

UNIVERSITÄTSKLINIKUM HAMBURG-EPPENDORF

Institut und Poliklinik für Allgemeinmedizin (IPA)

Direktor: Prof. Dr. med. M. Scherer

Teledolmetschen in Primary Care Settings in einer deutschen Großstadt – eine Mixed-Methods-Machbarkeitsstudie

Dissertation

zur Erlangung des Grades eines Doktors der Medizin an der Medizinischen
Fakultät der Universität Hamburg.

vorgelegt von:

Jonas Fiedler

aus Hamburg

Hamburg 2023

(wird von der Medizinischen Fakultät ausgefüllt)

Angenommen von der

Medizinischen Fakultät der Universität Hamburg am: 04.04.2024

Veröffentlicht mit Genehmigung der

Medizinischen Fakultät der Universität Hamburg.

Prüfungsausschuss, der/die Vorsitzende: Prof. Dr. Mike Mösko

Prüfungsausschuss, zweite/r Gutachter/in: Prof. Dr. Martin Scherer

Inhaltsverzeichnis

1. Präambel	1
2. Einleitung	2
2.1 Patientenzentrierte Versorgung in einer zunehmend diversen Gesellschaft	2
2.2 Die Vorgeschichte des Projektes iKom-2.....	2
3. Methoden	4
3.1 Studienablauf und Rekrutierung der Praxen und Patientinnen	4
3.2 Die quantitativen Methoden	5
3.3 Die qualitativen Methoden	6
4. Ergebnisse	8
4.1 Quantitative Ergebnisse.....	8
4.2 Qualitative Ergebnisse	9
5. Diskussion.....	11
6. Zusammenfassung	14
7. Summary.....	15
8. Chronologisches Abkürzungsverzeichnis	16
9. Literaturverzeichnis.....	17
9. Erklärung des Eigenanteils.....	21
10. Danksagung	22
11. Lebenslauf.....	23
12. Eidesstattliche Versicherung	25
13. Originalversionen der Publikationen	26

1. Präambel

„Der alte Arzt spricht lateinisch, der junge Arzt spricht englisch. Der gute Arzt spricht die Sprache des Patienten.“ – Prof. Ursula Lehr (*1930), 1988 bis 1991 Bundesministerin für Jugend, Familie, Frauen und Gesundheit

In ihrem Qualitätszirkel zur Arzt-Patienten-Kommunikation schreibt die Kassenärztliche Bundesvereinigung (KBV): „Ärzte hören zu, fragen nach, reflektieren, klären auf, informieren, erklären und motivieren. Studien belegen, dass ärztliche Überzeugungsarbeit die Wirksamkeit einer Therapie steigern kann“ (1). Niedergelassene Ärztinnen¹ verbringen bis zu 80% ihrer Zeit im Gespräch mit ihren Patientinnen, Klinikärztinnen immerhin bis zu 50% (2). Der Arzt-Patienten-Kommunikation kommt demnach eine herausragende Bedeutung für die Qualität medizinischer Versorgung zu. In systematischen Reviews konnte gezeigt werden, dass eine gute Arzt-Patienten-Kommunikation die Patientenzufriedenheit verbessert, die Therapie-Adhärenz erhöht, das Erinnern und Verstehen von Informationen seitens der Patientinnen fördert sowie einen positiven Einfluss auf gesundheitliche Outcomes wie Blutdruck- oder Blutzuckerwerte und die Lebensqualität der Patientinnen hat. Außerdem können Depressionsraten und unnötige Medikamentenverschreibungen reduziert werden (3),(4).

Patientinnen messen einer guten Arzt-Patienten-Kommunikation eine große Bedeutung bei (5). Demnach verwundert es nicht, dass eine schlechte Arzt-Patienten-Kommunikation die häufigste Ursache für Kunstfehlerklagen ist (6), (7).

Während eine zunehmende Technologisierung der Medizin dazu führt, dass diagnostische Prozesse immer genauer und therapeutische Maßnahmen zunehmend individualisiert werden, bleibt die interpersonelle Kommunikation zwischen Ärztin und Patientin das Hauptwerkzeug, mit dem Informationen ausgetauscht werden können. Was aber macht eine „gute Kommunikation“ in der medizinischen Versorgung von heute aus? Wo liegen die besonderen Herausforderungen?

¹ Im Sinne einer besseren Lesbarkeit wird in diesem Papier auf die männliche Form verzichtet. Sie ist jedoch stets mit gemeint. Ausnahmen bilden Zitate und stehende Begriffe wie z.B. „Arzt-Patienten-Kommunikation“ oder „Patientenzufriedenheit“.

2. Einleitung

In diesem Kapitel werden zunächst zwei zentrale Entwicklungen beschrieben, die die Arzt-Patienten-Kommunikation und die medizinische Versorgung in Deutschland entscheidend geprägt haben, bevor genauer auf die Vorgeschichte und den Hintergrund des Projektes iKom-2 eingegangen wird.

2.1 Patientenzentrierte Versorgung in einer zunehmend diversen Gesellschaft

Globale Migrationsströme haben in den letzten Jahren einen historischen Höchstwert erreicht. Dabei ist Deutschland nach den USA das Land mit den meisten Zuwandererinnen weltweit (8). Zudem hat es in den letzten Jahrzehnten einen Paradigmenwechsel in der medizinischen Versorgung weg von einem paternalistischen Arzt-Patienten-Verhältnis hin zu mehr Patientenautonomie und einer patientenzentrierten Medizin gegeben (9).

So sehen sich Ärztinnen heutzutage mit der Situation konfrontiert, einer zunehmend diversen Gruppe von Patientinnen gegenüberzustehen, die informiert und in Entscheidungsprozesse mit einbezogen werden möchte. Eine der größten Herausforderungen für ein Gelingen guter patientenzentrierter Versorgung in diesem Sinne stellt dabei häufig eine Sprachbarriere dar (10), (11).

Zur Überwindung dieser Sprachbarriere wird zumeist auf informelle Dolmetscherinnen wie Praxispersonal oder Familienangehörige zurückgegriffen (12), (13), (14), obwohl in systematischen Reviews gezeigt werden konnte, dass professionelle Sprachmittlung zu verbesserten Gesundheitsoutcomes (z.B. HbA1c- oder Blutfettwerte) und einer höheren Patientenzufriedenheit führen (15). Die Hauptgründe für die dennoch geringe Inanspruchnahme professioneller Dolmetscherinnen sind Zeitmangel, fehlende Verfügbarkeit und hohe Kosten (16), (17).

Verschiedene Autorinnen haben Teledolmetschen als vielversprechende Lösung für dieses Problem untersucht und diskutiert, da auf diese Weise professionelle Sprachmittlerinnen ad hoc verfügbar sind (18) und Kosten eingespart werden können (19).

2.2 Die Vorgeschichte des Projektes iKom-2

Die oben bereits beschriebene Zunahme globaler Migrationsströme gipfelte in Europa 2015. Nicht zuletzt aufgrund des Bürgerkrieges in Syrien kam es zu einem Zuwachs an Schutzsuchenden von 85% gegenüber dem Vorjahr (20). Auch in Hamburg kam es zu einem steten Zuwachs der Asylsuchenden, der im November 2015 mit 6.612 Erstmeldungen in nur einem Monat seinen Höhepunkt fand.²

Einen sehr guten Überblick über die Herausforderungen dieser Zeit und die zügig entwickelten Lösungsansätze findet man im Kapitel 4.6 „Die medizinische Versorgung Geflüchteter und Asylsuchender in Hamburg“ von Susanne Pruskil in dem Buch „Nachhaltige StadtGesundheit Hamburg“ herausgegeben von Rainer Fehr und Alf Trojan (21). Hier beschreibt sie, dass der Zugang zu medizinischer Versorgung für die Neu-Ankommenden zu den größten Schwierigkeiten gehörte. Schnell mussten in den Erstaufnahmestellen Container zur medizinischen Versorgung der Bewohnerinnen

² ZKF-Lagebild Stand 15.01.2018 zitiert nach Pruskil (2018)

eingesetzt werden. Da Sprachbarrieren zu den größten Herausforderungen für eine adäquate medizinische Versorgung zählten, wurden verschiedene Lösungen der Sprachmittlung etabliert. In zehn der Einrichtungen konnten in sogenannten „Medizin Containern“ auf ein Video-Dolmetschsystem der Firma *SAVD Videodolmetschen* als schnell verfügbare und kostengünstige Lösung zurückgegriffen werden (<https://www.savd.at/portfolio-item/refugee-camp-hamburg-deutschland/>). Dies wurde durch eine Spende der Dorit und Alexander Otto Stiftung an das Deutsche Rote Kreuz ermöglicht. Die Freie und Hansestadt Hamburg ist für die Finanzierung der Dolmetscherleistungen aufgekommen.

In der Folge konnten viele der Bewohnerinnen der Erstaufnahmestellen in Folgeunterkünfte umziehen. Die anfängliche Problematik einer fehlenden Krankenversicherung konnte durch die Gesundheitskarte der AOK Bremen/Bremerhaven³ adressiert werden, sodass einer Versorgung durch das Regelsystem nichts mehr im Wege stand. Die Sprachbarriere jedoch blieb als Hürde bestehen. Während es in den Unterkünften noch das Videodolmetschen gegeben hatte, fanden sich Ärztinnen und Patientinnen nun ohne eine Möglichkeit der Überbrückung ihrer Sprachbarrieren wieder.

An dieser Barriere setzt das Projekt iKom-2 an. Nach den positiven Erfahrungen mit dem Videodolmetschen aus den Erstaufnahmeeinrichtungen sollte die Implementierung von Videodolmetschen und Telefondolmetschen nun auch in der ambulanten Regelversorgung im Sinne einer *feasibility study* erprobt und beide Methoden gegeneinander und gegen eine Kontrollgruppe getestet werden.

³ Vgl. die Vorstellung der Hamburger Behörde für Arbeit, Soziales, Familie und Integration beim Fachtag Gesundheitsversorgung für Ausländer am 16.12.2015, abrufbar unter: <https://www.hamburg.de/contentblob/4664216/ddd3980a7ac0109001ee5d5527a8fa5e/data/vortrag-burmester-fachtag-gesundheitsversorgung.pdf>

3. Methoden

Aufbauend auf der Zielsetzung wurde das Projekt als eine dreiarmlige Studie (Videodolmetsche, Telefondolmetschen, Kontrollgruppe) in drei Bereichen der ärztlichen Hamburger Primärversorgung durchgeführt. In diesem Kapitel werden zunächst das Setting und die Einführung der Interventionen beschrieben, bevor in der Folge detaillierter auf die quantitativen und qualitativen Methoden eingegangen wird. Eine detaillierte Beschreibung der Methoden ist den angehängten Publikationen zu entnehmen. Um Dopplungen zu vermeiden, wird an dieser Stelle besonders auf übergeordnete methodische Überlegungen eingegangen und im Zweifelsfall auf die Publikationen verwiesen.

3.1 Studienablauf und Rekrutierung der Praxen und Patientinnen

Um dem gestiegenen Bedarf an Sprachmittlung in der Primärversorgung in Hamburg zu begegnen, sollten Videodolmetschen (VR)⁴ und Telefondolmetschen (TR) gegeneinander und gegen eine Kontrollgruppe (CG) getestet und Fragen der Implementierung in den Praxisalltag evaluiert werden. Zunächst wurden explorative Gespräche mit 2 Patientinnen und jeweils einer Vertreterin aus den Fachrichtungen Allgemeinmedizin, Gynäkologie und Pädiatrie geführt, um die Erwartungen und Bedarfe bzgl. der Einführung einer solchen Teledolmetschlösung zu eruieren und in die Konzeption mit einfließen zu lassen. Anschließend wurden die Praxen rekrutiert. Die Interventionen sollten (1) über ganz Hamburg verteilt, (2) in Stadtteilen mit hohem Bedarf und (3) in Settings der Primärversorgung verfügbar gemacht werden. Diesen Rekrutierungsprinzipien folgend wurden jeweils alle Praxen der Fachrichtungen Allgemeinmedizin, Gynäkologie und Pädiatrie (3) aus den zwei Stadtteilen mit dem höchsten Anteil an Menschen mit Migrationshintergrund (2) innerhalb jedes der 7 Hamburger Bezirke (1) postalisch kontaktiert. Auf Grund des geringen Finanzrahmens für das Projekt wurden für dieses Pilotprojekt eine Anzahl von insgesamt 15 Praxen (9x Allgemeinmedizin, 3x Gynäkologie, 3x Pädiatrie) angestrebt.

Da sich die Rekrutierung schwieriger gestaltete als erwartet, wurde diese zunächst ausgeweitet. Nach 6 Monaten konnte das Projekt mit 13 Praxen starten. Eine Übersicht über den Rekrutierungsprozess gibt Tabelle 1.

Table 1 – Praxisrekrutierung

Phase	Zeit	Kontakt	Kontakt			Teilnahme		
			Allg.med.	Gynäkologie	Pädiatrie	Allg.med.	Gynäkologie	Pädiatrie
1	0	Brief	593	24	17	2	0	0
	4 Wochen	Anruf	591	24	17	1	1	1
	4 Wochen	Fax	491	19	2	1	0	0

⁴ Die Abkürzungen der drei Studiengruppen sind zur besseren Nachvollziehbarkeit aus dem Originalpaper übernommen. Da es sich um ein englischsprachiges Paper handelt, lauten die Abkürzungen VR (*video remote*), TR (*telephone remote*) und CG (*controll group*)

2	10 Wochen	Fax	29	12	33	3	0	1
	14 Wochen	Anruf	26	12	32	0	2	1

Nach der zufälligen Verteilung der 13 Praxen auf die drei Studiengruppen wurden die beiden Interventionsgruppen mit der notwendigen Hardware und Software für das Video- und Telefondolmetschen ausgestattet (vgl. hierzu die Beschreibung der Hardware und Software in der entsprechenden angehängten Publikation). Vor Beginn der Nutzungsphase wurden alle teilnehmenden Praxen zu einem Kick-Off-Meeting eingeladen, bei dem Ziel und Zweck der Studie, die genauen Abläufe der Studie in den Praxen sowie die Funktionsweise der Dolmetsch-Tools vorgestellt wurden.

Im Anschluss begann die 6-monatige Interventionsphase. Patientinnen wurden durch ein Convenience Sampling rekrutiert. Alle fremdsprachigen Patientinnen, die die entsprechende Praxis betraten, wurden auf Ein- und Ausschlusskriterien (u.a. die 7 beteiligten Sprachen, vgl. entsprechende Publikation im Anhang) hin untersucht und bei einer Teilnahmeberechtigung wurden Informationsmaterialien zur Studie sowie ein eine Einwilligungserklärung in der Sprache der Patientin ausgehändigt. Nach Einwilligung der Patientinnen wurde für die medizinische Konsultation im Falle der Interventionsgruppen Video- bzw. das Telefondolmetschen genutzt. Im Anschluss erhielten sowohl die Ärztin als auch die Patientin einen Fragebogen zur Bewertung der Konsultation.

Nach Abschluss der 6-monatigen Interventionsphase wurden mit den Vertreterinnen der teilnehmenden Praxen aus den beiden Interventionsgruppen Fokusgruppen zu Fragen der Implementierung in den Praxisalltag sowie zu Vor- und Nachteilen der jeweiligen Dolmetsch-Tools durchgeführt. Einen Überblick über den Ablauf der Studie gibt Abbildung 1.

Abbildung 1 – Ablauf der Studie



3.2 Die quantitativen Methoden

Nach jeder Konsultation füllten sowohl die Ärztinnen als auch die Patientinnen einen Fragebogen aus, mit dessen Hilfe die empfundene Qualität der Arzt-Patienten-Kommunikation (PQC⁵) erhoben werden sollte. Dieser Fragebogen orientiert sich am Kommunikationsmodell von Bird und Cohen-Cole (22). Die Patientinnen füllten darüber hinaus noch einen weiteren Fragebogen aus, der sich aus dem Patient Enablement Index (PEI) (23) und dem Fragebogen zur partizipativen Entscheidungsfindung 9-Item-Version (PEF-FB-9) (24) zusammensetzt, um

⁵ aus englisch *perceived quality of communication*

Patientenbefähigung und partizipative Entscheidungsfindung zu erheben und so weitere Qualitätsindikatoren der Arzt-Patienten-Kommunikation und letzten Endes der medizinischen Versorgung abzubilden.

