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Patient motives behind non-urgent visits to the Emergency Department in Germany: A qualitative study comparing urban and rural sites

Running title: Non-urgent visits to the Emergency Department

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ABSTRACT

Objectives

The increasing number of non-urgent visits to Emergency Departments (ED) is an important issue in Germany, despite the fact that all costs of in- and outpatient treatment are covered by mandatory health insurance. We aimed to explore the motives of patients categorized as non-urgent for visiting an ED.

Methods

We conducted a qualitative study in two urban and one rural ED. We recruited a purposive sample of adults, who were assigned to the lowest two categories in the Manchester triage system. One-to-one interviews took place in the ED during patients' waiting time for treatment. Interview transcripts were analyzed using the qualitative data management software MAXQDA. A qualitative content analysis approach was taken to identify motives and to compare the rural with the urban sites.

Results

A total of 86 patients were asked to participate, of these n=15 declined participation and n=7 were excluded because they were admitted as inpatients, leaving a final sample of 40 female and 24 male patients. We identified three pathways leading to an ED visit: a) without primary care contact, b) after unsuccessful attempts to see a Resident Specialist or General Practitioner (GP) and c) recommendation to visit the ED by an outpatient provider. The two essential motives were (1) convenience and (2) health anxiety, triggered by time constraints and focused utilization of multi-disciplinary medical care in a highly equipped setting. All participants from the rural region were connected to a GP, whom they saw more or less regularly, whilst more interviewees from the urban site did not have a permanent GP. Still, motives to visit the ED were in general the same.

Conclusions

We conclude that the ED plays a pivotal role in ambulatory acute care which needs to be recognized for adequate resource allocation.

Strengths and limitations of this study:

- This study explored patients' motives for seeking care in an ED in a real life context.
- We covered different perspectives by investigating two regions with different sample populations.
- We used a qualitative content analysis method, which works both inductively and deductively and furthermore allows tracking data collection and inspection of research findings in a transparent way.
- Qualitative analysis is subjective by nature and researcher bias cannot be completely excluded.
- The extent of variations within this study is limited and may not be generalizable to all other settings.

INTRODUCTION

The increasing number of visits to Emergency Departments (ED) by patients with acute, but non-urgent conditions is an increasing and important issue in Germany. Like in many other countries, these patients contribute to ED crowding, which has been associated with negative effects on clinical outcomes (1,2). Even though crowding is reported throughout Germany, there is little evidence about what the underlying rationale of the increased utilization by patients without "classic emergencies" is. Health insurance is obligatory for all citizen registered in Germany and unlike countries with insurance related health care barriers (3), the German health care system covers all costs of both in- and outpatient treatment, including medication. Patients are free to choose any doctor they would like to see, including specialists. Therefore, the decision to seek care in an ED must be mainly driven by motives other than financial considerations. Current hypotheses on patient motivations range from insufficient provision of outpatient healthcare to subjective changes in demand behavior (4).

ED visits with conditions that could be managed and treated in the primary care system impact the separation between the outpatient and inpatient sectors, which is intrinsic for the German health care system; hospital care is meant to be strictly limited to inpatient treatment, whilst Resident Specialists and GPs have to guarantee outpatient care. Consequently, the health care budget is also strictly separated between health care providers for inpatient and outpatient care. The budgets of both sectors are negotiated between the Federal Association of Sickness Funds and the Federal associations of inpatient and outpatient service providers, respectively. In the current system, ambulatory care in the EDs is largely underfunded (5), the increasing shift of patients from the outpatient sector to EDs has led to a controversial debate between health care policymakers and representatives of in- und outpatient healthcare providers about insufficient service provision by GPs and Resident Specialists, as well as a demand for redistribution of outpatient budgets (6,5).

Against this background, a deeper knowledge of patients' rationale for using the EDs with non-urgent conditions is essential for developing policy responses and solutions to the changing structure of healthcare demand. Current evidence about non-urgent ED visits was mainly generated in different health care systems, many of which have unequal access to health services. Hence, the results can only be transferred to Germany to a limited degree. Our research aim was to explore the motivation of patients categorized as non-urgent for visiting the ED. The objective was to include a broad range of reasons from subjects living in different environmental settings. Furthermore we aimed to contribute a German perspective to the international research of ED utilization with low urgency.

METHODS

Study Design

We conducted a qualitative study with semi-structured, face-to-face interviews to assess participants' behavior and attitudes (7,8).

The geographical density of RDs in Germany greatly differs between urban and rural areas, and in rural areas access by public transport to medical care providers is limited. As this might affect the reasons for ED utilization with minor conditions, we enrolled a purposive sample of patients in both, highly structured urban and rural regions with low population density, to capture a broad range of motives.

Between April 2014 and April 2015 one of the authors (MS) conducted patient interviews at three EDs, two of which are units of a tertiary care hospital in the center of Berlin. One of these EDs (Urban Site I) is located in a catchment area with lower socio-economic status whilst the other (Urban Site II) is located in the heart of the Berlin government quarter (9). The third ED (Rural Site) is located in a city with 50.000 inhabitants in a rural region in Saxony-Anhalt, a state of former socialist Germany. The catchment area of the rural ED covers a radius of approximately 30 kilometers. In all three sites, the majority of non-urgent visits occur during office hours of outpatient care providers (figures 1 and 2).

Study Setting and Population

We recruited adult patients categorized as Manchester Triage System (MTS) categories four and five, the lowest in terms of treatment acuity. Patients who were admitted as inpatients either directly from the ED or within 30 days after their ED visit were excluded from the analysis.

Eligible patients were approached by the interviewer either in the waiting area or in the triage room. All patients gave written informed consent. The study was approved by the local ethics committee (Charité EA1/040/14).

Interviews took place in a separate room of the ED facilities and were audio taped and then transcribed verbatim. Data collection was conducted from Monday to Sunday early in the morning to late evening at each ED until all weekdays were covered once and thematic saturation was reached. Following each interview, field notes were taken to document impressions on atmosphere, nonverbal communication and special features during the interview.

New findings ended after 23 interviews at Urban Site I and after 17 interviews at Urban Site II. At the Rural Site, we conducted a total of 31 interviews.

Interview

To identify a broad range of motives, we used a semi-structured interview guide with open-ended questions (table 1, original German interview guide in supplement). The content was reviewed by the multidisciplinary research group of the Emergency Department (MS, JS, AS, MM including two physicians, one epidemiologist, one sociologist/MPH and one MPH) and was modified after the first two interviews.

Table 1: Questions from interview guide

Please describe to me what made you visit the ED today?
Since when have you had these complaints, exactly when did they start?
When did you decide to see a doctor?
What did you do next? (Waiting, trying to make an appointment with a RD, direct visit to the ED)
Do you have a GP or RS, you regularly go to?
Did you contact him/her before you came to the ED?
How would you describe your confidence in your GP or RS!
What do you usually do when you feel sick?
Do you live with a partner? Do you live with children?

Are you employed? (If yes, what kind of profession do you have? Do you work full- or part-time?)
Do your working hours and/or child care impact your choice of health care provider?

Table 1: Guide for the semi-structured interviews. Questions were adapted to the requirements of the individual interviews.

Data Analysis

All interview transcripts and field notes were entered into the qualitative data management software MAXQDA and anonymized for analysis. We took a qualitative content analysis (QCA) approach to identify patient motives, using a multi-stage process. QCA works equally coding inductively and deductively into themes emerging from text-analysis; data can be used to form a theory, as well as to test assumptions. Furthermore, tracking of data collection and analysis allows inspection of the research process and result findings (10). To answer the research question, one of the authors (MS) reviewed the transcripts and coded them line by line. Sentence chunks or single words were labeled with broad categorization, mainly focusing on the interview guide. Then, the material was carefully re-read and completely recoded as new reasons emerged. To make the coding process transparent and alterable for all team members, a spreadsheet with all codes and underlying quotations was built in MAXQDA. In subsequent discussions the multidisciplinary research group refined the final code structure. Based on this structure, subgroups of behavioral patterns and attitudes were compared and contrasted to gain powerful conclusions. Finally, we developed the main types of motives, which applied to all categories identified in our sample to answer the research question.

RESULTS

Patient characteristics

We approached 86 patients who met the inclusion criteria, of which 15 declined to participate. Theme saturation was reached after interviewing 71 patients at the three participating EDs. Seven participants were excluded from the analysis due to hospital admission within 30 days after the interview, leaving a final sample of 64 patients (40 female and 24 male). The demographic characteristics of the participants are outlined in table 2. (Most frequent ICD-10 codes assigned to the study participants during their ED visit in the supplement).

Table 2: Demographic Characteristics

	Urban N = 39	Rural N = 25	Female N = 40	Male N = 24	All N = 64
Age (mean)	39	44	37,5	46,0	41
Min-Max	18-77	18-81	18-81	22-74	18-81
Median	39	49	37,5	49	40
German[% (n)]	69% (28)	96% (24)	85% (34)	75% (18)	81%(52)
Migrant*	31% (11)	4%(1)	15%(6)	25%(6)	19%(12)
EU	8% (2)	4%(1)	2,5%(1)	8%(2)	5% (3)
Turkey	18% (7)	0	7,5%(3)	17%(4)	11% (7)
Other	5% (2)	0	5%(2)	0	3% (2)
Occupational status					
employed [% (n)]	46% (18)	48%(12)	45% (18)	50%(12)	47 (30)
Self-employed [% (n)]	18% (7)	8% (2)	10% (4)	21% (5)	14 % (9)
In education [% (n)]	20 % (8)	16 % (4)	25% (10)	8 % (2)	19%(12)
Pensioneer [% (n)]	8% (3)	24% (6)	12,5% (5)	17 % (4)	14% (9)
jobseeker/unemployed[%(n)]	8%(3)	4%(1)	7,5%(3)	4%(1)	6%(4)

Table 2: Demographic Characteristics of the study participants.

* The origin of migrants is identified by non-German citizenship and/or the place of birth abroad. Legend: Min = minimum; Max = maximum; EU = European Union.

Motives for visiting the Emergency Department

Our data interpretation followed patients' narratives from the onset of symptoms through the decision to require medical treatment and the ED visit. We identified three "pathways" participants took to visit the ED, (1) a direct visit to the ED, (2) a visit to the ED after unsuccessful attempts to see a doctor in the outpatient system and (3) a visit to the ED after recommendation from an outpatient doctor to do so. At first sight the pathways seem to cover distinctive patient groups, but deeper analysis revealed two recurring main motives applicable in all three pathways, (1) convenience and (2) health anxiety. This theoretical framework for non-urgent visits to the ED is outlined in figure 3. Meaningful quotes are presented in table 3 (Original German quotes in supplement).

Pathways A and B

Patients without any preceding attempt to see a Resident Specialist or GP were classified into pathway A and those who tried but failed to make an appointment with a GP or Resident Specialist before coming to the ED into pathway B. However, the time span between the onset of complaints, the decision to get medical treatment and the ED visit as well as the efforts made to see an outpatient doctor reveals ambiguities between decision making and acting. Therefore, in a deeper level of analysis, patient motives overlap between the different pathways. We report patient motives in the pathways most frequently used. Corresponding quotes representative for the different subgroups can be found in table 3.

Pathway A: Direct visit to the ED

Subgroup A1 "doc to go": Convenience driven visit to the ED

We labeled subgroup 1 "doc to go", because patients perceived a spontaneous visit at any time to see a doctor in the ED as more convenient than undergoing a scheduled appointment with an outpatient provider, even though they had to spend several hours waiting. The subgroup mainly consisted of younger, healthier and busier subjects. Some of them neither

had a GP nor considered it necessary to have one. Other interviewees explicitly underlined the importance of finishing work prior to a doctor's visit and therefore went for medical consultation at the ED outside office hour times of the outpatient providers. Other participants used the ED as an alternative source of care in addition to their GP and made their decision to visit one or the other depending on factors like timing and presumed care required for their current condition. Even though we labeled participants seeking for "doc to go" at all sites, the priority of work duties due to fear of job loss was more pronounced in rural region.

