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Scoping review of patients' experiences and use of remote consultation for multiple long-term conditions in UK primary care

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ABSTRACT

Background: Digital exclusion and Multiple Long-Term Conditions have many risk factors in common. The impact of remote consultation, in primary care on the experience of patients living with Multiple Long-Term Conditions is poorly understood. **Aim:** To collate and review patients' experiences and use of remote consultation in UK General Practice for Multiple Long-Term Conditions in relation to: a) Accessibility, b) Continuity of care, and c) Impact on patient journey. **Methods:** Scoping review was conducted with JBI methodology, using PRISMA-ScR statement. Data analysis was conducted using narrative synthesis. **Results:** A total of 8,674 abstracts were screened and 397 full texts were reviewed. This resulted in 16 included articles. The themes choice, privacy and communication quality were identified during analysis. **Discussion:** Majority of studies examined access, demonstrating higher need for access for people with Multiple Long-Term Conditions. Most patients would choose to see their General Practitioner (GP) face-to-face. Avoiding contagion (COVID-19), or upholding continuity were the only contexts where remote GP consultation for Multiple Long-Term Conditions was found to be acceptable to patients. **Conclusion:** Further research is warranted, particularly into how context and type of remote GP consultation affect the quality of communication and subsequently patient journey and outcomes.

KEYWORDS

Digital exclusion, health equity, multiple-long-term-conditions, primary care, remote consultation.

BIOGRAPHIES

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Introduction

Remote consultation in United Kingdom (UK) Primary care has been in widespread use since COVID-19. In the UK, many General Practitioners (GPs) were reluctant to embrace remote consultation prior to the need to control the COVID-19 contagion (Atherton et al., 2018b, 2018a). Complexities of the social and working environment can be increased by new technologies (Heath et al., 2003) and there was paucity of evidence to demonstrate safety and efficacy of remote consultation for patients with Multiple Long Term Conditions (MLTCs) or acute symptoms, both of which are the mainstay of modern-day primary care consultations (McFarland et al., 2021; Salisbury et al., 2013). MLTCs is defined as the presence of two or more long term medical conditions in the same person (Nicholson et al., 2019) and is a global issue and a major health priority (Abbafati et al., 2020).

The technology to achieve total digital triage in primary care and facilitate remote consultation existed and was on the Government's agenda since 2016 (NHS England, 2016) with repeated attempts made to include it in the GP contract. This was not enforced (Waller, 2018) so the technologies were not available or used in half of primary care practices nationally when this sudden transition occurred in 2020. This meant that neither the workforce nor patients were ready for such a sudden transition away from traditional face-to-face consultations.

To-date, the scientific basis for remote consultation for MLTCs in primary care, and patient experience, has not been formally mapped out. Research into different aspects of MLTCs is typically heterogenous in nature, due to the lack of internationally agreed definition and measurement. This heterogeneity poses significant challenges when attempting to build on prior work or draw multiple bodies of work together to form broader conclusions. The definition of MLTCs that is accepted by most researchers (Ho et al., 2022; Johnston et al., 2019) and the review team is two or more chronic health conditions. There is no consensus on a list of relevant conditions.

This scoping review catalogues and summarises all available published patient data on the use of remote consultation for MLTCs in UK primary care.

Review questions

What has been described about patients' experiences of the use of remote consultation in UK primary care for MLTCs in relation to:

a) Accessibility?

b) Impact on continuity of care?

c) How the patient journey through the healthcare system is affected?

Methods

This systematic scoping review has been conducted in accordance with the Joanna Briggs Institute (JBI) methodological guidance (Peters et al., 2021) and reported according to the

Preferred Reporting Items for Systematic Reviews and Meta-analyses for Scoping Reviews (PRISMA-ScR) Statement (see Appendix 1) (Tricco et al., 2018; Westphaln et al., 2021).

Public participation with elements of co-production

Two public advisors (PJ and AG) have contributed elements of co-design and co-production. Their involvement was formalised and regularly reviewed with the Health Inequalities Assessment Tool (FOR EQUITY, n.d.). PJ helped to develop the grey literature search strategy, expanded the list of websites to hand search, carried out the hand searching of these websites and conducted the Google search under the supervision of AE. The raw data as extracted from the publications was presented to both PJ and AG, their reflections were considered and included in the analysis process.

Terminology

Multiple Long-Term Conditions (MLTCs) is used instead of multimorbidity, in keeping with the UK's National Institute for Health Research convention (NIHR, n.d.) to use terminology preferred and understood by patients (Chew-Graham et al., 2019; NIHR, 2021).

Publication focus

This review focusses on publications that concern patients' perspectives, experiences or data from UK National Health Service (NHS) primary care services, not the care of private patients, non-UK primary care services or proxy data (i.e., carer perspective). The review is underpinning a large epidemiological study using real world patient data so it required this specific UK focus and needed to produce findings that explored the impact of UK government policy on NHS delivery. The NHS provides care free at the point of access. General practice services are funded by capitation, with no co-payments for services. General practice receives funds per patient that are fixed regardless of number of consultations delivered and the mode of delivery. This is in contrast to some European countries (e.g. Norway) where co-payments for remote consultations has shaped their use in practice (Norberg et al., 2024; Pedersen et al., 2012). It is of interest to explore how the shift to remote consultation may have impacted patient experience within this context.

Concept

Remote consultations conducted by a GP or Practice Nurse (PN), Health Care Assistant (HCA) or other allied professional working within the primary care team are included. It is the process and dynamic of the remote nature of the consultation from the patient's perspective when accessing primary care that is of interest. See Appendix 2 for a table of search terms and concepts.

Search strategy

Published literature

OVID for MEDLINE and Embase, EBSCO for CINAHL and the Cochrane library were searched from 01/04/2013 to 20/08/2024, using Medical Subject Headings (MeSH) and keywords for various forms of MLTCs, remote consultation and primary care. The initial search was executed on 12/05/2022 and repeated on 20/08/2024. See Appendix 3 for search strategies used.

Grey literature

Searches on Google and Google scholar were executed with an adapted version of the journal database search strategy on 26/05/2022 by AE and PJ and 17/09/2024 (Google) and 06/10/2024 (Google Scholar) by EL and PJ (see Appendix 4). Relevant organisations websites were manually searched for related publications by PJ on 11/05/2022–24/05/2022 and September 2024 (see Appendix 5).

Inclusion criteria

Publications had to focus on patient perspective, experience or data in the UK setting and concern the use of any method of remote consultation in primary care.

This scoping review considered the following categories of study:

1. Qualitative Studies
2. Randomised controlled trials
3. Non-randomised studies
4. Quantitative descriptive studies
5. Mixed Methods studies.

Publications were critically appraised for quality using the Mixed Methods Appraisal Tool (MMAT) (Nha HONG et al., 2018). Publications were not excluded based on quality appraisal. Given the UK primary care focus of the search, only publications published in English were included. See Appendix 6 for full table of inclusion and exclusion criteria.

Exclusion criteria

Publications were excluded if they did not report original work or did not include patient data relating to the use of remote consultation for UK NHS primary care patients with MLTCs. Studies published outside the search period were excluded.

Date limitation

01/04/2013 was the cut-off date for included research as it represents the first real opportunity for uniformity of practice regarding the use of Information Technology (IT) between local NHS primary care practices (NHS England, 2019). Prior to this, practices were independent in sourcing and managing their own IT and internet connection.

Selection of publications

Abstracts were combined in Rayyan (Ouzzani et al., 2016) and screened by AE and EL in blind mode against the inclusion criteria (see Appendix 6) with a random 10% sample checked by another reviewer. Potentially relevant sources were retrieved and screened as full texts. Disagreements were resolved through discussion within the team.

Data extraction

The data extraction tool was developed according to the JBI PRISMA-ScR guidance (see Appendix 1) (Peters et al., 2021) including details about the participants, concept, context, study methods and relevant findings. See Appendix 7 for the basic data extraction form.

Data analysis

Data was analysed using a narrative synthesis approach. Narrative synthesis is a structured process with four elements: Developing a theory, developing a preliminary synthesis, exploring relationships within and between studies and assessing robustness of the synthesis (Rai et al., 2020; Rodgers et al., 2009). The reflective and reflexive approach it requires promotes an exploration of relationships between reported findings of a heterogeneous group of studies. This allows for the synthesis to explore factors that have influenced results as well as appraisal of strength and transferability of findings.

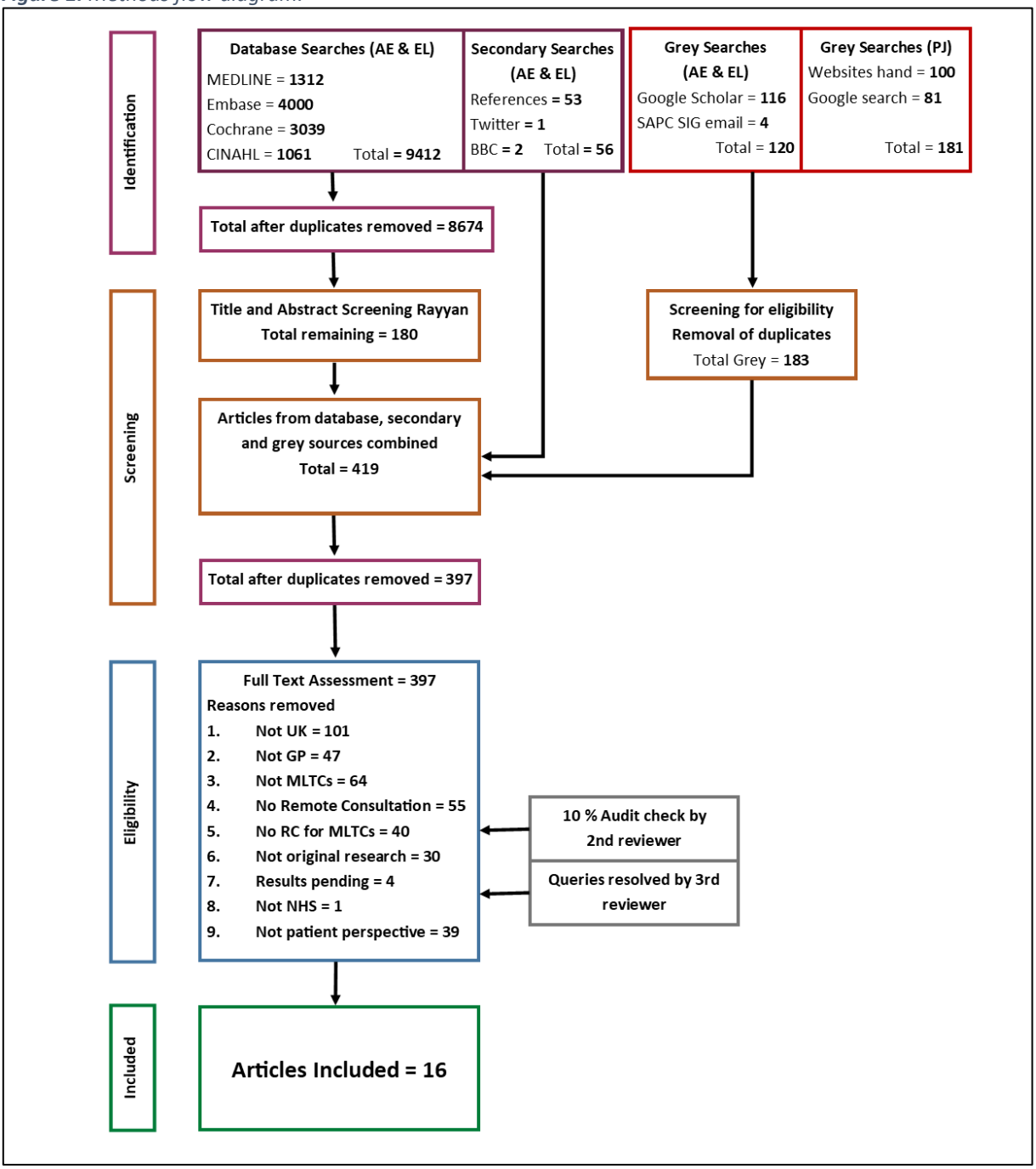
Results

Screening process

9,769 publications were identified including 9,412 from electronic databases, 301 from Google, Google Scholar, website searches and enquiry within the research community, and 56 from secondary searches. After removing duplicates, 8,674 were screened for eligibility resulting in 397 for full text review. Full text screening resulted in 16 included publications. Reasons for exclusion of sources of evidence at full text stage are reported in the methods flow diagram. Definition of MLTCs as existence of two or more long term conditions in the same person was agreed at the outset of the study. Due to the small number of relevant publications and the variability in reporting of MLTCs among these, an inclusive approach was

taken towards the measurement of MLTCs. For example, studies that stated MLTCs were self-reported but did not specify the long-term conditions were not excluded.

