Experiences with remote interpreting tools in primary care settings: a qualitative evaluation of the implementation and usage of remote interpreting tools during a feasibility trial in Germany

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ABSTRACT

Objective This study aims to evaluate the usage and implementation of video remote (VR) interpreting and telephone remote (TR) interpreting in primary healthcare settings.

Design This publication forms part of a larger three-pronged study in which we compared both remote interpreting modalities to each other and to a control group. This paper conveys the findings of the qualitative evaluation of the implementation and usage of both remote interpreting solutions. The quantitative evaluation of the 6-month intervention period (September 2018–February 2019) has been reported previously. After this period, we conducted focus groups with the healthcare professionals involved. The focus groups were recorded, transcribed verbatim and analysed using the structured qualitative content analysis.

Setting We provided either VR or TR tools to 10 different primary healthcare practices (general medicine, gynaecology and paediatrics) in the city of Hamburg, Germany.

Participants Three physicians and two physician’s assistants took part in the TR focus group. The VR focus group consisted of four physicians.

Results The main topics identified were the importance of communication for diagnostic and therapeutic processes, previous solutions to language barriers, as well as advantages and disadvantages of the two remote interpreting solutions. Advantages included the possibility to adequately communicate with language discordant patients and the high quality of the interpreting. Disadvantages included the habituation time required for new technology as well as time constraints.

Conclusion Our evaluation found that these solutions were highly appreciated, if not considered indispensable, for the delivery of appropriate medical care to language-discordant patients. Differences between the two modalities were named and concrete suggestions for improvement were made. Policy-makers should consider providing VR or TR as an adequate and safe interpreting service alternative when professional in-person interpreters are not available or too expensive.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We used a qualitative evaluation to openly evaluate the usage and implementation of new remote interpreting tools aimed at tackling the pressing issue of language barriers in primary healthcare settings.

⇒ The recruitment process was difficult, as new technical equipment and participation in a scientific study is always associated with additional effort, which may have resulted in a selection bias towards participants who are especially aware of the importance of language barriers within doctor–patient interactions.

⇒ Even though both participant groups favoured their respective interpreting modality any direct comparison between the two interpreting modalities is based solely on our evaluation of the feedback collected as the study participants only had contact with either one of the two remote interpreting tools, which did not allow for them to compare the two directly.

⇒ Any generalisation drawn from our results should be considered carefully as we only spoke to a few users of the two interpreting solutions who all live in Hamburg and are presumably aware of the importance of adequate communication with language discordant patients.

⇒ Due to budget restrictions, this report only conveys the perspectives of the language concordant healthcare professionals involved in the focus groups and not the perspectives of the language discordant patients who were also accessing the interpreting services.

INTRODUCTION

Recent global migration trends have led to more diverse populations than ever and a further noticeable increase in the estimated number of international migrants,² have had a significant impact on modern medical care.
More than 20 million people with a migratory background live in Germany, already making it the second most frequent destination for migrants worldwide. Therefore, it has become increasingly relevant to German medical experts to address the provision of medical services to refugees, immigrants and asylum seekers.

In addition, recent developments in the medical sector have demonstrated ‘a paradigm shift away from medical paternalism toward more patient autonomy’.

Patient involvement has been subject to a lot of research and patient-centredness has led to higher satisfaction and better health outcomes. Consequently, physicians face increasingly diverse demographic groups that need to be informed, involved and enabled. There are several obstacles when dealing with the growing number of patients with a migratory background, including the language barrier, which must be overcome to provide equal accessibility to patient-centred medicine.

Systematic reviews have shown that professional interpreting leads to better outcomes and higher patient satisfaction. However, informal interpreters are used more frequently than professional interpreters. The most important reasons for this low reliance on professional interpreters are time constraints, insufficient availability and costs.

In Germany, complex and contradictory legislation encourages the reliance on informal interpreters. Physicians must obtain informed consent from their patients regarding medical procedures and must ensure that information they provide is correctly understood. They are liable and obliged to arrange adequate interpreting solutions, under German law at least, with current legislation stating that the resulting costs are carried by the patients. Refugees and welfare recipients are legally exempt from these interpreting costs. To our knowledge, no overarching legislation exists internationally or within the European Union (EU), with individual countries developing their own solutions to this problem.

In addition to improving overall medical care, professional interpreting cuts costs due to lower readmission rates, shorter emergency department stays, fewer interventions, less frequent returns to emergency departments and lower overall costs. Professional interpreters provide more safety for the patients due to better medical treatment, while ensuring more legal protection for physicians.