Ergänzend füllten die Ärztinnen und Patientinnen aus den Interventionsgruppen einen Fragebogen zur Akzeptanz der Dolmetschtools aus, den Langer und Wirth (25) bereits in einer Studie zum Telefondolmetschen in Kinderkliniken angewendet hatten. Alle Fragebogen wurden in die 7 teilnehmenden Sprachen Arabisch, Farsi, Dari, Kurdisch, Russisch, Türkisch und Tigrinya übersetzt und rückübersetzt.

Die Fragebogen-Scores wurden den Empfehlungen der jeweiligen Autorinnen entsprechend gebildet, sofern diese vorlagen. In den Fällen, in denen diese nicht vorlagen, wurden die Score-Bildungen denen der anderen Fragebögen angepasst. Missing-Werte wurden bei einer Mindestanzahl korrekt ausgefüllter Items durch Mittelwerte ersetzt und alle Scores wurden im Sinne einer besseren Vergleichbarkeit auf eine Skala von 0 (gering) bis 100 (hoch) transformiert.

Die Dateneingabe erfolgte mithilfe von EpiData und die statistische Auswertung mithilfe von IBM SPSS Statistics 25. Eine Normalverteilung wurde durch visuelle Überprüfung der Histogramme der einzelnen Scores überprüft. Da die Daten nicht normalverteilt waren, wurde der nicht-parametrische Kruskal-Wallis-Test durchgeführt. Im Anschluss wurde ein Dunn-Bonferroni-Test als Post-hoc-Test durchgeführt, um untersuchen zu können, welche der Gruppen sich signifikant voneinander unterscheiden.

Neben den Fragebögen wurde noch eine Analyse zur Anzahl der Anrufe bzw. Nutzung des Videodolmetschers (Call-Analyse) der Interventionsgruppen ausgewertet. Diese Auswertung erfolgte mithilfe von Microsoft Excel (Microsoft Office 365 ProPlus).

3.3 Die qualitativen Methoden

Im Anschluss an die 6-monatige Interventionsphase wurden Vertreterinnen der Praxen aus den Interventionsgruppen zu Fokusgruppen in das Institut und Poliklinik für Allgemeinmedizin am UKE eingeladen. In den Fokusgruppen sollten Fragen zur Implementierung der Tools in den Praxisalltag evaluiert und Vor- und Nachteile der beiden Tools erhoben werden. Die Fokusgruppen wurden getrennt nach Interventionsgruppen durchgeführt. So konnten bei allen Teilnehmenden ein gemeinsames Verständnis der Intervention vorausgesetzt und zeitintensive Austauschen zu den praktischen Unterschieden beider Tools vermieden werden. Die Sitzungen dauerten ca. 75 Minuten, wurden aufgezeichnet und wörtlich transkribiert.

Um die Leitfäden für die Fokusgruppen zu entwickeln, wurde eine der Hauptautorinnen einer ähnlich gelagerten Studie aus Wien (26) kontaktiert. Gemeinsam wurden praxisrelevante Fragen rund um die Implementierung eines Dolmetsch-Tools identifiziert und so ein Leitfaden für die Fokusgruppen konzipiert. Der Leitfaden ist in zwei Themenkomplexe untergliedert: (1) Eine Abbildung des Status quo bzgl. der Kommunikation mit fremdsprachigen Patientinnen und (2) eine Evaluation der Erfahrungen mit dem Tool in den 6 Monaten der Interventionsphase. Der zweite Teil untergliedert sich weiter in die Themen Implementierung in den Praxisalltag, Inanspruchnahme, Gebrauch im Praxisalltag, Akzeptanz des Tools sowie Stärken und Schwächen.

Die Transkripte der Fokusgruppen wurden mithilfe des Programms MAXQDA-10 (27) aufbereitet und einer qualitativen Inhaltsanalyse nach Mayring unterzogen (28). Deduktives und induktives Kodieren wurden miteinander kombiniert, um sowohl literaturbasierte und im Leitfaden bereits angelegte Thesen überprüfen zu können als auch neue Erkenntnisse abzubilden. Die Transkripte wurden von Susanne Pruskil und Jonas Fiedler unabhängig voneinander gelesen und kodiert. Im Anschluss wurden diese Codes miteinander verglichen, Unterschiede in der Kodierung wurden diskutiert und eine finale Version des Kodierschemas erstellt. Im Anschluss wurden alle Transkripte doppelt kodiert, um sicherzustellen, dass keine Informationen verloren gehen.

4. Ergebnisse

In diesem Kapitel werden in Kürze jeweils die wichtigsten Ergebnisse zunächst des quantitativen und anschließend des qualitativen Studienabschnitts vorgestellt.

4.1 Quantitative Ergebnisse

Insgesamt wurden im Interventionszeitraum 202 Calls getätigt, 162 davon im Bereich Videodolmetschen und 40 im Bereich Telefondolmetschen. 19 Calls wurden nicht in die Auswertung aufgenommen, weil es sich um Sprachen handelte, die nicht zu den Studiensprachen gehörten, sodass am Ende 183 Konsultationen in die Call-Analyse eingeflossen sind (152 VR, 31 TR). Die drei am häufigsten in Anspruch genommenen Sprachen waren Arabisch, Farsi und Dari. Calls dauerten im Schnitt 14 Minuten und es gab keinen signifikanten Unterschied in der Dauer der Gespräche über die drei medizinischen Fachrichtungen hinweg.

Die Akzeptanz der Dolmetschtools in den Interventionsgruppen war insgesamt sehr hoch. Sowohl Ärztinnen als auch Patientinnen stimmten allen 5 Aussagen zur Akzeptanz des entsprechenden Tools in über 90% der Fälle entweder komplett oder weitestgehend zu.

Von den Patientinnen wurden 127 Fragebögen ausgefüllt. Davon gehörten 73 zur VR-Gruppe, 14 zur TR-Gruppe und 40 zur Kontrollgruppe. Patientinnen der Kontrollgruppe waren jünger und häufiger männlich als in der VR- und der TR-Gruppe. Bildungsstand sowie berufliche Qualifizierung waren höher in der TR-Gruppe als in den anderen beiden Gruppen. In allen drei Bereichen (wahrgenommen Qualität der Kommunikation, *patient enablement* und partizipative Entscheidungsfindung) scorete die VR-Gruppe am höchsten und der Kruskal-Wallis-Test zeigte signifikante Unterschiede für alle drei Bereiche. Mithilfe des Dunn-Bonferroni Test wurde im Anschluss ermittelt, dass es signifikante Unterschiede für folgende Konstellationen gab:

- PEI zwischen CG und VR sowie zwischen TR und VR
- PEF-FB-9 zwischen CG und VR
- PQC zwischen CG und VR.

Von den Ärztinnen wurden 178 Fragebögen ausgefüllt. Davon gehörten 111 zur VR-Gruppe, 14 zur TR-Gruppe und 53 zur Kontrollgruppe. Die Mehrheit der Ärztinnen in der TR-Gruppe und der VR-Gruppe waren männlich, während in der Kontrollgruppe ausschließlich weibliche Ärztinnen waren. Signifikante Unterschiede bezüglich der wahrgenommenen Qualität der Kommunikation ergaben sich mithilfe des Kruskal-Wallis- und des Dunn-Bonferroni-Tests zwischen der VR-Gruppe und der Kontrollgruppe sowie zwischen der TR-Gruppe und der Kontrollgruppe. Einen Überblick über die statistischen Untersuchungen gibt Tabelle 2.

Tabelle 2 – Ergebnisse der statistischen Tests

Fragebogen	Hypothese VR = TR = CG	TR - CG	TR - VR	CG - VR
PEI	$p = 0.005^a$	$p = 1.000^b$	$p = .022^b$	$p = .048^b$
PEF-FB-9	$p = 0.022^a$	$p = .601^b$	$p = 1.000^b$	$p = .018^b$
PQC - Patientinnen	$p < 0.001^a$	$p = .450^b$	$p = .296^b$	$p < .001^b$
PQC - Ärztinnen	$p < 0.001^a$	$p < .001^b$	$p = 1.000^b$	$p < .001^b$

^a Kruskal-Wallis-Test

^b Dunn-Bonferroni-Test

4.2 Qualitative Ergebnisse

An den Fokusgruppen nahmen 9 Gesundheitsfachkräfte (7 Ärztinnen und 2 MFAs) aus 8 der 10 Interventionspraxen teil. In der TR-Gruppe waren es 3 Ärztinnen und 2 MFAs in der VR-Gruppe waren es 4 Ärztinnen. Weder aus der TR- noch aus der VR-Gruppe nahmen Vertreterinnen der gynäkologischen Praxen teil. In der VR-Gruppe waren überwiegend Männer vertreten, während die TR-Gruppe überwiegend aus Frauen bestand.

Ziel der Fokusgruppen war es einerseits, den Status quo bezüglich der Kommunikation mit fremdsprachigen Patientinnen abzubilden und andererseits eine kritische Evaluation der beiden eingeführten Interventionen vorzunehmen.

Im ersten Teil zur Kommunikation mit fremdsprachigen Patientinnen wurden zwei zentrale Aspekte immer wieder thematisiert: Die Bedeutung adäquater Kommunikation für diagnostische und therapeutische Prozesse sowie Möglichkeiten zur Überbrückung von Sprachbarrieren vor der Einführung der Dolmetschtools.

Hinsichtlich der Bedeutung adäquater Kommunikation wurde betont, dass die medizinische Vorgeschichte nur erhoben werden könne, wenn die Sprachbarriere überwunden werde. In einem anderen Fall wurde auf die Notwendigkeit hingewiesen, über die Folgen bestimmter Diagnosen oder therapeutischer Maßnahmen aufzuklären. Zum Teil mussten Patientinnen sogar weggeschickt werden, wenn keine Lösung zur Überbrückung der Sprachbarriere gefunden wurde. Selbst in den Fällen, in denen Lösungen zur Überbrückung der Sprachbarriere gefunden werden konnten, wurden diese deutlich als unzureichend für die Ermöglichung einer adäquaten Versorgung eingeordnet. Handzeichen, technologische Lösungen wie Google Translate sowie Angehörige oder Praxispersonal als Laiendolmetscherinnen wurden als bisherige Lösungen angeführt. Als besonders herausfordernd wurde das Einholen eines *informed consent* ohne professionelle Sprachmittlung beschrieben.

Im zweiten Teil ging es um eine kritische Evaluation des jeweils verwendeten Dolmetschtools. Insgesamt war das Feedback zu beiden Tools sehr positiv. Einige kritische Anmerkungen wurden dennoch gemacht. So wurde von beiden Gruppen

beschrieben, dass es einige Zeit brauche, um mit der Nutzung der Tools vertraut zu werden und die Integration in den Praxisalltag erfolgreich zu gestalten. Zudem sei der Zeitdruck im Praxisalltag eine Hürde für die Einführung der Tools gewesen. In der VR-Gruppe wurde darüber hinaus die zur Verfügung gestellte Hardware kritisiert, die aufgrund ihrer Größe inadäquat für den alltäglichen Praxisbetrieb sei. In der TR-Gruppe wurde das Fehlen non-verbaler Kommunikation als Manko benannt.

Die Mehrheit der Rückmeldungen war jedoch eindeutig positiv. Hervorgehoben wurden die Ermöglichung der Kommunikation mit fremdsprachigen Patientinnen an sich, die hohe Qualität der Übersetzungen, die gute Qualität der Software und des technischen Supports sowie die rechtliche Sicherheit, die sich aus der Nutzung professioneller Sprachmittlung ergab. Die zusätzliche Zeit, die für die Inanspruchnahme der Tools notwendig war, wurde aus zwei Gründen als gut investierte Zeit angesehen: Zum einen bleibe die Kommunikation sonst sehr oberflächlich, zum anderen könnten erst so notwendige Informationen in Erfahrung gebracht werden, was langfristig sogar zu einer Zeitersparnis führe.

Die Vertreterinnen der TR-Gruppe favorisierten das Telefondolmetschen, da bestimmte Vorurteile durch die fehlende visuelle Komponente des Dolmetschens weniger Raum bekämen. Die VR-Gruppe hingegen favorisierte das Videodolmetschen, da ihnen Telefondolmetschen zu unpersönlich für das vertrauliche Setting einer medizinischen Konsultation erschien.

5. Diskussion

Ein Ziel dieser *feasibility trial* war die Evaluation der Implementierung zweier Dolmetsch-Tools in Primärversorgungssettings in Hamburg. Ausgehend von der Annahme eines hohen Bedarfs an Sprachmittlung als Lösung für die ambulant häufig anzutreffenden Sprachbarrieren war es überraschend, dass sich die Praxisrekrutierung als derartig herausfordernd darstellte. Selbst die Praxen, die regelmäßig fremdsprachige Patientinnen behandelten, gaben zumeist an, dass sie entweder keine Zeit für die Implementierung einer solchen Lösung hätten oder bereits andere (meist informelle) Lösungen nutzen würden. Auch die Inanspruchnahme der Dolmetschtools während der Erhebungsphase war deutlich geringer, als initial erwartet wurde. Die Zusammenschau dieser Erkenntnisse mit den Ergebnissen des qualitativen Teils der Studie, in dem die Teilnehmenden ebenfalls angaben, dass der Mehrwert der Dolmetschtools zwar unbenommen sei, es aber Zeit brauche, bis sich der Mehrwert auch in einer Zeitersparnis niederschlägt, zeigt, dass die Dolmetsch-Tools zwar eine vielversprechende Lösung für die häufig anzutreffenden Sprachbarrieren darstellen, die Einführung und Implementierung jedoch die starke Belastungssituation in den Primärversorgungssettings mit berücksichtigen muss. Diese Diskrepanz deckt sich mit der Literatur zu diesem Thema. In anderen Studien dauerte allein die Etablierung von Teledolmetschlösungen bis zu 6 Monate (29), die Zufriedenheit mit den Tools nahm jedoch mit kontinuierlicher Nutzung zu (30).

Die Ergebnisse der quantitativen und qualitativen Erhebungen wurden bereits in den beiden auf diesem Projekt basierenden Publikationen umfassend diskutiert, weshalb hier nur in Kürze auf die wichtigsten Einordnungen der Ergebnisse in den Stand der Forschung zu diesem Thema eingegangen werden soll, bevor die zentralen Erkenntnisse vor einem größeren gesellschaftlichen Kontext interpretiert und in diesen eingeordnet werden.

Die hohe Zufriedenheitsrate sowohl bei den Patientinnen als auch bei den Ärztinnen in beiden Interventionsgruppen auch im Vergleich mit der Kontrollgruppe stehen im Einklang mit einer eindeutigen Studienlage, nach der die Zufriedenheit in Teledolmetschsettings im Allgemeinen sehr hoch ist und besser bewertet wird als in informellen Dolmetschsettings (31), (32), (33). Insgesamt wurden im quantitativen Studienabschnitt beide Interventionsgruppen besser bewertet als die Kontrollgruppe und das Videodolmetschen wiederum besser als das Telefondolmetschen. Alle statistischen Ergebnisse sind jedoch in Anbetracht der geringen *sample size* unbedingt mit Vorsicht zu interpretieren. Dies gilt insbesondere für die sehr geringe Fallzahl in der Telefondolmetschen-Gruppe. Die Einschätzung deckt sich jedoch mit einer Studie aus dem Jahre 2021, in der Videodolmetschen nicht nur besser bewertet wurde als Telefondolmetschen, sondern sogar besser als Präsenzdolmetschen. In der Literatur finden sich auch Erklärungen, die diese Bewertung unterstützen. So wurde das Telefondolmetschen bspw. für fehlende non-verbale Kommunikation (17) oder die eingeschränkte Möglichkeit, therapeutische Abläufe wie z.B. die Nutzung eines Inhalers im Rahmen der Asthmathherapie zu zeigen (34), kritisiert.