Subgroup A2 "focused visit: X-ray required": Convenience driven visits

Subgroup A2 assumed that an X-ray would be required to manage their condition. This motive was solely reported from participants of the rural area. After minor injury or minor strains and sprains, they went directly to the ED to have an X-ray taken. All patients in this group reported a strong connection to their GP and no issues with the GP's opening hours. They did not consider it worthwhile to wait for an appointment with a Resident Specialist they did not know. Most patients in this group had to be driven to the care provider by family members, neighbors or friends. For them, it was convenient to go directly to the well-equipped ED, where they could expect to find the full range of laboratory and imaging technology available, addressing their need for a fast diagnosis.

Subgroup A3 "seeking higher medical standard": Anxiety and convenience driven ED visits

Subgroup 3 explicitly searched for higher medical standards due to concerns about their health status. Most patients in this group were older and less healthy and either had experienced severe illnesses or suffered from chronic conditions, although the current complaint was not necessarily connected to their chronic illness. These patients were under regular outpatient treatment. Some reported discontent with their primary care and valued the

ED as a complementary source of care, others stressed the availability of treatment from several specialists during a single visit as very comfortable. For this subgroup, from rural and urban sites, anxiety about health status as well as convenience reasons lead to the ED visit. In this context it has to be noted that accessibility of specialist care was lower in the rural area.

Subgroup A4: worried patients: Anxiety driven visits

A fourth subgroup (4) of all ages and from rural and urban area consisted of worried patients, who reported fear and uncertainty about their health status, impairing their quality of life. Many of these patients had been on an odyssey from doctor to doctor and addressed the ED after their symptoms failed to improve, the return of complaints or undiagnosed physical symptoms. Some of these patients seemed to be trapped within a diagnostic circle.

Table 3A: Quotes Pathway A

Pathway A: Direct to the ED			
Subgroup A1 "doc to go"	**Subgroup A2 Focused visit: X-Ray required**	**Subgroup A3 Seeking higher medical standards**	**Subgroup A4 Worried patients**
"Well, it's the extreme waiting times at the GP, or all that. It's something I just can't do. So, when I have something urgent, then I usually go to the hospital and when it isn't so urgent, I just treat myself a bit" (P09U). "Well, I simply can't do between 9.30 and 7 o'clock in the evening, anything medical" (P27U). "I'm self-employed and always have to go	"Before I go to the GP, I don't think he is even open today, I have to wait till tomorrow and then he's only open between 4 and 6, then I get there, have to wait around, and they then only give you a referral to a surgeon or an X-Ray department and then this is probably a quicker way, I think"(P3R). And your GP can't do it? "No, because X-Ray is needed and	"And I always feel that the hospital safer, there are many more possibilities, the GP is too limited to little things, but taking blood sample doesn't work, will take two or three days, for example. Or urine, urine is a bit quicker, I mean than taking blood, but here it takes an hour, and all is done, blood, urine everything"(P40U). "I'm here with my heart condition and	"Yeah, and they gave me a jab, well the GP did, and I'd say, you know, the injections they do here, are not the same as the ones, you know, here at the ED and then, there's a surgeon here, probably, who does it and I reckon it's going to be a bit more professional, like, and I've heard they have different gear here, that the medicines what they inject, are, let's say, more effective" (TN 29R).

to work. I don't have time to sit down in a doctor's waiting room. That's too stressful for me. To sit around for so long and nothing comes out of it" (P26R). "No, I don't have one [GP]. I don't really go / I don't get ill. But I should go some time, haha, and I guess I should have a GP, but then I always forget, but I should be doing it" (P26U).	everything" (P12R). "I've twisted my ankle and that needs X-Ray, I suppose, probably" (P8R). "Then you go straight away to the ED, in such a case, because GP can't do much, because he has no X-Ray at hand" (P7R).	came here for other things as well, I like it here, feel looked after, because I had a deep thrombosis, and then I went to another hospital, and they made me look as if I was just faking it" (P3U).	"It's only psyche and nothing more and I shouldn't exaggerate and then he had realized that is was actually worse and then had I, and then I immediately said I would like a referral to [Place of ED] and then I had gotten it and now I'm sitting here" (P20R). "I already told him [GP] about my problem but he said it wasn't anything and that's why I'm here, now" (P 20U).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

Pathway B: ED visit after unsuccessful attempts to see a GP or Resident Specialist

About half of our participants reported unsuccessful attempts to consult a GP or Resident Specialist before visiting the ED. While subgroup B1 tried to see a Resident Specialist or GP in the short term, for a condition they perceived as acute or urgent, subgroup B2 failed to get an appointment with a Resident Specialist in the short or medium term. However, deeper analysis revealed varying efforts in seeing a doctor. While some patients reported extended endeavors to make an appointment with a GP or Resident Specialist, others stated to have made only one or two phone calls prior to the ED visit. Furthermore, the reported time span between the onset of complaints and the ED visit ranges from few hours to several weeks. Even patients who felt in need for urgent treatment, finished their assignments at work before attempting to see a doctor. As a result, they had to visit the ED because the GP or Specialists office was closed by then. Other patients suffered from symptoms for weeks before deciding to see a physician, but then wanted immediate treatment. After failing to make an

appointment the same or the following day, they went straight to the ED. Furthermore, some patients from the urban region reported dissatisfaction with their regular treatment and patients from both areas praised the ED's high medical standard and technological equipment. Hence, their motive to visit the ED was not only substitution of GP or Resident Specialist treatment, but also superior care. Furthermore, in cases of hesitation to see a doctor, EDs work as a convenient safety net - the availability at any time allowed the patients to delay seeking care.

Table 3B: Quotes Pathway B

Pathway B: Visiting ED after unsuccessful attempt to see a Resident Doctor	
Subgroup B1: Subacute demand for treatment	**Subgroup B2: Acute demand for treatment**
"Then I tried to find an orthopedic surgeon here in this area, no chance, you've got no chance. Phoning them doesn't work, they just tell you, they can give you an appointment in four months" (P19R). "The doctor looked at the blood test and said: that all has to be analyzed more thoroughly and he referred me. Then I called lot of docs and was given appointments from between three to five months from now. I'm worried about the problem, more and more, day by day (...) It just took too long and then I thought, I just come here. Maybe I'll get a checkup and then I get the results and know what to do next"(P18U).	"I tried to see some kind of a GP or surgeon, but the next appointments were in a month time, I mean I've definitely got one, let's say a whole network of doctors but none who would have been able to do it straight away. So I tried, but it just didnt't work out" (P27U). "Yeah, on Saturday I had a little accident - got stuck in the back of me hand, stuck in the thorns, they tore into me and I didn't manage to get them all out. Now my whole hand is swollen up. That's why I ended up going to the surgeon this morning, one I've never been to – the waiting room was packed, saw it straight away and him from reception told me, the earliest I could get an appointment was next Monday, so in a weeks' time. That's why I went to the ED" (P1R). "Well, I've got a problem with my eyes, my skin, my scalp and it got worse the last few days, so I called five dermatologists today, but it's not possible to see one without a date (...) This problem isn't new to me, it's for some time" (P37U).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

Pathway C: Referral by the outpatient provider

A subgroup of patients from both regions reported that they had been referred to the ED after visiting a GP or Resident Specialist, either due time constraints (Subgroup C1) or to challenging symptoms (Subgroup C2). These patient's reports indicate that the two main motives, convenience and health anxiety also apply to this pathway, even though this was not directly assessed from the respective physicians. While some participants from urban region reported an indifferent attitude of the GPs or Specialists they approached, patients from the rural area described purposeful reference from their GPs to the ED.

Table 3C: Quotes Pathway C

Pathway C: Referral by the outpatient provider	
Subgroup C1: Reference due to time issues	**Subgroup C2: Reference due to challenging symptoms**
"Exactly, yes, my knee is so weak. And then, today, I'd go to my orthopedist, but all of them were in holidays, and the substitute had too much to do, he'd said, if you have pain, go to [Site I] we have too much to do, so you can have an appointment in eight days, eight days later, and then I said: No, this doesn't work. And he answered: either you go to [Site I] or you have to wait till your doctor is back'" (P38U). "I've called the emergency service [of the associations of statutory health insurance registered doctors] and asked where is the best to go. You know, my office is in X street, and they suggested to go here directly"(P30U).	"I first went to my GP and he reckoned, these blood think is not ok. It's much too high. Terrible. That's why I came her" (P15U). Participants daughter: [Mother suffers from] "headaches, then we went to the doctor, he said, go to the ED, that'd much better"(P23U). "The GP said I should go straight to hospital to have it checked out because they have different means than they do have at the local countryside surgery" (P7R).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

DISCUSSION

Despite the differences in health care systems and health care access, our data confirm the results of many international studies, indicating that ED visits with non-urgent conditions are increasing primarily due to better accessibility and higher quality of medical care in EDs as opposed to the primary care sector (3,11-13). A recently published study (14) about vulnerable patients revealed fear and uncertainty as the main trigger to visit ED. These data correspond with the main motive health anxiety, we identified in subgroups of worried patients (A4) and those seeking higher medical standards (A3), of whom many suffered from chronic conditions (figure 3). Both main motives convenience and health anxiety were present in all three pathways leading to an ED-visit; directly and indirectly or after advice from a GP to visit the ED. Focusing on subjective daily life contexts and personal perception of health status, many interviewees revealed overlapping rationales, delineated in a gradient of efforts from none to extended attempts in achieving an appointment with a Resident Specialist or GP before visiting the ED.

Our results indicate that ED patients from different health care systems equally seek tailored medical help, which they do not seem to find in conventional outpatient care deliverers. Approaches to divert patients with 'inappropriate' use of ED by financial or organizational limitations are short-sighted and therefore largely unsuccessful, as they do not focus on patients' individual needs and expectations. To answer the growing demand for ED care, sustainable strategies to implement patient centered help are needed.

Below, intervention strategies to divert patients with minor conditions from ED are discussed for our participants' basic motives to visit ED.

ED as a convenient site of care

As participants described their need to spontaneously attend a GP or Resident Specialist during regular office-times as well as out-of-hour service, health care provision like walk-in-

centers in UK (15), walk-in-clinics in Ireland (16) or Collaborative Emergency Centers in Canada (17) could answer the demand for patients with minor injuries or non-urgent conditions. They do not provide perfect substitutes for the ED (18) but present suitable care centers for patients with non-urgent conditions. However, this concept contrasts the German health care system and disagrees with the current planning and financing structure.

A well-studied intervention is the provision of primary care services within or alongside hospital EDs. In many countries, primary care professionals provide non-urgent care in hospital EDs. A Cochrane review evaluating this concept has shown disparate results, and due to insufficient quality of included studies, authors did not draw conclusions for practice policy (19). In Germany, implementation of this strategy is challenging because health care provision would cross the separation between outpatient and inpatient sectors, whilst payment structures remain unchanged for the present. So far, primary care provision in German EDs has only been implemented in a few centers (20).

ED visits for health anxiety reasons

In our sample, worried patients reported a lack of confidence in GPs and Resident Specialist treatment. Intervention strategies should therefore focus on patients' trust in care providers to strengthen health-literacy and adherence. A systematic review of interventions to reduce ED visits based outside EDs found the greatest reduction after patient education (21). Consequently, solutions should approach the relationship between patients and providers. However, in Germany many physicians report excessive demand, which is underscored by the subgroup of our interviewees who were referred to the ED by GPs or Resident Specialists for time reasons. Even though transferal in case of a challenging diagnosis or shortage of office time is understandable from the doctors' perspective, it disagrees with the legally guaranteed outpatient service by GP and Resident Specialists and therefore reveals structural weaknesses of the medical practice in Germany. Crowded consultation hours and fragmented

care structures may have detrimental effects on vulnerable patients. Waiting times for consultations compared within 11 OECD countries (22) are relatively short in Germany, the numbers of consultations are comparatively high with an average of 17 visits per year, and the attendance time is brief with an average of 7,8 minutes (23). Care seeking at the ED may imply more dissatisfaction than lack of access to outpatient care providers. Some OECD countries (Canada (24), Italy (25), Australia (26), USA (27)) developed community-based care networks, focusing on prevention and disease management to answer the demand of vulnerable patients and those with chronic conditions. These community health centers offer arrays of health services, providing coordinated multidisciplinary care with extended opening hours, some of them with group activities or home help hours for patients with chronic conditions. Previous studies have shown that community care centers significantly decrease inappropriate visits to EDs (25, 27).