Figure 1. *Methods flow diagram.*



Characteristics of included publications

The sixteen publications included are all focused on or include patient data. The majority are formal research, four are service evaluation reports published directly online. All include data from UK patients, mostly from England with a minority including residents of Scotland, Wales and Northern Ireland as indicated in Table 1. Six publications are qualitative, two use multiple methods, eight are quantitative.

Seven publications were conducted prior to any imposed changes due to the COVID-19 pandemic had occurred and nine conducted during or since.

Extracted data is described with narrative synthesis and summarised in Table 1. Format of the raw extracts varied and included interview quotes from patients, author drawn conclusions, quantitative analysis and author interpretation of patients' medical records surveys, research databases and questionnaire or postal survey results. See Appendix 8 for MMAT star breakdown for included publications. Raw data extraction can be found in the following appendices: Appendix 9 Accessibility, Appendix 10 Continuity, Appendix 11 Patient Journey, Appendix 12 Patient Choice, Appendix 13 Privacy and Appendix 14 Communication Quality.

Table 1. *Summary of included article characteristics.*

Source	Aim	Population	Sample Selection	Study design and methods	Relevance and MLTCs measurement	Summary of findings	MMAT star
Atherton 2018 (Atherton et al., 2018b) **Quantitative** **Qualitative** **Multiple methods** **Formal research** Pre COVID-19	Review evidence for alternatives to face-to-face consultations, explore how they are currently provided, how practice context, patient characteristics, type of technology and purpose interact to determine the impact of the alternatives.	**A mixture of locations in South England or Scotland**	Database searches, snowballing, 2719 GPs 421 Practices 8 primary care practice case studies 77513 patients of which 62809 were >18 years	Conceptual (informed by realist) review Postal survey, practice website review, contact with local and national links Focussed ethnography informed by PPI Descriptive statistics	MLTCs $\geq$ **2** LTCs **Authors' own list** 15 disease clusters (QOF to measure MLTCs) Focus is primary care remote consultation 13% adult patients had MLTCs n=8264	Produced conceptual map of evidence. Created case study guide to support ethnographers. Patients with MLTCs need more access. No granularity for MLTCs on other results.	*****
Atherton 2018 (sub-study of above) (Atherton et al., 2018a) **Qualitative** **Formal research** Pre COVID-19	Understand benefits and challenges of alternative methods for patients and practitioners.	(Patients and staff *Sub study of above article)*	(39 patients + carers who had used remote consultation (49 staff (19 GP, 11 managerial, 6 nurse))	Non-participant observation, informal conversations (staff), semi-structured interviews (staff and patients)	MLTCs $\geq$ **2** LTCs **Self-reported** by 15/39 patients (38%)	Practices planning to implement alternatives to face-to-face, should consider carefully their reasons for doing so and involve the whole practice team.	*****

Ball 2018 (Ball et al., 2018) **Qualitative** **Formal research** Pre COVID-19	**Understand patients' views** on a 'telephone first' Approach.	12 primary care practices, **England**	43 Patients and carers	Interviews	MLTCs definition **not stated.** **Self-reported** by some.	Concludes telephone first works for some patients, but not others. Identified problems in relation to implementation of a system.	*****
Cecil 2021 (Cecil et al., 2021) **Quantitative** **Formal research** Pre COVID-19	Determine the patient and healthcare factors associated with potentially missed acute deterioration in health as indicated by emergency admission to hospital.	Patients in **England** with emergency admission to hospital. April 2014 – March 2017	Clinical Practice Research Datalink (CPRD) n=242485	Retrospective cohort, descriptive statistics	MLTCs definition **not stated.** **GP recorded comorbidities**. (59% of the emergency admissions studied were for patients who had MLTCs)	Shorter consultations or those via telephone were associated with potentially missed acute deterioration. Patients with MLTCs suffered most emergency admissions to hospital.	*****
Coles 2021 (Coles et al., 2021) **Quantitative** **Formal research** Pre COVID-19	Determine whether telephone and face-to-face primary care consultation rates, costs, and temporal trends during 2000 to 2018 differed by the number of comorbidities in people with type 2 diabetes (T2DM)	Adult patients with T2DM 1.1.2000-31.12.2018	CPRD n=120409	Descriptive statistics	MLTCs defined as **Type 2 diabetes mellitus plus comorbidities.** **Charlson comorbidity index** used to calculate complexity. Telephone consultations = 6.3%	All consultation rates increase with number of comorbidities (especially GP vs Nurse).	*****

Healthwatch Haringey 2021 (Healthwatch Haringey, 2021) **Qualitative multiple methods Service Evaluation** Post Covid-19	To understand impact of primary care services provided via phone or internet since COVID-19 through structured public engagement.	Formation of new patient participation group (PPG) for patients and staff. **Haringey (Greater London)** over 50's forum **Haringey's** most vulnerable service users report Healthwatch **Haringey** 'Mystery Shopper' survey	Nov-Dec 2020 Participants interviewed for a new PPG were also asked about the move to digital services Oct-Nov 2020 Apr-Aug 2020 4 volunteers called 38 Haringey primary care practices Dec 2020-Jan 2021	Structured interviews Forum meeting feedback Reference groups feedback Survey to find out how long it took to get through to speak to a member of staff	MLTCs definition **not stated.** Multiple illnesses are **mentioned** Focus is remote consultation.	Positive experiences of staff not matched by patients. Providing primary care services over the phone and online through the internet has had a significant impact on patients' ability to contact their practices and their relationships with GPs. The presence of multiple illnesses is mentioned as an example of where remote consultation has a negative impact.	**

Healthwatch Lewisham (Healthwatch Lewisham, 2021) **Qualitative and quantitative Service Evaluation** Post COVID-19	Engage with people more likely to be digitally excluded, improve understanding of how this impacts their experience with health services, particularly primary care.	**Lewisham (London)** residents with 1.English not first language 2. Older 3.Disabilities or sensory loss	45 participants, community recruitment +10 local GPs April 2021-August 2021	Interviews questionnaires Case studies	MLTCs definition **not stated.** Some participants **self-reported** multiple health issues.	Some found primary care remote consultation beneficial and understood the need to shift to digital methods during COVID-19. Others unhappy with quality of care/treatment received using remote consultations not confident with the diagnosis/treatment plan. Both groups advocated for a return to face-to-face appointments.	**
Healthwatch Rutland 2021 (Healthwatch Rutland, 2021) **Qualitative multiple methods Service Evaluation** Post COVID-19	**Feedback from local patients** on access to primary care services since COVID-19	**Rutland (East Midlands)** residents	26 participants, 1 PPG	Semi-structured telephone interviews, email feedback, PPG feedback, Zoom focus group Face-to-face discussion with Oakham PPG	MLTCs definition **not stated.** **Implied** by 2 participants	Improvements need to be made regarding: public communications, support and training for those wanting to try digital, maintain non-digital alternative for digitally excluded.	***

Humphrey, A 2023 (Humphrey, 2023) **Qualitative multiple methods** **Formal research** Post COVID-19	To explore use, 'work' of access, opportunities and challenges of remote and digital health services for marginalised individuals in the UK	**London** Foodbank, Drop-in-centre, Community Hub local GPs, Fieldwork, service and Digital Health Hub staff.	15 adult volunteers	Semi-structured interviews, in person/online participant observation at 3 community sites	MLTCs definition **not stated.** Some participants **self-reported** 2 or more health problems Living with MLTCs is listed as a specific characteristic of marginalisation	Place finding work and privacy are specific challenges of remote consultation for marginalised patients with MLTCs, exacerbated by unpredictability of timing. Marginalised people have lower personal and physical resource to accommodate remote, leading to lower levels of disclosure, inequitable clinical and safeguarding risks. Low confidence in confidentiality of remote consultation. Symptom identification and monitoring for remote consultation limited by the experience of living with MLTCs and/or low health literacy. Care received via remote methods interpreted as 'less caring' than face-to-face.	*****
Newhouse 2015 (Newhouse et al., 2015) **Quantitative** **Formal research** Pre COVID-19	Describe characteristics of people who have used email for consultation regarding demographics, health care resource use, and health status.	Digitally literate population in 14 European countries.	Citizens 16-74 years old who had been online in previous 3-months	Secondary analysis of 1000 online surveys per country	MLTCs definition **not stated** 45.92 % **self-reported** ≥2 health problems **UK** cohort lowest rates of email consultation	Use of email within context of European healthcare is extremely varied. Clear relationship between high email use, poor health, doctor visits, and MLTCs. Provision of asynchronous communication favoured by policymakers. Low reported email use by country may not reflect low interest. Local health policies, infrastructures may be factors in delaying implementation of digital alternatives.	*****

Rosen 2022 (Rosen et al., 2022) **Qualitative Formal research** During COVID-19	Develop empirically based, theory-informed taxonomy of risks associated with remote consultations.	**UK Sub-study of transcripts** from 3 large datasets (multi-site, mixed-methods of remote care before/during COVID-19)	176 clinicians **43 patients' transcripts** with data regarding risk re-analysed	Semi-structured interviews, focus groups. Thematic analysis	MLTCs definition **not stated.** Some **self-reported** ≥2 health problems	For remote consultations to work safely, risks must be actively mitigated by measures including digital inclusion strategies, enhanced safety-netting, training/support for staff.	*****
Shorthose 2024 (Shorthose et al., 2024) **Quantitative Service Evaluation** Post COVID-19	Determine if living with frailty is a risk factor for digital exclusion for video consultations, if this changes with personal support network.	**South-West England** Primary care, hospital-at-home, Secondary care 02/2022-04/2022	255 adult patients, median age=63y (IQR 43-77)	Semi-structured survey in-person or telephone	MLTCs defined ≥ **3 LTCs** Measurement: **Charlson Comorbidity Index.**	Complete digital exclusion from video consultations rare. Where no support network was available, frailty is associated with individual digital exclusion.	*****
Soley-Bori 2022 (Soley-Bori et al., 2022) **Quantitative Formal research** Pre COVID-19	Assess association between MLTCs clusters and primary care consultations over time.	**London** Residents 41 practices	Adults Lambeth Data Net. n=826166 2005-2020	Retrospective longitudinal study Descriptive statistics	MLTCs ≥ **2 LTCs Author's own list** (32 conditions) Studied MLTCs clusters, primary care use over 15 years.	Individuals with MLTCs used 2-3 times more primary care services than those without, this increased over time for all types. Primary care consultations show large, predicted increase among individuals ≥3 LTCs in the Dependence+ cluster as additional LTCs accumulate. Most deprived individuals consulted more than least deprived, except for nurse and phone. Clustering of alcohol dependence, substance dependence, HIV, mental health conditions are associated with highest increases in demand as additional LTCs develop.	****