In den Fokusgruppen sprachen die Teilnehmenden auch über Lösungen, auf die vor Einführung der Tools zur Überbrückung der Sprachbarrieren zurückgegriffen wurden. Lediglich der Rückgriff auf professionelle Dolmetscherinnen vor Ort wurde jedoch als adäquat und ausreichend bewertet. Dies deckt sich mit der Literatur, nach der

Patientinnen zwar häufig Angehörige aufgrund der Vertrautheit (35) und des emotionalen Supports (36) als Dolmetscherinnen befürworteten, informelle Dolmetscherinnen jedoch deutlich mehr Fehler machten und diese auch überproportional häufig zu medizinischen Behandlungsfehlern führten (37), (38). Die Teilnehmenden beider Interventionsgruppen sprachen sich für das jeweils von ihnen verwendete Tool aus. Zwar war ein direkter Vergleich aufgrund des Studiendesigns gar nicht möglich, da die Teilnehmenden nur mit einem der beiden Tools in Kontakt kamen, aber auch in der Literatur finden sich eine Vielzahl von Argumenten für oder gegen die beiden Dolmetschlösungen. Während einige der Kritikpunkte am Telefondolmetschen bereits thematisiert wurden, zählten beim Videodolmetschen die meist höheren Kosten verglichen mit dem Telefondolmetschen (39), schlechte Internetverbindungen (30) oder kamerascheue Antworten (40) zu den wichtigsten Argumenten gegen diese Dolmetschlösung. In einem systematischen Review wurde abschließend festgehalten, dass nach der aktuell verfügbaren Evidenz keine der Modalitäten klar gegenüber der anderen zu favorisieren sei (41).

Da Bedarf und Mehrwert professioneller Dolmetschlösungen inzwischen unumstritten sind, sollte zukünftige Forschung einen Fokus auf die verschiedenen Settings legen, in denen diese Dolmetschlösungen Anwendung finden, und den Kriterien, die der Auswahl der bestmöglichen Lösung zugrunde liegen sollten. Da die Fallzahlen in dieser Studie, insbesondere in der Telefondolmetschen Gruppe, sehr klein waren, bräuchte es zudem größer angelegte Studien, die den ersten Eindruck der Überlegenheit von Videodolmetschen gegenüber Telefondolmetschen verifizieren oder falsifizieren. Des Weiteren könnten qualitative Studien mit Nutzer*innen, die beide Tools verwendet haben oder gemischte Fokusgruppen aus beiden Interventionsgruppen einen direkten Vergleich beider Dolmetschlösungen ermöglichen, der zu einem weiteren Erkenntnisgewinn beitragen könnte.

Neben einer Verbesserung der Versorgung können durch die Einführung professioneller Dolmetschleistungen auch Kosten in erheblichem Ausmaß eingespart werden z.B. durch geringere Wiederaufnahmeraten in Krankenhäusern (42), kürzere Aufenthalte in Notaufnahmen, weniger Tests oder eine geringere Verordnung von Medikamenten (43). Einige Fokusgruppenteilnehmende gaben an, dass professionelle Dolmetschlösung eine adäquate Behandlung überhaupt erst ermöglichten. Damit benennen sie nicht nur ein moralisches Problem, sondern auch ein rechtliches. In Deutschland sind Ärztinnen verpflichtet, ihre Patientinnen über jegliche medizinische Maßnahme adäquat aufzuklären (44), (45) und im Zweifelsfall auch adäquate Übersetzungsleistungen zur Verfügung zu stellen (46). Die Kosten, die hierdurch entstehen, müssen die Patientinnen allerdings selber tragen (47). Ausgenommen davon sind nur Sozialhilfeempfängerinnen (48), (49) und Leistungsempfängerinnen nach dem Asylbewerberleistungsgesetz (50), (51). In der Praxis führt diese rechtliche Lage häufig dazu, dass eher auf Laiendolmetscherinnen als auf professionelle Dolmetscherinnen zurückgegriffen wird. Auf damit einhergehende Probleme in der Versorgung wird in beiden dieser Arbeit zugrundeliegenden Publikationen intensiv eingegangen. Professionelle Sprachmittlung stellt für einen wachsenden Teil unserer Gesellschaft einen essenziellen Teil der Versorgung dar. Es ist dementsprechend höchste Zeit für politische Entscheidungsträgerinnen, klare rechtliche Regelungen für die Kostenübernahme bei Dolmetschleistungen einzuführen und eine entsprechende SGB V Änderung in die Wege zu leiten.

Wir leben in einer Zeit der multiplen Krisen. Die Corona-Pandemie wird sicher nicht die letzte Pandemie in den nächsten Jahren gewesen sein. In Zeiten der Kontaktreduktion stellen Teledolmetschlösungen eine besonders attraktive Form der Sprachmittlung dar. Zudem werden durch den Klimawandel und weltweite Kriegsgeschehen globale Fluchtbewegungen aus dem globalen Süden in den globalen Norden in absehbarer Zeit eher zu als abnehmen. In der Folge wird unsere Gesellschaftsstruktur an Diversität gewinnen – ein weiterer Grund, weshalb dringend klare Regelungen für Sprachmittlung und deren Kostenübernahme in medizinischen Settings benötigt werden. Hoffnung macht vor diesem Hintergrund der Satz aus dem aktuellen Koalitionsvertrag der Bundesregierung: „Sprachmittlung auch mit Hilfe digitaler Anwendungen wird im Kontext notwendiger medizinischer Behandlung Bestandteil des SGB V.“ (52, S. 65)

6. Zusammenfassung

Hintergrund: Die vorliegende Arbeit ist das Ergebnis eines Projektes, das als Reaktion auf die zunehmende Diversifizierung der Bevölkerung in Folge der Migrationsbewegungen insbesondere um 2015 herum und einen damit einhergehenden größeren Bedarf an Sprachmittlung in der Primärversorgung entstanden ist. Präsenzdolmetscher als Goldstandard zur Deckung dieses Bedarfes sind dabei jedoch teuer und häufig nicht ad hoc verfügbar. Im Rahmen dieser Machbarkeitsstudie sollten daher Video- und Telefondolmetschen als weitere vielversprechende Möglichkeiten zur Überbrückung von Sprachbarrieren sowie deren Implementierung in die Praxis erprobt werden.

Methoden: Für das Projekt wurden insgesamt 13 Praxen aus den Fachrichtungen Allgemeinmedizin, Gynäkologie und Pädiatrie rekrutiert und jeweils einer der drei Studiengruppen (Videodolmetschen, Telefondolmetschen, Kontrollgruppe) zugewiesen. Während der Interventionsphase wurden die Konsultationen mit fremdsprachigen Patientinnen mithilfe der entsprechenden Dolmetschlösung durchgeführt. Im Anschluss an jede dieser Konsultationen füllten sowohl Ärztin als auch Patientin aus, die Zufriedenheit mit der Arzt-Patienten-Kommunikation, Patientenbefähigung sowie partizipative Entscheidungsfindung erhoben. Nach dieser Interventionsphase führten wir Fokusgruppen mit allen Anwenderinnen der Dolmetschlösungen durch, um die Implementierung in den Praxisalltag sowie die Vor- und Nachteile der jeweiligen Tools zu evaluieren.

Ergebnisse: 13 Praxen (7 Allgemeinmedizin, 3 Gynäkologie, 3 Pädiatrie) nahmen an der Studie teil. Die Einführung der Dolmetschtools verlief reibungslos und wurde von den Anwenderinnen weitgehend akzeptiert. Allerdings wurden die Tools deutlich seltener genutzt, als wir es erwartet hatten. Im quantitativen Teil beantworteten 178 Ärztinnen sowie 127 Patientinnen die entsprechenden Fragebögen. Videodolmetschen schnitt signifikant besser ab als die Kontrollgruppe. Im qualitativen Teil waren die wichtigsten Themen die Bedeutung der Kommunikation für diagnostische und therapeutische Prozesse, bisherige Lösungen für Sprachbarrieren, sowie die Vor- und Nachteile der beiden Teledolmetschlösungen.

Conclusion: Ein zentrales Ergebnis dieser Machbarkeitsstudie war die Diskrepanz zwischen dem angenommenen hohen Bedarf an professionellen Dolmetschlösungen einerseits und der geringen Teilnahmebereitschaft der Praxen andererseits. Diese Diskrepanz deutet auf ein mangelndes Bewusstsein für die negativen Auswirkungen des Einsatzes von informellen oder gar keinen Dolmetscherinnen im medizinischen Umfeld hin. Aufgrund der geringen Stichprobengröße sind alle statistischen Ergebnisse mit Vorsicht zu genießen. Unsere Ergebnisse zeigen jedoch, dass Teledolmetschen ein vielversprechender Ansatz zur Überwindung von Sprachbarrieren in der Primärversorgung sein kann. Der qualitative Teil des Projektes zeigte, dass diese Lösungen sehr geschätzt, wenn nicht sogar als unverzichtbar für eine angemessene medizinische Versorgung von Patientinnen mit Sprachbarriere angesehen wurden. Politische Entscheidungsträgerinnen sollten die Bereitstellung von Teledolmetschlösungen als angemessene und sichere Dolmetschalternative in Betracht ziehen, wenn Präsenzdolmetscherinnen nicht verfügbar oder zu teuer sind.

7. Summary

Background: This paper is the result of a project that was developed in response to the increasing diversification of the population as a result of migration movements, particularly around 2015, and the associated greater need for language interpretation in primary care. However, face-to-face interpreters as the gold standard for meeting this need are expensive and often not available on an ad hoc basis. This feasibility study therefore aimed to test video and telephone interpreting as further promising options for bridging language barriers and their implementation in practice.

Methods: A total of 13 practices from the fields of general medicine, gynecology and pediatrics were recruited for the project and assigned to one of the three study groups (video interpreting, telephone interpreting, control group). During the intervention phase, consultations with foreign-language patients were conducted using the appropriate interpreting solution. Following each of these consultations, both doctor and patient completed questionnaires to assess satisfaction with doctor-patient communication, patient empowerment and shared-decision-making. After this intervention phase, we conducted focus groups with all users of the interpreting solutions to evaluate the implementation into everyday practice as well as the advantages and disadvantages of the respective tools.

Results: 13 practices (7 general medicine, 3 gynecology, 3 pediatrics) took part in the study. The introduction of the interpreting tools went smoothly and was largely accepted by the users. However, the tools were used much less frequently than we had expected. In the quantitative part, 178 female doctors and 127 female patients answered the corresponding questionnaires. Video interpreting performed significantly better than the control group. In the qualitative part, the most important topics were the importance of communication for diagnostic and therapeutic processes, previous solutions to language barriers, and the advantages and disadvantages of the two teletext interpreting solutions.

Conclusion: A key finding of this feasibility study was the discrepancy between the assumed high demand for professional interpreting solutions on the one hand and the low willingness of practices to participate on the other. This discrepancy indicates a lack of awareness of the negative effects of using informal interpreters or no interpreters at all in the medical environment. Due to the small sample size, all statistical results should be treated with caution. However, our results show that team interpreting can be a promising approach to overcoming language barriers in primary care. The qualitative part of the project showed that these solutions were highly appreciated, if not considered indispensable for adequate medical care for patients with language barriers. Policy makers should consider the provision of tele-interpreting solutions as an appropriate and safe interpreting alternative when face-to-face interpreters are not available or too expensive.

8. Chronologisches Abkürzungsverzeichnis

KBV = Kassenärztliche Bundesvereinigung

VR = Videodolmetsche (aus englisch *video remote*)

TR = Telefondolmetschen (aus englisch *telephone remote*)

CG = Kontrollgruppe (aus englisch *control group*)

PQC = subjektiv wahrgenommen Qualität der Konsultation (aus englisch *perceived quality of consultation*)

PEI = *patient enablement index*

PEF-FB-9 = partizipative Entscheidungsfindung – Fragebogen – 9 Item Version

MFA = Medizinische Fachangestellte

9. Literaturverzeichnis

1. Kassenärztliche Bundesvereinigung. Arzt-Patienten-Kommunikation - Modul für Moderierende - Qualitätszirkel. Januar 2021;
2. Linus S. Geisler: Das ärztliche Gespräch - eine vernachlässigte Aufgabe [Internet]. [zitiert 3. Februar 2023]. Verfügbar unter: <http://www.linus-geisler.de/vortraege/0306kommunikation.html>
3. Ong LM, de Haes JC, Hoos AM, Lammes FB. Doctor-patient communication: a review of the literature. *Soc Sci Med*. April 1995;40(7):903–18.
4. Riedl D, Schübler G. The Influence of Doctor-Patient Communication on Health Outcomes: A Systematic Review. *Z Psychosom Med Psychother*. Juni 2017;63(2):131–50.
5. Chandra S, Mohammadnezhad M. Doctor-Patient Communication in Primary Health Care: A Mixed-Method Study in Fiji. *Int J Environ Res Public Health*. 15. Juli 2021;18(14):7548.
6. Beckman HB. The doctor-patient relationship and malpractice. Lessons from plaintiff depositions. *Archives of Internal Medicine*. 27. Juni 1994;154(12):1365–70.
7. Moore P, Vargas A, Núñez S, Macchiavello S. [A study of hospital complaints and the role of the doctor-patient communication]. *Rev Med Chil*. Juli 2011;139(7):880–5.
8. International Organization for Migration. WORLD MIGRATION REPORT 2020 [Internet]. 2019 Nov [zitiert 23. April 2020]. Verfügbar unter: https://publications.iom.int/system/files/pdf/wmr_2020.pdf
9. Schouten BC, Meeuwesen L, Harmsen HAM. GPs' Interactional Styles in Consultations with Dutch and Ethnic Minority Patients. *J Immigr Minor Health*. Dezember 2009;11(6):468–75.
10. Schouler-Ocak M. Intercultural Trauma-Centred Psychotherapy and the Application of the EMDR Method. In: Schouler-Ocak M, Herausgeber. *Trauma and Migration* [Internet]. Cham: Springer International Publishing; 2015 [zitiert 5. Januar 2017]. S. 177–90. Verfügbar unter: http://link.springer.com/10.1007/978-3-319-17335-1_12
11. Choi S, Davis C, Cummings S, Van Regenmorter C, Barnett M. Understanding service needs and service utilization among older Kurdish refugees and immigrants in the USA. *International Social Work*. Januar 2015;58(1):63–74.
12. Rose DE, Tisnado DM, Malin JL, Tao ML, Maggard MA, Adams J, u. a. Use of Interpreters by Physicians Treating Limited English Proficient Women with Breast Cancer: Results from the Provider Survey of the Los Angeles Women's Health Study. *Health Services Research*. 8. Januar 2010;45(1):172–94.
13. Ginde AA, Clark S, Camargo CA. Language Barriers among Patients in Boston Emergency Departments: Use of Medical Interpreters After Passage of Interpreter Legislation. *Journal of Immigrant and Minority Health*. Dezember 2009;11(6):527–30.
14. Ramsey KW, Davis J, French G. Perspectives of Chuukese Patients and Their Health Care Providers on the Use of Different Sources of Interpreters. *Hawaii J Med Public Health*. September 2012;71(9):249–52.
15. Karliner LS, Jacobs EA, Chen AH, Mutha S. Do Professional Interpreters Improve

- Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the Literature. *Health Services Research*. April 2007;42(2):727–54.
16. Karliner LS, Pérez-Stable EJ, Gildengorin G. The Language Divide. *Journal of General Internal Medicine*. 1. Februar 2004;19(2):175–83.
17. Gadon M, Balch GI, Jacobs EA. Caring for Patients with Limited English Proficiency: The Perspectives of Small Group Practitioners. *J GEN INTERN MED*. 1. November 2007;22(2):341–6.
18. Leman P. Interpreter use in an inner city accident and emergency department. *Emergency Medicine Journal*. 1. März 1997;14(2):98–100.
19. Jacobs EA, Leos GS, Rathouz PJ, Fu P. Shared Networks Of Interpreter Services, At Relatively Low Cost, Can Help Providers Serve Patients With Limited English Skills. *Health Affairs*. Oktober 2011;30(10):1930–8.
20. Lehmann J. Flucht in die Krise – Ein Rückblick auf die EU-"Flüchtlingskrise" 2015 [Internet]. bpb.de. 2015 [zitiert 10. Februar 2023]. Verfügbar unter: <https://www.bpb.de/shop/zeitschriften/apuz/217302/flucht-in-die-krise-ein-rueckblick-auf-die-eu-fluechtlingskrise-2015/>
21. Pruskil S. Die medizinische Versorgung Geflüchteter und Asylsuchender in Hamburg. In: Fehr R, Trojan A, Herausgeber. *Nachhaltige StadtGesundheit Hamburg - Bestandsaufnahme und Perspektiven*. München: Oekom; 2018. (Edition Nachhaltige Gesundheit in Stadt und Region; Bd. 2).
22. Bird J, Cohen-Cole SA. The Three-Function Model of the Medical Interview. In: Hale MS, Herausgeber. *Advances in Psychosomatic Medicine* [Internet]. S. Karger AG; 1990 [zitiert 20. November 2018]. S. 65–88. Verfügbar unter: <https://www.karger.com/Article/FullText/418260>
23. Howie JG, Heaney DJ, Maxwell M, Walker JJ. A comparison of a Patient Enablement Instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. *Family Practice*. 1. April 1998;15(2):165–71.
24. Scholl I, Kriston L, Härter M. PEF-FB-9 – Fragebogen zur Partizipativen Entscheidungsfindung (revidierte 9-Item-Fassung). 2011;4.
25. Langer T, Wirth S. Einsatz von Telefondolmetschern zur Überwindung von Sprachbarrieren – erste Erfahrungen in einer deutschen Kinderklinik. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen*. 1. Januar 2014;108(5):278–82.
26. Kletečka-Pulker DM, Parrag S. Aktueller Stand der Forschung zum Thema Videodolmetschen. *Plattform Patientensicherheit*. 31. Januar 2019;8.
27. VERBI Software. Consult. Sozialforschung GmbH. MAXQDA, Software für qualitative Datenanalyse. Berlin, Deutschland; 2014.
28. Mayring P. *Qualitative Inhaltsanalyse: Grundlagen und Techniken*. Neuausgabe, 12., aktualisierte Edition. Weinheim Basel: Beltz; 2015. 152 S.
29. Marshall LC, Zaki A, Duarte M, Nicolas A, Roan J, Colby AF, u. a. Promoting Effective Communication with Limited English Proficient Families: Implementation of Video Remote Interpreting as Part of a Comprehensive Language Services Program in a Children's Hospital. *The Joint Commission Journal on Quality and Patient Safety*. Juli 2019;45(7):509–