The implementation of multidisciplinary integrated health care services is also strongly recommended by policy advisors in Germany (28), especially with respect to the increasing share of elderly patients. However, they are in conflict with the fragmented German health care system, where primary, secondary and tertiary care providers are financed and planned separately (29). Consequently, patient-centered integrated health care requires a fundamental structural system change to create budgets and structural incentives for population-related care. In the short term, measures could be taken to improve patient information about health care services to find the most appropriate place of treatment. This may include services where patients receive competent counseling per phone in case of subjective urgent medical needs or more advanced internet based telemedicine approaches.

As short-term solutions EDs require resources to meet the growing demand for non-urgent care seekers. With respect to developing sustainable intervention strategies, structural barriers to effective health care in Germany require thorough trans-sectoral research.

Differences between rural and urban regions

We did not find major differences in motives for non-urgent visits to the ED between rural and urban regions, but data gave insight into regional varying habits and practices. Nearly all interviewees from rural region reported a strong connection to their GP, and some of these patients had been seeing their GP for decades. In contrast, many participants from urban area were only loosely connected to a GP, or did not even have one. However, interviewees from both areas used the ED purposeful in case of subjective need for higher medical standard or time constraints. Patients from the rural site emphasized the GPs limited diagnostic options, particularly X-ray technology. Another difference between participant groups is evident when comparing the daily curves of ED visits from urban and rural area (figures 1 and 2). In line with the federal state slogan: "Saxony-Anhalt - Welcome to the land of early birds" times of ED visits in the rural area peak about one hour earlier than in the urban region. However, time-difference do not influence participants demand for medical care.

Limitations

Qualitative analysis is subjective by nature. The aim of our study was to capture a broad range of motives and attitudes for seeking care in the ED. Although measures were taken to reduce interview bias, it cannot be completely excluded. As such, it is possible that findings may reflect personal biases of the investigators. Even though we conducted interviews in two regions with different sample populations, the extent of variation within the study is limited and may not be generalizable to all other settings.

CONCLUSIONS

The main motives for visiting an ED with non-urgent conditions were convenience and health anxiety triggered by time constraints and focused utilization of multi-disciplinary medical care in a highly equipped setting. Although patients in the rural area are more

connected to their GP, we did not find major differences in patients' motives to visit the ED. We conclude that the ED plays a pivotal role in ambulatory acute care, which needs to be recognized for adequate resource allocation.

a) **Contributorship Statement:**

MS, JS and MM have developed the study conception and design. MS, JS, AS and JF have analyzed the material. MS has written the manuscript and JS, MM and SR have given substantial input throughout the development and writing of the paper.

b) **Competing Interests:** None.

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d) **Data sharing statement:** No additional data available.

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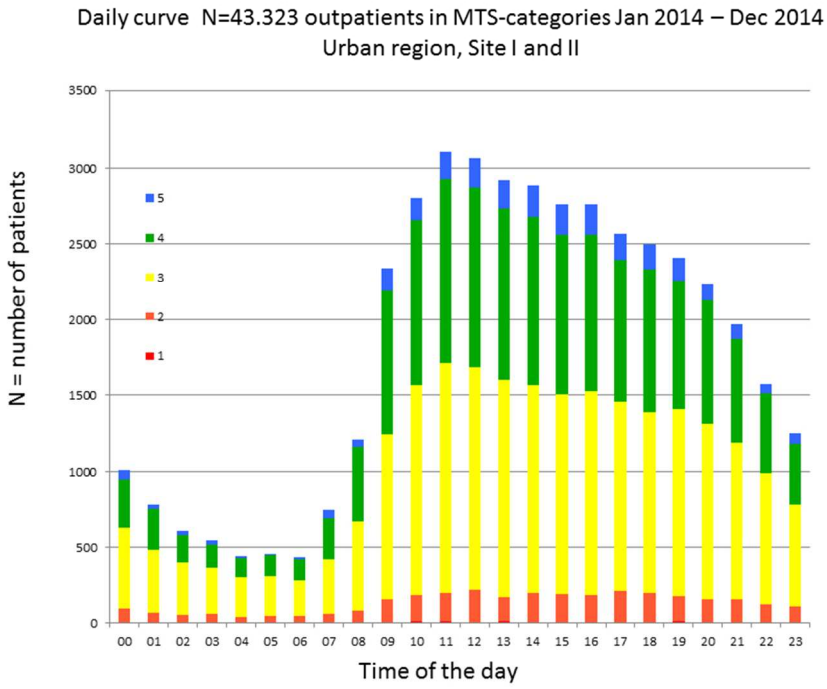

Figure 1. Daily curves for patient visits to the ED for the urban study sites I and II. The different colors reflect the triage categories assigned to the ED patients as used in the Manchester Triage System (MTS). 1 (red): immediately (only few patients in category 1 were discharged after ambulant treatment, e.g. with eye injury or presenting with strong pain) 2 (orange): very urgent (10 minutes) 3 (yellow): urgent (30 minutes) 4 (green): normal demand (90 minutes) 5 (blue): non-urgent demand (120 minutes).
Figure 1
254x190mm (96 x 96 DPI)

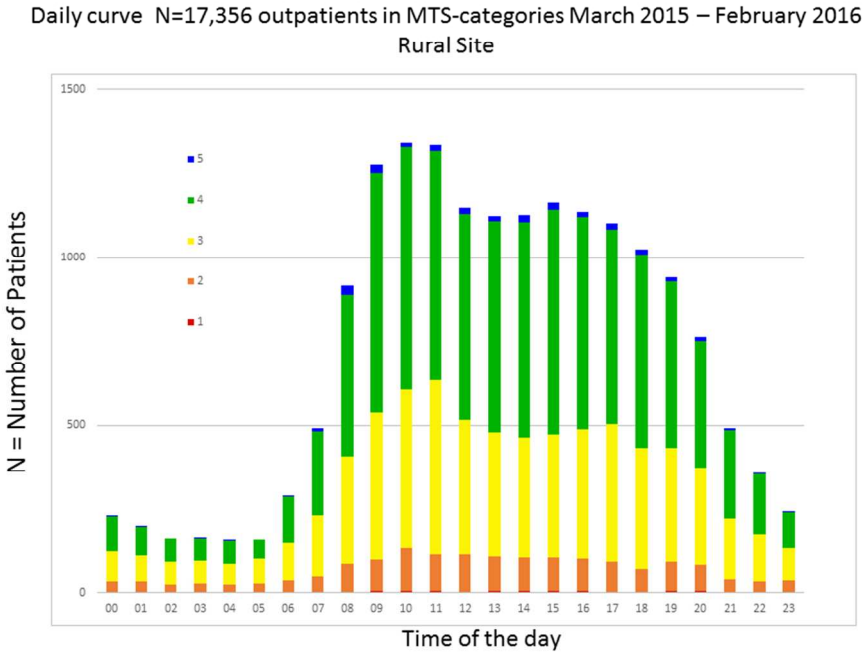

Figure 2. Daily curves for patient visits to the ED for the rural study site. The different colors reflect the triage categories assigned to the ED patients as used in the Manchester Triage System (MTS): 1 (red): immediately (only few patients in category 1 were discharged after ambulant treatment, e.g. with eye injury or presenting with strong pain) 2 (orange): very urgent (10 minutes) 3 (yellow): urgent (30 minutes) 4 (green): normal demand (90 minutes) 5 (blue): non-urgent demand (120 minutes)
Figure 2
254x190mm (96 x 96 DPI)

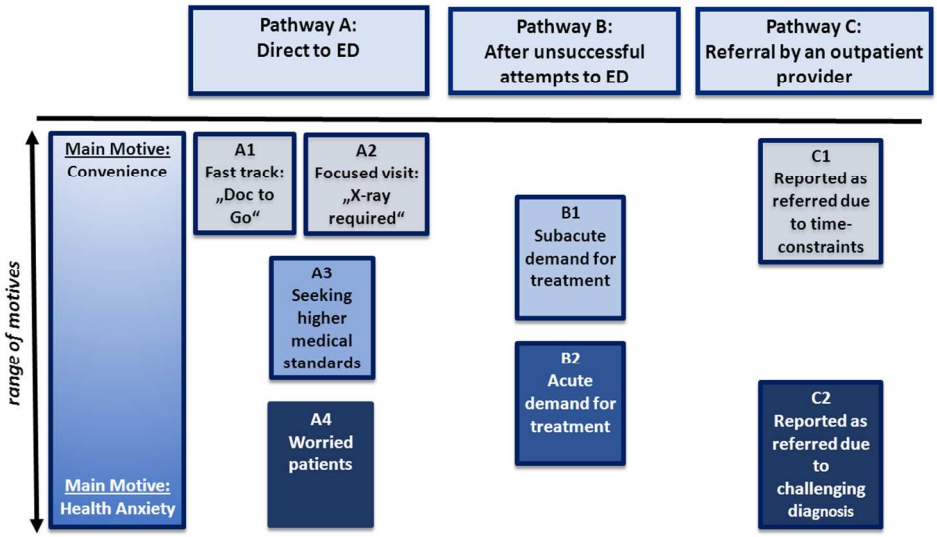

Figure 3. Conceptional framework identified in our sample through content analysis. It needs to be noted that the motives of resident physicians to advise patients to visit an ED were also reported by the patients and not directly assessed from the physicians.

Figure 3
338x190mm (96 x 96 DPI)

Most frequent ICD-10 Diagnoses made in the Urban sites

ICD-10 Diagnosis categories in our study population	R-Diagnoses	L-Diagnoses	S-T-Diagnoses	M-Diagnoses	J-Diagnoses	N-Diagnoses	K-Diagnoses	I-Diagnoses	G-Diagnoses	Z-Diagnoses
Diagnosis text	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	Diseases of the skin and subcutaneous tissue	Injury, poisoning and certain other consequences of external causes	Diseases of the musculoskeletal system and connective tissue	Diseases of the respiratory system	Diseases of the genitourinary system	Diseases of the digestive system	Diseases of the circulatory system	Diseases of the nervous system	Factors influencing health status and contact with health services
Quantity in our study population	17.9% n=7	15.4% n=6	20.3 % n=5	10.2% n=4	4.7% n=3	7.7% n=3	3.1% n=2	5.1% n=2	5.1% n=2	5.1% n=2
4-digit ICD-10 codes	**R00.2** Palpitations **R25.3** Fasciculation **R51**(n=2) Headache **R55** Syncope and collapse **R59.0** Enlarged lymph nodes **R74.0**	**L20.9** Atopic dermatitis **L50.8** Other urticaria **L27.0** Generalized skin eruption due to drugs and medicaments **L25.9**	**S20.2** Contusion of thorax **S60.8** Other superficial injuries of wrist and hand **T14.0** Superficial injury of unspecified	**M25.5** Pain in joint **M54.1** Radiculopathy **M79.1** Myalgia: from a muscle or muscle group **M79.6**	**J02.9** Acute pharyngitis, unspecified **J03.9** Acute tonsillitis, unspecified **J30.1** Allergic rhinitis due to pollen	**N30.0** Cystitis **N39.0** Urinary tract infection, site not specified **N45.9** Orchitis, Epididymitis and Epididymo-	**K12.1** Other forms of stomatitis **K29.1** Other acute gastritis	**I27.2** Other secondary pulmonary hypertension **I80.2** Phlebitis and thrombophlebitis of other deep	**G43.1** Migraine with aura **G51.0** Bell palsy	**Z30.4** Encounter for surveillance of contra-ceptives, unspecified **Z48.0** Encounter for change or removal of surgical

	Elevation of levels of transaminase and lactic acid dehydrogenase (LDH)	Unspecified contact dermatitis due to other chemical products **L73.9** Follicular disorder, unspecified **L98.9** Disorder of skin and subcutaneous tissue, unspecified	body region **T14.6** Injury of muscles and tendons of unspecified body region **T78.3** Angioneurotic oedema	Pain in limb, unspecified		orchitis without abscess		vessels of lower extremities		wound dressing

Most frequent ICD-10 diagnoses made in the ED urban sites (n = 39). Only diagnoses with quantity above n=1 were considered. ICD=International Classification of Disease