Remote interpreting has been rated non-inferior to both in-person interpreting and the gold standard of bilingual healthcare providers. For this reason, remote interpreting services constitute a promising alternative as they are cost-effective compared with professional onsite interpreters, time-effective and provide instant and 24-hour availability. This is especially important in primary healthcare settings where many patients are seen at high frequency and healthcare providers rarely know which patients will be attending the service.

In Hamburg, both video remote (VR) and telephone remote (TR) interpreting were successfully implemented in the context of medical care within refugee accommodations. Many of the people who lived in these accommodations have moved to fixed housing and now receive regular healthcare services were the language barrier arises again. However, the current legal situation represents a major obstacle to the wider implementation of professional interpreting solutions.

This publication forms the second part of a larger study, in which we explored the communication with language-discordant patients and evaluated the feasibility and efficiency of the implementation and usage of TR and VR in primary healthcare settings in Hamburg, Germany. In a previous publication, we described the general settings in more detail and provided information on the results of our quantitative evaluation. These results were promising regarding the implementation of remote interpreting services, slightly favouring VR over TR and a control group. Meanwhile, this publication conveys the results of the qualitative evaluation.

METHODS

This paper describes the qualitative evaluation of the usage and implementation of VR and TR as low threshold solutions to existing language barriers in primary healthcare settings in Hamburg, Germany.

The study was conducted between January 2018 and February 2019. The course of the study is shown in figure 1. In order to classify the methods and data collection for the qualitative part of phase 3 in the overall study, phases 1 and 2 are briefly described below while more detailed descriptions have been published here.

Study overview
Phase 1: initial phase
Phase 1 of the project was composed of project planning and preparation and the recruitment of 13 practices, followed by the randomised allocation of the interpreting tool and the provision of necessary hardware, software and documentation. Further details are laid out in our previous publication.

Phase 2: intervention phase
The interpreting solutions were made available to the practices in the period between September 2018 and February 2019, during which data were gathered. Each patient entering the medical practice was evaluated for inclusion and exclusion criteria. Participation in the study was voluntary and non-participation had no negative consequences. Consultations in the intervention group were held with the help of the interpreting tools, which provided professional interpreting either via phone or video call within 120s. After the consultation, both the patient and the physician filled out an evaluation form. The patients were handed an additional questionnaire regarding patient-centred medicine. A more detailed description of the quantitative methods and instruments...
as well as the inclusion and exclusion criteria is laid out in a previous publication.29

**Phase 3: qualitative evaluation**

The qualitative evaluation constitutes the focus of this paper. After the intervention phase, we evaluated the implementation feasibility as well as the response to the interpreting tools through focus groups.30 We investigated whether VR and TR interpreting are satisfactory, effective and adequate for medical consultations in primary care settings.

**Participants, recruitment and focus groups**

After the 6-month period, we conducted focus groups with both intervention groups to assess how healthcare professionals had experienced remote interpreting tools in everyday practice. We invited all the participating practices to send representatives from the practice team to our focus groups. In the end, 9 healthcare professionals from 8 of the 10 participating practices participated in the focus groups. Three physicians (two general practitioners, one paediatrician) and two physician’s assistants (both general medicine practitioners) took part in the TR focus group. The VR focus group consisted of four physicians (three general medicine practitioners, one paediatrician). Unfortunately, no participants from the two gynaecological practices could participate in the focus groups.

All participants were informed and given the possibility to ask questions before giving their informed consent to semistructured recorded focus group sessions. The verbatim transcription, the analysis and the anonymous publication were also consented to. The time, place and duration of the focus group sessions were made available along with the aim and purpose of the respective session. A reminder was sent, and personal contact offered. Four credit points for vocational training were awarded by the Medical Association of Hamburg for participating. The focus groups sessions were held in German in a seminar room at the University Medical Center Hamburg-Eppendorf. Sessions lasted approximately 75 min. The discussions were recorded digitally in full length and logged by a trained student research assistant. Quotes were translated into English for the purpose of this publication.

**Researcher characteristics**

The focus groups were moderated by SP and JF. Moderators and the focus group members had met only once before at the kick-off meeting. During the 6 months data collection period, JF acted as project leader. Data were analysed by JF and SP. SP (♀), general practitioner, post-doctorate researcher and public health consultant in the field of migrant healthcare research, is experienced in moderating workshops and group discussions. JF (♂), medical student in his final year of training, is first-time moderator and analyst and received training on qualitative interviewing and qualitative content analysis prior to the study. NJP (♀), postdoctorate researcher and trained psychologist, has comprehensive experience in qualitative data analysis in the field of primary care research. MS (♂) is a full professor of medicine, board certified in general practice.