Sweeney 2024 (Sweeney et al., 2024) **Quantitative Formal research** Post COVID-19	Determine health characteristics, experiences of primary care patients	**Scotland** Adult patients within 30-days of primary care consultation	Random sample: Deprived-Urban Affluent-Urban Remote-Rural N=6291	Postal questionnaire, 12 practices across 3 health boards Descriptive statistics.	MLTCs ≥ **2 LTCs Author's own list** (17 conditions)	DU group significantly higher prevalence of MLTCs and most likely to have had telephone consultation, least likely face-to-face. DU significantly more likely to present with ≥3problems, had more complex consultations and reported lower satisfaction, less symptom improvement and lower perceived GP empathy	*****
Wang 2021 (Wang et al., 2021) **Quantitative Formal research** During COVID-19	Evaluate policy impact on health care utilisation and physical exercise. Understand the impacts of lockdown and effects of shielding notice	**UK** sample Patients enrolled in PROTECT study	3,807 participants ≥50yrs completed online survey 05/2020-06/2020	Survey Cross-sectional analysis Descriptive statistics	MLTCs definition **not stated.** Participants **self-reported** comorbidities and healthcare utilisation.	Patients with more medical conditions required more primary care consultations during COVID-19.	*****
Zaninotto 2020 (Zaninotto et al., 2020) **Quantitative Formal research** During COVID-10	Describe experiences of people with MLTCs during COVID-19; effects on health behaviours, mental health, loneliness, access to services, and worries about food/other essentials.	**England** People >50yrs in 2002 +their partners living in private homes	Sub-study of 5,755 members of English Longitudinal Study of Ageing (ELSA) study. 06/2020-07/2020	Survey	MLTCs ≥2 LTCs **Author's own list** (15 conditions) Prevalence of MLTCs in ELSA participants=30%	20% of individuals with MLTCs did not have access to the community health and social care services and support needed even though they wanted them. More people with MLTCs accessed community health and social care services compared to respondents without.	****

Critical appraisal

Quality appraisal using MMAT tool

Eleven of the research publications scored 5* using the MMAT tool and two (Soley-Bori et al., 2022; Zaninotto et al., 2020) scored 4*. One service evaluation (Healthwatch Rutland, 2021) scored 3* and two (Healthwatch Haringey, 2021; Healthwatch Lewisham, 2021) scored 2*. Much of the relevant qualitative data was extracted from two service evaluations. These had a lower score as they are not peer reviewed publications.

Definition and measurement of MLTCs

Both definition and measurement of MLTCs are heterogenous between the included publications. A minority (Atherton et al., 2018b, 2018a; Soley-Bori et al., 2022; Sweeney et al., 2024; Zaninotto et al., 2020) defined MLTCs as 2 or more LTCs. These are all research studies, each with different criteria for measuring MLTCs. Charlson index was used to measure MLTCs in 2 studies, but with different definitions. Of the nine publications without any definition of MLTCs, living with two or more long term conditions (LTCs) was self-reported by participants in eight (Atherton et al., 2018a; Ball et al., 2018; Healthwatch Haringey, 2021; Healthwatch Lewisham, 2021; Humphrey, 2023; Newhouse et al., 2015; Rosen et al., 2022; Wang et al., 2021) and implied in one (Healthwatch Rutland, 2021).

Most of the cohorts included a proportion of patients with MLTCs (Atherton et al., 2018b, 2018a; Ball et al., 2018; Cecil et al., 2021; Healthwatch Haringey, 2021; Healthwatch Lewisham, 2021; Healthwatch Rutland, 2021; Newhouse et al., 2015; Rosen et al., 2022; Shorthose et al., 2024; Soley-Bori et al., 2022; Sweeney et al., 2024; Zaninotto et al., 2020). Only three (Coles et al., 2021; Humphrey, 2023; Soley-Bori et al., 2022) publications had participants all living with MLTCs. Both papers focusing on MLTCs were quantitative, one was about MLTCs in general, the other focussed on diabetes+ cluster of MLTCs. Conclusions can be gleaned but are limited by the exclusion of other clusters. This review did not identify any publications that intentionally examine the combination of MLTCs and remote consultation in primary care from a patient point of view.

Type of remote consultation

Most remote consultations were telephone. Video was the focus of one study (Shorthose et al., 2024) and was analysed in another in combination with telephone so rates are unclear (Wang et al., 2021). Email consultation was the focus of one paper (Newhouse et al., 2015). No publications defined or demonstrated the utility of online consultation as a distinct phenomenon.

Themes

Extracted data was organised in tables according to the review questions with themes of accessibility, continuity and patient journey. Additional data relating to patient choice, privacy and communication quality was inductively extracted as they illustrate important patient perspectives in addition to the original three themes. This produced six themes that are presented below with supporting quotes.

Accessibility

Most of the data extracted constitutes experiences, opinions or statistics relating to access of remote consultation. Within the quotes from individuals, sixteen demonstrated negative experiences of remote consultation or digital triage related to access and three demonstrated positive experiences. One service evaluation (Healthwatch Lewisham, 2021) demonstrated that supportive attitudes for a 'total triage system' were outnumbered by negative with a ratio of approximately 2:1 (The percentage of participants living with MLTCs in this sample is unknown). For example, "One patient, that has multiple health issues as well as being unemployed, described their current situation as 'living through hell'."(Healthwatch Lewisham, 2021).

Comments extracted from five (Atherton et al., 2018a, 2018b; Ball et al., 2018; Healthwatch Lewisham, 2021; Humphrey, 2023) publications demonstrate that people with MLTCs using remote consultation experienced frustration (Atherton et al., 2018b), exasperation (Healthwatch Lewisham, 2021), anger (Atherton et al., 2018a) and a sense of powerlessness (Ball et al., 2018; Humphrey, 2023), loss of trust in the staff (Ball et al., 2018) plus disempowerment caused by poor communication about changes in access (Healthwatch Lewisham, 2021). "'[ ]I try and tie them down, but I'm wasting my breath.' (50-year-old male patient with multiple comorbidities, practice C.)" (Atherton et al., 2018b).

Telephone first was experienced as a barrier by participants in three publications (Ball et al., 2018; Healthwatch Lewisham, 2021; Healthwatch Rutland, 2021) and implied in one (Humphrey, 2023). "'It certainly feels like a gate-keeping service [... like being kept as much at arm's length as possible'. (114_1058–female patient, early 70s, retired, chronic health issues.)" (Ball et al., 2018).

One study demonstrated remote access as a barrier to accessing care (Zaninotto et al., 2020). Peoples' autonomy was undermined by the telephone call back system due to lack of choice on timing (Atherton et al., 2018b; Humphrey, 2023). Others experienced the receptionists as a barrier (Atherton et al., 2018a; Healthwatch Lewisham, 2021; Healthwatch Rutland, 2021; Humphrey, 2023), "…'if you phoned the receptionist, you haven't got a hope in hell.' (76-year-old male patient with comorbidities, practice F.)" (Atherton et al., 2018b). One (Atherton et al., 2018a) study found that email was preferred over telephone as it was perceived to allow more direct access to the GP.

Challenges experienced by marginalised patients particularly around English language literacy and health literacy were exacerbated by remote consultations resulting in an inability to access the care they needed (Humphrey, 2023). Marginalised patients experienced

discrimination from services that rely on proficient English and health and digital literacy, raising the theme of communication quality.

Re-emplacement of the physical space for a GP consultation into the space in which the patient is at the time of a telephone consultation creates inequitable clinical and safeguarding risks for marginalised people: "'Boy we've all got to die, but it's the way we're gonna die. I don't want to die in a way that's not going to be…because I've been let down by the NHS. But it probably will be because how can we wait so long for an appointment? For something you've never looked at. Who, who are the people that are in front of me? Who are they? What is it that they've got that I haven't?' (17, Female, 60s, Black British, community development charity.)" (Humphrey, 2023).

Concern for others who may struggle with access were expressed by participants (Ball et al., 2018; Healthwatch Haringey, 2021), particularly for people with language barriers, low confidence or other vulnerabilities. The mental health+ cluster of MLTCs was a significant context for remote consultation posing a barrier to the doctor patient relationship (Ball et al., 2018).

Where higher rates of telephone or video consultation were associated with MLTCs (Wang et al., 2021) this was in the context of being told to shield during the height of COVID-19 so this does not necessarily set a precedent for remote consultation being acceptable for this cohort. At the height of COVID-19 (Zaninotto et al., 2020), 20% of people with MLTCs were not able to access the healthcare they needed when total digital triage was enforced by the UK government. Frailty is a significant risk factor for individual digital exclusion from video consultation, but the interaction between deprivation and frailty regarding digital exclusion is yet to be explored (Shorthose et al., 2024).

The evidence demonstrates that patients who are living with MLTCs need to access health care more often than patients who are not (Atherton et al., 2018b; Coles et al., 2021; Healthwatch Lewisham, 2021; Newhouse et al., 2015; Soley-Bori et al., 2022; Sweeney et al., 2024; Wang et al., 2021; Zaninotto et al., 2020) and this increases with number of conditions (Coles et al., 2021; Newhouse et al., 2015; Soley-Bori et al., 2022). Seven quantitative studies (Atherton et al., 2018b; Coles et al., 2021; Newhouse et al., 2015; Soley-Bori et al., 2022; Sweeney et al., 2024; Wang et al., 2021; Zaninotto et al., 2020) measured consultation rate reaching this conclusion. One (Coles et al., 2021) demonstrated that needing more access adds to disease related distress and two (Healthwatch Rutland, 2021; Humphrey, 2023) that the sense of confusion and feeling overwhelmed by the illness experience was confounded by difficulty accessing medical care.

Positive reflections regarding access were demonstrated where people had confidence and trust in the GP to triage appropriately (Atherton et al., 2018a; Ball et al., 2018) and where remote access meant being able to speak to a doctor directly (Ball et al., 2018) or they perceived it as bypassing reception (Atherton et al., 2018a). "'I mean sometimes if he's [the GP] really busy, you don't hear from him for a couple of hours but then he's obviously got patients there that are a priority. They know how to prioritize them which is good. (102_1014–female patient, late 70s, retired, multiple chronic conditions)" (Ball et al., 2018). Access was not found to be the main driver of patient satisfaction (Ball et al., 2018). Access to a remote appointment did not necessarily equate to access to adequate care (Cecil et al., 2021; Healthwatch Lewisham, 2021).