Most frequent ICD 10-Diagnoses made in the rural site			
ICD-10 Diagnosis categories in study population	**S-T Diagnoses**	**M- Diagnoses**	**R- Diagnoses**
Diagnosis text	Injury, poisoning and certain other consequences of external causes	Diseases of the musculoskeletal system and connective tissue	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
Quantity in study population	34.8% (n=8)	30.4% (n=7)	8.7% (n=2)
Breakdown in 3 figures ICD-10 Codes	**S40.0** Superficial injury of shoulder and upper arm **S60.0** Contusion of finger without damage to nail **S90.3 (n=2)** Contusion of other and unspecified parts of foot **S93.6** Sprain and strain of other and unspecified parts of foot **S83.6** Sprain and strain of other unspecified parts of knee **T14.0** Superficial injury of	**M54.1** Radiculopathy **M79.6** Pain in limb, unspecified **M25.5** Pain in joint **M54.5 (n=3)** Low back pain **M10.0** Idiopathic gout	**R10.1** Pain localized to upper abdomen **R51** Headache

	unspecified body region **S71.1** Open wound of hip		

Most frequent ICD-Diagnoses made in the ED rural site (n = 24). Only diagnoses with quantity above n=1 were considered.
ICD=International Classification of Disease

Consolidated criteria for reporting qualitative research (COREQ): 32-item checklist			
Domain 1: Research Team and Reflexibility			**Main Document Page**
Personal Characteristics			
1.	Interviewer	MS carried out the interviews.	6
2.	Credentials	MS, JS, AS and JF were professional researchers (MS: Diploma in Sociology/ MPH; JS: MD/MPH; AS: VD/MSc; JF: MPH). MM and SR were MDs in the Department of Emergency Medicine.	7
3.	Occupation	MS was visiting scholar at Charité Berlin; all other researchers were employed by Charité Berlin.	
4.	Gender	MS, JS and AS were female; MM, JF and SR were male.	
5.	Experience and training	MS and JS were experienced qualitative interviewers; AS has been trained in her Masters' curriculum. MM, JF and SR were new to qualitative research.	
Relationship with participants			
6.	Relationship established	No prior relationship between the interviewer and interviewees existed.	
7.	Participant knowledge of the interviewer	The interviewer was introduced to potential interviewees as a health care researcher (and not a MD) by medical staff (nurses or MDs). The interviewer explained the study goal and passed the study information sheet approved by the Charité ethic committee.	6
8.	Interviewer characteristics	The interviewer had pre-existing interests in exploring patient motives to visit the ED with minor conditions.	
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and theory	Content analysis was used to gain first–hand knowledge of participant rationales to visit ED. Content analysis requires the researcher to focus on important aspects relating to the overall research question, limited by the number of categories covering meaningful interview passages.	8
10.	Sampling	Purposive sampling: patients with minor conditions categorized as Manchester Triage System categories four and five, the lowest in terms of treatment acuity were identified and contacted from early morning to late evening till all weekdays were covered and new findings ended.	6

11.	Method of approach	Face-to-face contact was made during patients' waiting time for medical treatment.	7
12.	Sample size	The sample size was 64 participants.	7,9
13.	Non-participation	86 patients who met the inclusion criteria were approached. 15 declined, mainly because they felt too weak to participate. Seven interviewees were excluded from the analysis due to hospital admission within 30 days after the interview.	9
	Setting		
14.	Setting of data collection	Interviewees were in the ED waiting area or in the triage room while contact was made.	6
15.	Presence of non-participants	In some cases, accompanying friends or relatives joint the interview. Non-participants were not present during the interview.	
16.	Description of sample	Information about professional background, migration background and marital status were collected. We captured a broad range of participants in all ages. Demographic characteristics are described in Table 2.	9 Table 2
	Data collection		
17.	Interview guide	The semi-structured interview guide was pilot tested prior to the first interview.	7 Table 1
18.	Repeat interviews	No repeat interviews were conducted.	
19.	Audio/visual recording	Interviews were audio-recorded and verbatim transcribed.	7
20.	Field notes	Field notes were kept after each interview.	7
21.	Duration	Interviews lasted between 7 and 25 minutes with an average of 11 minutes.	
22.	Data saturation	Data saturation was discussed as new findings ended.	7
23.	Transcripts returned	Transcripts were not returned to interviewees.	
	Domain 3: analysis and findings		
	Data analysis		
24.	Number of data coders	MS was the primary coder, with further coding by JS. Coding consistency was co-checked by AS and JF.	8
25.	Description of the coding tree	Codes represented distinct viewpoints on each topic.	8
26.	Derivation of themes	Themes were related to the subjects of the interview guide.	8
27.	Software	MAXQDA11 was used for data management.	8
28.	Participants checking	Participants did not provide feedback on findings.	
	Reporting		

29.	Quotations presented	Quotations were presented to illustrate data and themes presented.	12-15 Tables 3A-C
30.	Data and findings consistent	There was consistency between data and findings.	10-15
31.	Clarity of major themes	Major themes were presented in the findings.	10-15
32.	Clarity of minor themes	Further research is required to uncover minor themes.	

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Patient motives behind low-acuity visits to the Emergency Department in Germany: A qualitative study comparing urban and rural sites

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Patient motives behind low-acuity visits to the Emergency Department in Germany: A qualitative study comparing urban and rural sites

German Clinical Trial Register No. DRKS0006053

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ABSTRACT

Objectives

The increasing number of low-acuity visits to Emergency Departments (ED) is an important issue in Germany, despite the fact that all costs of in- and outpatient treatment are covered by mandatory health insurance. We aimed to explore the motives of patients categorized as low-acuity for visiting an ED.

Methods

We conducted a qualitative study in two urban and one rural ED. We recruited a purposive sample of adults, who were assigned to the lowest two categories in the Manchester triage system. One-to-one interviews took place in the ED during patients' waiting time for treatment. Interview transcripts were analyzed using the qualitative data management software MAXQDA. A qualitative content analysis approach was taken to identify motives and to compare the rural with the urban sites.

Results

A total of 86 patients were asked to participate, of these n=15 declined participation and n=7 were excluded because they were admitted as inpatients, leaving a final sample of 40 female and 24 male patients. We identified three pathways leading to an ED visit: a) without primary care contact, b) after unsuccessful attempts to see a Resident Specialist or General Practitioner (GP) and c) recommendation to visit the ED by an outpatient provider. The two essential motives were (1) convenience and (2) health anxiety, triggered by time constraints and focused utilization of multi-disciplinary medical care in a highly equipped setting. All participants from the rural region were connected to a GP, whom they saw more or less regularly, whilst more interviewees from the urban site did not have a permanent GP. Still, motives to visit the ED were in general the same.

Conclusions

We conclude that the ED plays a pivotal role in ambulatory acute care which needs to be recognized for adequate resource allocation.

Strengths and limitations of this study:

- This study explored patients' motives for seeking care in an ED in a real life context.
- We covered different perspectives by investigating two regions with different sample populations.
- We used a qualitative content analysis method, which works both inductively and deductively and furthermore allows tracking data collection and inspection of research findings in a transparent way.
- Qualitative analysis is subjective by nature and researcher bias cannot be completely excluded.
- The extent of variations within this study is limited and may not be generalizable to all other settings.

INTRODUCTION

The increasing number of visits to Emergency Departments (ED) by patients with acute, but low-acuity conditions is an increasing and important issue in Germany. Like in many other countries, these patients contribute to ED crowding, which has been associated with negative effects on clinical outcomes [1,2]. Even though crowding is reported throughout Germany, there is little evidence about what the underlying rationale of the increased utilization by patients without "classic emergencies" is. Health insurance is obligatory for all citizen registered in Germany and unlike countries with insurance related health care barriers [3], the German health care system covers all costs of both in- and outpatient treatment, including medication. Patients are free to choose any doctor they would like to see, including specialists. Therefore, the decision to seek care in an ED must be mainly driven by motives other than financial considerations. Current hypotheses on patient motivations range from insufficient provision of outpatient healthcare to subjective changes in demand behavior [4].

ED visits with conditions that could be managed and treated in the primary care system impact the separation between the outpatient and inpatient sectors, which is intrinsic for the German health care system; hospital care is meant to be strictly limited to inpatient treatment, whilst Resident Specialists and GPs have to guarantee outpatient care. Consequently, the health care budget is also strictly separated between health care providers for inpatient and outpatient care. The budgets of both sectors are negotiated between the Federal Association of Sickness Funds and the Federal associations of inpatient and outpatient service providers, respectively. In the current system, ambulatory care in the EDs is largely underfunded [5], the increasing shift of patients from the outpatient sector to EDs has led to a controversial debate between health care policymakers and representatives of in- und outpatient healthcare providers about insufficient service provision by GPs and Resident Specialists, as well as a demand for redistribution of outpatient budgets [6,5].

Against this background, a deeper knowledge of patients' rationale for using the EDs with low-acuity conditions is essential for developing policy responses and solutions to the changing structure of healthcare demand. Current evidence about low-acuity ED visits was mainly generated in different health care systems, many of which have unequal access to health services. Hence, the results can only be transferred to Germany to a limited degree. Our research aim was to explore the motivation of patients categorized as low-acuity for visiting the ED. The objective was to include a broad range of reasons from subjects living in different environmental settings. Furthermore we aimed to contribute a German perspective to the international research of ED utilization with low urgency.

METHODS

Study Design

We conducted a qualitative study with semi-structured, face-to-face interviews to assess participants' behavior and attitudes [7, 8].

The geographical density of GP and Specialists in Germany greatly differs between urban and rural areas, and in rural areas access by public transport to medical care providers is limited. As this might affect the reasons for ED utilization with minor conditions, we enrolled a purposive sample of patients in both, highly structured urban and rural regions with low population density, to capture a broad range of motives.

Between April 2014 and April 2015 one of the authors (MS) conducted patient interviews at three EDs, two of which are units of a tertiary care hospital in the center of Berlin. One of these EDs (Urban Site I) is located in a catchment area with lower socio-economic status whilst the other (Urban Site II) is located in the heart of the Berlin government quarter [9]. The third ED (Rural Site) is located in a city with 50.000 inhabitants in a rural region in Saxony-Anhalt, a state of former socialist Germany. The catchment area of the rural ED

covers a radius of approximately 30 kilometers. In all three sites, the majority of low-acuity visits occur during office hours of outpatient care providers (figures 1 and 2).

Study Setting and Population

We recruited adult patients categorized as Manchester Triage System (MTS) categories four and five, the lowest in terms of treatment acuity. Patients who were admitted as inpatients either directly from the ED or within 30 days after their ED visit were excluded from the analysis.

Eligible patients were approached by the interviewer either in the waiting area or in the triage room. All participants gave written informed consent. The study was approved by the local ethics committee (Charité EA1/040/14).

Interviews took place in a separate room of the ED facilities and were audio taped and then transcribed verbatim. Data collection was conducted from Monday to Sunday early in the morning to late evening at each ED until all weekdays were covered once and thematic saturation was reached. Following each interview, field notes were taken to document impressions on atmosphere, nonverbal communication and special features during the interview.

New findings ended after 23 interviews at Urban Site I and after 17 interviews at Urban Site II. At the Rural Site, we conducted a total of 31 interviews.

Interview

To identify a broad range of motives, we used a semi-structured interview guide with open-ended questions (table 1, original German interview guide in supplement). The content was reviewed by the multidisciplinary research group of the Emergency Department (MS, JS, AS, MM including two physicians, one epidemiologist, one sociologist/MPH and one MPH) and was modified after the first two interviews.

Table 1: Questions from interview guide

Please describe to me what made you visit the ED today?
Since when have you had these complaints, exactly when did they start?
When did you decide to see a doctor?
What did you do next? (Waiting, trying to make an appointment with a GP or Specialist, direct visit to the ED)
Do you have a GP or RS, you regularly go to?
Did you contact him/her before you came to the ED?
How would you describe your confidence in your GP or RS!
What do you usually do when you feel sick?
Do you live with a partner? Do you live with children?
Are you employed? (If yes, what kind of profession do you have? Do you work full- or part-time?)
Do your working hours and/or child care impact your choice of health care provider?

Table 1: Guide for the semi-structured interviews. Questions were adapted to the requirements of the individual interviews.