30. Mottelson IN, Sodemann M, Nielsen DS. Attitudes to and implementation of video interpretation in a Danish hospital: A cross-sectional study. *Scandinavian Journal of Public Health*. März 2018;46(2):244–51.
31. Crossman KL, Wiener E, Roosevelt G, Bajaj L, Hampers LC. Interpreters: Telephonic, In-Person Interpretation and Bilingual Providers. *Pediatrics*. 1. März 2010;125(3):e631–8.
32. Anttila A, Rappaport DI, Tijerino J, Zaman N, Sharif I. Interpretation Modalities Used on Family-Centered Rounds: Perspectives of Spanish-Speaking Families. *Hospital Pediatrics*. August 2017;7(8):492–8.
33. Lee LJ, Batal HA, Maselli JH, Kutner JS. Effect of Spanish interpretation method on patient satisfaction in an urban walk-in clinic. *J Gen Intern Med*. August 2002;17(8):641–5.
34. Jones D, Gill P, Harrison R, Meakin R, Wallace P. An exploratory study of language interpretation services provided by videoconferencing. *J Telemed Telecare*. 2003;9(1):51–6.
35. Greenhalgh T, Robb N, Scambler G. Communicative and strategic action in interpreted consultations in primary health care: A Habermasian perspective. *Social Science & Medicine*. 1. September 2006;63(5):1170–87.
36. Hsieh E. Not Just “Getting by”: Factors Influencing Providers’ Choice of Interpreters. *J Gen Intern Med*. Januar 2015;30(1):75–82.
37. Flores G, Laws MB, Mayo SJ, Zuckerman B, Abreu M, Medina L, u. a. Errors in Medical Interpretation and Their Potential Clinical Consequences in Pediatric Encounters. *Pediatrics*. 1. Januar 2003;111(1):6–14.
38. Flores G, Abreu M, Barone CP, Bachur R, Lin H. Errors of Medical Interpretation and Their Potential Clinical Consequences: A Comparison of Professional Versus Ad Hoc Versus No Interpreters. *Annals of Emergency Medicine*. 1. November 2012;60(5):545–53.
39. Lion KC, Brown JC, Ebel BE, Klein EJ, Strelitz B, Gutman CK, u. a. Effect of Telephone vs Video Interpretation on Parent Comprehension, Communication, and Utilization in the Pediatric Emergency Department: A Randomized Clinical Trial. *JAMA Pediatrics*. 1. Dezember 2015;169(12):1117.
40. Lee JS, Nápoles A, Mutha S, Pérez-Stable EJ, Gregorich SE, Livaudais-Toman J, u. a. Hospital discharge preparedness for patients with limited English proficiency: A mixed methods study of bedside interpreter-phones. *Patient Education and Counseling*. Januar 2018;101(1):25–32.
41. Joseph C, Garruba M, Melder A. Patient satisfaction of telephone or video interpreter services compared with in-person services: a systematic review. *Aust Health Review*. 2018;42(2):168.
42. Karliner LS, Pérez-Stable EJ, Gregorich SE. Convenient Access to Professional Interpreters in the Hospital Decreases Readmission Rates and Estimated Hospital Expenditures for Patients with Limited English Proficiency. *Med Care*. März 2017;55(3):199–206.
43. Masland MC, Lou C, Snowden L. Use of Communication Technologies to Cost-Effectively Increase the Availability of Interpretation Services in Healthcare Settings.

Telemed J E Health. Juli 2010;16(6):739–45.

44. OLG Stuttgart. AHRS 1050/100. 2009.
45. BGB §630e. Feb 1, 2013.
46. Kammergericht. MedR 2009. 2009.
47. Bundessozialgericht. NJW 806. 1996.
48. § 73 SGB XII. Jan 1, 2005.
49. BVerwG. BVerwG 5 C 20/95. Jan 25, 1996.
50. §§ 4, 6 AsylbLG. Nov 1, 1993.
51. SG Potsdam. S 20 AY 13/12. Nov 5, 2012.
52. Bundesregierung. Mehr Fortschritt wagen - Bündnis für Freiheit, Gerechtigkeit und Nachhaltigkeit - Koalitionsvertrag 2021 - 2025 zwischen der Sozialdemokratischen Partei Deutschlands (SPD), Bündnis 90 / Die Grünen und den Freien Demokraten (FDP). 2021.

9. Erklärung des Eigenanteils

Mein Eigenanteil bei der Erstellung dieser Publikation setzt sich wie folgt zusammen: Gemeinsam mit Dr. Susanne Pruskil und Prof. Dr. Martin Scherer habe ich Idee und Konzeption dieses Projektes ausgearbeitet. Ich habe den Ethikantrag geschrieben, die Praxen rekrutiert, die quantitativen Fragebögen literaturbasiert erstellt, den Leitfaden für die Fokusgruppen gemeinsam mit Susanne Pruskil und Nadine Pohontsch erstellt und die Koordination der beteiligten Projektpartner (CISCO, Avodaq AG, SAVD Videoldolmetschen, Hamburger Sozialbehörde, UKE, beteiligte Praxen) organisiert. Während der Erhebungsphase habe ich die Praxen bei der Durchführung des Projektes betreut und die Fragebögen eingesammelt und eingelesen. Gemeinsam mit Susanne Pruskil habe ich die Fokusgruppen durchgeführt. Im Anschluss habe ich unterstützt durch Christian Wiesner die statistische Auswertung des quantitativen Studienabschnitts vorgenommen und gemeinsam mit Susanne Pruskil die qualitative Auswertung durchgeführt. Zuletzt habe ich jeweils die erste Version beider Publikationen erstellt, bevor die Finalisierung gemeinsam mit allen aufgeführten Autorinnen und Autoren erfolgt ist.

10. Danksagung

An dieser Stelle möchte ich mich ganz herzlich bei all jenen bedanken, die mich bei diesem Promotionsvorhaben begleitet haben. An erster Stelle bedanke ich mich bei meinem Doktorvater Prof. Dr. med. Martin Scherer für das entgegengebrachte Vertrauen und die hervorragende und ermutigende Unterstützung seit dem ersten Tag dieser Promotion. Außerdem möchte ich mich bei Dr. med. Susanne Pruskil für die exzellente Betreuung dieser Arbeit bedanken. Als stete Austauschpartnerin war sie für mich immer erreichbar und hat mich durch alle Phasen des Vorhabens begleitet. Weiter möchte ich mich bei Ingmar Schäfer bedanken für die Unterstützung beim Ethikantrag, bei Christian Wiesner für die Unterstützung bei der statistischen Auswertung, bei Dr. Nadine Pohontsch für die Begleitung des qualitativen Studienabschnitts und bei Thomas Zimmermann für die Begleitung des quantitativen Studienabschnitts. Dr. med. Sibylle Quellhorst danke ich für die Unterstützung bei der Rekrutierung der Praxen. Zuletzt möchte ich mich noch bei meiner Familie, meinen Freundinnen und Freunden sowie meiner Partnerin Jennifer Hachmann bedanken, die im Laufe der Zeit immer eine Stütze waren, auf die ich mich verlassen konnte.

11. Lebenslauf

Name: Jonas Fiedler
Geboren: 14.01.1994 in Hamburg

Beruflicher Werdegang

Seit 01/2021 Forschungskordinator im
Stadtteilgesundheitszentrum Poliklinik Veddel
11/2020 Erlangen der Approbation als Arzt
Seit 04/2018 Promotion als Medical Doctor am Institut und
Poliklinik für Allgemeinmedizin des
Universitätsklinikum Hamburg-Eppendorf,
Doktorvater: Prof. Dr. Martin Scherer

Praktische Ausbildung

11/2019 – 10/2020 Praktisches Jahr
1. Tertial:
1. Hälfte: Allgemeinchirurgie am Regio Klinikum
Pinneberg
2. Hälfte: Unfallchirurgie am Hospital
Universitari de Girona Doctor Josep Trueta
(Universitätsklinik von Girona)
2. Tertial: Neurologie in der Asklepios Klinik
Barmbek
3. Tertial: Innere Medizin im Agaplesion
Diakonieklinikum Hamburg
2016 – 2019 Famulaturen
- Pädiatrische Praxis von Dr. Zangl
- Neurologie in der Asklepios Klinik Barmbek
- Allgemeinmedizinische Famulatur im
Universitätsklinikum von Havanna, Cuba
- Psychosomatische Tagesklinik der Schön Klinik
Eilbek
- Notaufnahme des „Hospital Clínico Universitario
de Santiago de Compostela“

Veröffentlichungen

Fiedler, J., Pruskil, S., Wiessner, C. *et al.* Remote interpreting in primary care settings: a feasibility trial in Germany. *BMC Health Serv Res* **22**, 99 (2022).

<https://doi.org/10.1186/s12913-021-07372-6>

Pruskil S, Fiedler J, Pohontsch NJ, et al. 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
BMJ Open 2023;13:e073620. doi: [10.1136/bmjopen-2023-073620](https://doi.org/10.1136/bmjopen-2023-073620)

Sprachkenntnisse

Deutsch:	Muttersprache
Englisch:	verhandlungssicher
Spanisch:	verhandlungssicher
Französisch:	Grundkenntnisse

12. Eidesstattliche Versicherung

Ich versichere ausdrücklich, dass ich die Arbeit selbständig und ohne fremde Hilfe verfasst, andere als die von mir angegebenen Quellen und Hilfsmittel nicht benutzt und die aus den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen einzeln nach Ausgabe (Auflage und Jahr des Erscheinens), Band und Seite des benutzten Werkes kenntlich gemacht habe.

Ferner versichere ich, dass ich die Dissertation bisher nicht einem Fachvertreter an einer anderen Hochschule zur Überprüfung vorgelegt oder mich anderweitig um Zulassung zur Promotion beworben habe.

Ich erkläre mich einverstanden, dass meine Dissertation vom Dekanat der Medizinischen Fakultät mit einer gängigen Software zur Erkennung von Plagiaten überprüft werden kann.

Unterschrift:

13. Originalversionen der Publikationen

RESEARCH ARTICLE

Open Access



Remote interpreting in primary care settings: a feasibility trial in Germany

Jonas Fiedler^{1†}, Susanne Pruskil^{1,2*†} , Christian Wiessner³, Thomas Zimmermann¹ and Martin Scherer¹

Abstract

Background: Global migration trends have led to a more diverse population in health care services everywhere, which in turn has set off a paradigm shift away from medical paternalism toward more patient autonomy. Consequently, physicians need to provide a more precise patient-centred healthcare. Professional interpreting appears to play a crucial part in tackling the challenges of language barriers adequately. The aim of this study was to conduct process evaluation through the implementing of video remote interpreting (VR) and telephone remote interpreting (TR) within primary care facilities in the northern German metropolis of Hamburg.

Methods: We conducted a three-armed exploratory pilot trial, which compared VR to TR and to a control group (CG) in different primary care settings. We assessed feasibility of implementation, as well as the acceptance of interpreting tools among their users. In addition, we compared the quality of communication as perceived by patients and physicians, as well as the enabling of patient-centred medicine over all three study groups using quantitative questionnaires.

Results: 13 practices (7 GPs, 3 Gynaecologists, 3 Paediatricians) took part in this trial. 183 interpreting calls were documented, 178 physicians as well as 127 patients answered their respective questionnaires. The implementation of the VR- und TR-tools went smoothly and they were broadly accepted by their users. However, the tools were used significantly less often than we had anticipated. With regards to quantitative questionnaires, VR scored significantly better than the control group in terms of the perceived quality of communication by both, patients and physicians and enabled of patient-centred medicine.

Conclusion: Our main findings were the discrepancy between the assumed high demand of professional interpreting solutions on the one hand and the low willingness of practices to participate on the other. The rather low utilisation rates were also noteworthy. This discrepancy indicates a lack of awareness concerning the adverse effects of using informal or no interpreter in medical settings, which needs to be rectified. Due to the small sample size, all statistical results must be viewed with caution. However, our results show that remote interpreting represents a promising approach to tackling language barriers in primary care settings.

Keywords: Migration, Patient centeredness, Language discordant patients, Healthcare, Primary care, Video remote interpreting, Telephone remote interpreting

Background

Over the course of the past decades, two major developments in western medicine are notable: mass migration on a global scale and a simultaneous shift towards individualised patient-centred medicine. Global migration has increased during this period resulting in more diverse populations than ever before. During this period

*Correspondence: susanne.pruskil@altona.hamburg.de

[†]Jonas Fiedler and Susanne Pruskil are joint first authors.

² Public health department, Altona, Hamburg, Germany

Full list of author information is available at the end of the article

This article is part of a larger project. A follow-up article will be published where the qualitative data obtained from focus groups including the health care professionals of this project will be reported.



of recent history, Germany welcomed the second largest number of migrants, second only to the United States [1]. Consequently, there are more than twenty million people with a migratory background living in Germany according to the German Census Bureau [2]. It is thus important to address the topic of healthcare provision for this increasingly large group of the German population. Schouten et al. identify the second development as “a paradigm shift away from medical paternalism toward more patient autonomy” (Schouten et al., 2009, p. 469). Patient centred medicine has shown to provide better health outcomes and improve patient satisfaction [3, 4].

Modern healthcare professionals face the challenge of providing patient-centred medicine to an increasingly diverse patient population. As early as 1997, Crane found that patients considered their doctors to be the most important source of medical information and that doctor-patient communication was impeded by language discordance [5]. Meanwhile, accurate medical history taking is crucial in every diagnostic process [6]. Language barriers therefore constitute one of the most significant barriers to the provision of adequate healthcare for this diverse group of patients [7, 8].

The reliance on informal interpreters, such as family members or medical staff is considered to be mostly insufficient and inadequate. Indeed, informal interpreters provided less accurate interpreting [9]. Furthermore, the reliance on ad hoc interpreters is one of the three main causes of errors in the treatment of limited English proficiency (LEP) patients [10]. Finally, errors committed by ad hoc interpreters potentially lead to more severe consequences than errors committed by professional interpreters [11, 12]. In contrast to these findings, studies have shown that doctors felt the healthcare they provided improved with the use of professional interpreters [13]. A systematic review by Karliner et al. showed that patients understood their diagnosis better with professional interpreting, utilisation of medical services equalled those of language-concordant patients, and clinical outcomes as well as satisfaction rates were also both higher with than without professional interpreting as opposed to without [14]. Yet, informal interpreters are still relied on in the vast majority of the cases [15–17].

The most important arguments against the use of professional interpreters, such as their insufficient availability, high costs [18] and time constraints [19] can be overcome by relying on remote interpreting services [20]. They have been recommended for their “instant and 24-hour availability” (Leman, 1997, p. 98). The amount of time required for remote interpreting equalled the time needed for in-person interpreting [21], thus reducing the interpreting costs [22]. Video remote interpreting (VR) proved to “increase the quality of the conversation with

the patient” (Mottelson et al., 2018, p. 246). Clinicians rated VR as equally beneficial as in-person interpreting and significantly better than ad hoc interpreting [23] and, in one study, telephone remote interpreting (TR) was not rated inferior to the gold standard presented by bilingual physicians [24].