Continuity

Relational continuity (Haggerty et al., 2003) was touched on by five publications (Atherton et al., 2018b, 2018a; Ball et al., 2018; Cecil et al., 2021; Healthwatch Lewisham, 2021). Relational continuity is considered by the Royal College of General Practitioners (RCGP) to include members of the same team and was found to be protective against self-referral to hospital with an acute deterioration of health (Cecil et al., 2021). In the context of remote consultation, however, patients experience continuity differently; "I mean, I know my GP very well and she knows me . . . I'm less confident with another GP because they don't really know me." (59-year-old female patient with comorbidities, practice E) (Atherton et al., 2018b). Three (Atherton et al., 2018b, 2018a; Ball et al., 2018) publications found patient confidence in remote consultation was most affected by the level of personal continuity they had with individual doctor rather than the GP team. Regular contact with a GP was an expressed desire by a vulnerable patient with MLTCs who was isolated during COVID-19 (Healthwatch Lewisham, 2021).

Patients expressed that pre-COVID-19 they could be selective about what health problems they consulted about remotely depending on whether they knew the individual GP or not (Atherton et al., 2018b). The combination of consulting an unfamiliar GP and the nature of telephone consultation itself impacts the quality of consultation in terms of it feeling rushed and having limited potential for developing the doctor patient relationship, implicating an impact on communication quality (Ball et al., 2018). Continuity and trust in the individual doctor were also found to affect perception of access experience and willingness to wait for a call back.

Patient journey

The data available on patient journey indicates that remote consultation methods generate more need for follow up consultations than face-to-face (Atherton et al., 2018b). Telephone consultations alone were associated with an increased risk of potentially missed acute deterioration in health (Cecil et al., 2021), whereas a telephone consultation following a face-to-face consultation could be protective against self-referral to hospital (11% less likely (Cecil et al., 2021)). People living with MLTCs suffered the most emergency admissions to hospital (Cecil et al., 2021) . Difficulty accessing their own GP resulted in patients relying on emergency services or requiring emergency surgery because of delayed presentation (Humphrey, 2023). Those with MLTCs were three times more likely to be told to "isolate and stay home at all times" during the height of COVID-19, impacting on willingness to seek access to health services (Zaninotto et al., 2020). This in combination with older age, heightened mental distress and unhealthy behaviours (such as reduced physical exercise) increased the risk of disease progression, therefore potentially affecting patient journey in the long run (Zaninotto et al., 2020).

Patient choice

Patients' preferences for or against remote consultation are not necessarily predictable (Ball et al., 2018). Patients expressed dissatisfaction with a lack of choice on type and timing of

consultation when using a telephone call back system (Atherton et al., 2018a; Ball et al., 2018; Humphrey, 2023). Where strong and unwavering preferences for face-to-face access were expressed, this was qualified with reasons such as poor eyesight or not owning a computer (Healthwatch Lewisham, 2021), limitations with English Literacy (Humphrey, 2023) and finding it hard to remember what they wanted to say over the phone (Healthwatch Lewisham, 2021). The ability to take on the work of self-surveillance, identification and articulation of symptoms required by remote consultation is not equitable. Marginalised groups do not have the luxury of being able to choose remote consultation as a genuine alternative to face-to-face (Humphrey, 2023). This challenges the normative assumption that all patients can carve out a private time and space for remote consultation. Interpreted alongside the postal survey which showed that patients living in a deprived-urban environment had higher levels of MLTCs and clinical complexity but accessed less face-to-face appointments compared to affluent groups (Sweeney et al., 2024), indicates that a lower rate of face-to-face consultation for deprived patients may not be due to patient choice.

Two publications (Atherton et al., 2018b; Healthwatch Lewisham, 2021) concluded most patients would choose face-to-face if they could. One pre-COVID-19 study noted consistency between how staff and patients viewed remote consultations: staff offered remote consultation as a 'last resort' and patients rarely asked for one (Atherton et al., 2018a). Patients felt face-to-face consultation were necessary for complex, sensitive or multiple problems (Atherton et al., 2018a; Healthwatch Lewisham, 2021). There was variability in how patients saw remote consultations: some saw it as positive if it improved access, others felt that a high level of care can only ever be delivered in person (Healthwatch Lewisham, 2021). A different publication concluded: 'There has been a negative impact on some patients in the move away from face-to face consultations' (Healthwatch Haringey, 2021), referring to the remote by default policy imposed on GP services by the UK government during COVID-19.

Privacy

Several aspects of the nature and system of remote consultation were identified as problematic for establishing and maintaining privacy during remote consultation (Humphrey, 2023). Specifically related to physical placemaking, unpredictability of call times, lack of independent access to devices and other resources such as transport to a support worker for the call and agency in their working environment. Assessing for privacy is new work for the GP. Loss of visual confirmation of confidentiality can introduce a sense of risk for both parties: "Yeah I don't want to take that call [] while I'm doing someone's hair or something like that. You feel like can't really doing nothing." (9, Female, 40s, white British, foodbank).

Communication quality

Remote consultations have been shown elsewhere to result in more transactional communication, this is experienced by marginalised groups as less 'caring' care (Humphrey, 2023), and by Scottish participants in deprived-urban communities as significantly lower perceived GP empathy (Sweeney et al., 2024). The requirement to describe symptoms was highly stressful when experiencing poor health relating to MLTCs (Rosen et al., 2022) and

could be impossible for marginalised patients with poor English and/or health literacy (Humphrey, 2023). The impact of the absence of non-verbal communication was amplified for marginalised people when capacity to take on the responsibility of self-surveillance was limited. This resulted in a sense that their health needs were invisible to the doctor; "'Treated blind in the way they're not seeing you, not speaking to you face-to-face, and finding out exactly.' (14, Female, 40s, White British, foodbank)." In another case the absence of visual cues to 'make the doctor interested' created a delay in diagnosis and subsequent need for emergency surgery (Humphrey, 2023).

Discussion

This review has collated and synthesised evidence found on the patient experience and use of remote consultations in UK general practice for patients with MLTCs. Data was organised into themes of accessibility, continuity, patient journey, patient choice, privacy and communication quality. In the case of remote consultation, the prioritisation of access has potential trade-offs for both continuity and patient journey. If the patient and doctor are not known to each other, there is less capacity to overcome the absence of non-verbal cues. Loss of non-verbal cues can delay presentation to primary care or precipitate the need for emergency hospital care. If capacity for place finding to facilitate remote consultation is limited and privacy is not possible, patients may withhold information, increasing safeguarding risks. These examples of potential mechanisms apply disproportionately to marginalised groups, such as those with poor English, Health and/or Digital Literacy. The findings highlight that the current systems for accessing primary care in the UK are not equitable. The reported experience of patients emphasises that the exacerbation of existing health inequalities is directly related to the recent push for remote consultations as the predominant mode of contact between patients and clinicians in primary care.

Limitations

Presence of a LTC per se is more often considered to be important by researchers than presence of Multiple LTCs as illustrated by the exclusion of 64 publications for not mentioning MLTCs. The fact that MLTCs were not a focus of most of the publications exposes a large gap in the literature. Even if researchers collected data on number or type of LTC, the results were not presented to allow conclusions to be drawn on how living with MLTCs might affect a person's needs or experiences (Atherton et al., 2018b).

Absence or ambiguity of definition of MLTCs and heterogeneity in its measurement highlights significant challenges and limitations in conducting MLTCs research. For example, meta-analysis of the quantitative studies in this review was not possible due to the heterogeneity of the published results (see Appendix 15). Whilst there is a consensus among researchers on a definition, there continues to be multiple innovative ways to measure MLTCs, which limits comparisons between publications making it harder to build on previous work. Researchers should settle on agreed measurement tools and utilise them to progress the cause.

Implications

The difference between living with a single LTC and MLTCs can be vast, especially for patients who are socially deprived and are suffering from the cascade of ill health manifesting as MLTCs. Living with a single LTC can lead over time to the person developing expertise in their LTC, they are often referred to in the medical community as an 'Expert Patient'. Expert Patients usually consult differently, approaching the consultation with an increased sense of empowerment through their relationship with a specialist and their own understanding of their condition and are more likely to use online services (Abel et al., 2024; Atherton et al., 2024). Prioritisation of new research from the perspective of people living with MLTCs versus being well or being an expert patient who is living with a single LTC is essential to understanding the needs of this significant and growing cohort in society.

It is important to investigate the finding that remote consultation is experienced as an additional barrier to accessing healthcare for marginalised and disadvantaged groups. Development of a logic model to explore the mechanisms that underly the impact that remote consultation has on continuity and patient journey would help clarify where existing health inequalities are being exacerbated, particularly regarding the impact of remote consultation for patients with MLTCs on disease related distress.

The service evaluations analysed here provide valuable insight into perspective of patients regarding changes in accessing their GP and the impact of remote consultation on their patient journey. Regular invitations for patients to share their experiences would help service providers to understand the impact of current processes on patient experience and journey.

Face-to-face consultation rates were found by one study to be higher among more deprived populations (Soley-Bori et al., 2022) but, in another, telephone consultations rates were higher for the deprived population (Sweeney et al., 2024). This and prior work that demonstrates a deprivation gradient for remote services (Abel et al., 2024; Atherton et al., 2024) indicates that the relationship between deprivation and remote consultations needs to be explored.

The expression of extremely strong preferences by some participants in the data analysed here highlights room for a strategy to identify those that will not use remote consultation methods at all, or cannot due to digital exclusion. Frailty is a significant risk factor for individual digital exclusion, but the interaction between deprivation and frailty regarding remote consultation is yet to be explored (Shorthose et al., 2024).

Conclusion

For patients in the UK, with MLTCs, the type and context of remote consultation for successful, safe and acceptable service provision is under researched. When rates of remote consultation are higher than face-to-face for people with MLTCs, the context is key to its acceptability (as in the case of avoiding contagion) and safety (as in the case of potentially missed acute deterioration).

Overall, evidence for acceptability and safety in remote consultation, and how remote consultation fits into MLTCs management is sparse. Quantitative work to look for patterns

particularly around the patient journey, and qualitative work to explore further the experiences, needs and perspectives of this important patient group is warranted.