Data Analysis

All interview transcripts and field notes were entered into the qualitative data management software MAXQDA and anonymized for analysis. We took a qualitative content analysis (QCA) approach to identify patient motives, using a multi-stage process. QCA works equally coding inductively and deductively into themes emerging from text-analysis; data can be used to form a theory, as well as to test assumptions. Furthermore, tracking of data collection and analysis allows inspection of the research process and result findings [10]. To answer the research question, one of the authors (MS) first reviewed the transcripts and coded them line by line. In the next step, the coding was revised by a second author (JS). Sentence chunks or single words were labeled independently with broad categorization, mainly focusing on the

interview guide. Material was carefully re-read and completely recoded as new reasons emerged (MS, JS). Moreover, coding consistency was co-checked by two further authors (AS and JF). In subsequent discussions, four authors (MS, JS, AS, JF) of the multidisciplinary research group refined the final coding structure. Based on this structure, subgroups of behavioral patterns and attitudes were compared and contrasted to gain powerful conclusions. Finally, the main types of motives were developed, which are applied to all categories identified in our sample to answer the research question.

RESULTS

Patient characteristics

We approached 86 patients who met the inclusion criteria, of which 15 declined to participate. Theme saturation was reached after interviewing 71 patients at the three participating EDs. Seven participants were excluded from the analysis due to hospital admission within 30 days after the interview, leaving a final sample of 64 patients (40 female and 24 male). The demographic characteristics of the participants are outlined in table 2. (Most frequent ICD-10 codes assigned to the study participants during their ED visit in the supplement).

Table 2: Demographic Characteristics

	Urban N = 39	Rural N = 25	Female N = 40	Male N = 24	All N = 64
Age (mean)	39	44	37,5	46,0	41
Min-Max	18-77	18-81	18-81	22-74	18-81
Median	39	49	37,5	49	40
German [n (%)]	28(69%)	24 (96%)	34 (85%)	18 (75%)	52(81%)
Migrant*	11(31%)	1 (4%)	6 (15%)	6 (25%)	12(19%)
EU	2 (8%)	1 (4%)	1 (2,5%)	2 (8%)	3 (5%)
Turkey	7 (18%)	0	3 (7,5%)	4 (17%)	7 (11%)
Other	2 (5%)	0	2 (5%)	0	2 (3%)
Occupational status					
Employed [n (%)]	18(46%)	12 (48%)	18(45%)	12 (50%)	30(47%)
Self-employed [n (%)]	7 (18%)	2 (8%)	4 (10%)	5 (21%)	9 (14%)
In education [n (%)]	8 (20 %)	4 (16 %)	10 (25%)	2 (8%)	12(19%)
Pensioner [n (%)]	3 (8%)	6 (24%)	5 (12,5%)	4 (17%)	9 (14%)
Job-seeker/unemployed[n (%)]	3 (8%)	1 (4%)	3 (7,5)	1 (4%)	4 (6%)

Table 2: Demographic Characteristics of the study participants.

* The origin of migrants is identified by non-German citizenship and/or the place of birth abroad. Legend: Min = minimum; Max = maximum; EU = European Union.

Motives for visiting the Emergency Department

Our data interpretation followed patients' narratives from the onset of symptoms through the decision to require medical treatment and the ED visit. We identified three "pathways" participants took to visit the ED, (1) a direct visit to the ED, (2) a visit to the ED after unsuccessful attempts to see a doctor in the outpatient system and (3) a visit to the ED after recommendation from an outpatient doctor to do so. At first sight the pathways seem to cover distinctive patient groups, but deeper analysis revealed two recurring main motives applicable in all three pathways, (1) convenience and (2) health anxiety. This theoretical

framework for low-acuity visits to the ED is outlined in figure 3. Meaningful quotes are presented in table 3 (Original German quotes in supplement).

Pathways A and B

Patients without any preceding attempt to see a Resident Specialist or GP were classified into pathway A and those who tried but failed to make an appointment with a GP or Resident Specialist before coming to the ED into pathway B. However, the time span between the onset of complaints, the decision to get medical treatment and the ED visit as well as the efforts made to see an outpatient doctor reveals ambiguities between decision making and acting. Therefore, in a deeper level of analysis, patient motives overlap between the different pathways. We report patient motives in the pathways most frequently used. Corresponding quotes representative for the different subgroups can be found in table 3.

Pathway A: Direct visit to the ED

Subgroup A1 "doc to go": Convenience driven visit to the ED

We labeled subgroup 1 "doc to go", because patients perceived a spontaneous visit at any time to see a doctor in the ED as more convenient than undergoing a scheduled appointment with an outpatient provider, even though they had to spend several hours waiting. The subgroup mainly consisted of younger, healthier and busier subjects. Some of the urban participants neither had a GP nor considered it necessary to have one. Other interviewees explicitly underlined the importance of finishing work prior to a doctor's visit and therefore went for medical consultation at the ED outside office hour times of the outpatient providers. Other participants used the ED as an alternative source of care in addition to their GP and made their decision to visit one or the other depending on factors like timing and presumed care required for their current condition. Even though we labeled participants seeking for

"doc to go" at all sites, the priority of work duties due to fear of job loss was more pronounced in rural region.

Subgroup A2 "focused visit: X-ray required": Convenience driven visits

Subgroup A2 assumed that an X-ray would be required to manage their condition. This motive was solely reported from participants of the rural area. After minor injury or minor strains and sprains, they went directly to the ED to have an X-ray taken. All patients in this group reported a strong connection to their GP and no issues with the GP's opening hours. They did not consider it worthwhile to wait for an appointment with a Resident Specialist they did not know. Most patients in this group had to be driven to the care provider by family members, neighbors or friends. For them, it was convenient to go directly to the well-equipped ED, where they could expect to find the full range of laboratory and imaging technology available, addressing their need for a fast diagnosis.

Subgroup A3 "seeking higher medical standard": Anxiety and convenience driven ED visits

Subgroup 3 explicitly searched for higher medical standards due to concerns about their health status. Most patients in this group were older, had a migration background in the urban subgroup, and were less healthy. Many in this subgroup had either experienced severe illnesses or suffered from chronic conditions, although the current complaint was not necessarily connected to their chronic illness. These patients were under regular outpatient treatment. Some reported discontent with their primary care and valued the ED as a complementary source of care, others stressed the availability of treatment from several specialists during a single visit as very comfortable. For this subgroup, from rural and urban sites, anxiety about health status as well as convenience reasons lead to the ED visit. In this context it has to be noted that accessibility of specialist care was lower in the rural area.

Subgroup A4: worried patients: Anxiety driven visits

A fourth subgroup (4) of all ages and from rural and urban area, consisted of worried patients, who reported fear and uncertainty about their health status, impairing their quality of life. In the urban area, many of the migrants were assigned to this subgroup. Many of these patients, had been on an odyssey from doctor to doctor and addressed the ED after their symptoms failed to improve, the return of complaints or undiagnosed physical symptoms. Some of these patients seemed to be trapped within a diagnostic circle. Meaningful quotes representative for all subgroups are presented in table 3A.

Table 3A: Quotes Pathway A

Pathway A: Direct to the ED			
Subgroup A1 "doc to go"	**Subgroup A2 Focused visit: X-Ray required**	**Subgroup A3 Seeking higher medical standards**	**Subgroup A4 Worried patients**
"Well, it's the extreme waiting times at the GP, or all that. It's something I just can't do. So, when I have something urgent, then I usually go to the hospital and when it isn't so urgent, I just treat myself a bit" (P09U). "Well, I simply can't do between 9.30 and 7 o'clock in the evening, anything medical" (P27U). "I'm self-employed and always have to go to work. I don't have time to sit down in a doctor's waiting room. That's too stressful for me. To sit around for so long and nothing comes out of it" (P26R). "No, I don't have one [GP]. I don't really go / I don't get ill. But I should go some time, haha, and I guess I should have a GP, but then I always forget, but I should be doing it" (P26U).	"Before I go to the GP, I don't think he is even open today, I have to wait till tomorrow and then he's only open between 4 and 6, then I get there, have to wait around, and they then only give you a referral to a surgeon or an X-Ray department and then this is probably a quicker way, I think"(P3R). And your GP can't do it? "No, because X-Ray is needed and everything" (P12R). "I've twisted my ankle and that needs X-Ray, I suppose, probably" (P8R). "Then you go straight away to the ED, in such a case, because GP can't do much, because he has no X-Ray at hand" (P7R).	"And I always feel that the hospital safer, there are many more possibilities, the GP is too limited to little things, but taking blood sample doesn't work, will take two or three days, for example. Or urine, urine is a bit quicker, I mean than taking blood, but here it takes an hour, and all is done, blood, urine everything"(P40U). "I'm here with my heart condition and came here for other things as well, I like it here, feel looked after, because I had a deep thrombosis, and then I went to another hospital, and they made me look as if I was just faking it" (P3U).	"Yeah, and they gave me a jab, well the GP did, and I'd say, you know, the injections they do here, are not the same as the ones, you know, here at the ED and then, there's a surgeon here, probably, who does it and I reckon it's going to be a bit more professional, like, and I've heard they have different gear here, that the medicines what they inject, are, let's say, more effective" (TN 29R). "It's only psyche and nothing more and I shouldn't exaggerate and then he had realized that is was actually worse and then had I, and then I immediately said I would like a referral to [Place of ED] and then I had gotten it and now I'm sitting here" (P20R). "I already told him [GP] about my problem but he said it wasn't anything and that's why I'm here, now" (P 20U).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

Pathway B: ED visit after unsuccessful attempts to see a GP or Resident Specialist

About half of our participants reported unsuccessful attempts to consult a GP or Resident Specialist before visiting the ED. While subgroup B1 tried to see a Resident Specialist or GP in the short term, for a condition they perceived as acute or urgent, subgroup B2 failed to get an appointment with a Resident Specialist in the short or medium term. However, deeper analysis revealed varying efforts in seeing a doctor. While some patients reported extended endeavors to make an appointment with a GP or Resident Specialist, others stated to have made only one or two phone calls prior to the ED visit. Furthermore, the reported time span between the onset of complaints and the ED visit ranges from few hours to several weeks. Even patients who felt in need for urgent treatment, finished their assignments at work before attempting to see a doctor. As a result, they had to visit the ED because the GP or Specialists office was closed by then. Other patients suffered from symptoms for weeks before deciding to see a physician, but then wanted immediate treatment. After failing to make an appointment the same or the following day, they went straight to the ED. Furthermore, some patients from the urban region reported dissatisfaction with their regular treatment and patients from both areas praised the ED's high medical standard and technological equipment. Hence, their motive to visit the ED was not only substitution of GP or Resident Specialist treatment, but also superior care. Furthermore, in cases of hesitation to see a doctor, EDs work as a convenient safety net - the availability at any time allowed the patients to delay seeking care. Meaningful quotes are presented in table 3B.

Table 3B: Quotes Pathway B

Pathway B: Visiting ED after unsuccessful attempt to see a Resident Doctor	
Subgroup B1: Subacute demand for treatment	**Subgroup B2: Acute demand for treatment**
"Then I tried to find an orthopedic surgeon here in this area, no chance, you've got no chance. Phoning them doesn't work, they just tell you, they can give you an appointment in four months" (P19R).	"I tried to see some kind of a GP or surgeon, but the next appointments were in a month time, I mean I've definitely got one, let's say a whole network of doctors but none who would have been able to do it straight away. So I tried, but it just didnt't work out" (P27U).
"The doctor looked at the blood test and said: that all has to be analyzed more thoroughly and he referred me. Then I called lot of docs and was given appointments from between three to five months from now. I'm worried about the problem, more and more, day by day (...) It just took too long and then I thought, I just come here. Maybe I'll get a checkup and then I get the results and know what to do next"(P18U).	"Yeah, on Saturday I had a little accident - got stuck in the back of me hand, stuck in the thorns, they tore into me and I didn't manage to get them all out. Now my whole hand is swollen up. That's why I ended up going to the surgeon this morning, one I've never been to – the waiting room was packed, saw it straight away and him from reception told me, the earliest I could get an appointment was next Monday, so in a weeks' time. That's why I went to the ED" (P1R). "Well, I've got a problem with my eyes, my skin, my scalp and it got worse the last few days, so I called five dermatologists today, but it's not possible to see one without a date (...) This problem isn't new to me, it's for some time" (P37U).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

Pathway C: Referral by the outpatient provider

A subgroup of patients from both regions reported that they had been referred to the ED after visiting a GP or Resident Specialist, either due time constraints (Subgroup C1) or to challenging symptoms (Subgroup C2). These patient's reports indicate that the two main motives, convenience and health anxiety also apply to this pathway, even though this was not

directly assessed from the respective physicians. While some participants from urban region reported an indifferent attitude of the GPs or Specialists they approached, patients from the rural area described purposeful reference from their GPs to the ED. Corresponding quotes are presented in table 3C.