**Focus group guides**

The focus group guides were developed based on the results of similar projects described in literature31 and informal preliminary explorative interviews conducted with patients and healthcare providers. These preliminary explorative interviews were conducted prior to the practice period to get an idea of patients’ as well as healthcare providers’ needs regarding remote interpreting solutions. After these informal preliminary explorative interviews, the focus group guides were adapted to the actual needs of the clinical settings in which the interpreting tools were used. The guides consisted of two parts. Part 1 of the
guides focused on the current practice and required the participants to report about their experience in communicating with people with little or no knowledge of the German language before the introduction of the interpreting tools in primary settings. Part 2 addressed the evaluation of the remote services. The following aspects of the tools were discussed: implementation, utilisation, usage and reception in everyday practice as well as advantages and disadvantages for medical consultation. The detailed focus group guide can be found in online supplemental appendix.

Data analysis
The transcripts of the focus group discussions were analysed using structuring qualitative content analysis according to Mayring following a realist approach. This reductionist approach allows for large amounts of data to be narrowed down, hereby identifying the main content, while enabling the integration of existing theories as well as new findings. Deductive coding was combined with inductive coding. Based on the literature and the interview guide, a deductive coding framework for content analysis was developed by and applied to the transcripts by two of the researchers (JF and SP). In addition, Inductive categories arose from the material during the coding process which were applied as well. The deductive codes resulted in main categories, while the inductive codes resulted in the subcategories. The transcripts were read and coded independently by both researchers, before discrepancies were discussed, conflicts were resolved and the coding scheme was refined. Our study was exploratory and we focused on the inductive category formation during the process to ensure that categories did not exclusively reproduce pre-existing assumptions. After coding the complete material, a second round of coding was performed to make sure that no relevant information was omitted. The coding was supported by using MAXQDA V.10. Participants did not provide feedback on the findings.

Patient and public involvement
Informal preliminary explorative interviews were conducted with two patients of one of the participating practices prior to the intervention period to get an idea of patients’ needs regarding remote interpreting solutions.

RESULTS
Participants
Nine participants of 8 of the 10 eligible practices attended the focus groups resulting in a response rate of 80%. Four of the nine participants were female (44.4%), seven were physicians (77.8%), two were physician’s assistants (22.2%). Two-thirds were aged between 41 and 60 and seven out of nine had more than 5 years of professional experience. The VR group was predominantly male while the TR group included more female participants. The only two physician’s assistants belonged to the TR group.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Focus group participant characteristics (n=9)</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>Profession</td>
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</tr>
<tr>
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<tr>
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<td>&gt;60</td>
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<td>≤5</td>
<td>2</td>
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<td>&gt;5</td>
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Detailed focus group participant characteristics are displayed in table 1. Their contact with language discordant patients as well as their use of the interpreting tool are displayed in table 2.

Main categories and subcategories
The focus group guide was divided into two parts. Part one focused on the current practice regarding the communication with language discordant patients before the interpreting tools were introduced and the second part focused on the evaluation of the interpreting tools. Table 3 provides an overview of the main categories and associated subcategories established when coding the focus group data.

Part 1: current practice regarding the communication with language discordant patients
Two major aspects emerged during the focus groups: the importance of adequate communication for diagnostic and therapeutic processes and interpreting solutions prior to the introduction of the interpreting tools.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Language barriers and tool utilisation</th>
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<tbody>
<tr>
<td>Study group</td>
<td>Participant # and practice type</td>
</tr>
<tr>
<td>VR</td>
<td>1 (GM)</td>
</tr>
<tr>
<td>2 (GM)</td>
<td>6–10</td>
</tr>
<tr>
<td>3 (GM)</td>
<td>11–15</td>
</tr>
<tr>
<td>4 (P)</td>
<td>16–20</td>
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<tr>
<td>TR</td>
<td>5 (GM)</td>
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<tr>
<td>6 (P)</td>
<td>11–15</td>
</tr>
<tr>
<td>7 (GM)</td>
<td>21–25</td>
</tr>
<tr>
<td>8 (GM)</td>
<td>11–15</td>
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</table>

GM, general medicine; GO, gynaecology and obstetrics; P, paediatrics.
Importance of communication for diagnostic and therapeutic processes

When treating language discordant patients, the lack of familiarity with the local healthcare system, cultural differences or illiteracy can be challenges. The focus group participants ranked the near impossibility of treating patients without adequate communication as the most relevant issue. Diagnostic and therapeutic processes improved, with one practice reporting identifying pre-existing conditions such as diabetes, along with more specific symptoms such as diarrhoea, became possible with an interpreter.