Declarations

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Appendix

Appendix 1 – PRISMA – ScR checklist

Preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (PRISMA-ScR) checklist.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	Will produce 200 word abstract
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	1
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	2
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	3
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	5
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	6 and appendix 2
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	7
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	9 and appendix 5
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Appendices 7 to 12
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used	18 and appendix 6

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	9
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	8
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	9
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	18
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Table 4 (p10-16) and Table 5 (p17)
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	19-23
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	23-26
Limitations	20	Discuss the limitations of the scoping review process.	26-27
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	27-28
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	N/A

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
** Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.*
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., … Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine, 169*(7), 467-473. https://doi.org/10.7326/M18-0850

Appendix 2 – Table of published search terms and concepts

Remote	*Consult**	*General Pract**	*MLTC's*
Telephone	Appointment	Primary Health Care	Medical complexity
Microsoft Teams	Meeting	Primary Healthcare	*(Complex multimorbidity) redundant*
Zoom	Assessment	(MeSH) General Practice	Multiple long-term conditions
Online		(MeSH) Primary Health Care	(MeSH) Multimorbidity
On-line		(MeSH) General Practitioners	Multimorbidit*
Digital		GP	multi-morbidit*
Internet		outpatient#	comorbidit*
Email		clinic#	Co-morbidit*
E-mail		ambulatory	polypatholog*
Video		health cent*	poly-patholog*
Skype		general pract*	polymorbidit*
Text Message		"family pract*"	poly-morbidit*
SMS		community	multipatholog*
Short Messaging Service		primary care	multi-patholog*
Non-Face-to-face		"primary health*	multicondition*
Mobile		family physician*	multi-condition*
Smart phone			pluripatholog*
Telemedicine			pluri-patholog*
Tele-medicine			"multiple chronic condition*
Telehealth*			"morbidity burden*
Tele-health*			
(MeSH) Remote Consultation			
(MeSH) Telemedicine			
(MeSH) Videoconferencing			
Teleconsult*			

Appendix 3 – Search strategies used for published literature databases

Database: Embase <1974 to 2022 May 11>

Search Strategy:

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1 exp teleconsultation/ or exp telemedicine/ or exp videoconferencing/ (63701)

2 (telemedicine or remote consult* or video consult*).mp. (46687)

3 (tele* consult* or phone* consult* or telemedicine or tele-medicine or telehealth* or tele-health* or teleconsult*).mp. (69432)

4 1 or 2 or 3 (81859)

5 (remote or telephone or microsoft teams or zoom or online or on-line or digital or internet or email or e-mail or video or text message or SMS or short messaging service or non face-to-face or mobile or smart phone or skype or facetime).mp. (1155901)

6 (consult* or appointment or meeting or assessment).mp. (3594611)

7 5 and 6 (210585)

8 4 or 7 (273927)

9 exp general practice/ (81546)

10 exp primary health care/ (191035)

11 (general pract* or gp or family pract* or community or primary care or primary health* or family physician*).mp. (1232693)

12 (outpatient? or clinic? or ambulatory or health cent* or office).mp. (1199604)

13 exp general practitioner/ (109446)

14 9 or 10 or 11 or 12 or 13 (2291218)

15 exp multiple chronic conditions/ (5914)

16 (Multimorbidit* or multi-morbidit* or comorbidit* or co-morbidit* or polypatholog* or poly-patholog* or polymorbidit* or poly-morbidit* or multipatholog* or multi-patholog* or multicondition* or multi-condition* or pluripatholog* or pluri-patholog* or multiple chronic condition* or morbidity burden*).mp. (497050)

17 ((multiple or coexisting or co-existing or concurrent or comorbid or co-morbid) adj2 (disease* or illness* or condition* or diagnos#s or morbid*)).mp. (117491)

18 15 or 16 or 17 (575030)

19 8 and 14 and 18 (3040)

20 limit 19 to (english language and yr="2013 -Current") (2545) 2545/

++

Thursday, May 12, 2022 5:24:28 PM

Query Limiters/Expanders Last Run Via Results

S17 S8 AND S13 AND S16Limiters - Published Date: 20130101-; English Language

Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete 897 898?

S16 S14 OR S15 Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete Display

S15 TX (multiple or coexisting or co-existing or concurrent or comorbid or co-morbid) n2 (disease* or illness* or condition* or diagnos?s or morbid*) Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete Display

S14 TX Multimorbidit* or multi-morbidit* or comorbidit* or co-morbidit* or polypatholog* or poly-patholog* or polymorbidit* or poly-morbidit* or multipatholog* or multi-patholog* or multicondition* or multi-condition* or pluripatholog* or pluri-patholog* or "multiple chronic condition*" or "morbidity burden*" Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete Display

S13 S9 OR S10 OR S11 OR S12 Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S12 (MH "Physicians, Family") Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S11 outpatient# or clinic# or ambulatory or "health cent*" or office Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S10 "general pract*" or gp or "family pract*" or community or "primary care" or "primary health*" or "family physician*" Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S9 (MH "Family Practice") OR (MH "Primary Health Care") Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S8 S4 OR S7 Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S7 S5 AND S6 Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S6 consult* or appointment or meeting or assessment Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S5 remote or telephone or "microsoft teams" or zoom or online or on-line or digital or internet or email or e-mail or video or "text message" or SMS or "short messaging service" or "non face-to-face" or mobile or "smart phone" or skype or facetime Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S4 S1 OR S2 OR S3 Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S3 "tele* consult*" or "phone* consult*" or telemedicine or tele-medicine or telehealth* or tele-health* or teleconsult* Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S2 telemedicine or "remote consult*" or "video consult*" Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

S1 (MH "Remote Consultation") OR (MH "Telemedicine+") OR (MH "Telehealth+") OR (MH "Videoconferencing+") Search modes - Boolean/Phrase Interface - EBSCOhost Research Databases

Search Screen - Basic Search

Database - CINAHL Complete Display

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Database: Ovid MEDLINE(R) ALL <1946 to May 11, 2022>

Search Strategy:

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1 exp Remote Consultation/ or exp Telemedicine/ or exp Videoconferencing/ (41749)

2 (telemedicine or remote consult* or video consult*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (46401)

3 (tele* consult* or phone* consult* or telemedicine or tele-medicine or telehealth* or tele-health* or teleconsult*).mp. (47978)

4 1 or 2 or 3 (54370)

5 (remote or telephone or microsoft teams or zoom or online or on-line or digital or internet or email or e-mail or video or text message or SMS or short messaging service or non face-to-face or mobile or smart phone or skype or facetime).mp. (866453)

6 (consult* or appointment or meeting or assessment).mp. (1877888)

7 5 and 6 (116787)

8 4 or 7 (156897)

9 exp family practice/ or General Practice/ (77462)

10 exp Primary Health Care/ (182706)

11 (general pract* or gp or family pract* or community or primary care or primary health* or family physician*).mp. (948739)

12 (outpatient? or clinic? or ambulatory or health cent* or office).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary

concept word, rare disease supplementary concept word, unique identifier, synonyms] (796773)

13 exp General Practitioners/ or exp physicians, family/ (26538)

14 9 or 10 or 11 or 12 or 13 (1705946)

15 Multimorbidity/ (2163)

16 (Multimorbidit* or multi-morbidit* or comorbidit* or co-morbidit* or polypatholog* or poly-patholog* or polymorbidit* or poly-morbidit* or multipatholog* or multi-patholog* or multicondition* or multi-condition* or pluripatholog* or pluri-patholog* or multiple chronic condition* or morbidity burden*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (273495)

17 ((multiple or coexisting or co-existing or concurrent or comorbid or co-morbid) adj2 (disease* or illness* or condition* or diagnos#s or morbid*)).mp. (72283)

18 15 or 16 or 17 (328416)

19 8 and 14 and 18 (1325)

20 limit 19 to (english language and yr="2013 -Current") (994) 994/

++

Search Name:1 RC 2 GP 3 MM 10 May Cochrane

Date Run: 12/05/2022 13:28:46

Comment: scoping review

ID Search Hits

#1 MeSH descriptor: [Remote Consultation] explode all trees 410

#2 MeSH descriptor: [Telemedicine] explode all trees 3206

#3 MeSH descriptor: [Videoconferencing] explode all trees 245

#4 (telemedicine or remote consult* or video consult*):ti,ab,kw (Word variations have been searched) 6204

#5 ((tele* consult* or phone* consult* or telemedicine or tele-medicine or telehealth* or tele-health* or teleconsult*)):ti,ab,kw (Word variations have been searched) 10044

#6 #1 OR #2 OR #3 OR #4 OR #5 11164

#7 ((remote or telephone or microsoft teams or zoom or online or on-line or digital or internet or email or e-mail or video or text message or SMS or short messaging service or non face-to-face or mobile or smart phone or skype or facetime)):ti,ab,kw (Word variations have been searched) 123869

#8 ((consult* or appointment or meeting or assessment)):ti,ab,kw (Word variations have been searched) 624275

#9 #7 AND #8 66920

#10 #6 OR #9 71372

#11 MeSH descriptor: [Family Practice] explode all trees 1981

#12 ((general pract* or gp or family pract* or community or primary care or primary health* or family physician*)):ti,ab,kw (Word variations have been searched) 235409

#13 ((outpatient? or clinic? or ambulatory or health cent* or office)):ti,ab,kw (Word variations have been searched) 948481

#14 MeSH descriptor: [General Practitioners] explode all trees 332

#15 MeSH descriptor: [Physicians, Family] explode all trees 462

#16 #11 OR #12 OR #13 OR #14 OR #15 1030595

#17 MeSH descriptor: [Multimorbidity] explode all trees 78

#18 ((Multimorbidit* or multi-morbidit* or comorbidit* or co-morbidit* or polypatholog* or poly-patholog* or polymorbidit* or poly-morbidit* or multipatholog* or multi-patholog* or multicondition* or multi-condition* or pluripatholog* or pluri-patholog* or multiple chronic condition* or morbidity burden*)):ti,ab,kw (Word variations have been searched) 26400

#19 (multiple or coexisting or co-existing or concurrent or comorbid or co-morbid) NEXT (disease* or illness* or condition* or diagnos?s or morbid*) 3019

#20 #17 OR #18 OR #19 28634

#21 #10 AND #16 AND #20 with Cochrane Library publication date Between Jan 2013 and Jun 2022 2148 2147 (1 editorial not transferred)

Appendix 4 – Google Scholar and Google searches

Simultaneously on 26.5.22: Google Scholar conducted by AE, Google conducted by PJ

Repeated by EL and PJ: Google on 17.9.2024 and Google Scholar on 6.10.2024

Same strategy:

multimorbidity OR multi-morbidity OR "multiple chronic conditions" OR "Multiple long term conditions" OR "medical complexity" AND "remote consultation" OR "telephone consultation" OR video consultation" OR "online consultation" OR "non Face-to-face consultation" AND "general practice" OR GP OR "general practitioner" OR "primary care" OR community OR "family medicine" OR "family Doctor"

Appendix 5 – Hand searched organisation websites

Professional Orgs	*Government/NHS*	*Academic/Educational*	*Independent charity*	*Corporate*
Association of Medical Research (UK)	Department of Health and Social Care	GPonline.com	Age Concern	Advina HealthCare
British Medical Association (BMA)	Gov.UK	National Institute for Health and Care Excellence (NICE)	Age UK	Bluebird Care
British Geriatric Society	Health Research Authority (HRA)	National Institute for Health Research (NIHR)	Capgemini UK	Caremark
Family Doctor Association	NHS England	National Institute for Health Data Science	Good Things Foundation	Hayward Publishing
General Medical Council (GMC)	NHS.UK	Pulse Today	Health Foundation, The	HCRG Care Group
Medical Research Council	Patient.info		Health Watch	Lloyds Bank
Mental Health Foundation	Public Health England		James Lind Alliance	NOCLOR Research Support
Royal College of General Practitioners (RCGP)			Kings Fund, The	Priory Group
Royal College of Nursing			Nuffield Trust	Ramsay Health Care UK
Royal College of Physicians			Scope UK	Spire Health Care
Royal College of Psychiatrists				Westfield Health
Royal Medical Society				
Royal Society for Public Health				
Royal Society of Medicine				
UK Health Data Research Alliance				
World Health Organisation (WHO)				

Appendix 6 – Inclusion and exclusion criteria

	Inclusion	*Exclusion*
Participants	• UK residents • NHS GP Patients • Data is of patient origin (including interview or clinical records)	• Non-UK residents • Private GP patients • Data is of proxy origin (i.e. Carer, relative or staff perspective)
Concept	Remote • Telephone • Video • Email • Text message • Online	Face-to-face (in any setting)
Concept	Consultation	• Triage methods where there is not 2 way communication between clinician and patient • Administration tasks such as appointment booking, repeat prescription requests etc
Concept	General Practice	• Secondary Care • Tertiary Care • Specialist Services
Concept	MLTCs	• Wellbeing studies • Population screening • Single disease focus
Study designs	All study designs with empirical evidence including peer reviewed papers and evaluation studies which are publicly available Qualitative Studies i.e. • Ethnography • Phenomenology • Narrative • Grounded Theory • Case Study • Qualitative description Randomised controlled trials Non-randomised studies. • Non-randomised controlled trials • Cohort study • Case-control study • Cross-sectional analytical study Quantitative descriptive studies • Incidence or prevalence study without comparison group • Survey • Case series • Case Report	• Not original work • Duplicates • Review papers • Opinion papers • Evidence briefings (Reference lists of any of the above will be screened for papers that meet the inclusion criteria)