Table 3C: Quotes Pathway C

Pathway C: Referral by the outpatient provider	
Subgroup C1: Reference due to time issues	**Subgroup C2: Reference due to challenging symptoms**
"Exactly, yes, my knee is so weak. And then, today, I'd go to my orthopedist, but all of them were in holidays, and the substitute had too much to do, he'd said, if you have pain, go to [Site I] we have too much to do, so you can have an appointment in eight days, eight days later, and then I said: No, this doesn't work. And he answered: either you go to [Site I] or you have to wait till your doctor is back'" (P38U). "I've called the emergency service [of the associations of statutory health insurance registered doctors] and asked where is the best to go. You know, my office is in X street, and they suggested to go here directly"(P30U).	"I first went to my GP and he reckoned, these blood think is not ok. It's much too high. Terrible. That's why I came her" (P15U). Participants daughter: [Mother suffers from] "headaches, then we went to the doctor, he said, go to the ED, that'd much better"(P23U). "The GP said I should go straight to hospital to have it checked out because they have different means than they do have at the local countryside surgery" (P7R).

P n U = Participants from Urban Region
P n R = Participants from Rural Region
n = No of Participant

Differences between rural and urban regions

We did not find major differences in motives for low-acuity visits to the ED between rural and urban regions, but data gave insight into regional varying habits and practices. Nearly all interviewees from rural region reported a strong connection to their GP, and some of these patients had been seeing their GP for decades. In contrast, many participants from urban area were only loosely connected to a GP, or did not even have one. However, interviewees from

both areas used the ED purposeful in case of subjective need for higher medical standard or time constraints. Patients from the rural site emphasized the GPs limited diagnostic options, particularly X-ray technology. Another difference between participant groups is evident when comparing the daily curves of ED visits from urban and rural area (figures 1 and 2). In line with the federal state slogan: "Saxony-Anhalt - Welcome to the land of early birds" times of ED visits in the rural area peak about one hour earlier than in the urban region. However, time-difference did not influence participants demand for medical care.

DISCUSSION

Our findings indicate that the main motives for low-acuity ED visits are convenience and health anxiety which were reported by patients in all three possible pathways leading to an ED visit - direct visit, indirect visit after an attempt to contact a resident doctor and advice from a resident doctor to visit the ED.

Convenience-visits to the ED

In our sample, the main motive for patients, who directly visited the ED without trying to make an appointment in the primary care system, were convenience reasons, addressing 24/7 h/d accessibility and the availability of a full range of medical services. Interestingly, in this subgroup, all patients from the rural region were connected to "their" GP, whilst, most patients from the urban region were not or only loosely connected to any GP.

Numerous quantitative and qualitative studies from countries with good access to health care report that low-acuity ED visits are driven by convenience. Authors of a French study labeled their participants 'discerning health consumers', as they used the ED to profit from rapid treatment and to spare several specialists appointments [11]. A Norwegian study identified accessibility of a full range of medical services at all times as the major cause for low-acuity ED visits [12]. Similarly, authors of a study on self-referred patients conducted in the

Netherlands reported that the main reasons for low-acuity ED visits were faster treatment and easier access to radiological diagnostics and laboratory testing. Furthermore, patients in this study claimed that their symptoms were too severe to be treated by a GP [13]. Older patients surveyed by Australian researchers aimed at timely care and fast-track access to specialist care in EDs, even though all of them were attached to a regular GP, most with timely access to office hours [14].

Health-anxiety visits to the ED

The second main motive for low-acuity ED visits in our study was health anxiety. Many patients who visited the ED directly or after unsuccessful attempts to approach GPs or Resident Specialists (Group A and B) were seriously concerned about their health status. Many of these patients suffered from chronic conditions, although these were not necessarily connected to the index ED-visit (figure 3). Interestingly, this finding is supported by evidence from international studies, where patients revealed fear and uncertainty as the main trigger to visit the ED. [15-17]. In addition, authors of international studies have shown that economically and socially deprived patients are more likely to visit ED for acute and low-acuity reasons. A lack of adequate information about their health status and limited health literacy may contribute to uncertainly and health anxiety. [18,19].

Health care system-related reasons for ED utilization

Kellermann et al. have described ED utilization as a "bellwether for how an overall health care system is functioning" [20]. Correspondingly, differences in ED utilization are also caused by differences in the respective health care systems. A limited access to health insurance is an important driver for seeking low-acuity treatment in the ED. A descriptive analysis conducted in the US [3] indicated that the patterns of low-acuity ED visits vary by access to health insurance: Patients with private health insurance reported constraints related

to business hours and waiting for appointments in primary care as main motives for ED visits. In contrast the central reasons of the remaining participants were limited access to primary care caused by a lack of health insurance, income constraints and high transport costs. In Germany, where health insurance is mandatory for all citizens and all patients have access to all forms of treatment provided by the general health insurance system these patterns and differences across patients' groups cannot be observed.

The findings of our study suggest that the strict separation between in- and outpatient care in the German health system affects low-acuity ED utilization. In Germany, outpatient care should, by law, only to be delivered by resident physicians of the outpatient health care system. Even though limitations in the access to outpatient care are reported as important motives for low-acuity ED visits, waiting times for consultations in Germany are relatively short compared to those in 11 other OECD countries [21]. The number of consultations per patient is comparatively high at 17 visits p.a., but the attendance time is, at an average of 7.8 minutes per visit, brief [22]. Additionally, the outpatient system does not manage to cover out-of-office times even though it is obliged to reliably supply acute ambulatory care at all times. Many patients lack knowledge of the acute care facilities of the outpatient system provided in emergency practices or as mobile care structures.

Another important feature of our findings is that participants were referred by outpatient providers to visit ED with low-acuity needs. This pathway C was reported as a frequent reason in our study and is -- to the best of our knowledge -- not found in studies from other countries as a main cause of low-acuity ED visits. As the German health care system legally requests that the outpatient service is completely covered by GPs and Resident Specialists, this uncovers a weakness in the division of work between the different suppliers of the German health care system.

Around 10 million patients visit German EDs per year (12 visits per 1,000 inhabitants) [5], which is still a relatively low number compared to other OECD countries (average of 31

visits per 1,000 inhabitants) [23]. However, the annual growth rate of ED visits in Germany is, at about five percent [24, 23], one of the highest amongst OECD countries. The increasing number of ED visits has caused a debate amongst political decision makers and providers of health services in Germany about the need of policy interventions in the general public and the health care system. Given the strict separation between in- and outpatient care in the German health care system, the current debate regarding measures to either divert patients away from EDs or to provide GP care at EDs is highly controversial between the different stakeholders. This debate overlays a discussion about the patients' underlying motives for low-acuity ED visits which needs to be taken into account when trying to implement successful solution strategies.

The findings of this as well from other studies indicate that ED patients seek tailored medical help, which they do not seem to find from conventional outpatient care deliverers. Approaches to divert patients with 'inappropriate' use away from EDs do not consider patients' individual needs and expectations and may therefore remain unsuccessful.

Many participants in our study outlined a need to attend a GP or Resident Specialist spontaneously at regular office times as well as out-of-office times. Health care provision like walk-in-centers in UK [25], walk-in-clinics in Ireland [26] or Collaborative Emergency Centers in Canada [27] could address these demands for patients with minor injuries or low-acuity conditions. These centers do not provide perfect substitutes for the ED [26], but present suitable care for patients with low-acuity conditions. A similar approach is the provision of primary care services within or alongside hospital EDs. A Cochrane review evaluating this concept has shown disparate results, and, due to the insufficient quality of the individual studies covered by this meta-study, the authors did not draw practical policy conclusions [28].

In Germany, similar concepts are difficult to implement due to the strict separation of in- and outpatient care and the subsequent conflicts between health care providers on the funding of

their services. So far, primary care provision in German EDs has only been implemented in a few centers [29] but is currently discussed to be expanded [30, 31].

The other main motive for seeking care in EDs was anxiety about the health status. In our sample, worried patients , thereof many of the migrants, reported a lack of confidence in GP and Resident Specialist treatment. Intervention strategies should therefore focus on patients' trust in care providers to strengthen health-literacy and adherence. A systematic review of interventions to reduce ED visits based outside EDs found the greatest reduction after patient education [33]. Consequently, solutions should approach the relationship between patients and providers, particularly with respect to vulnerable patients, e.g. migrants. However, in Germany many physicians report excessive demand of their services. This is underscored by the subgroup of our interviewees who were referred to the ED by GPs or Resident Specialists due to time constraints. Crowded consultation hours and brief attendance time may have detrimental effects on vulnerable patients resulting in further ED visits. Some OECD countries (Canada [34], Italy [35], Australia [36], USA [37]) developed community-based care networks, focusing on prevention and disease management to answer the demand of vulnerable patients and those with chronic conditions. These community health centers offer arrays of health services, providing coordinated multidisciplinary care with extended opening hours, some of them with group activities or home help hours for patients with chronic conditions. Several studies have shown that community care centers significantly decrease low-acuity visits to EDs [35, 37].

The implementation of multidisciplinary integrated health care services is also strongly recommended by policy advisors in Germany [38], especially with respect to the increasing share of elderly patients. However, these are again in conflict with the fragmented German health care system, where primary, secondary and tertiary care providers are funded and planned separately [39]. Consequently, patient-centered integrated health care requires a fundamental change in the German health care system in order to create budgets, which cross

the boundaries of primary, secondary and tertiary health care and provide incentives for population-related care. In the short-term, measures could be undertaken for improving patients' knowledge on health care services which support them in finding the most appropriate place of treatment. This may include services where patients receive competent counseling per telephone in case of subjective urgent medical needs or more advanced internet-based telemedicine approaches. Nevertheless, given the increasing demand for low-acuity treatment in EDs, the EDs will require further resources in Germany in the short-term to be able to provide high quality care for all patients who seek their help.

Limitations

Qualitative analysis is subjective by nature. The aim of our study was to capture a broad range of motives and attitudes for seeking care in the ED. Although measures were undertaken to reduce interview bias, it cannot be completely excluded. As such, it is possible that findings may reflect personal biases of the investigators. Even though we conducted interviews in two regions with different sample populations, the extent of variation within the study is limited and may not be generalizable to all other settings.

CONCLUSION

The main motives for visiting an ED with ~~non-urgent~~ low-acuity conditions were convenience and health anxiety triggered by time constraints and focused utilization of multi-disciplinary medical care in a highly equipped setting. Although patients in the rural area are more connected to their GP, we did not find major differences in patients' motives to visit the ED. We conclude that the EDs play a pivotal role in ambulatory acute care, which needs to be recognized for adequate resource allocation. Reduction of patient numbers in the EDs requires extensive changes in the German health care system.

a) Contributorship Statement:

MS, JS and MM have developed the study conception and design. MS, JS, AS and JF have analyzed the material. MS has written the manuscript and JS, MM and SR have given substantial input throughout the development and writing of the paper.