“They are very polite and say, ‘Good morning, how are you?’ And they have diabetes. That’s how far we are getting with medical history taking […] But […] when they get the chance of an interpreter, it suddenly appears that they have had diarrhea for a long time” (Focus group #1, paragraph 21).

Another practice highlighted the importance of the tool for explaining the short-term, drastic changes of diabetes when diagnosed in pregnant patients during the first consultation.

“The problem with pregnant diabetic patients is that they […] feel good and have no problems. Then […] suddenly they are told that they are sick. […] And then the necessity to drastically control their blood glucose levels […] well that takes a lot especially during the first consultation […]. And for that reason, the [interpreting] tool was quite important” (Focus group #2, paragraph 55).

Furthermore, in many cases, patients need to be turned down if no translator can be found.

“And when we had no one to translate we had to send them away” (Focus group #2, paragraph 13).

Previous solutions to language barriers

Throughout the focus groups, previous solutions to language barriers prior to the introduction of the interpreting tools were named. The participants described the actual modalities which were relied on as well as situations in which their use was considered inappropriate.

Various options for overcoming a language barrier before introducing the tools were named:

- “Sometimes I have just called people I know who speak the language I needed” (Focus group #2, paragraph 23).
- “We have a colleague who can speak Albanian who often translated in these situations” (Focus group #1, paragraph 16).

Overall, it should be stated that the study participants agreed that in any case these informal interpreting solutions can only be second best choices whenever professional solutions are not available. However, some
participants elaborated more on the different occasions for which the various solutions were considered appropriate or not.

One participant stated that Google Translate may be useful for direct questions but is inappropriate for more complex issues.

[...]. With this tool [google translate], however, one can only reconstruct single words such as ‘Fever—Yes or No?’.
But I didn’t even try to tackle more complex issues. [...] that is not feasible. (Focus group # 2, paragraph 25–28)

Another practice described as an example the various difficulties in obtaining informed consent as part of a vaccination information session with parents. This can be due to limited time constraints on healthcare professionals.

Using informal interpreters is not always beneficial as personal relationships can distract from the objective matter at hand if the patients and interpreters know each other personally.

I have a patient that speaks Hindi and a nurse that speaks Hindi as well. And throughout the interaction it became evident that this was not advantageous because it was too personal because they knew each other. (Focus group # 1, paragraph 48)

Furthermore, it is a challenge for the physician to know whether relatives accurately translate the information provided.

It [the tool] is much better than relatives, who I don’t even know are translating accurately. Usually they translate a lot, but not what I say. (Focus group # 1, paragraph 80)

Part 2: evaluation of the interpreting tools

Some of the feedback gathered applies to both tools as certain aspects of their implementation, such as the interpreters or the integration into everyday practice overlap. Since the study did not allow both tools to be tested, it is not possible for the users to make a comparison. However, we attempted to provide the reader with a critical evaluation of both tools which includes contrasting both modalities. As a result, the feedback pertinent to each respective intervention group makes up another important part of this evaluation.

Disadvantages applying to both tools

Even though the general evaluation of both interpreting tools was clearly positive, some criticism and room for improvement was mentioned in both focus groups. Both intervention groups agreed that it takes time to grow accustomed to the tool itself.

I think it simply takes some time. [...] If we had three more months, we would get used to it and know how it works. [...] (Focus group # 2, paragraph 115)

One further aspect that was discussed in depth throughout the TR focus group by some of the study participants was the effect that such an interpreting tool might have on integration in general. According to them, such a tool may discourage certain patients from learning German. They feared the availability of an interpreting tool and the possibility of speaking English in the practice may dissuade some patients from learning German.

We have people who have already been here for 15 years and are not willing to speak another language with me than English. [...] I could imagine that for the work with some cultural groups such an interpreting tool could make this inflationary. (Focus group # 1, paragraph 169)

Moreover, time constraints were frequently cited as an important obstacle to the implementation of the tool.

This physician has a patient, with whom we could use this tool, but then we didn’t really have the time and the waiting room was crowded and so we couldn’t really use the tool in this moment. (Focus group # 1, paragraph 34)

Disadvantages applying only to VR

The only other criticism in the VR group concerned the impractical hardware. The screen and PC provided by CISCO took up too much space and did not meet the requirements of the day-to-day activity.