All studies included in the systematic review comparing telephone or video remote interpreting with in-person interpreting— as well as almost all the studies cited above – were conducted in hospital settings [25]. Primary care settings differ significantly for several reasons, particularly regarding language discordance and interpreting. General practitioners are often the first doctors to attend to a patient, which makes good communication particularly important. Additionally, patients often show up unannounced at primary care facilities so that the providing adequate interpreting represents a challenge. Lastly, primary care facilities, unlike hospital, usually do not have interpreting pools at their disposal.

Remote interpreting tools have already been used in practice in Hamburg. *SAVD Videodolmetschen* has provided VR for the purpose of facilitating communication between patients and doctors throughout medical care in refugee first reception centres in Hamburg [26]. Many of these patients receive regular healthcare services now, despite the language barrier still applying to the majority of this group. The lack of professional interpreting in primary care settings therefore continues to be the main challenge for an adequate provision of healthcare services to this group of patients [27]. However, there are no large-scale studies comparing TR and VR with one another and with control groups in primary care settings in the German-speaking areas. Therefore, knowledge about the implementation, usage, and evaluation of such means of interpreting is still lacking.

Seeing as the large-scale introduction of remote interpreter services into daily routines is expensive and requires a lot of resources, we conducted this feasibility trial. In order to prepare for a large-scale study, the aim of this pilot study was thus to conduct a process evaluation of the implementation of VR and TR. Such professional interpreting solutions were implemented and utilised to overcome existing language barriers in primary care settings in the northern metropolis of Hamburg.

Methods and material

We conducted a three-pronged exploratory pilot trial comparing VR and TR with each other and with a control group (CG) and assessed the implementation feasibility as well as the acceptance of the interpreting tools among their users. Using quantitative questionnaires, we compared the perceived quality of communication and the enablement of patient-centred medicine of all three study

groups. The results of the focus groups and interviews that we had additionally conducted at the end of the six-month data collection period are still unpublished data.

Based on the experience from a similar study conducted earlier in Vienna, Austria [28], we included medical practice staff as well as patients early in the conceptual design of the study. In line with this recommendation, we conducted interviews with representatives of all three medical practice types and two interviews with language discordant patients who needed translations throughout medical consultations. Figure 1 shows the sequential process of our project.

Participants

Practice recruitment

Practice recruitment followed three principles: Professional interpreting resources should be accessible (1) all over the federal state of and the city of Hamburg, (2) in areas with a high demand of professional interpreting and (3) at low-threshold medical settings. The sample of primary care practices was drawn from a publicly available list of all doctors belonging to the Association of Statutory Health Insurance Physicians [29]. Pursuant to the three practice recruitment principles, we took two neighborhoods from every district that had the highest ratio of people with a migratory background based on the data provided by the statistical office for Hamburg and Schleswig-Holstein [30].

Technical knowledge, computational, and financial restrictions limited possible participating practices to

a feasible number in this explorative trial. Thus, for our pragmatic sample of practices we wanted to engage primary care practices in pediatric care: 3, in obstetrics and gynecology: 3, and general medicine: 9. In a first wave, all available practices in the neighborhoods as stratified above were sent a letter which included a description of the study as well as a declaration of consent the physicians were asked to send back by fax in case, they were interested in participating in the study.

99% practices did not respond (see Table 1). All of them (N=591) were called in a second wave of recruitment, and then sent the invitation again via fax. As response remained still low, we extended recruitment into a third wave: practices that cared for refugees in the refugee first reception centres (<https://youtu.be/qswTW3fTcPA>), teaching practices of the Hamburg University Medical Center, Department of General Practice, as well as personal contacts.

Overall, practice recruitment took unexpected 6 months. Eventually, we managed to include 7 general medicine practices, 3 gynecological practices and 3 pediatric practices.

All primary care practices were randomly assigned to one of the three study groups by the drawing of lots as shown in Table 2.

Patient recruitment

We used convenience sampling. Every patient entering the medical practice was evaluated for inclusion and exclusion criteria, based on the perception of a potential

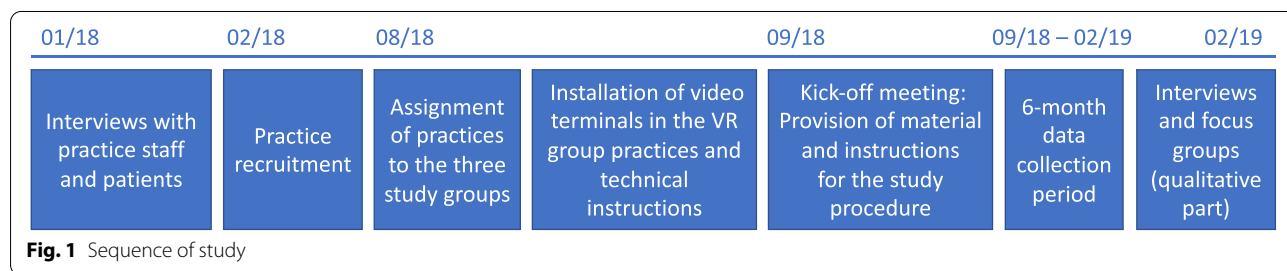


Fig. 1 Sequence of study

Table 1 Practice recruitment process

Phase	Timeline	Contact	contacted			consented		
			General medicine	Obstetrics & Gynaecology	Paediatrics	General medicine	Obstetrics & Gynaecology	Paediatrics
1	0	letter	593	24	17	2	0	0
	4 weeks	phone call	591	24	17	1	1	1
	4 weeks	fax	491	19	2	1	0	0
2	10 weeks	fax	29	12	33	3	0	1
	14 weeks	phone	26	12	32	0	2	1

Table 2 Distribution of primary care practices among the three study groups

	VR	TR	CG
General practitioners	3	3	1
Obstetricians/Gynaecologists	1	1	1
Paediatricians	1	1	1

language barrier as identified by on site medical staff. Inclusion criteria consisted of insufficient German language skills but native speaker proficiency in one of the following languages: Arabic, Farsi, Dari, Kurdish (Badinani), Russian, Turkish and Tigrinya. These languages were selected as they constitute the five most common languages used in first-reception centres between the years 2015–2019. Turkish was included because the Turkish population constitutes the largest group of migrants in Hamburg. Tigrinya was also added as it is the most widely spoken formal African language. Exclusion criteria were illiteracy, cognitive impairment hinting at the potential missing capacity to give informed consent (e.g. dementia) and a medical emergencies. The interpreting tool were made available to all patients, although patients fulfilling one or more of the exclusion criteria could not be recruited. Those patients who met the inclusion criteria were asked in which language they preferred to be seen by the doctor. A chart displaying different languages, as displayed in Additional file 1, was used in order to establish linguistic common ground for those rare cases where initially no form of verbal communication seemed possible. If their language of choice was one of the above, they were handed an information sheet and a declaration of informed consent. Participation in the study was voluntary and non-participation had no negative consequences. As the medical practices had to conduct the data collection during their daily routine, they were only able to properly document the included patients. Therefore, we are not able to provide data covering all the possible participants who were approached during the six-month data collection period.

Interventions

Once the patients had given their informed consent, they attended the regular consultation. The only difference – depending on the study group – was that a professional interpreter was introduced to the consultation via telephone or video. VR tools as well as the physicians' telephones were registered beforehand and thus ready to be relied on during the consultations. The physician and patient of the VR group, both faced the VR tool. The desired language could be selected on a touchscreen and a professional interpreter appeared on the screen ready for interpreting within 120 s. Physicians of the TR group dialled the number of the interpreting service plus a few extra digits for the language required. Just as in the VR group, an interpreter was ready to interpret within 120 s. Patients whose first language was not included in the study but still needed interpreting services could also use the interpreting tools. Their calls were excluded from call analyses later on and they did not fill out any questionnaires.

Outcomes

Call analyses

Over the course of the six-month study period, every telephone call made with the help of an interpreting tool was automatically documented. The recorded data included date, time, and duration of each call as well as the language spoken and the medical practice making the call. The calls and videos were not recorded.

Questionnaires

The questionnaires aimed to assess the perceived quality of communication of both patients and doctors as well as the degree to which patient-centred medicine could be improved through the support of professional interpreting. Both intervention groups also filled out a questionnaire examining their acceptance of the tool used during the consultation. In cases of paediatric consultations, parents/custodians filled in the questionnaires. Table 3 gives an overview of the questionnaires used.

Table 3 Overview of questionnaires

Name	Reference	Study group	Number of items	Rating scale
<i>Acceptance of the interpreting tools</i>	[31]	TR, VR	5	6
<i>Perceived quality of communication (PQC)</i>	[32]	CG, TR, VR	8	6
<i>Patient enablement index (PEI)</i>	[33]	CG, TR, VR	6	4
<i>Fragebogen zur partizipativen Entscheidungsfindung [Participative decision making questionnaire] (PEF-FB-9)</i>	[34]	CG, TR, VR	9	6

Acceptance of interpreting tools

Following each consultation, the doctors and patients of the intervention groups evaluated their acceptance of the interpreting tools. We adapted and translated a questionnaire, developed by Langer and Wirth a study evaluating telephone remote interpreting services [31]. The questionnaire covered organisational aspects of the tool and assessed whether users considered further use of the interpreting tool to be beneficial. Study participants had to state to what extent (1 = *applies not at all* to 6 = *completely applies*) they agreed with each of the following five statements: the tool facilitated the communication with the doctor/patient; the tool helped me to better present my issue/understand the patient; the tool helped me/the patient to better understand the doctor's/my questions and explanations; the tool was user-friendly, I/the patient would benefit from further use of the tool in the future. All questions were equally weighted, and a sum score was calculated. Primary outcome was the acceptance of the tool among its users.

Patient-centred medicine

In order to examine to what extent, the tested methods of interpreting enabled patient-centred medicine, we used two validated questionnaires.

First we wanted to test the influence of professional interpreting on patient enablement “which is related to but different from general satisfaction” as Howie et al. pointed out (Howie et al., 1998, p. 165). Consequently, we decided to use the *Patient Enablement Index* (PEI).

Additionally, we included the *Fragebogen zur Partizipativen Entscheidungsfindung* (PEF-FB-9) [34] – the German version of the 9-item Shared Decision-Making Questionnaire (SDM-Q-9). The PEF-FB-9 assessed to what extent a patient had been included into a shared decision-making process [35].

All questionnaire scores were calculated in accordance with their creator's instructions, as had been they applied in their original studies. If no suggestions were provided, we attempted to adapt the score building principles to the ones we had previously found. Accordingly, missing values were replaced by the mean value if a maximum of one (PQC, PEI and the acceptance of interpreting tools) value was missing (or two for the PEF-FB-9). Subsequently, all values were transformed to range from 0 (low) to 100 (high) for better comparability.

All questionnaires were translated into the seven languages included in this study and translated back into the original language afterwards.

Data quality control was ensured by setting ranges for data values of different items during the data entry phase. Prior to any analysis of the data collected, each

questionnaire was visually inspected and consequently checked for inconsistencies.

Perceived quality of communication

The questionnaire assessing the patients' and the physicians' perceived quality of communication was built on the communication model by Bird and Cohen-Cole. The authors' aim was to develop a model that “gives equal prominence to informational, psychological and educational aspects of the interview. Furthermore, the model emphasizes pragmatic, goal-oriented and instrumental aspects of physicians' interviewing behaviour” (Bird and Cohen-Cole, 1990, p. 69). As we considered this model to be both, global and concise, we included the authors' three dimensions “collecting information”, “responding to the patient's emotions” and “educating the patient” to this questionnaire.

Data analysis

The questionnaires were collected by JF. Data entry was conducted using EpiData.

IBM SPSS Statistics 25 was used to analyse the questionnaire data obtained. Normality of the data was assessed by visual inspection of the histograms for the different scores. As the scores were not normally distributed, we carried out the non-parametric Kruskal-Wallis Test. Afterwards, a Dunn-Bonferroni test was conducted as a post hoc test in order to determine which of the groups significantly differed from the others. Additionally, a subgroup analysis was conducted comparing the VR group to the control group in the paediatric care setting using Mann-Whitney tests. Descriptive analyses were conducted for the questionnaire by Langer and Wirth. The information gathered during the telephone calls made throughout the study enrolment was processed, visualised and prepared using Microsoft Excel (Microsoft Office 365 ProPlus).

SAVD Videodolmetschen GmbH – provider of the interpreting services

SAVD Videodolmetschen GmbH was founded in March 2014 as a result of the task force *Dealing with non-German-speaking patients* which was founded by the *Austrian Network for Patient Safety*. Every interpreter working for SAVD has completed either a master's degree in translation studies, a corresponding qualification if such a master's degree was not available for their language or a judicial certification. All interpreters are subject to confidentiality [36].

CISCO Webex DX80

Please refer to the data sheet provided by Cisco [37] or contact the authors for detailed information on the video terminals used in this study.

Results

Feasibility

Video and telephone remote interpreting was applied in doctor-patient consultations between September 2018 and February 2019. The technical installation went straightforward for both groups and the technical support was contacted only occasionally during the data collection period.

The call analyses recorded by *SAVD Videodolmetschen GmbH* verified a total of 202 calls during the 26 weeks of enrolment. 19 video calls were excluded due to using languages not included in this study (e.g. Albanian) leaving 183 calls for further analyses. Arabic was the most commonly requested language (66 calls), followed by Farsi (39) and Dari (29). Calls lasted 14 min on average. There were no significant differences regarding the duration of calls between the three different medical specialties.

Acceptance of interpreting tools

The overall acceptance of the video and telephone interpreting tools was very high. In response to each of the five questions, over 90% of the patients as well as the physicians stated that they either completely or mostly agreed that the interpreting tools helped both sides to be more satisfied with the consultation. A detailed overview of the responses is shown in the corresponding tables in Additional file 2.

Questionnaire scores

We observed that the number of the completed questionnaires varied between the two groups. Almost all physicians filled out the questionnaire after the appointment whereas the patients only did so in about two-thirds of the cases. We attribute this discrepancy to the everyday levels of commotion in medical practices. The on site staff was asked to ensure all patients fill in the questionnaires while they were still physically in the practice, but due to busy schedules and other activities this may have not always been possible. In the following, patient questionnaire results ($n = 127$ out of the 183 calls) will be presented first, followed by the physician questionnaire results ($n = 178$ out of the 183 calls).

Patient questionnaires

Sociodemographic data of the patients

Over the course of the study period 127 questionnaires (69%) were filled in and returned by the patients. A

detailed description of the study population is shown in Table 4. Seventy-three participants belonged to the VR group, 14 to the TR group and 40 to the control group. 50% of the participants were female, 37% were male, 6% did not wish to specify their gender and 7% did not provide any information. Patients belonging to the control group were younger and more often male. The patients' educational and professional qualifications were higher in the TR group. The most common language among the returned questionnaires was Arabic making up approximately 45% of the forms, followed by Farsi (19%) and Tigrinya (13%). 61% of the consultations took place in paediatric, 24% in obstetrics and gynaecology and 15% in general practitioners' practices. There was a substantial variation between disciplines and study groups, with relatively more consultations with general practitioners and relatively fewer consultations with paediatricians in the TR group and no consultations with general practitioners in the control group.

Questionnaire scores

A total of 93 (73.2%) PEI questionnaires, 91 (71.7%) PEF-FB-9 questionnaires and 98 (77.2%) PQC questionnaires were correctly completed and returned by the patients. Overall median values ranged from 87,50 (PEI) to 95,24 (PQC). The VR group scored highest in all three questionnaires. A detailed comparison of the questionnaires' median values is displayed in Table 5.

The Kruskal-Wallis tests showed significant differences for all three scores. Dunn-Bonferroni tests were performed to determine which groups showed significant differences. The scores between CG and VR (adjusted $p = .048$) and between TR and VR (adjusted $p = .018$) significantly differed for PEI. PEF-FB-9 showed significant differences between CG and VR (adjusted $p = .018$) and PQC significantly differed between CG and VR (adjusted $p < .001$). The outcome measures of the statistical tests performed are also displayed in Table 5.