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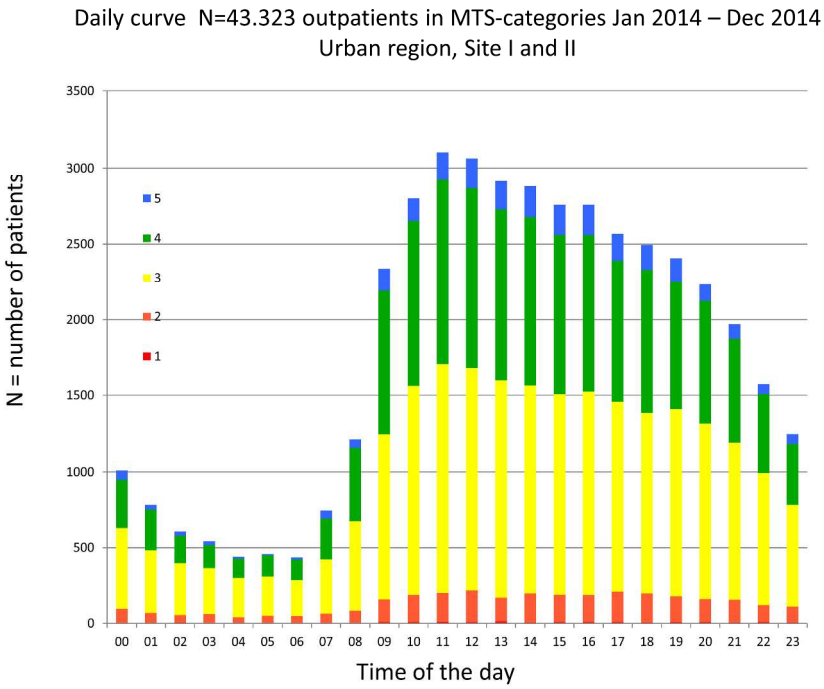

Figure 1. Daily curves for patient visits to the ED for the urban study sites I and II. The different colors reflect the triage categories assigned to the ED patients as used in the Manchester Triage System (MTS). 1 (red): immediately (only few patients in category 1 were discharged after ambulant treatment, e.g. with eye injury or presenting with strong pain) 2 (orange): very urgent (10 minutes) 3 (yellow): urgent (30 minutes) 4 (green): normal demand (90 minutes) 5 (blue): non-urgent demand (120 minutes).

Figure 1
254x190mm (300 x 300 DPI)

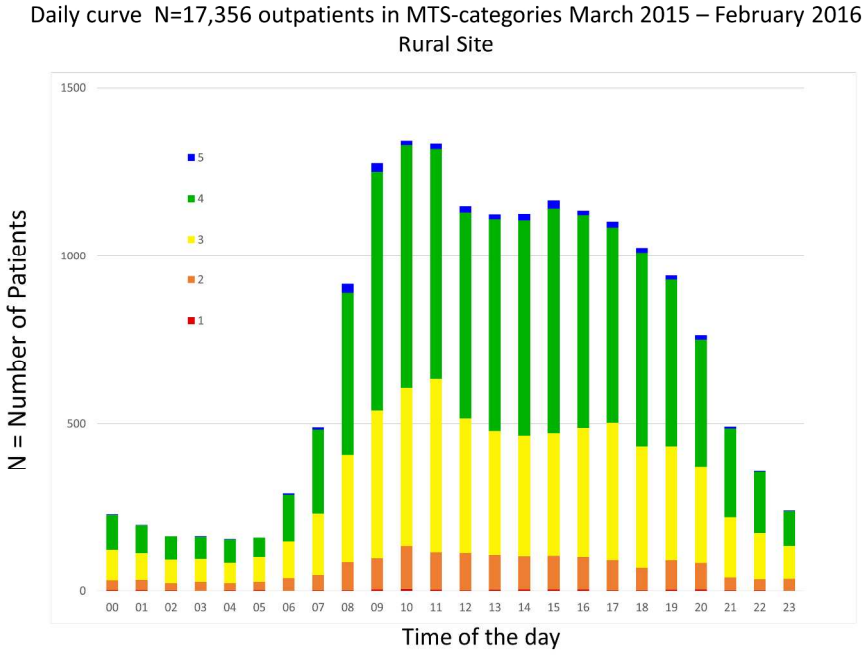

Figure 2. Daily curves for patient visits to the ED for the rural study site. The different colors reflect the triage categories assigned to the ED patients as used in the Manchester Triage System (MTS): 1 (red): immediately (only few patients in category 1 were discharged after ambulant treatment, e.g. with eye injury or presenting with strong pain) 2 (orange): very urgent (10 minutes) 3 (yellow): urgent (30 minutes) 4 (green): normal demand (90 minutes) 5 (blue): non-urgent demand (120 minutes)‼ ┼ ‼ ┼

Figure 2
254x190mm (300 x 300 DPI)

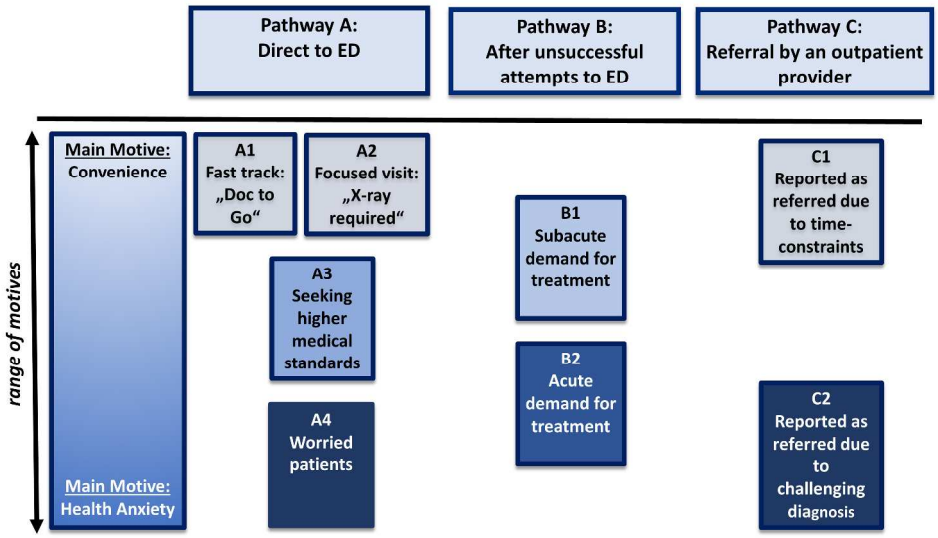

Figure 3. Conceptional framework identified from our sample through content analysis. It needs to be noted that the motives of resident physicians to advice patients to visit an ED were also reported by the patients and not directly from the physicians.

Figure 3
338x190mm (300 x 300 DPI)

Most frequent ICD-10 Diagnoses made in the Urban site

ICD-10 Diagnosis categories in our study population	R-Diagnoses	L-Diagnoses	S-T-Diagnoses	M-Diagnoses	J-Diagnoses	N-Diagnoses	K-Diagnoses	I-Diagnoses	G-Diagnoses	Z-Diagnoses
Diagnosis text	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	Diseases of the skin and subcutaneous tissue	Injury, poisoning and certain other consequences of external causes	Diseases of the musculoskeletal system and connective tissue	Diseases of the respiratory system	Diseases of the genitourinary system	Diseases of the digestive system	Diseases of the circulatory system	Diseases of the nervous system	Factors influencing health status and contact with health services
Quantity in our study population	17.9% n=7	15.4% n=6	20.3 % n=5	10.2% n=4	4.7% n=3	7.7% n=3	3.1% n=2	5.1% n=2	5.1% n=2	5.1% n=2
4-digit ICD-10 codes	**R00.2** Palpitations **R25.3** Fasciculation **R51**(n=2) Headache **R55** Syncope and collapse **R59.0** Enlarged lymph nodes **R74.0**	**L20.9** Atopic dermatitis **L50.8** Other urticaria **L27.0** Generalized skin eruption due to drugs and medicaments **L25.9**	**S20.2** Contusion of thorax **S60.8** Other superficial injuries of wrist and hand **T14.0** Superficial injury of unspecified	**M25.5** Pain in joint **M54.1** Radiculopathy **M79.1** Myalgia: from a muscle or muscle group **M79.6**	**J02.9** Acute pharyngitis, unspecified **J03.9** Acute tonsillitis, unspecified **J30.1** Allergic rhinitis due to pollen	**N30.0** Cystitis **N39.0** Urinary tract infection, site not specified **N45.9** Orchitis, Epididymitis and Epididymo-	**K12.1** Other forms of stomatitis **K29.1** Other acute gastritis	**I27.2** Other secondary pulmonary hypertension **I80.2** Phlebitis and thrombophlebitis of other deep	**G43.1** Migraine with aura **G51.0** Bell palsy	**Z30.4** Encounter for surveillance of contra-ceptives, unspecified **Z48.0** Encounter for change or removal of surgical

	Elevation of levels of transaminase and lactic acid dehydrogenase (LDH)	Unspecified contact dermatitis due to other chemical products **L73.9** Follicular disorder, unspecified **L98.9** Disorder of skin and subcutaneous tissue, unspecified	body region **T14.6** Injury of muscles and tendons of unspecified body region **T78.3** Angioneurotic oedema	Pain in limb, unspecified		orchitis without abscess		Diseases of lower extremities		wound dressing

Most frequent ICD-10 diagnoses made in the ED urban sites (n = 39). Only diagnoses with quantity above n=1 were considered. ICD=International Classification of Diseas

Most frequent ICD 10-Diagnoses made in the rural site			
ICD-10 Diagnosis categories in study population	**S-T Diagnoses**	**M- Diagnoses**	**R- Diagnoses**
Diagnosis text	Injury, poisoning and certain other consequences of external causes	Diseases of the musculoskeletal system and connective tissue	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
Quantity in study population	34.8% (n=8)	30.4% (n=7)	8.7% (n=2)
Breakdown in 3 figures ICD-10 Codes	**S40.0** Superficial injury of shoulder and upper arm **S60.0** Contusion of finger without damage to nail **S90.3 (n=2)** Contusion of other and unspecified parts of foot **S93.6** Sprain and strain of other and unspecified parts of foot **S83.6** Sprain and strain of other unspecified parts of knee **T14.0** Superficial injury of	**M54.1** Radiculopathy **M79.6** Pain in limb, unspecified **M25.5** Pain in joint **M54.5 (n=3)** Low back pain **M10.0** Idiopathic gout	**R10.1** Pain localized to upper abdomen **R51** Headache

	unspecified body region **S71.1** Open wound of hip		

Most frequent ICD-Diagnoses made in the ED rural site (n = 24). Only diagnoses with quantity above two were considered.
ICD=International Classification of Disease

Tabelle 4: Zitate

Behandlungsweg A: Direkt in die ZNA			
Subgruppe A1 „doc to go“	**Subgruppe A2 Auf der Suche nach höherem medizinischem Standard**	**Subgruppe A3 Besorgte Patienten**	**Subgruppe A4 Zielgerichteter Besuch: Röntgen erforderlich**
„Also ich glaube, es sind halt auch oft die extremen Wartezeiten irgendwie, also dass man so eins, zwei, drei Monate warten muss beim Arzt oder so. Das ist auch was, das kann ich nicht so wirklich. Also wenn ich irgend was dringendes hab, dann gehe ich meistens ins Krankenhaus und wenn es nicht dringend ist, dann therapiere ich mich halt so ein bisschen selber“ (TN9U). „Also ich kann halt eben nicht zwischen 9.30 und 19 Uhr machen was medizinisch ist”(TN27U). „Äh, sagen wir mal so, (...) ich bin selbständig und muss	„Und da bin ich der Meinung, hier wird mir am schnellsten geholfen, zum Arzt runter schaffe ich jetzt gar nicht mehr und der hat, glaube ich, Dienstagnachmittag sowieso keine Sprechstunde. Der hat bloß vormittag, den Tag hat er wohl irgendwie unterwegs was zu tun. Ja und ich bin eigentlich immer hier gut versorgt worden hier mit dem Blutdruck“ (TN9R). Und ich finde immer, also Krankenhaus sicher, und viele Möglichkeiten, ne. Also Hausarzt zu eng, ne, nur kleine Sachen gucken, aber Blutabnehmen geht nicht, also dauert zwei, drei Tage	“ Ja, und da habe ich ‚mir Spritze gekriegt, aber ich habe auch gleichzeitig, da Spritzen, was die haben Hausärzte, die haben die Wirkung was jetzt ich sag mal hier in Rettungsstelle gespritzt hier ist ja dann ein wahrscheinlich, der macht, der macht das, ich mir, ein bisschen professioneller Hausarzt und ich gleichzeitig gehört, auch andere Mittel Verfügung haben, Medikamente, spritzen, doch ähm, mal, um wirkungsvoller (TN29R).	...und ehe ich jetzt zum Allgemeinarzt fahre, der hat, glaube ich, heute gar nicht offen, da müsste ich bis morgen warten und dann ist morgen bloß von um vier bis um sechs Sprechstunde, dann kommt man dahin, muss wahrscheinlich da warten, die überweisen, die geben mir auch bloß eine Überweisung zum Chirurgen oder zum Röntgen und da ist das hier, vermutlich, der schnellere Weg, denke ich mir mal so“ (TN3R). Und Sie sind sicher, dass der Hausarzt das nicht kann? TN: Na, es müssen Röntgenbilder gemacht werden und alles“ (TN12R).

