keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt und die den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht.

Ort, Datum

Unterschrift