	Mixed Methods studies • Convergent design • Sequential explanatory design • Sequential exploratory design	
Other parameters	English language Full text is available Published since April 2013	NOT English language Full text is not available Published prior to April 2013

Appendix 7 – Basic data extraction form

Author (s)	*Year of Publication*	*Origin (conducted)*	*Aims /purpose*	*Study population*	*Sample size*	*Methodology /methods*	*Intervention type*	*Outcome measures*	*Key finding; accessibility*	*Key finding; continuity of care*	*Key finding; patient Journey*

Appendix 8 - MMAT Star breakdown for included publications

Study	Criteria from the Mixed Methods Appraisal Tool(Nha HONG et al., 2018)																								
	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5
Atherton et al. 2018 b (Atherton et al., 2018b)																					1	1	1	1	1
Atherton et al. 2018 a (Atherton et al., 2018a)	1	1	1	1	1																				
Ball et al. 2018 (Ball et al., 2018)	1	1	1	1	1																				
Cecil et al. 2021(Cecil et al., 2021)																1	1	1	1	1					
Coles et al. 2021(Coles et al., 2021)																1	1	1	1	1					
Healthwatch Haringey June 2021(Healthwatch Haringey, 2021)	1	1	?	?	?																				
Healthwatch Lewisham 2021(Healthwatch Lewisham, 2021)																					1	1	?	?	?
Healthwatch Rutland August 2021(Healthwatch Rutland, 2021)	1	1	?	1	?																				
Humphrey, A 2023(Humphrey, 2023)	1	1	1	1	1																				
Newhouse et al. 2015(Newhouse et al., 2015)																1	1	1	1	1					

Rosen et al. 2022(Rosen et al., 2022)	1	1	1	1	1																			
Shorthose et al. 2024(Shorthose et al., 2024)																1	1	1	1	1				
Soley-Bori et al. 2022(Soley-Bori et al., 2022)																1	0	1	1	1				
Sweeney et al. 2024(Sweeney et al., 2024)																1	1	1	1	1				
Wang et al. 2021(Wang et al., 2021)	1	1	1	1	1																			
Zaninotto et al. 2020(Zaninotto et al., 2020)																1	1	1	1	0				

Appendix 9 – Accessibility raw data extraction

Author Year	**Accessibility**
Atherton et al. b 2018 (Atherton et al., 2018b)	Unsurprisingly, there is a strongly positive relationship between MLTCs and consultation rate (see Appendix 19), and patients with more chronic diseases have more consultations of all types (see Appendix 20) Within the case study practices, the pattern of consultation rates was broadly in line with what we would expect, with higher rates in children and the elderly, in women, in patients from ethnic minority groups and in patients with MLTCs. With telephone consultation, the flexibility that alternatives to the face-to-face consultation offered the GPs and nurses meant that patients did not know when to expect a call. In some practices, the patient was given a time period within which to expect a telephone call, but this could be lengthy and not necessarily held to: *Oh yeah, well no they turn round and say if it's in the morning, [GP] will ring you between 11.10 and11, so in my mind I usually say right that means half past 11. It's never usually when they say because obviously he has to wait until he finishes his morning surgery, so I totally understand that, but I know he's going to ring me in the morning. Or again, it will be–if it's in the afternoon, it will be between4 and 5 or something. I try and tie them down, but I'm wasting my breath*.**50-year-old male patient with multiple comorbidities, practice C [patient journey]** Another benefit that patients ascribed to using e-mail or e-consultations was that they could send a direct message and not have to trouble the receptionist. This was more efficient, quicker than trying to get through on the telephone and preferred by those who found the receptionists intimidating. Some *liked the idea* that the GP could make the decision about whether or not the problem was sufficiently urgent for an appointment, rather than the onus falling on either the patient or the receptionist: *Then the decision whether I need to be seen is his [the GP's] . . . if you phoned the receptionist, you haven't got a hope in hell*.**76-year-old male patient with comorbidities, practice F [continuity]**
Atherton et al. a 2018 (Atherton et al., 2018a)	Some *thought that* an email that went directly to the GP avoided involving the receptionist in the decision about whether the patient needed to be seen: *'Then the decision whether I need to be seen is his [the GP's] … if you phoned the receptionist you haven't got a hope in hell."* **(76-year-old male patient with comorbidities, Practice F, semi-rural, affluent [continuity] ** duplication of raw data with study above ** Structural barriers identified
Ball et al. 2018 (Ball et al., 2018)	*'It certainly feels like a gate-keeping service [...] like being kept as much at arm's length as possible'.* ***(114_1058*** **– female patient in her early 70s, retired, chronic health issues)** *" ... tried for two days, press five [for automatic redial] still off - and on the Thursday someone actually answered. [...] Said 'what is it?' so I said what [was wrong] and I need to see the Doctor. They phoned me back then. She says well Doctor [name redacted] is not in today - phone tomorrow. Bump [phone being hung up]. So I phoned the next morning 8 o'clock. Phones off. I phoned every five min till 8.30am - it came on, 'surgery's now full', phone Monday. [...]You should try the system... It's that bad you couldn't make it up. If they had someone to report it to I'd prosecute them. They're terrible."* **(110_1026 – male patient in his 70s, retired, multiple chronic conditions and mental health issues)[continuity]**

	'This way I find if he [the GP] deems it serious enough for you to call in to see him, he'll see you the same day, which is brilliant.' (**100_1004 – female patient in her early 70s, retired, multiple chronic health issues*)* **[continuity]** *Well I think you get to talk to your doctor when you need to talk to him or her, rather than having a long wait and perhaps getting progressively worse. Certainly if it's an acute condition, it can make a difference, can't it*? **(100_1004 - Female patient in her early 70s, retired, multiple chronic health issues) [continuity]** *So I phoned up and it was early in the morning and I mentioned to the receptionist what the problem was, and so within minutes another doctor phoned back and he said you, had better come down*. (**117_1029 - Female patient in her 60s with chronic health issues, not in employment, caring responsibilities)** Concerns were expressed among patients who were currently confident in their own communication skills that being less articulate or lacking the confidence to push for a face-to-face appointment when required may put some patients at risk of not receiving treatment they needed. **[patient journey]** *I mean sometimes if he's [the GP] really busy, you don't hear from him for a couple of hours but then he's obviously got patients there that are a priority. They know how to prioritize them which is good.* **(102_1014 – female patient, in her late 70s, retired, multiple chronic conditions) [continuity]** Our findings also chime to a degree with previous findings suggesting that access is not the main driver of patients' satisfaction with their GP practices, with interpersonal aspects of care and helpfulness of receptionists being more important11 12 **[continuity]** (although our findings suggest that the value placed on the different aspects of care may vary considerably between patients, according to their individual needs and preferences). **[choice]**
Coles et al. 2021(Coles et al., 2021)	Patients with three or more comorbidities had 18.7 face-to-face and 1.7 telephone consultations annually. In comparison, patients without comorbidities had 10.3 face-to-face and 0.6 telephone consultations annually. From a patient perspective, the increased consultation rate for comorbidities represents a major burden that includes missing work and other commitments, increased likelihood of missed appointments, interruption to continuity of care, greater susceptibility to failures of coordination, **[continuity + patient journey]** and adds to diabetes related distress. utilization estimates are contemporary and reflect the changing profile of T2DM patients from 2000 to present. T2DM patients are presenting more frequently with multiple conditions. Further research is necessary to determine the most cost-effective and efficient modality to manage patients with T2DM and comorbidities. telephone consultations comprised a relatively small proportion of total consultations (<6.3%).
Healthwatch Lewisham 2021 (Healthwatch Lewisham, 2021)	Residents that access their GP practice regularly expressed their frustration in the lack of communication about changes in access during the COVID-19 pandemic. **One patient, that has multiple health issues as well as being unemployed,** described their current situation as *"living through hell".* One participant said they have multiple medical issues where it's only appropriate to talk to someone in person. They sometimes find it difficult to remember everything they wanted to say over the telephone. **[choice and journey]**

	Participant E has diabetes, mobility, and mental health issues. Their main experience has been a lack of accessing health and social care services since the start of the pandemic. One of the main issues for them is difficulty in getting through on the telephone. The shift to remote consultations has impacted their ability to access GP services. An increase in the number of people trying to call the surgery makes it very difficult for them to speak to anyone. They said that they call their practice at 07:00, wait in a queue, and then get told by reception staff to call back another time. Due to their health issues, they don't always feel up to calling back and waiting again in another queue hoping to get through to a doctor**. Participant E said that they are unemployed and on benefits**, which has impacted their access to technology and made it difficult to access a GP practice during the pandemic. They don't own a computer and struggle to use a mobile phone, which has made it more stressful trying to contact a doctor. They hate using a mobile phone because their eyesight is poor.**[choice and journey]** (NB the % of participants with MM is unknown) 27% felt that their experiences had been positive during the pandemic (Appendix 1) and were supportive of the changes brought by the total triage model. However, 47% felt that the new systems either exacerbated or created new barriers which impacted on their access to services The majority of participants would prefer face to-face appointments when accessing their GP practice. Whilst some participants valued remote consultations and, in some cases, thought it improved patient access, other participants felt that a high level of care and treatment could only be delivered in person. **[choice and journey]** **Lewisham Speaking Up,** a local charity supporting people with learning disabilities outline in their 'Research on Digital Exclusion since the COVID-19 pandemic 2020' report, that "Digital technology should be available, but as one element of a range of options for people to choose from" and this is similarly echoed by our findings. **[choice and access]**
Healthwatch Rutland 2021 (Healthwatch Rutland, 2021)	People's comments also highlighted the impact not being able to get through to their GP practice had on them. Not being able to 'get through' and 'giving up' can impact negatively on patients' health as the following comment demonstrates: *"I had loads of tablets to take and they had some side effects. You don't know how you are going to react. They have given me a nasty dry cough, but I can't be bothered trying to ring the GP to discuss it. It's ridiculous."* **[choice and journey]** Confidence and satisfaction with GP practices is undermined, for example: *"I have had [my own] troubles and in real need to see a doctor. Both problems are ongoing and long term. Where are the GPs hiding? Why is everyone else working and not them? Trying to get through is a nightmare. I tried phoning yesterday and couldn't get through - permanently engaged […] I phoned again today, this morning. Again, the line was busy. I tried just after lunch and managed to get through to the receptionist only to be told [there was] no phone call from the doctor available and told to phone again tomorrow […] I am fuming."* **[choice]**
Humphrey 2023(Humphrey, 2023)	Barrier to access **Discrimination** In this description she was speaking about her experience of making a GP appointment for a client who was struggling to make his own. He had called the reception team several times and was repeatedly told he needed to go online to book an appointment, he had eventually asked this member of staff to