Subgroup analysis

A subgroup analysis was conducted comparing the outcomes of the control group to the VR group in paediatric care settings. The Mann-Whitney tests showed significant differences in all three occurring measures ($p = 0.005$ for PEI, $p = 0.040$ for PEF-FB-9, $p < 0.001$ for PQC).

Physicians' questionnaires

Sociodemographic data of the physicians

Six of the 13 physicians were male (46%). Nine physicians were between 41 and 60 years old (69%) and the same number had more than 20 years of professional experience. The majority of VR and TR groups were male

Table 4 Description of patient population

		Study group							
		Total (n = 127)		VR ^a (n = 73)		TR ^b (n = 14)		CG ^c (n = 40)	
		N	%	N	%	N	%	N	%
Gender	Male	47	37.0	24	32.9	4	28.6	19	47.5
	Female	63	49.6	42	57.5	8	57.1	13	32.5
	Inter/Diverse	0	0.0	0	0.0	0	0.0	0	0.0
	Did not wish to answer	7	5.5	5	6.8	1	7.1	1	2.5
	Missing	10	7.9	2	2.7	1	7.1	7	17.5
Age	< 30	31	24.4	19	26.0	4	28.6	8	20.0
	30–39	31	24.4	21	28.8	2	14.3	8	20.0
	40–49	16	12.6	12	16.4	3	21.4	1	2.5
	> 50	6	4.7	4	5.5	2	14.3	0	0.0
	Missing	43	33.9	17	23.3	3	21.4	23	57.5
Highest school-leaving qualification	None	35	27.6	19	26.0	3	21.4	13	32.5
	Secondary school	41	32.3	29	39.7	2	14.3	10	25.0
	Technical school, high school or other	34	26.8	17	23.3	8	57.1	9	22.5
	Did not wish to answer	5	3.9	4	5.5	0	0.0	1	2.5
	Missing	12	9.4	4	5.5	1	7.1	7	17.5
Highest professional qualification	None	54	42.5	34	46.6	6	42.9	14	35.0
	Apprenticeship or other	12	9.4	9	12.3	1	7.1	2	5.0
	College, university degree or doctorate	20	15.8	9	12.3	6	42.9	5	12.5
	Did not wish to answer	8	6.3	5	6.8	0	0.0	3	7.5
	Missing	33	26.0	16	21.9	1	7.1	16	40.0
Language	Turkish	4	3.1	1	1.4	0	0.0	3	7.5
	Arabic	57	44.9	34	46.6	7	50.0	16	40.0
	Farsi	24	18.9	11	15.1	3	21.4	10	25.0
	Dari	15	11.8	10	13.7	3	21.4	2	5.0
	Kurdish	2	1.6	1	1.4	0	0.0	1	2.5
	Russian	9	7.1	4	5.5	0	0.0	5	12.5
	Tigrinya	16	12.6	12	16.4	1	7.1	3	7.5
	Missing	0	0.0	0	0.0	0	0.0	0	0.0
	Specialty of physician consulted	General practitioner	19	15.0	8	11.0	11	78.6	0
Obstetrician/ Gynaecologist	30	23.6	23	31.5	2	14.3	5	12.5	
Paediatrician	78	61.4	42	57.5	1	7.1	35	87.5	
Missing	0	0	0	0	0	0	0	0	

^a = video remote interpreting, ^b = telephone remote interpreting, ^c = control group

physicians while the control group consisted only female physicians. Table 6 presents a detailed overview of the physicians' sociodemographic data.

Questionnaire scores

Overall, 178 (88.1%) PQC questionnaires were returned by the physicians. 111 belonged to the VR group, 14 to the TR group and 53 to the control group. All 178 questionnaires returned were correctly completed. Mean

values ranged from 64.65 for the control group to 96.26 for the TR group. A comparison of the mean values is displayed in Table 5.

The Kruskal-Wallis test showed significant differences for physicians' PQC. Dunn-Bonferroni tests were performed to determine which of these groups exhibited significant differences. Major differences were found between CG and VR (adjusted $p = .000$) and CG and TR (adjusted $p = .000$). The results of the statistical tests performed are presented in Table 5.

Table 5 Median values and Interquartile Ranges (IQR) of PEI, PEF-FB-9, PQC, and outcome measures of the statistical tests conducted

Questionnaire	Descriptive measures	Total	VR	TR	CG	Hypothesis VR = TR = CG	TR-CG	TR-VR	CG-VR
PEI	N	93	54	13	26	$p = 0.005^a$	$p = 1.000^b$	$p = .022^b$	$p = .048^b$
	Median (IQR)	87.50 (75.00–100.00)	97.92 (79.17–100.00)	83.33 (75.00–85.42)	81.25 (61.46–100.00)				
PEF-FB-9	N	91	51	13	27	$p = 0.022^a$	$p = .601^b$	$p = 1.000^b$	$p = .018^b$
	Median (IQR)	94.44 (68.52–100.00)	96.30 (83.33–100.00)	92.59 (68.52–100.00)	72.22 (51.85–100.00)				
PQC Patients	N	98	55	13	30	$p < 0.001^a$	$p = .450^b$	$p = .296^b$	$p < .001^b$
	Median (IQR)	95.24 (85.71–100.00)	100.00 (90.48–100.00)	92.86 (80.95–100.00)	95.24 (85.71–100.00)				
PQC Physicians	N	178	111	14	53	$p < 0.001^a$	$p < .001^b$	$p = 1.000^b$	$p < .001^b$
	Median (IQR)	95.24 (76.19–100.00)	97.62 (92.86–100.00)	98.81 (94.64–100.00)	64.29 (54.76–76.19)				

^a Kruskal-Wallis test

^b Dunn-Bonferroni test

Table 6 Sociodemographic data of physicians

		Study group							
		Total		VR		TR		CG	
		N	%	N	%	N	%	N	%
Sex	Male	6	46.2%	3	60.0%	3	60.0%	0	0.0%
	Female	7	53.8%	2	40.0%	2	40.0%	3	100.0%
Age	≤ 40	1	7.7%	0	0.0%	1	20.0%	0	0.0%
	41–60	9	69.2%	5	100.0%	2	40.0%	2	66.7%
	> 60	3	23.1%	0	0.0%	2	40.0%	1	33.3%
Professional experience (years)	≤ 5	1	7.7%	0	0.0%	1	20.0%	0	0.0%
	6–10	1	7.7%	1	20.0%	0	0.0%	0	0.0%
	11–15	1	7.7%	0	0.0%	0	0.0%	1	33.3%
	16–20	1	7.7%	1	20.0%	0	0.0%	0	0.0%
	21–25	4	30.8%	2	40.0%	2	40.0%	0	0.0%
	> 25	5	38.5%	1	20.0%	2	40.0%	2	66.7%

Discussion

Our exploratory pilot study highlights the discrepancy between the assumed high demand of professional interpreting solutions and the difficulties we experienced during the practice recruitment process. We were also surprised by the relatively low take-up rates. While interpreting costs were covered by the refugee first reception centres [38], the vague assessment of these costs presented a major obstacle to adequate healthcare provision outside these centres [27]. We had expected that offering a free, professional solution to the undeniable problem of a language barrier would lead to a high general interest in participating in this kind of study. However, this was markedly contrasted by a limited willingness to do so. Only 13 of the

593 medical practices contacted could be recruited; two fewer than we had originally aimed for. Moreover, interpreting tools were used far less often than we had expected. This discrepancy can be partly attributed to the fact that we did not provide the medical practices with any incentives for participating apart from providing interpreting tools and taking part in a scientific project. Indeed, most medical practices treating language-discordant patients on a regular basis stated that they had no time to introduce such a tool into everyday practice or relied on other (informal) ways to bridge the language gaps. Although we can only speculate as to the exact reason for this, our findings suggest that many physicians either may not be confronted with language barriers or have instead found suitable

solutions to overcome such obstacles. Meanwhile other physicians may not feel comfortable with an unknown third party entering the context of a medical intervention, or simply do not consider the use of an interpreter to be beneficial to the process. The fact that out of all the practices that were contacted during the recruitment process (593 in total), only the thirteen practices listed in Table 1 agreed to participate may have led to a selection bias among our study participants, meaning we included mainly healthcare professionals who were more strongly affected or confronted with language barriers. Despite all of this, we managed to recruit medical practices from all over the city of Hamburg and pertaining to all three primary care specialties (general medicine, obstetrics and gynaecology, paediatric care).

The small sample size of this study must however be considered a limitation. Due to the relatively small number of patients that were included, all statistical outcomes must be considered with caution. Different specialties (general medicine, obstetrics and gynecology, paediatric care) were also not equally allocated equally to all three study groups. Differences in outcome measures could possibly be attributed to a certain medical specialty rather than to the intervention applied. We tried addressing this matter by conducting a subgroup analysis comparing the 42 paediatric patients of the VR group with the 35 paediatric patients of the control group. The promising results of this subgroup analysis put this limitation into perspective and supported our findings that VR was rated as positive by both patients and doctors.

The commissioning of the interpreting tools themselves went smoothly. Within two weeks all medical practices had received their interpreting tools and were ready to start collecting data. Very few technical problems occurred throughout the study period. A total of 202 VR and TR calls were successfully conducted and nearly all physicians and patients rated the service provision very highly. More than 90% stated that they would benefit from further use of the tool in the future, showing a broad acceptance of remote interpreting tools among their users.

However, the tools were still much less relied on than we had expected. Other studies experienced the same problem [39] and identified several reasons for it [40]. The focus group broadly discussed these issues after the data collection period and the findings of this part of our study remain unpublished. The full implementation of the interpreting tools into everyday practice required a certain habituation process. Mottelson et al. also found that satisfaction with video interpreting increased with its usage [41]. It took six months to properly establish VR usage in a different study [42]. A broader reliance on remote interpreting services could only be a

matter of time, especially in the context of the recent push towards digitalised communication precipitated by the COVID-19 pandemic. Feedback also mentioned that the questionnaires were too lengthy, which at times had prevented physicians from including a patient in the study. This should be remedied in future research projects. Almost 10 % of the total 202 calls were made in languages we had originally not included in the study. The geographical distribution of non-native German speakers over the city of Hamburg is dynamic and changes rapidly. This was already the case while planning and conducting our research, some medical practices ended up using languages that were not included in our study and others could not include as many patients as we had originally anticipated. The general medicine practice of the control group did not include a single patient for this reason. Consequently, the set of languages included in the study may need to be reconsidered and possibly adapted in future research projects. Furthermore, the languages needed may have to be assessed individually for every practice and every neighbourhood. This finding strikes us as one of the many advantages supporting the use of remote interpreting. Once such tools are implemented a broad variety of languages can become immediately available in any area.

Bearing in mind the general advantages of professional interpreters as listed in our introduction, we introduced professional remote interpreters as easily accessible professional interpreters to primary care practices all over Hamburg. Among the participating medical practices, physicians and patients of both remote interpreting groups were more satisfied with the communication than physicians and patients of the control group. This seems to be in line with broad sections of literature in this field, where the use of remote interpreting services generally result in high satisfaction rates [24, 43] and are more satisfactory than informal interpreters [44].

We achieved similar results could be found for the assessment of patient-centred medicine where patients scored higher in the intervention groups compared to the control group. This was particularly significant given the fact that patient-centred medicine did not only seem to lead to more patient satisfaction but also to better health outcomes [3, 4]. While VR scored very highly in terms of patient enablement, TR did not score as well. This finding might support the better acceptance of VR over TR in a study by Schulz et al. [45] but is contrary to the results of Jones et al. where PEI scores were high for TR but lower for VR [46]. However, all three studies only included a small number of patients for which the statistical results of the studies need to be treated with caution. In a systematic review comparing the satisfaction with TR and VR compared to in-person interpreting, Joseph et al.

concluded that there was currently no evidence of a superior specific interpreting modality [25]. Further research is needed to determine with regards to which interpreting tool is in fact preferred. The tool best meets the demands of the patient or physician may also depend on individual circumstances. While scores for perceived quality of communication as well as the enablement of patient-centred medicine were high in both intervention groups and higher than the ones obtained in the control group, one has to bear in mind that we only conducted a small exploratory pilot study and the number of patients included remained low. For this reason, all questionnaire results need to be treated with caution. As the number of patients included was particularly low in the TR group, the results for this group may be difficult to interpret. The smaller TR sample size certainly represents a limitation of our study at this present time. We should however preemptively note some possible disadvantages of this interpreting tool compared to VR: The lack of non-verbal communications [18], bad audio quality, occupied hands [47] or the inability to demonstrate any kind of therapeutical motion for the patient to relate to (e.g. how to correctly apply an asthma spray, subcutaneous injections etc.) [46] are mentioned throughout literature. Further research eluding the scope of this study will hopefully determine whether the potential disadvantages of TR result in lower quality of medical consultations.

When setting up head-to-head trials in different countries it should be kept in mind that researchers abroad may face different conditions. Questions, such as the ones concerning, amongst other, digital infrastructure, desired languages, existing ethnic groups, financing interpreting in medical consultations and other legal aspects must be taken into account. Most of these questions also have to be considered throughout the course of implementing remote interpreting into primary health care. As medical practices are not scientifically driven, financial aspects, in particular, may be important to consider when implementing a solution for daily routine. The costs incurred by interpreting in medical settings seem to present a key challenge when implementing remote interpreting tools and services.

Implications

Based on the feedback we received from medical professionals not wanting to participate, we believe that a certain lack of awareness regarding both the adverse effects of informal interpreting and the benefits of remote interpreting explains our difficulties in the recruitment process. This lack of awareness or unwillingness to explore the issue of language barriers for the reasons listed in the discussion need to be overcome. The demand for professional interpreting is obvious, with more than 90% of

both patients as well as physicians stating that they would benefit from continued utilisation of the interpreting tool in the future. Future studies may have to offer incentives to include more medical practices, in order to investigate the implementation of professional remote interpreting services within primary care settings more thoroughly. While the provision of professional interpreting services appears to be very good at refugees' first reception centres, they remain widely insufficient in the primary care sector. This discrepancy is, at least to some degree, rooted in the unclear cost assessment of such services in the primary care sector. For this reason, we suggest providing political solutions that unambiguously clarifies the costs assessment for interpreting services and straightforward responsibilities regarding the provision of professional interpreting in medical settings. This can be achieved by considering interpreting as an essential part of medical care and therefore including it on the list of medical services covered by health insurance. Moreover, future research needs to deliver more information on the implementation of remote interpreting into primary care settings with a focus on comparing different interpreting modalities. Finally, solutions must be found to guarantee the continued standard of medical care at medical practices that were able to rely on remote interpreting services during the period of the study but which are now, once again, left without these tools.

Conclusion

To the best of our knowledge, this is the first study in the German language area comparing telephone remote interpreting to video remote interpreting with a control group in primary care settings. We found that it was feasible to implement remote interpreting services into everyday practice in primary care settings. The recruitment of medical practices represented an obstacle because it was a scientific project, but the technical implementation went smoothly and the interpreting tools could be broadly relied upon by their users. The results regarding perceived quality of communication and the enablement of patient-centred medicine appear to be promising and are worthy of further research. The focus of such further research should be on the implementation of professional remote interpreting services into primary care settings and a comparison of different interpreting modalities with larger study groups.

Abbreviations

LEP: Limited English proficiency; VR: Video remote interpreting; TR: Telephone remote interpreting; CG: Control group; PEI: Patient Enablement Index; PEF-FB-9: Fragebogen zur partizipativen Entscheidungsfindung; SDM-Q-9: Decision-Making Questionnaire.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-021-07372-6>.

Additional file 1. Presentation of the languages offered by *SAVD Videodolmetschen GmbH*.

Additional file 2. Acceptance of interpreting tools.

Acknowledgements

The Authors would like to thank everyone who participated in the trial, particularly the patients and health care providers. In addition, we would like to express our gratitude to *SAVD Videodolmetschen* for providing the interpreting services, *CISCO* for providing the hardware for the VR group and *Avodaq AG* for providing technical support. We would also like to express our special appreciation to S. Parrag who helped with the conceptual design, S. Quellhorst who assisted with the recruitment, I. Schäfer who supported us with the application for ethical approval as well as T. Langer and S. Wirth for letting us use their questionnaire investigating the acceptance of interpreting tools. Special thanks to Nick Plummer for the language revision.