[...] if the hardware were a little more functional, I am thinking of a smaller screen [...] that would consequently make it easier to handle, then I’d perfectly like it. (Focus group # 2, paragraph 77–82)

Disadvantages applying only to TR

Meanwhile, participants of the TR group reported several times that the lack of non-verbal communication may have resulted in some information being lost.

I [...] think that there are aspects which you see, which are not heard through the phone, which to some extent are related to the language or the culture. Thus, information can be lost [...]. (Focus group # 1, paragraph 86)

Advantages applying to both tools

Despite the few points of criticisms listed above, the overall feedback provided by the medical professionals was mainly positive. Many of the advantages apply to both tools. The most significant benefits resulted from the possibility to communicate with language discordant patients, as well as from the high quality of the translations, the overall approval of the software and any technical
service itself and the more secure legal framework. One focus group stated that providing care to refugee patients is simply impossible without the help of an interpreting tool. Furthermore, a tool providing access to specialised interpreters with medical knowledge and terminology is highly beneficial. The (technical) support provided an unproblematic and professional installation.

We have a patient who is chronically ill […] who has a complex disease pattern, and, in that case, it was a blessing to have this interpreter who can translate everything and has medical experience. That was even better than the interpreters who were onsite, because this one simply had his medical terminology on point. (Focus group # 2, paragraph 16)

With respect to the [technical] support—they arrived, plugged everything in, carried out a test run and it worked. That was unproblematic. […] (Focus group # 2, paragraph 71–75)

One physician described that in his early career he had been told that medical professionals were responsible for providing adequate, professional communication and expressed his reservations about the legal adequacy regarding communication if only non-verbal communication was possible.

[…] theoretically we must provide professional interpreting and pay for it, which we actually never do. I always have it at the back of my mind that it is legally not acceptable to communicate through hand signs and gestures. (Focus group # 1, paragraph 195)

The focus group participants addressed their own criticism by stating that growing accustomed to using this ‘easy’ tool properly would automatically ensure its more frequent and efficient use.

The more you use it, the better it works. […] Actually, it is very easy and the more often you use it, more you realise—that’s very easy. (Focus group # 1, paragraph 137)

There appeared to be a broad consensus that the extra consultation time required for the use of the tool should be considered worthwhile. First, the consultation without adequate communication often remains superficial. Second, the amount of information obtained with the tool is significantly higher, meaning the tool actually constitutes a measure to save time.

[…] If I had wanted to achieve the same results without an interpreting tool[…] it would have taken all morning. And I don’t even achieve the same results without this tool. (Focus group # 2, paragraph 166)

Finally, the argument that an interpreting tool may dissuade immigrant patients from further integration was highly controversial. Another physician argued that much was at stake during brief medical consultations, and that these were not the place for the patient to be thinking of integration.

I don’t know if the medical consultation is the setting in which this should be taking place. […] It is such a small part of everyday life and you risk losing important communicational aspects or information, while a lot is at stake. (Focus group # 1, paragraph 169–171)

One important aspect that was reported by the VR focus group was that physicians felt able to demonstrate diagnostic or therapeutic procedures to their patients with the help of a professional interpreter. Patients responded positively to somebody who understood them. However, the physical absence of the interpreter was also a relief in otherwise already crowded rooms.

I worked a lot with interpreters and […] I considered the interpreter’s absence very pleasant as there were already enough people in the room. (Focus group # 2, paragraph 105)

Advantages applying only to VR

Both intervention groups seemed to favour their way of interpreting over the other for various reasons. VR was considered more personal by some physicians, who described telephone interpreting as too impersonal for the confidential nature of a medical consultation.

I consider it difficult to rely on such an impersonal solution as represented by telephone remote interpreting for such a personal setting as a medical consultation. I don’t even know who is talking on the other end and to whom am I telling all this. (Focus group # 2, paragraph 96)

Advantages applying only to TR

On the other hand, the medical professionals who had used TR considered it beneficial that the interpreter could not be seen, as that might only enforce societal preconceptions (age, gender, etc) that the interpreter and patient may have of each other.