	assist him. She interprets her capacity to make an appointment as related to her social position and her ability to use professional language – indicating the potential issues related to discrimination which may emerge during interactions with receptionists. This also alludes to the importance of interactional negotiation skills, which help patients to have their needs met. This contrasts with respondent 17's account of becoming angry with the receptionist when she wasn't listened to and being perceived as a 'black bitch'. The need to negotiate effectively with GP receptionists may therefore have a detrimental impact on patients whose communication skills (including health literacy and English language) are lower, or who are perceived by receptionists as having lower competency to correctly know and therefore prove eligibility for their healthcare needs. (Personal communication with the author confirmed that the below participant has self-disclosed that she had multiple long-term conditions) "Boy we've all got to die, but it's the way we're gonna die. I don't want to die in a way that's not going to be you know…because I've been let down by the NHS. But it probably will be because how can we wait so long for an appointment? For something you've never looked at. Who, who are the people that are in front of me? Who are they? What is it that they've got that I haven't?" [17, Female, 60s, Black British, community development charity]
Newhouse et al. 2015(Newhouse et al., 2015)	Number of health problems reported: **n** (%) None **3580** (25.57) 1 **3992** (28.51) 2 **3011** (21.51) More than 2 **3417** (24.41) The highest level of email use is reported in those who state that their general health is very bad (40.46%, 53/131). Respondents with more than 2 health problems also report the highest level of email use (33.63%, 1149/3417), indicating that the poorer a person's health, the more likely they are to have used email in this way. As self-reported health state worsens, the proportion of people reporting having sent or received an email increases (Table 6). Health Status, Heath Resource Utilization, and Email. Concerns that opportunities for email communication encourage inappropriate use by the "worried well" were unfounded among this sample. Health status was consistently negatively associated with email use, with over 40% of those who rated their health as being very bad having used email to communicate with a health professional, compared to just over 23% of those who rated their health as being very good. This may be due to increased need for contact with health care services among those people with poor health and possibly reflects email being used as an alternative to other forms of contact. There is also the possibility that it reflects a desire by those with MLTCs to have repeated and frequent contact with their health care professional. **[continuity]** People living with a chronic condition who have access to the Internet are significantly more likely than other online adults to gather and act upon health-related behaviour. Coupled with the quota sampling approach, the sample is as representative as can be expected for an **online survey.** The age range of participants was **16-74 years,** thus people in the very oldest age groups were excluded. As these are also likely to be lowest users of the Internet by age group, it is possible that the impact of the digital divide is underestimated in this study. The level of use reported in this study for the United Kingdom (18.6) is similar to prevalence estimates in other UK-based surveys that currently estimate use in general practice settings at between 20-23%.

<table>
<tr><td>Shorthose et al. 2024 (Shorthose et al., 2024)</td><td>There was an association between living with increasingly severe levels of frailty and lacking technical skill, digital confidence, digital motivation and infrequent digital usage. Results showed that living with frailty is a significant risk factor for individual digital exclusion from video consultation. Further exploration is required to understand the interaction between deprivation and frailty and how this may affect digital exclusion from video consultation. Patients with frailty should be assessed within the context of their support network to determine if they can access video clinics</td></tr>
<tr><td>Soley-Bori 2022(Soley-Bori et al., 2022)</td><td>Incidence rate ratios for all types of consultation are higher for MLTCs.

Primary care consultations show a particularly large predicted increase among individuals with complex multimorbidity (≥3 LTCs) in the Dependence+ cluster as additional LTCs accumulate. The most deprived individuals consulted slightly more than the least deprived individuals, except for nurse and phone consultations</td></tr>
<tr><td>Sweeney et al. 2024 (Sweeney et al., 2024)</td><td>Results are reported according to the population setting. The Deprived Urban group had significantly higher proportion of patients with multimorbidity (≥2 conditions) and were most likely to have had a Telephone Consultation and least likely to have a Face-to-face Consultation.</td></tr>
<tr><td>Wang et al. 2021(Wang et al., 2021)</td><td>Moreover, this [COVID-19] shielding notice generated a greater reliance on telephone/video consultations compared to in-person consultations. This observation is consistent with the promotion of remote consulting in the UK to minimise interpersonal contact (Flint et al., 2020; Murphy et al., 2021).
Model 2
shows a negative interaction between a shielding notice and higher comorbidities, indicating that the positive association between a shielding notice and telephone/video consultations was less strong for those with higher comorbidities.
We explored the association between health, comorbidities, consultations, changes in physical activities and familiarity with social media (the green region of Figure 1)
Model 1 and Model 3 show that higher comorbidities were associated with telephone/video consultations but not necessarily with in- person consultations. [choice – (or not choice but impact of being told to shield)]
<table>
<tr><th>Variables</th><th>All (n = 3,807)</th><th>Lower comorbidities (n = 2,978)</th><th>Higher comorbidities (n = 829)</th><th>p</th></tr>
<tr><td>Age</td><td>66.77 (6.83)</td><td>66.02 (6.62)</td><td>69.47 (6.88)</td><td><0.001</td></tr>
<tr><td>Number of comorbidities</td><td>0.85 (1.04)</td><td>0.39 (0.49)</td><td>2.48 (0.82)</td><td><0.001</td></tr>
<tr><td>Tel/video consultations</td><td>0.43 0.96)</td><td>0.40 (0.95)</td><td>0.56 (1.01)</td><td><0.001</td></tr>
<tr><td>In-person consultations</td><td>0.16 (0.61)</td><td>0.15 (0.58)</td><td>0.20 (0.69)</td><td>0.11</td></tr>
</table></td></tr>
<tr><td>Zaninotto et al. 2020 (Zaninotto et al., 2020)</td><td>MLTCs have been linked with many adverse health outcomes including disability, mortality, and poor quality of life; it is also associated with greater healthcare utilisation. (reference 3)

As for community health and social care services and support, over 60% of people without MLTCs did not need to access any of these services during and after the lockdown period, compared to 48% of respondents with MLTCs (see Figure 3). Around 14% of respondents who needed these services did not</td></tr>
</table>

	attempt to access them, with no difference between respondents with and without MLTCs. But one in 5 respondents with MLTCs did not have access to community health and social care services, even though they wanted them. 20% of individuals with MLTCs did not have access to the community health and social care services and support needed even though they wanted them. A slightly higher percentage of people with MLTCs accessed community health and social care services compared to respondents without MLTCs. People with MLTCs (35%) were around three times more likely to be contacted by the NHS or their GP with advice to stay at home at all times and avoid any face-to-face contact relative to those without MLTCs (12%). People with MLTCs were more likely to have socially isolated in April 2020 (42%) and June/July 2020 (30%) compared to those without MLTCs (19% and 12%, respectively). [impact of being told to shield]

Appendix 10 – Continuity raw data extraction

Author Year	*Continuity*
Atherton et al 2018(Atherton et al., 2018b)	There was some disagreement among patient respondents on whether having an existing relationship was important before using an alternative to the face-to-face consultation, such as a telephone consultation–some patients felt that it was essential, whereas others were more ambivalent. For the former, they felt that it resulted in the consultations being quicker, as a result of the GP knowing the history of the patient:*I mean, I know my GP very well and she knows me . . . I'm less confident with another GP because they don't really know me.* **59-year-old female patient with comorbidities, practice E**
Atherton et al 2018 (Atherton et al., 2018a)	Continuity mattered to patients too: for certain health problems, it might be important to know the clinician who would be consulted remotely. (unknown what health problems this refers to – author contacted. Data not available)
Ball et al. 2018 (Ball et al., 2018)	Some interviewees commented that they found the approach to be impersonal, resulting in consultations that were rushed and to the point, an issue that was highlighted by patients with mental health concerns and chronic conditions in particular. This was in part attributed to a lack of relational continuity of care (see below) but also due to the nature of the telephone consultation itself and the absence of the social cues present in face-to-face interaction. Concern was expressed about whether an unfamiliar GP could effectively assess an issue over the telephone and some patients worried about the lack of opportunity to develop or sustain a relationship with a GP (a particular concern among patients with chronic conditions and those with ongoing mental health issues) *I mean sometimes if he's [the GP] really busy, you don't hear from him for a couple of hours but then he's obviously got patients there that are a priority. They know how to prioritize them which is good.* **(102_1014 – female patient, in her late 70s, retired, multiple chronic conditions**) [experience of access affected by continuity]
Cecil et al 2021 (Cecil et al., 2021)	This study found a patient who has a face-to-face appointment followed by a telephone contact is 11% less likely to self-refer [pt journey]
Healthwatch Lewisham 2021 (Healthwatch Lewisham, 2021)	**Participant E has diabetes, mobility, and mental health issues**. When asked what they felt a GP could have done differently to help them access care, Participant E said that if the doctor would call and check on them, on a semi-regular basis, they would really appreciate this. Pre-COVID-19 they had monthly check-ups, but this stopped when the pandemic rapidly spread. They said more support in the form of communication from a doctor was needed to help vulnerable people access services [access]

Appendix 11 – Patient journey raw data extraction

Author Year	*Patient Journey*
Atherton et al 2018 (Atherton et al., 2018b)	The rate of face-to-face consultations in surgery was higher in older patients, women, those from non-white ethnic groups and those with MLTCs. **[access]** Most consultations by telephone, e-mail or e-consult are followed by another consultation (often Face-to-face) within 14 days, and this is more common than after an initial face-to-face consultation **[access]**
Cecil et al 2021 (Cecil et al., 2021)	Patients with MLTCs suffered the most emergency admissions to hospital. [The authors have not analysed the data in order to offer insight into the use of telephone versus Face-to-face consultation for patients with MLTCs.] Telephone consultations were also found to be associated with an increased risk of potentially missed acute deterioration. Video consultations were rarely used during the study period. Although the safety of online consulting has been questioned, there have been changes to GP appointments because of the COVID-19 pandemic, with most now conducted either by telephone or video call. The findings suggest that the increase to alternative consultation modes in general practice should be carefully investigated for any unintended consequences. Notably, patients who had both face-to-face and telephone consultations were found to be less likely to self-refer than those who had only one type of consultation. **[continuity]** More research is needed to investigate these contacts further This study found a patient who has a face-to-face appointment followed by a telephone contact is 11% less likely to self-refer **[continuity + access]**
Healthwatch Lewisham 2021 (Healthwatch Lewisham, 2021)	Key Findings Digital exclusion and access to health services - Summer 2021 Page 17 The lack of access to their GP has impacted their health and well-being because they have serious health issues that haven't been addressed. Due to not having a computer and limited technology skills, the patient has struggled to see a doctor over the past 18 months and resulted to visiting A&E when their health condition deteriorated **[access]** **Participant E said that they are unemployed and on benefits**, which has impacted their access to technology and made it difficult to access a GP practice during the pandemic. They don't own a computer and struggle to use a mobile phone, which has made it more stressful trying to contact a doctor. They hate using a mobile phone because their eyesight is poor. On several occasions they have had to ring 111 to get antibiotics because it has been so challenging trying to get through to their GP and request a prescription **[access]** Many participants felt that the face-to-face appointment was of better quality as it was 'easier' to communicate, especially for patients with multiple and/or complex conditions. The discussion with the primary care staff as well as feedback from participants suggests that face-to-face appointments creates a rapport between the patient and doctor and allows for more meaningful interactions. [f2f fosters **continuity]**
Humphrey, 2023 (Humphrey, 2023)	[**Patient journey** – delayed presentation creating emergency admission] He framed visual communication as not only important for diagnosis, but also for eliciting the doctor's attention – indicating that he finds it hard to construct a narrative over the phone which makes the doctor 'interested'. A week after the interview, it transpired this individual had gone to the GP with the help of a staff member at the community hub who had booked the appointment and given him a bus pass to attend. Once he arrived at his GP,

	he had various measurements taken and was immediately sent in an ambulance to the hospital to have an emergency heart stent fitted. This occurred because of symptoms unknown to this man, which the GP recognised and tested for upon meeting in person The removal of corporeal communication, through visual signs and vital metrics rendered this individual's healthcare needs invisible until he was seen in person – an example of how clinical risk may be produced by telephone consultationremote consultation **as a barrier** *"Treated blind in the way they're not seeing you not speaking to you face-to-face and finding out exactly."* [14, Female, 40s, White British, foodbank]
Zaninotto et al 2020 (Zaninotto et al., 2020)	When considering policies which advise people to shield or self-isolate because of their COVID-19 risk, it is important for policymakers to acknowledge that older people with multiple long-term health conditions are at higher risk of experiencing greater mental distress and worry, of engaging in unhealthy behaviours and are less likely to access health services when needed; all these factors together could potentially influence disease progression. People with MLTCs (35%) were around three time more likely to be contacted by the NHS or their GP with advice to stay at home at all times and avoid any face-to-face contact relative to those without MLTCs (12%). People with MLTCs were more likely to have socially isolated in April 2020 (42%) and June/July 2020 (30%) compared to those without MLTCs (19% and 12%, respectively). [impact on **access]**