Authors' contributions

SP, JF and MS were involved in the design and planning of the study. SP conceived the research, led the team of co-authors, and co-lead the drafting and finalising of this manuscript. JF helped to conceive the research, conducted the literature search, reviewed abstracts and articles, did the practice recruitment, abstracted the data, and co-lead the drafting and finalising of this manuscript. MS had the original idea for this study, provided the financing and infrastructure, gave feedback and support throughout the drafting of this manuscript. TZ advised data analysis, counselled manuscript preparation, revised early drafts of the text. CW contributed to the analysis of the data. All authors read and approved the final manuscript.

Funding

This project was supported by *SAVD Videodolmetschen GmbH* – provider of the interpreting services. The video terminals used in this study were kindly provided by Cisco for the duration of the project. No other funding was provided to support the preparation of this manuscript.

Availability of data and materials

The datasets supporting the conclusions of this study are included within the article and its additional files. The questionnaires forming the basis of these datasets as well as the pilot trial protocol can be found in the archive of the Department of General Practice / Primary Care, University Medical Center Hamburg-Eppendorf, Hamburg, Germany.

Declarations

Ethics approval and consent to participate

The study was formally approved by the Ethics Committee of the Medical Chamber of Hamburg (Germany) on May 9th, 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.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Author details

¹Department of General Practice / Primary Care, University Medical Center Hamburg-Eppendorf, Hamburg, Germany. ²Public health department, Altona, Hamburg, Germany. ³Centre for Experimental Medicine, Department of Biometry and Epidemiology, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany.

Received: 13 December 2020 Accepted: 2 December 2021
Published online: 24 January 2022

References

- International Organization for Migration. WORLD MIGRATION REPORT 2020. 2019. https://publications.iom.int/system/files/pdf/wmr_2020.pdf. Accessed 23 Apr 2020.
- German Census Bureau. Statistisches Bundesamt - Population in private households by migrant background and sex 2005 to 2018. 2019. <https://www.destatis.de/EN/Themes/Society-Environment/Population/Migration-Integration/Tables/migrant-status-sex-total.html?view=main>[Print]. Accessed 23 Apr 2020.
- Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, gender, and partnership in the patient-physician relationship. *JAMA*. 1999;282:583–9. <https://doi.org/10.1001/jama.282.6.583>.
- Johnson RL, Roter D, Powe NR, Cooper LA. Patient Race/Ethnicity and Quality of Patient-Physician Communication During Medical Visits. *Am J Public Health*. 2004;94:2084–90. <https://doi.org/10.2105/AJPH.94.12.2084>.
- Crane JA. Patient comprehension of doctor-patient communication on discharge from the emergency department. *J Emerg Med*. 1997;15:1–7. [https://doi.org/10.1016/S0736-4679\(96\)00261-2](https://doi.org/10.1016/S0736-4679(96)00261-2).
- Di Cataldo A, Bellavia N, Amico A, Latino R, Bosco D, Perrotti S. Importance of a careful clinical evaluation in the diagnosis of cystic pancreatic tumors. *G Chir*. 2019;40:308–12.
- Schouler-Ocak M. Intercultural trauma-Centred psychotherapy and the application of the EMDR method. In: Schouler-Ocak M, editor. *Trauma and migration*. Cham: Springer International Publishing; 2015. p. 177–90. http://link.springer.com/10.1007/978-3-319-17335-1_12. Accessed 21 Sep 2020.
- Choi S, Davis C, Cummings S, Van Regenmorter C, Barnett M. Understanding service needs and service utilization among older Kurdish refugees and immigrants in the USA. *Int Soc Work*. 2015;58:63–74. <https://doi.org/10.1177/0020872812471694>.
- Butow PN, Goldstein D, Bell ML, Sze M, Aldridge LJ, Abdo S, et al. Interpretation in consultations with immigrant patients with Cancer: how accurate is it? *JCO*. 2011;29:2801–7. <https://doi.org/10.1200/JCO.2010.34.3335>.
- Wasserman M, Renfrew MR, Green AR, Lopez L, Tan-McGrory A, Brach C, et al. Identifying and preventing medical errors in patients with limited English proficiency: key findings and tools for the field. *J Healthc Qual*. 2014;36:5–16. <https://doi.org/10.1111/jhq.12065>.
- Flores G, Laws MB, Mayo SJ, Zuckerman B, Abreu M, Medina L, et al. Errors in medical interpretation and their potential clinical consequences in pediatric encounters. *Pediatrics*. 2003;111:6–14. <https://doi.org/10.1542/peds.111.1.6>.
- Flores G, Abreu M, Barone CP, Bachur R, Lin H. Errors of medical interpretation and their potential clinical consequences: a comparison of professional versus ad hoc versus no interpreters. *Ann Emerg Med*. 2012;60:545–53. <https://doi.org/10.1016/j.annemergmed.2012.01.025>.
- Bischoff A, Hudelson P. Access to healthcare interpreter services: where are we and where do we need to go? *Int J Environ Res Public Health*. 2010;7:2838–44. <https://doi.org/10.3390/ijerph7072838>.
- Karliner LS, Jacobs EA, Chen AH, Mutha S. Do professional interpreters improve clinical Care for Patients with limited English proficiency? A systematic review of the literature. *Health Serv Res*. 2007;42:727–54. <https://doi.org/10.1111/j.1475-6773.2006.00629.x>.
- Rose DE, Tisnado DM, Malin JL, Tao ML, Maggard MA, Adams J, et al. Use of interpreters by physicians treating limited English proficient women with breast Cancer: results from the provider survey of the Los Angeles Women's health study. *Health Serv Res*. 2010;45:172–94. <https://doi.org/10.1111/j.1475-6773.2009.01057.x>.
- Ginde AA, Clark S, Camargo CA. Language barriers among patients in Boston emergency departments: use of medical interpreters after passage of interpreter legislation. *J Immigr Minor Health*. 2009;11:527–30. <https://doi.org/10.1007/s10903-008-9188-5>.
- Ramsey KW, Davis J, French G. Perspectives of Chuukese patients and their health care providers on the use of different sources of interpreters. *Hawaii J Med Public Health*. 2012;71:249–52. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3443847/>. Accessed 21 Sep 2020.

18. Gadon M, Balch GI, Jacobs EA. Caring for patients with limited English proficiency: the perspectives of small group practitioners. *J Gen Intern Med.* 2007;22:341–6. <https://doi.org/10.1007/s11606-007-0311-4>.
19. Karliner LS, Pérez-Stable EJ, Gildengorin G. The language divide. *J Gen Intern Med.* 2004;19:175–83. <https://doi.org/10.1111/j.1525-1497.2004.30268.x>.
20. Burkle CM, Anderson KA, Xiong Y, Guerra AE, Tschida-Reuter DA. Assessment of the efficiency of language interpreter services in a busy surgical and procedural practice. *BMC Health Serv Res.* 2017;17. <https://doi.org/10.1186/s12913-017-2425-7>.
21. Wofford JL, Campos CL, Johnson DA, Brown MT. Providing a Spanish interpreter using low-cost videoconferencing in a community study computers. *J Innov Health Inform.* 2013;20:141–6. <https://hjournal.bcs.org/index.php/jhi/article/view/34>. Accessed 21 Sep 2020.
22. Jacobs EA, Leos GS, Rathouz PJ, Fu P. Shared networks of interpreter services, at relatively low cost, can help providers serve patients with limited English skills. *Health Aff.* 2011;30:1930–8. <https://doi.org/10.1377/hlthaff.2011.0667>.
23. Nápoles AM, Santoyo-Olsson J, Karliner LS, O'Brien H, Gregorich SE, Pérez-Stable EJ. Clinician ratings of interpreter mediated visits in underserved primary care settings with ad hoc, in-person professional, and video conferencing modes. *J Health Care Poor Underserved.* 2010;21:301–17. <https://doi.org/10.1353/hpu.0.0269>.
24. Crossman KL, Wiener E, Roosevelt G, Bajaj L, Hampers LC. Interpreters: telephonic, in-person interpretation and bilingual providers. *Pediatrics.* 2010;125:e631–8. <https://doi.org/10.1542/peds.2009-0769>.
25. Joseph C, Garruba M, Melder A. Patient satisfaction of telephone or video interpreter services compared with in-person services: a systematic review. *Aust Health Rev.* 2018;42:168. <https://doi.org/10.1071/AH16195>.
26. Pruskil S. Die medizinische Versorgung Geflüchteter und Asylsuchender in Hamburg. In: Fehr R, Trojan A, editors. *Nachhaltige StadtGesundheit Hamburg - Bestandsaufnahme und Perspektiven.* München: Oekom; 2018.
27. Butenop J, Pruskil S, Grünberger E. Future challenges for the public and curative health sector. In: Krämer A, Fischer F, editors. *Refugee migration and health: challenges for Germany and Europe.* Cham: Springer International Publishing; 2019. p. 119–32. https://doi.org/10.1007/978-3-030-03155-8_10.
28. Kletečka-Pulker DM, Parrag S. Aktueller Stand der Forschung zum Thema Videodolmetschen. *Plattform Patientensicherheit.* 2019;8.
29. KVHH - Informationen zur KVH-Arztsuche. 2020. <https://www.kvhh.net/kvhh/arztsuche/index/p/274>. Accessed 31 May 2020.
30. Statistisches Amt für Hamburg und Schleswig-Holstein. *Bevölkerung mit Migrationshintergrund in den Hamburger Stadtteilen Ende 2016.* Hamburg; 2017. https://www.statistik-nord.de/fileadmin/Dokumente/Statistik_informiert_SPEZIAL/SI_SPEZIAL_V_2017_Korrektur.pdf. Accessed 21 Sep 2020.
31. Langer T, Wirth S. Einsatz von Telefondolmetschern zur Überwindung von Sprachbarrieren – erste Erfahrungen in einer deutschen Kinderklinik. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen.* 2014;108:278–82. <https://doi.org/10.1016/j.zefq.2013.11.005>.
32. Bird J, Cohen-Cole SA. The Three-Function Model of the Medical Interview. In: Hale MS, editor. *Advances in Psychosomatic Medicine.* S. Karger AG; 1990. p. 65–88. <https://doi.org/10.1159/000418260>.
33. Howie JG, Heaney DJ, Maxwell M, Walker JJ. A comparison of a patient enablement instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. *Fam Pract.* 1998;15:165–71. <https://doi.org/10.1093/fampra/15.2.165>.
34. Scholl I, Kriston L, Härter M. PEF-FB-9 – Fragebogen zur Partizipativen Entscheidungsfindung (revidierte 9-Item-Fassung). 2011; 4. http://www.patient-als-partner.de/media/scholl_et_al_2011_manual_pef-fb-9.pdf.
35. Kriston L, Scholl I, Hölzel L, Simon D, Loh A, Härter M. The 9-item shared decision making questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. *Patient Educ Couns.* 2010;80:94–99. <https://doi.org/10.1016/j.pec.2009.09.034>.
36. SAVD | Spezialist für Audio und Video Dialog | Über uns. SAVD. <https://www.savd.at/uber-uns/>. Accessed 21 Sep 2020.
37. Cisco Webex DX80 data sheet. Cisco. 2018. <https://www.cisco.com/c/en/us/products/collateral/collaboration-endpoints/desktop-collaboration-experience-dx600-series/datasheet-c78-731879.html>. Accessed 21 Sep 2020.
38. Mews C, Pruskil S, Kloppe T, Wilsdorf S, Scherer M. Einsatz von Videodolmetschen in der ambulanten Versorgung in Hamburg – eine Bedarfsanalyse - Online ZFA. 2017. <https://www.online-zfa.de/archiv/ausgabe/artikel/zfa-11-2017/49221-103238-zfa20170461-0465-einsatz-von-video-dolmetschen-in-der-ambulanten-versorgung-in-hambur/>. Accessed 29 Apr 2020.
39. Lee JS, Nápoles A, Mutha S, Pérez-Stable EJ, Gregorich SE, Livaudais-Toman J, et al. Hospital discharge preparedness for patients with limited English proficiency: a mixed methods study of bedside interpreter-phones. *Patient Educ Couns.* 2018;101:25–32. <https://doi.org/10.1016/j.pec.2017.07.026>.
40. Tam I, Huang MZ, Patel A, Rhee KE, Fisher E. Spanish interpreter Services for the Hospitalized Pediatric Patient: provider and interpreter perceptions. *Acad Pediatr.* 2020;20:216–24. <https://doi.org/10.1016/j.acap.2019.08.012>.
41. Mottelson IN, Sodemann M, Nielsen DS. Attitudes to and implementation of video interpretation in a Danish hospital: a cross-sectional study. *Scand J Public Health.* 2018;46:244–51. <https://doi.org/10.1177/1403494817706200>.
42. Marshall LC, Zaki A, Duarte M, Nicolas A, Roan J, Colby AF, et al. Promoting effective communication with limited English proficient families: implementation of video remote interpreting as part of a comprehensive language services program in a Children's hospital. *Jt Comm J Qual Patient Saf.* 2019;45:509–16. <https://doi.org/10.1016/j.jcjq.2019.04.001>.
43. Anttila A, Rappaport DI, Tijerino J, Zaman N, Sharif I. Interpretation modalities used on family-centered rounds: perspectives of Spanish-speaking families. *Hospital Pediatrics.* 2017;7:492–8. <https://doi.org/10.1542/hpeds.2016-0209>.
44. Lee LJ, Batal HA, Maselli JH, Kutner JS. Effect of Spanish interpretation method on patient satisfaction in an urban walk-in clinic. *J Gen Intern Med.* 2002;17:641–5.
45. Schulz TR, Leder K, Akinci I, Biggs B-A. Improvements in patient care: videoconferencing to improve access to interpreters during clinical consultations for refugee and immigrant patients. *Aust Health Review.* 2015;39:395. <https://doi.org/10.1071/AH14124>.
46. Jones D, Gill P, Harrison R, Meakin R, Wallace P. An exploratory study of language interpretation services provided by videoconferencing. *J Telemed Telecare.* 2003;9:51–6.
47. Locatis C, Williamson D, Gould-Kabler C, Zone-Smith L, Detzler I, Roberson J, et al. Comparing in-person, video, and telephonic medical interpretation. *J Gen Intern Med.* 2010;25:345–50. <https://doi.org/10.1007/s11606-009-1236-x>.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:


- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions



BMJ Open 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

Susanne Pruskil ^{1,2}, Jonas Fiedler,² Nadine Janis Pohontsch ²,
Martin Scherer²

To cite: Pruskil S, Fiedler J, Pohontsch NJ, *et al*. 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. *BMJ Open* 2023;**13**:e073620. doi:10.1136/bmjopen-2023-073620

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2023-073620>).

SP and JF are joint first authors.

Received 02 April 2023
Accepted 16 October 2023



© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

¹Department of Public Health, Altona, Hamburg, Germany

²Department of General Practice and Primary Care, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Correspondence to

Dr Susanne Pruskil;
susanne.pruskil@altona.hamburg.de

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,¹ have had a significant impact on modern medical care.



More than 20 million people with a migratory background live in Germany,² 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’.^{3(p.469)} Patient involvement has been subject to a lot of research and patient-centredness has led to higher satisfaction and better health outcomes.^{4,5} 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.⁶ However, informal interpreters are used more frequently than professional interpreters.^{7–9} The most important reasons for this low reliance on professional interpreters are time constraints,¹⁰ insufficient availability and costs.¹¹

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.¹² They are liable¹³ and obliged to arrange adequate interpreting solutions,¹⁴ under German law at least, with current legislation stating that the resulting costs are carried by the patients.¹⁵ Refugees and welfare recipients are legally exempt from these interpreting costs.^{16–19} 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,²⁰ shorter emergency department stays, fewer interventions, less frequent returns to emergency departments and lower overall costs.²¹ 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.²² For this reason, remote interpreting services constitute a promising alternative²³ as they are cost-effective compared with professional onsite interpreters,²⁴ time-effective²⁵ and provide instant and 24-hour availability.²⁶ 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.²⁷ Many of the people who lived in these accommodations have moved to fixed housing and now receive regular healthcare services where the language barrier arises again. However, the current legal situation represents a major obstacle to the wider implementation of professional interpreting solutions.²⁸

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.²⁹ 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.²⁹

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.²⁹

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



Figure 1 Course of the study.