immer arbeiten gehen. Ich habe gar keine Zeit, mich beim Arzt hinzusetzen. Das ist mir immer zu stressig. Solange rumsitzen und dann kommt nischt groß bei raus“ (TN26R). „Nee, ich habe keinen / ich gehe sonst eigentlich / ich habe sonst nichts, eigentlich. Aber ich müsste in der Tat mal irgendwann mal, haha, auch einen Allgemeinarzt haben. Aber das gerät dann immer wieder in Vergessenheit“ (TN26U).	zum Beispiel. Oder Urin. Urin geht ein bisschen schneller, als also Blut abnehmen, ne. Aber hier, eine Stunde und alles, mein Blut abnehmen, Urin, alles, ist alles passiert“ (TN40U). Na, ich bin ja hier mit dem Herzen und war ja schon mit anderen Sachen und ich fühle mich hier wohler, aufgehobener, weil ich mal eine Thrombose hatte hier, eine tief liegende Thrombose, da bin ich in einen anderen Krankenhaus gewesen, und da haben sie mich so als Simulant hingestellt“ (TN3U).	„Es ist die Psyche und es ist schon nichts weiter’ und ähm ich soll auf deutsch nicht übertreiben, ähm und dann hat er aber gemerkt, dass es wirklich schlimmer wird äh und dann hab bin ich gleich / hab ich gleich gesagt, ich möchte ne Überweisung nach [Ort der Notaufnahme] und dann hab ich die gekriegt und jetzt sitze ich hier“ (TN20R). “Und ich hatte ihm von meinem Problem auch schon erzählt, und er meinte, es sei nichts und deswegen bin ich jetzt hier“ (TN20U).	„Naja, äh, da kann sie [die Hausärztin] sowieso nichts machen, das / ich bin umgeknickt, mit dem Fuss, das muss ja geröngt werden, wahrscheinlich, noch“ (TN8R). „wenn man so’ne Sachen hat wie chirurgische Sachen, fährt man halt gleich von Anfang in eine Rettungsstelle, weil dann der Hausarzt nicht viel machen kann, weil der hat ja kein Röntgengerät bei der Hand“ (TN7R).

Behandlungsweg B: ZNA-Besuch nach erfolglosem Terminversuch bei niedergelassenem Arzt	
Subgruppe B1: akuter Behandlungsbedarf	**Subgruppe B2: subakuter Behandlungsbedarf**
„Ich habe heute versucht irgendeinen Allgemeinmediziner oder Unfallchirurgen zu bekommen und keinen / die nächsten Termine waren dann im August. (...) Also ich habe definitiv ein, sagen wir mal, ein Netz an Ärzten, aber jetzt niemanden, der das hätte sofort machen können. Also ich hab's versucht, aber es hat nicht geklappt" (TN27U). "Ich hatte am Sonnabend einen kleinen Unfall beim Straße kehren, Sträucher, hatte ich mir Dornen einjerissen, , und nun ist die Hand angeschwollen und drum bin ich heute früh zu einem Chirurgen gegangen, bei dem ich noch nie war, aber Wartezimmer war auch voll, habe ich ja gesehen, und er / von der Sprechstundenhilfe sagte man mir, ich könnte frühestens am nächsten, also kommenden Montag, das heißt in einer Woche, behandelt werden. Daraufhin bin ich jetzt in die Notaufnahme gegangen" (TN1R). „Ja, also, ich habe ein Problem mit meinen Augen, mit meiner Haut, und meiner Kopfhaut, in letzter Zeit, ja und jetzt wurde es halt immer schlimmer und dann habe ich heute halt bei fünf Haus/ Hautärzten angerufen und ja, da ist halt ohne Termin nichts möglich (...) Hier mit meinem Problem jetzt habe ich ja auch nicht seit gestern" (TN37U).	„hatte auch dann versucht einen Orthopäden zu finden, hier im Kreisgebiet - keine Chance. Sie haben keine Chance. Telefonieren schon gar nicht. Da wird ihnen gesagt [in vier Monaten] kann ich ihnen eine schreiben" (TN19R). „Der [Hausarzt] hat die Untergebnisse gesehen, der hat gesagt, das muss alles noch mehr oder besser oder deutlicher untersucht werden und dadurch hat er mir eine Überweisung gegeben nachdem ich viele Ärzte angerufen habe und die Termine waren zwischen von drei Monate bis sechs Monate gedauert,. Das war mir zu lange, (...) mein Problem belastet mich immer mehr, von Tag zu Tag, dann dachte ich mir, dann komme ich hier, und vielleicht werde ich hier kompakt untersucht, kriege die Diagnose und dann weiß ich, was ich weiter mache" (TN18U).

Behandlungsweg C : Vom niedergelassenen Arzt verwiesen	
Subgruppe C1: Verweis wegen Zeitproblemen	**Subgruppe C2: Verweis aufgrund komplizierter Symptome**
“Ja, genau, ich habe keine Kraft in meine Knie und so. Und dann heute, ich wollte zu meinen Orthopäden gehen und dann die alle waren in Urlaub, und die Vertretung war viel zu tun, er hat gesagt, wenn Sie Schmerzen so, dann gehen [Notaufnahme I] wir haben viel zu tun und dann ich kann Termin haben, am, acht Tage später, und dann ich habe gesagt, ‚Nein geht nicht’. Und dann er hat gesagt, ‚entweder gehst Du in [Notaufnahme I] oder wartest wann Deine Doktor kommt wieder’”(TN38U). “Ich habe äh beim Notdienst angerufen und gefragt, wohin ich am besten kommen kann. Also ich arbeite in der O. Strasse und die haben mir empfohlen, dass ich direkt hierher komme“ (TN30U).	„Erst mal war ich bei meinem Hausarzt und der meinte, diese Blutsache nicht ok und da wäre zu hoch, schlimm, deshalb bin ich hierher gekommen“ (TN5U). “Kopfschmerzen, dann sind wir Hausarzt gegangen, der hat gesagt: ‚gehen Sie Erste Hilfe Krankenhaus, das ist besser“ (TN23U-Tochter). „Ich habe meine Hausärztin angerufen und die Hausärztin meinte, sofort in die Klinik, das abchecken lassen. Weil hier gibt es andere Mittel, die die Ärzte ausspielen können als sie [die Hausärztin] in einer einfachen ländlichen Hausarztpraxis“ (TN7R).

TN nU= Teilnehmer/in aus der urbanen Region
TN nR = Teilnehmer/in aus der ruralen Gegend

n = Nummer der/des Teilnehmer/in/s

Tabelle 1: Ausschnitt aus dem Leitfaden
Fragen nach dem Entscheidungsprozeß zum Aufsuchen der Zentralen Notaufnahme (ZNA)

Würden Sie mir erzählen, warum Sie heute hierher zur Notaufnahme gekommen sind?
Wann haben Ihre Beschwerden begonnen?
Wann haben Sie entschieden, dass Sie einen Arzt aufsuchen müssen?
Was haben Sie als nächstes getan? (Abwarten, Versuchen einen Termin beim niedergelassenen Arzt zu vereinbaren, direkt zur Notaufnahme gegangen?)
Haben Sie einen Hausarzt oder Facharzt, zu dem sie regelmäßig gehen?
Haben Sie mit ihm/ihr Kontakt aufgenommen, bevor Sie zur Notaufnahme gekommen sind?
Würden Sie mir erzählen, wieviel Vertrauen Sie in Ihren Fach- oder Hausarzt haben?
Was machen Sie üblicherweise, wenn Sie sich krank fühlen?
Leben Sie mit einem Partner oder einer Partnerin zusammen? Haben Sie Kinder, die bei Ihnen im Haushalt leben?
Sind Sie erwerbstätig? (Wenn ja, welchen Beruf üben Sie aus? Arbeiten Sie in Vollzeit oder in Teilzeit?
Sind Arbeitszeiten und Kinderbetreuung ein Problem, wenn Sie einen Arzt aufsuchen wollen?

Consolidated criteria for reporting qualitative research (COREQ): 32-item checklist			
Domain 1: Research Team and Reflexibility			**Main Document Page**
Personal Characteristics			
1.	Interviewer	MS carried out the interviews.	6
2.	Credentials	MS, JS, AS and JF were professional researchers (MS: Diploma in Sociology/ MPH; JS: MD/MPH; AS: VD/MSc; JF: MPH). MM and SR were MDs in the Department of Emergency Medicine.	7
3.	Occupation	MS was visiting scholar at Charité Berlin; all other researchers were employed by Charité Berlin.	
4.	Gender	MS, JS and AS were female; MM, JF and SR were male.	
5.	Experience and training	MS and JS were experienced qualitative interviewers; AS has been trained in her Masters' curriculum. MM, JF and SR were new to qualitative research.	
Relationship with participants			
6.	Relationship established	No prior relationship between the interviewer and interviewees existed.	
7.	Participant knowledge of the interviewer	The interviewer was introduced to potential interviewees as a health care researcher (and not a MD) by medical staff (nurses or MDs). The interviewer explained the study goal and passed the study information sheet approved by the Charité ethic committee.	6
8.	Interviewer characteristics	The interviewer had pre-existing interests in exploring patient motives to visit the ED with minor conditions.	
Domain 2: study design			
Theoretical framework			
9.	Methodological orientation and theory	Content analysis was used to gain first–hand knowledge of participant rationales to visit ED. Content analysis requires the researcher to focus on important aspects relating to the overall research question, limited by the number of categories covering meaningful interview passages.	8
10.	Sampling	Purposive sampling: patients with minor conditions categorized as Manchester Triage System categories four and five, the lowest in terms of treatment acuity were identified and contacted from early morning to late evening till all weekdays were covered and new findings ended.	6

11.	Method of approach	Face-to-face contact was made during patients' waiting time for medical treatment.	7
12.	Sample size	The sample size was 64 participants.	7,9
13.	Non-participation	86 patients who met the inclusion criteria were approached. 15 declined, mainly because they felt too weak to participate. Seven interviewees were excluded from the analysis due to hospital admission within 30 days after the interview.	9
	Setting		
14.	Setting of data collection	Interviewees were in the ED waiting area or in the triage room while contact was made.	6
15.	Presence of non-participants	In some cases, accompanying friends or relatives joint the interview. Non-participants were not present during the interview.	
16.	Description of sample	Information about professional background, migration background and marital status were collected. We captured a broad range of participants in all ages. Demographic characteristics are described in Table 2.	9 Table 2
	Data collection		
17.	Interview guide	The semi-structured interview guide was pilot tested prior to the first interview.	7 Table 1
18.	Repeat interviews	No repeat interviews were conducted.	
19.	Audio/visual recording	Interviews were audio-recorded and verbatim transcribed.	7
20.	Field notes	Field notes were kept after each interview.	7
21.	Duration	Interviews lasted between 7 and 25 minutes with an average of 11 minutes.	
22.	Data saturation	Data saturation was discussed as new findings ended.	7
23.	Transcripts returned	Transcripts were not returned to interviewees.	
	Domain 3: analysis and findings		
	Data analysis		
24.	Number of data coders	MS was the primary coder, with further coding by JS. Coding consistency was co-checked by AS and JF.	8
25.	Description of the coding tree	Codes represented distinct viewpoints on each topic.	8
26.	Derivation of themes	Themes were related to the subjects of the interview guide.	8
27.	Software	MAXQDA11 was used for data management.	8
28.	Participants checking	Participants did not provide feedback on findings.	
	Reporting		

29.	Quotations presented	Quotations were presented to illustrate data and themes presented.	12-15 Tables 3A-C
30.	Data and findings consistent	There was consistency between data and findings.	10-15
31.	Clarity of major themes	Major themes were presented in the findings.	10-15
32.	Clarity of minor themes	Further research is required to uncover minor themes.	