DISCUSSION

Our evaluation of the implementation of remote interpreting solutions (TR and VR) to primary care settings in a big metropolitan area in Germany has shown that both interpreting solutions present promising solutions to the thriving challenge of healthcare provision to language discordant patients. Regarding current practice of communication prior to the implementation of the interpreting tools, our study participants emphasised the importance of adequate communication for diagnostic and therapeutic purposes and discussed several existing solutions to language barriers. However, the only prior solution that was viewed positively among them consisted of professional onsite interpreters, although they were rarely ever hired. Despite mostly positive overall feedback regarding the VR and TR tools, we received some suggestions for improvement. In each focus, group 1 disadvantage was named that allowed for a contrasting evaluation regarding the other interpreting tool. All the medical professionals appeared to be highly satisfied.
with the quality and the technology. The strongest argument in favour of remote interpreting was the access to professional interpreting services, which our study participants considered crucial to the provision of appropriate medical care.

To our knowledge, this was the first study in the German-speaking area which evaluated TR and VR in an outpatient setting. We successfully demonstrated the feasibility of the implementation of interpreting tools into daily routine. Furthermore, we gained broad insight into the perspectives of a variety of healthcare professionals regarding the use and implementation of these services. The intervention phase lasted 6 months allowing our study participants to gain good understanding of the tools. This period was accompanied by a questionnaire evaluation regarding different aspects of the communication with or without the tool. These results are published elsewhere.\textsuperscript{29}

The aforementioned importance of a good doctor–patient communication is supported by the literature. While the patients’ self-rated language skills correlate with the quality of medical information received,\textsuperscript{30} a poor language level can be related to ‘self-reported poor health’\textsuperscript{36} and treatment errors.\textsuperscript{37} Doctor–patient communication and the patient’s language level were demonstrated to influence patient satisfaction and understanding, the medical outcome, healthcare utilisation and the use of emergency facilities.\textsuperscript{38–41} Especially in primary care settings solutions to these language barriers have to be found that are readily available as appointments are rarely planned beforehand and patients are seen for acute medical reasons. Despite the broad reliance on informal interpreters, our participants agreed that their use is problematic for many reasons, which is consistent with many studies that have examined this issue. Bilingual medical staff were shown to lead to insufficient interpreting\textsuperscript{42,43} and invisible costs\textsuperscript{44} while causing a certain ‘juggle of divergent workloads and the diverse and sometimes conflicting needs and expectations from [the] various constituencies’.\textsuperscript{45} While relatives are often favoured by the patients due to a high level of trust, familiarity with the patient’s medical history\textsuperscript{46} or emotional support,\textsuperscript{47} their use has been demonstrated to be highly problematic as well, caused by a lack of medical terminology and ‘concerns about the reliability and accuracy of the translations’.\textsuperscript{11} (p. 343) Moreover, the clinical condition of the patient may burden the interpreter—especially if children are translating for their older relatives\textsuperscript{48} and it can be difficult if not impossible to report abuse or neglect if a family member is relied on for translation.\textsuperscript{49} Meanwhile a shift within the family dynamic due to the reliance of one family member on the translations of another can be troublesome.\textsuperscript{50} Remote interpreting can provide the access to professional interpreting services that was deemed necessary by our study participants. Some studies even favour remote interpreting over onsite interpreting for its availability, the variety of languages offered\textsuperscript{41} and the benefit of absence when physical examinations need to be conducted in a more private setting.\textsuperscript{51} Yet, both interpreting modes have previously faced criticism. The mentioned need for habituation to these new technologies is supported by Marshall et al\textsuperscript{52} and Mottelson et al\textsuperscript{53} who also evaluated modern VR. In both studies, habituation was needed but the tools broadly became accepted over time. Furthermore, it should be stated that Butow et al demonstrated that professional interpreters commit fewer errors and provide more accurate interpreting\textsuperscript{54} suggesting that the extra time required leads to better medical care and is therefore well spent. The initial controversial suggestion that an interpreter tool may have a disintegrative effect was contested by other participants. Bischoff and Hudelson\textsuperscript{55}(p.18) stated that most medical professionals feel ‘professional interpreters helped immigrants to integrate into society by increasing patients’ autonomy (80%) and by ensuring that immigrants are generally well informed (80%) and know their rights (86%)’. This argument is in line with one participant, who argued that the context of medical consultations did not and should not have any impact on an immigrant’s willingness to learn a language.

All the medical professionals who used either of the interpreting tools were highly satisfied and considered its large-scale provision an important step towards proficient medical care for language discordant patients. The difficulties we faced in the recruitment phase and the comparably low reliance on interpreter tools during this study as well as others\textsuperscript{56} show that awareness needs to be raised regarding the lack of reliability of informal or no interpreter use. Furthermore, political changes are necessary to tackle the unclear question of costs. Professional interpreting services are crucial to patient safety and legal safety for healthcare providers. Kletečka-Pulker and Parrag, as well as many others, have called for the broader introduction of professional remote interpreting service into the healthcare system.\textsuperscript{36,57,58} In addition to the ethical implications, inadequate translations also lead to higher costs for physicians, health insurance companies and the healthcare system as a whole. It may be time for policy-makers and insurers to consider providing adequate interpreting services to those who need it. In more concrete terms, part V of the German social security code, which lists all the services covered by medical insurers, would need to be updated to include this essential part of adequate healthcare provision.