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 Mayring³² following a realist approach.³³ 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.10.³⁴ 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 1 Focus group participant characteristics (n=9)

		Total	VR	TR
		N	N	N
Sex	Male	5	3	2
	Female	4	1	3
Profession	Physician	7	4	3
	Physician's assistant	2	0	2
Age (years)	≤40	2	0	2
	41–60	6	4	2
	>60	1	0	1
Professional experience (years)	≤5	2	0	2
	>5	7	4	3

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 2 Language barriers and tool utilisation

Study group	Participant # and practice type	Language discordant consultations per week	Interpreting tool utilisation per week
VR	1 (GM)	0–5	0–5
	2 (GM)	6–10	0–5
	3 (GM)	11–15	0–5
	4 (P)	16–20	6–10
TR	5 (GM)	0–5	0–5
	6 (P)	11–15	0–5
	7 (GM)	21–25	0–5
	8 (GM)	11–15	0–5

GM, general medicine; GO, gynaecology and obstetrics; P, paediatrics.

Table 3 Coding tree—main and subcategories

Main categories	Subcategories
Part 1—current practice regarding the communication with language discordant patients	
Importance of communication for diagnostic and therapeutic processes	No subcategories
Previous solutions to language barriers	Previously relied on interpreting modalities Different situations in which these modalities were considered inappropriate
Part 2—evaluation of the interpreting tools	
Disadvantages applying to both tools	Long accommodation time Impact on integration processes Time constraints
Disadvantages applying only to VR	Impractical hardware
Disadvantages applying only to TR	Lack of non-verbal communication
Advantages applying to both tools	Possibility to adequately communicate High quality of translation Technical support Secure legal framework Easy habituation over time High level of information obtained Answer to ‘impact on integration processes’ Benefits of the lack of a physical presence
Advantages applying only to VR	More personal due to accompanying visuals
Advantages applying only to TR	No reinforcement of prejudices
TR, telephone remote; VR, video remote .	

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:

Obviously we did what everybody does—gestures and hand signs. That’s how it starts. Second, third foreign language if possible. We relied on relatives a lot—like older siblings. (Focus group # 2, paragraph 12)

Sometimes I have just called people I know who speak the language I needed. (Focus group # 2, paragraph 23)

I have used different tools—google translate, the internet in general (Focus group # 2, paragraph 24)

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. Without a professional interpreter a sufficient or appropriate conversation to address the issues and possible questions is too complex.

Obtaining informed consent in the sense that legal practitioners understand [...] was impossible once it came to vaccination. [...] You have 5 minutes [...] to explain the medicine you intend to put into practice [...]. (Focus group # 1, paragraph 14)

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 # 2, 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)

3: '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.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,³⁵ a poor language level can be related to 'self-reported poor health'³⁶ and treatment errors.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.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^{42 43} and invisible costs⁴⁴ while causing a certain 'juggle [of] divergent workloads and the diverse and sometimes conflicting needs and expectations from [the] various constituencies'.^{45 (p.142)} While relatives are often favoured by the patients due to a high level of trust, familiarity with the patient's medical history⁴⁶ or emotional support,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'.^{11 (p. 343)} Moreover, the clinical condition of the patient may burden the interpreter—especially if children are translating for their older relatives⁴⁸ and it can be difficult if not impossible to report abuse or neglect if a family member is relied on for translation.⁴⁹ Meanwhile a shift within the family dynamic due to the reliance of one family member on the translations of another can be troublesome.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 offered¹¹ and the benefit of absence when physical examinations need

to be conducted in a more private setting.⁵¹ Yet, both interpreting modes have previously faced criticism. The mentioned need for habituation to these new technologies is supported by Marshall *et al*⁵² and Mottelson *et al*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 interpreting⁵⁴ 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^{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 others⁵⁶ 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.^{26 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 constraints. 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 speaking at once,²⁵ difficulties in handling the tool in stressful situations, a lack of confidence in the tool on the patients’ side and a poor internet connection.⁵³ 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.⁶¹ 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.

Twitter Martin Scherer @degampraesident

Acknowledgements We would like to thank everyone who participated in the trial, particularly the patients and healthcare providers. In addition, we would like to express our gratitude to SAVD Videodolmetschen for providing the interpreting services, CISCO for providing the hardware for the VR group and Avodaq AG for providing technical support. We would also like to express our special appreciation to S Parrag who helped with the conceptual design, S Quellhorst who assisted with the recruitment, I Schäfer who supported us with the application for ethical approval as well as T Langer and S Wirth for letting us use their questionnaire investigating the acceptance of interpreting tools. Special thanks to N Plummer for the language revision.

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 as the guarantor for this work.

Funding This project was supported by SAVD Videodolmetschen—provider of the interpreting services. The financing of the interpreter costs was part of the contract with the city of Hamburg for the offer of refugee care. The video terminals used in this study were kindly provided by Cisco for the duration of the project. Neither SAVD nor Cisco had any influence on the design, the course or the interpretation of this study. No other funding was provided to support the preparation of this manuscript. Award/grant number N/A.

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.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

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.

ORCID iDs

Susanne Pruskil <http://orcid.org/0000-0002-9264-9784>

Nadine Janis Pohontsch <http://orcid.org/0000-0002-0966-4087>

REFERENCES

- International Organization for Migration. World migration report 2020. 2019. 10.18356/b1710e30-en
- German Census Bureau. Statistisches Bundesamt - population in private households by migrant background and sex 2005 to 2018. 2019. Available: [https://www.destatis.de/EN/Themes/Society-Environment/Population/Migration-Integration/Tables/migrant-status-sex-total.html?view=main\[Print\]](https://www.destatis.de/EN/Themes/Society-Environment/Population/Migration-Integration/Tables/migrant-status-sex-total.html?view=main[Print])
- Schouten BC, Meeuwesen L, Harmsen HAM. Gps' Interactional styles in consultations with Dutch and ethnic minority patients. *J Immigr Minor Health* 2009;11:468–75.
- Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, gender, and partnership in the patient-physician relationship. *JAMA* 1999;282:583–9.
- Johnson RL, Roter D, Powe NR, et al. Patient race/Ethnicity and quality of patient-physician communication during medical visits. *Am J Public Health* 2004;94:2084–90.
- Karliner LS, Jacobs EA, Chen AH, et al. Do professional interpreters improve clinical care for patients with limited English proficiency? A systematic review of the literature. *Health Serv Res* 2007;42:727–54.
- Rose DE, Tisnado DM, Malin JL, et al. Use of interpreters by physicians treating limited English proficient women with breast cancer: results from the provider survey of the Los Angeles women's health study. *Health Serv Res* 2010;45:172–94.
- Ginde AA, Clark S, Camargo CA. Language barriers among patients in Boston emergency departments: use of medical interpreters after passage of interpreter legislation. *J Immigr Minor Health* 2009;11:527–30.
- Ramsey KW, Davis J, French G. Perspectives of Chuukese patients and their health care providers on the use of different sources of interpreters. *Hawaii J Med Public Health* 2012;71:249–52.
- Karliner LS, Pérez-Stable EJ, Gildengorin G. The language divide. *J Gen Intern Med* 2004;19:175–83.
- Gadon M, Balch GI, Jacobs EA. Caring for patients with limited English proficiency: the perspectives of small group practitioners. *J Gen Intern Med* 2007;22:341–6.
- Bgb §630E. Feb 1, 2013. 2013.
- OLG Stuttgart. Ahrs 1050/100. 2009.
- Kammergericht. Medr 2009. 2009.
- Bundessozialgericht. *NJW 806* 1996.
- § 73 SGB XII. Jan 1. 2005.
- BVerwG. 5 C 20/95. Jan 25. 1996.
- §§ 4, 6 Asylblg. Nov 1. 1993.
- SG Potsdam. S 20 AY 13/12. Nov 5, 2012. 2012.
- Karliner LS, Pérez-Stable EJ, Gregorich SE. Convenient access to professional interpreters in the hospital decreases readmission rates and estimated hospital expenditures for patients with limited English proficiency. *Med Care* 2017;55:199–206.
- Masland MC, Lou C, Snowden L. Use of communication technologies to cost-effectively increase the availability of interpretation services in Healthcare settings. *Telemed J E Health* 2010;16:739–45.
- Crossman KL, Wiener E, Roosevelt G, et al. Interpreters: Telephonic, in-person interpretation and bilingual providers. *Pediatrics* 2010;125:e631–8.
- Burkle CM, Anderson KA, Xiong Y, et al. Assessment of the efficiency of language interpreter services in a busy surgical and procedural practice. *BMC Health Serv Res* 2017;17:456. 10.1186/s12913-017-2425-7 Available: <http://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2425-7>
- Jacobs EA, Leos GS, Rathouz PJ, et al. Shared networks of interpreter services, at relatively low cost, can help providers serve patients with limited English skills. *Health Aff (Millwood)* 2011;30:1930–8.
- Wofford JL, Campos CL, Johnson DA, et al. n.d. Providing a Spanish interpreter using low-cost Videoconferencing in a community study computers. *J Innov Health Inform*;20:141–6.
- Leman P. Interpreter use in an inner city accident and emergency Department. *J Accid Emerg Med* 1997;14:98–100.
- Pruskil S. Die Medizinische Versorgung Geflüchteter und Asylsuchender in Hamburg. In: Fehr R, Trojan AH, eds. *Nachhaltige StadtGesundheit Hamburg - Bestandsaufnahme und Perspektiven. (Edition Nachhaltige Gesundheit in Stadt und Region; Bd. 2).* München: Oekom. 2018.
- Kluge U, Bogic M, Devillé W, et al. Health services and the treatment of immigrants: data on service use, interpreting services and immigrant staff members in services across Europe. *Eur Psychiatry* 2012;27 Suppl 2:S56–62.
- Fiedler J, Pruskil S, Wiessner C, et al. Remote interpreting in primary care settings: a feasibility trial in Germany. *BMC Health Serv Res* 2022;22:99.
- Barbour R. Doing focus groups. In: *Doing Focus Groups. 1 Oliver's Yard, 55 City Road London EC1Y. 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom: SAGE Publications Ltd, 2007.*
- Kletečka-Pulker DM, Parrag S. Aktueller stand der Forschung Zum Thema Videodolmetschen. *Plattform Patientensicherheit* 2019.
- Mayring P. *Qualitative Inhaltsanalyse: Grundlagen und Techniken. Neuausgabe, 12., aktualisierte Edition.* Weinheim Basel: Beltz, 2015: 152.
- Potter J, Wetherell M. *Discourse and Social Psychology: Beyond Attitudes and Behaviour.* London: Sage Publications Ltd, 1987. Available: <http://www.uk.sagepub.com/books/Book202303>
- VERBI Software. *Sozialforschung GmbH. MAXQDA, Software für qualitative Datenanalyse.* Berlin: Deutschland, 2014.
- Giese A, Uyar M, Uslucan HH, et al. How do hospitalised patients with Turkish migration background estimate their language skills and their comprehension of medical information – a prospective cross-sectional study and comparison to native patients in Germany to assess the language barrier and the need for translation. *BMC Health Serv Res* 2013;13:196.
- Pottie K, Ng E, Spitzer D, et al. Language proficiency, gender and self-reported health: an analysis of the first two waves of the longitudinal survey of immigrants to Canada. *Can J Public Health* 2008;99:505–10.
- Divi C, Koss RG, Schmaltz SP, et al. Language proficiency and adverse events in US hospitals: a pilot study. *Int J Qual Health Care* 2007;19:60–7.
- van Dellen QM, Stronks K, Bindels PJE, et al. Predictors of asthma control in children from different ethnic origins living in Amsterdam. *Respiratory Medicine* 2007;101:779–85.
- Cambridge J. Information loss in bilingual medical interviews through an untrained interpreter. *The Translator* 1999;5:201–19.
- Schouten BC, Schinkel S. Turkish migrant GP patients' expression of emotional cues and concerns in encounters with and without informal interpreters. *Patient Educ Couns* 2014;97:23–9.
- Schouler-Ocak M. Interkulturelle traumazentrierte Psychotherapie unter Einbeziehung eines professionellen Sprach- und Kulturvermittlers. . 2014 Available: <http://www.sanp.ch/docs/sanp/2014/03/en/sanp-00250.pdf>
- Moreno MR, Otero-Sabogal R, Newman J. Assessing dual-role staff-interpreter linguistic competency in an integrated Healthcare system. *J Gen Intern Med* 2007;22:331–5.
- Elderkin-Thompson V, Cohen Silver R, Waitzkin H. When nurses double as interpreters: a study of Spanish-speaking patients in a US primary care setting. *Social Science & Medicine* 2001;52:1343–58.
- Drennan G. Counting the cost of language services in psychiatry. *SAMJ Articles* 1996;86.
- McDowell L, Hilfinger Messias DK, Estrada RD. The work of language interpretation in health care: complex, challenging, exhausting, and often invisible. *J Transcult Nurs* 2011;22:137–47.
- Greenhalgh T, Robb N, Scambler G. Communicative and strategic action in interpreted consultations in primary health care: A Habermasian perspective. *Soc Sci Med* 2006;63:1170–87.
- Hsieh E. "Not just "getting by": factors influencing providers' choice of interpreters". *J Gen Intern Med* 2015;30:75–82.
- Cohen S, Moran-Ellis J, Smaje C. Children as informal interpreters in GP consultations: Pragmatics and ideology. *Sociology Health & Illness* 1999;21:163–86. 10.1111/1467-9566.00148 Available: <https://onlinelibrary.wiley.com/toc/14679566/21/2>
- Resera E, Tribe R, Lane P. Interpreting in mental health, roles and Dynamics in practice. *Int J Cult Mental Health* 2015;8:192–206.
- Björn GJ. Ethics and interpreting in psychotherapy with refugee children and families. *Nord J Psychiatry* 2005;59:516–21.
- Hadziabdic E, Hjelm K. Arabic-speaking migrants' experiences of the use of interpreters in Healthcare: a qualitative Explorative study. *Int J Equity Health* 2014;13:49.
- Marshall LC, Zaki A, Duarte M, et al. Promoting effective communication with limited English proficient families: implementation of Video remote interpreting as part of a comprehensive language services program in a children's hospital. *Jt Comm J Qual Patient Saf* 2019;45:509–16.

- 53 Mottelson IN, Sodemann M, Nielsen DS. Attitudes to and implementation of Video interpretation in a Danish hospital: A cross-sectional study. *Scand J Public Health* 2018;46:244–51.
- 54 Butow PN, Goldstein D, Bell ML, *et al.* Interpretation in consultations with immigrant patients with cancer: how accurate is it *JCO* 2011;29:2801–7.
- 55 Bischoff A, Hudelson P. Communicating with foreign language-speaking patients: is access to professional interpreters enough? *J Travel Med* 2010;17:15–20.
- 56 Lee JS, Nápoles A, Mutha S, *et al.* Hospital discharge preparedness for patients with limited English proficiency: A mixed methods study of bedside interpreter-phones. *Patient Educ Couns* 2018;101:25–32.
- 57 Azarmina P, Wallace P. Remote interpretation in medical encounters: a systematic review. *J Telemed Telecare* 2005;11:140–5.
- 58 JUCKETT G, UNGER K, School WVU. Appropriate use of medical interpreters. 2014;90:5.
- 59 Locatis C, Williamson D, Gould-Kabler C, *et al.* Comparing in-person, video, and Telephonic medical interpretation. *J GEN INTERN MED* 2010;25:345–50.
- 60 Jones D, Gill P, Harrison R, *et al.* An exploratory study of language interpretation services provided by Videoconferencing. *J Telemed Telecare* 2003;9:51–6.
- 61 Lion KC, Brown JC, Ebel BE, *et al.* Effect of telephone vs Video interpretation on parent comprehension, communication, and utilization in the pediatric emergency Department: A randomized clinical trial. *JAMA Pediatr* 2015;169:1117–25.
- 62 Price EL, Pérez-Stable EJ, Nickleach D, *et al.* Interpreter perspectives of in-person, Telephonic, and Videoconferencing medical interpretation in clinical encounters. *Patient Educ Couns* 2012;87:226–32.
- 63 Gray B, Hilder J, Donaldson H. Why do we not use trained interpreters for all patients with limited English proficiency? is there a place for using family members? *Aust J Prim Health* 2011;17:240–9.
- 64 Dubus N. Interpreters' subjective experiences of interpreting for refugees in person and via telephone in health and behavioural health settings in the United States. *Health Soc Care Community* 2016;24:649–56. 10.1111/hsc.12270 Available: <http://doi.wiley.com/10.1111/hsc.2016.24.issue-5>
- 65 Joseph C, Garruba M, Melder A. Patient satisfaction of telephone or Video interpreter services compared with in-person services: a systematic review. *Aust Health Review* 2018;42:168.