This was a pilot study and had some limitations. As stated previously, the recruitment for our project was challenging. Very few physicians agreed to participate, presumably due to the lack of incentives apart from the provision of the actual tools. The most common reason given for not participating was a lack of awareness for the problematic reliance on informal interpreting. Many medical practices stated that they had no time to introduce interpreting tools into everyday practice. This may have resulted in a selection bias among our participants, who are especially conscious of communication problems. However, we succeeded in including medical
practices belonging to the three primary care specialties (general medicine, obstetrics and gynaecology, paediatrics) into the intervention phase. Unfortunately, the gynaecological perspective could not be mapped in the focus groups, as there was no participation of the two practices due to time constrains. Despite this limitation, the results of this qualitative evaluation represent a variety of meaningful perspectives. Furthermore, our participants only had practical contact with a single one of the tools VR or TR, which did not allow a direct comparison of the tools. However, the feedback provided by the participants was valuable for the evaluation. Put in the context of the literature on this topic the feedback allows some comparison between these interpreting modalities. VR has faced criticism due to ‘loss of eye contact (patients tended to watch the monitor), set up time and technical issues,’59 (p.348) ‘camera shy’ responses,’60 (p.54) higher costs compared with TR,61 the difficulty of several people in inclusion of the patients’ perspectives on remote interpreting in one session,25 difficulties in handling the tool in stressful situations, a lack of confident in the tool on the patients’ side and a poor internet connection.59 Our TR group participants’ impression that information can be lost through the lack of image is supported by Lion et al.,61 in which patients attended with VR interpreting were more likely to name the correct diagnosis after the consultation, reported fewer lapses in the interpreter use and had a higher self-reported adherence to the assigned modality. Further disadvantages of TR reported in scientific literature include bad audio quality, the need to hold the phone, inadequacy for complex situations, background noise, the inability to demonstrate practical aspects and the difficulty in building trust.11 59 60 62–64 Ultimately defining the best interpreting tool needs further research and may depend on individual settings. One systematic review states that ‘current evidence does not suggest there is one particular mode of interpreting that results in superior patient satisfaction than all others.’65 (p.176) As all study participants agreed that professional interpreting is crucial for adequate care provision, future research in this field should focus on the distinction between different settings and the identification of the most adequate interpreting solutions for each of those settings. Our budget restrictions did not permit for the inclusion of the patients’ perspectives on remote interpreting. Future research should, therefore, aim to fill this gap as patients represent the main beneficiaries of the implementation of remote interpreting solutions and their perspectives are thus relevant.

Conclusion

The healthcare providers who participated in our study highly appreciated both tools and considered adequate interpreting solutions indispensable for adequate healthcare provision to this patient group. The differences between both tools discussed were of minor importance compared with the general benefit of professional interpreting solutions. Hence, policymakers and insurers should consider providing adequate language whenever needed to enable basic healthcare. As long as onsite interpreting remains expensive and scarcely available, remote interpreting solutions may represent a promising alternative.

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Contributors SP, JF and MS were involved in the design and planning of the study. SP conceived the research methodology, led the team of coauthors, co-led the focus groups and co-led the drafting and finalising of this manuscript. JF helped to conceive the research methodology, conducted the literature search, reviewed abstracts and articles, did the practice recruitment, abstracted the data, conducted the informal preliminary explorative interviews, co-led the focus groups and co-led the drafting and finalising of this manuscript. MS had the original idea for this study, provided the financing and infrastructure, provided feedback and support throughout the drafting of this manuscript. NJP helped to conceive and analyse the focus groups and assisted in preparing this manuscript. All authors read and approved the final manuscript. SP acts a the guarantor for this work.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval The study was formally approved by the Ethics Committee of the Medical Chamber of Hamburg (Germany) on 9 May 2018 (PV5451). All participants received verbal and written information, had the possibility to ask further questions and gave their informed consent for the focus groups to be recorded, the recordings to be transcribed verbatim and the results of the analysis to be published anonymously.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. The recordings and transcripts of the focus groups are available on request at any time.

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Author note This article is part of a larger project. A previous article that was published elsewhere reports the quantitative data obtained from questionnaires.
to healthcare professionals and patients throughout the 6-month study period preceding the qualitative part of the study that has been reported in this paper.

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Appendix – Detailed interview guide

Introduction to the interview/focus group

Dear ladies and gentlemen / Mr. [...] / Mrs. [...],

You [all] know us / me from the kick-off meeting. We are conducting the project iKom-2 as a cooperative research project between the Department of General Practice / Primary Care at the University Medical Centre Hamburg-Eppendorf and the Public health department of the district of Altona in Hamburg, Germany. With this project we strive to compare to modes of remote interpretation against each other and against a control group. In the second part of this project, we conduct focus groups and individual interviews. We would like you to give us honest feedback regarding the following questions. Do you have any questions so far?

If [all of] you consent to this, we are going to record this focus group / interview and take additional notes. We will handle your data with absolute care and integrity. Do [all of] you agree to this procedure?
Subject area I: Context

<table>
<thead>
<tr>
<th>Guiding question</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could you initially please tell us all about you communication with patients with little or no knowledge of the German language in general.</td>
<td>Tell us about difficulties or challenges</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How did you tackle this issue so far?</td>
<td></td>
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<tr>
<td></td>
<td>Please evaluate these approaches</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Tell us about the practice procedures with this patient group)</td>
<td></td>
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</tbody>
</table>
**Subject area II: Processes (intervention groups)**

<table>
<thead>
<tr>
<th>Guiding questions</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please describe the implementation of the interpretation tool into your daily routine.</td>
<td>Have there been difficulties or challenges?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How did you react to them? Please describe your approaches.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How can the implementation of such a tool be improved/facilitated?</td>
<td></td>
</tr>
<tr>
<td>Please describe the (daily) usage of the interpretation tool during your daily routine.</td>
<td>Have there been difficulties or challenges?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How did you react to them? Please describe your approaches.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How can the usage of such a tool be improved/facilitated?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Have you been confronted with any obstacles for participating in the study that arose independent of the interpretation tool itself? If so, please describe these obstacles.</td>
<td></td>
</tr>
</tbody>
</table>
### Subject area II: Processes (control group)

<table>
<thead>
<tr>
<th>Guiding question</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tell us about the practice procedures with this patient group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you been confronted with any obstacles for participating in the study that</td>
<td></td>
<td></td>
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<tr>
<td>arose independent of the interpretation tool itself? If so, please describe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>these obstacles.</td>
<td></td>
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</tbody>
</table>

### Subject area III – Usage and Feedback (intervention groups)

<table>
<thead>
<tr>
<th>Guiding questions</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Now please tell us all about the communication with your patients using the</td>
<td>Who has used the tool in your practice?</td>
<td></td>
</tr>
<tr>
<td>interpreting tool.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please describe the acceptance of the tool within your practice.</td>
<td>How was the tool accepted by the practitioners?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How was the tool accepted by the nurses?</td>
<td></td>
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<tr>
<td></td>
<td>Have there been differences? If so, why?</td>
<td></td>
</tr>
</tbody>
</table>
Please name advantages of the tool.

Now please name disadvantages of the tool.

Where may have been limits of such an interpretation tool?

### Subject area IV – Feedback (intervention group)

<table>
<thead>
<tr>
<th>Guiding questions</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please describe positive experiences regarding the usage of the tool during your daily routine.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Now please describe negative experiences regarding the usage of the tool during your daily routine.</td>
<td></td>
<td></td>
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<tr>
<td>What has changed through the implementation of the tool into your daily routine?</td>
<td></td>
<td></td>
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<tr>
<td>What would you have wished for during the usage of the tool?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guiding questions</td>
<td>Follow-up questions</td>
<td>Notes</td>
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<tr>
<td>----------------------------------------------------------------------------------</td>
<td>---------------------</td>
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<tr>
<td>Which hopes of expectations would you have regarding a possible future usage of the tool?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there anything else you would like to share with us?</td>
<td></td>
<td></td>
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</tbody>
</table>

**Subject area IV – Feedback (control group)**

<table>
<thead>
<tr>
<th>Guiding questions</th>
<th>Follow-up questions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there anything you would have wished for during the study period?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What hopes or expectations do you have regarding the communication with this patient group in the future?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there anything else you would like to share with us?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Debriefing (still being recorded):

Any further questions?

Thank you for participating in this interview / focus group. If you will have any questions or further remarks in the future, please don’t hesitate to contact us.