Appendix 12 – Patient choice raw data extraction

Author Year	*Patient choice*
Atherton et al 2018 (Atherton et al., 2018b)	Patients saw alternatives to face-to-face consultations as suitable for 'basic' consultations: *If it was e-mail sort of basic stuff, but like if there was more sort of like in-depth stuff, I would probably use the phone, or go down there or you know, I wouldn't e-mail anything like how I was feeling or anything like that, I'd rather talk to somebody or have a phone appointment.***41-year-old female patient with mental health problems and diabetes mellitus, practice C** Patients were aware that a face-to-face consultation, with time and physical contact, as well as the opportunity for non-verbal communication, was needed to discuss more complex health problems: *Yes, I mean even when–even though I'm talking to [name of GP] on the end of the phone, there–it's still more impersonal than Face-to-face, obviously. Because what you're lacking is that sort of physical interaction, you know, when the subliminal reading body languages and all that sort of thing. But it serves a purpose*.**50-year-old male patient with multiple comorbidities, practice C [access]**
Atherton et al 2018 (Atherton et al., 2018a)	The ethnographic observations suggested that patients rarely asked for a non-face-to-face consultation, and receptionists only offered them as a last resort when all appointments were taken. This was consistent with the staff belief 'that patients prefer to see the doctor' or, as one of the patients put it, a phone consultation was*: '… better than nothing, but not 100 per cent.'* (50-year-old female patient, Practice D, rural, mixed) [MM status of participant not clear] Other interviews suggested that, depending on the health issues, some patients preferred to avoid coming to the practice. …this fitted with this study's finding that patients and doctors were in accord that the telephone was good for 'basic' problems or follow-up, but that a face-to-face consultation was needed for more complex problems
Ball et al. 2018 (Ball et al., 2018)	*"I just don't like it [the 'telephone-first' approach]. […] I just want a doctor's where I can go in, phone up, whatever which way I want to do it, book an appointment and go."* **(103_1042 – female patient in her 50s, not in employment, mental and chronic physical health problems)** The value attributed to particular advantages and disadvantages varied significantly, even between patients from the same practice or with similar characteristics. A disadvantage that represented a mild annoyance for one patient could render the approach completely unacceptable for another. For example, one patient experiencing mental health issues described the effect of having to wait a long time for a call-back from a GP while in a distressed state and how this had influenced her decision to leave the practice: *I was really low and so I think I had to wait a few hours [for a call from the GP] and all that time I was in tears and it still took a couple of hours for the doc-tor. I thought, 'Well, now I can't be bloody bothered'***. (103_1042 – female patient in her 50s, not in employment, mental and chronic physical health problems) [patient journey]**

	I like the fact that on a day like today, it is chucking it down, it's miserable, it's cold, if my mum had had to come to the doctor instead of a phone call on any day where the weather was like this, it would have caused her a lot of pain. **(102_1031 – female patient in her 40s, works part time, ongoing mental and physical health issues) [patient journey]**
Healthwatch Haringey 2021 (Healthwatch Haringey, 2021)	There has been a negative impact on some patients in the move away from face-to face consultations. Most patients expressed a concern about this, either for themselves or for other patients who experience language barriers, mental health issues, multiple illnesses, or some disabilities. **[patient journey]**
Healthwatch Lewisham 2021 (Healthwatch Lewisham, 2021)	Many participants felt that the face-to-face appointment was of better quality as it was 'easier' to communicate, especially for patients with multiple and/or complex conditions. **[access** to appointment is not same as access to care] The majority of participants would prefer face to-face appointments when accessing their GP practice Whilst some participants valued remote consultations and, in some cases, thought it improved patient access, other participants felt that a high level of care and treatment could only be delivered in person. **One patient, that has multiple health issues as well as being unemployed**, described their current situation as *"living through hell".* **Lewisham Speaking Up,** a local charity supporting people with learning disabilities outline in their 'Research on Digital Exclusion since the COVID-19 pandemic 2020' report, that "Digital technology should be available, but as one element of a range of options for people to choose from" and this is similarly echoed by our findings.
Humphrey 2023 (Humphrey, 2023)	During in person consultations patients access to space and ability to carve out private time is made homogenous as the GP surgery itself provides a predictable private container. However, as outlined, during remote consultations patients' personal circumstances can have a large impact on their capacity to have an effective consultation. This makes normative assumptions around access to privacy potentially harmful as it expects similar outcomes from patients with different resources and capacities for action. This assumption means that those who are unable to negotiate access to private space may have remote consultations in settings where they feel unable to disclose private information – potentially limiting clinical or safeguarding information gathering. If relevant information is lost, then clinical and/or safeguarding outcomes may be negatively impacted. Some patients who either through individual circumstances, or a coalescence of factors on a particular day end up receiving a poorer level of care due to their limited place-making capacity.

Appendix 13 – Privacy raw data extraction

Author Year	*Privacy*
Humphrey, 2023 (Humphrey, 2023)	Findings challenge the implicit assumption that patients have access to private spaces. Remote GP consultations may be forced into non-private spaces due to their unpredictability. Place finding is work taken on by the patient. Assessing for privacy is new work created for the GP. loss of visual confirmation of confidentiality can introduce a sense of risk for both parties. Patients reported struggling to create private spaces in which to speak with their GPs during remote consultations, a problem created in part by the unpredictability of remote consultation call times. In one of the clearest examples, an individual explained the various challenges she faced when trying to create suitable space for a call with her GP, and how this ultimately affected her willingness to disclose mental health issues to her GP when she ended up taking a call from a shared car. The first challenge she faces is sharing a house with her children as a single mother, and not wanting them to overhear her consultation: When asked what would need to happen to enable her to have private space at home for a consultation, she responded that more predictable call times would mean she could plan to have private space: *"Yeah the kids and stuff you know I mean I'd rather the kids not hear that I'm like going through depression and I've got thyroid problems and my heart goes too fast and I have palpitations. I don't want the kids worried about me, nah it's not fair especially my son he gets really upset he's only just turned 13, the other day… he gets so upset with anything like that, little softie that one"* [9, Female, 40s, white British, foodbank] *"Just to know when to know what sort of time then I can sort of make sure kids go downstairs I can be upstairs waiting for the call, that would be better do you know what I mean I can make sure they are occupied make them do the washing up or whatever, just to know what time that's the main thing to know like right your appointment is at this time and then they call at that time"* [9, Female, 40s, white British, foodbank] *"Yeah I don't want to take that call at like someone's house or while I'm doing someone's hair or something like that. You feel like can't really doing nothing."* [9, Female, 40s, white British, foodbank] The crux of the challenge is the unpredictability of call times which differ from in person consultations scheduled for a specific time. Not knowing when the GP is going to call makes daily commitments more of a challenge leaving her feeling like she 'can't really do nothing' altering an entire day to ensure private physical space is readily available. **The physicality of the space** available to the patient may not be amenable to privacy and may required careful planning. For marginalised groups who depend on third-sector services to provide a private space when home is not private (such as Digital Health Hub), this can lead to a reliance on an alternative (to the GP surgery) physical space outside of the home. Further, it can create problems when those spaces are not available as was the case during COVID-19 lockdowns. Unpredictability of call time can transform factors around managing a private space to take the call into unmanageable factors that impact on the consultation. GP negotiated timing with a patient to ensure privacy, which diverges

	from the traditional (in person) model of GP care, where privacy is ensured by the consultation room itself. This takes privacy from an implicit element of care to one that is negotiated and relative. The GP virtual encounter meets the unruly nature of not only everyday life in the home, but any space in which the patient is at the time of the call. Unlike the traditional GP consultation room, which provides a relatively standardised experience, remote consultations have the ability to expose the inequities and variations in patients' living circumstances. If a lack of suitable space leads to lower levels of disclosure, this can produce inequitable clinical and safeguarding risks. During in person consultations patients access to space and ability to carve out private time is made homogenous as the GP surgery itself provides a predictable private container. However, as outlined, during remote consultations patients' personal circumstances can have a large impact on their capacity to have an effective consultation. This makes normative assumptions around access to privacy potentially harmful as it expects similar outcomes from patients with different resources and capacities for action. This assumption means that those who are unable to negotiate access to private space may have remote consultations in settings where they feel unable to disclose private information – potentially limiting clinical or safeguarding information gathering. If relevant information is lost, then clinical and/or safeguarding outcomes may be negatively impacted. Some patients who either through individual circumstances, or a coalescence of factors on a particular day end up receiving a poorer level of care due to their limited place-making capacity People experiencing homelessness may be particularly vulnerable in terms of maintaining **privacy** during remote consultations Sharing of devices is commonly cited as a key challenge to mHealth interventions in Low and Middle-income countries in terms of privacy (Chang et al., 2011; Haberer et al., 2010; Odigie et al., 2012) but is rarely spoken about in relation to NHS users. The normalisation of remote contact with GPs necessitates an acknowledgment of the possibility of device sharing amongst certain population groups and a consideration of the potential consequences of this. *"Oh yeah, yeah, yeah my back all day I talk about that but mental health no one really wants to talk about anyway and when you have to you don't want to do it in your car sat next to someone else staring at you like two lanes of traffic"* [9,Female, 40s, white British, foodbank] The physical consulting room has traditionally served as an important emotional container for healthcare interactions, and the physical environment of the GP surgery often plays a role in creating a sense of confidentiality. However, during remote consultations, this physical container is lost. P160

Appendix 14 – Communication quality raw data extraction

Author Year	*Communication quality*
Humphrey 2023 (Humphrey, 2023)	**Non-Verbal communication English and Health Literacy** R: *I have problem this (*points to body) and that (*points to body) but by phone I can't explain what I have a problem I think a little bit difficult."* [10, Female, 30s, Eritrean, refugee resident <1 year, drop-in centre] *"Yes. I don't know why but yeah, because their accent is not really good, and you if you don't have a really good accent you can't talk on the phone. Yeah, it'll be really bad*" [13, Male, 40s, Afghan, Refugee <1-year, drop-in centre] *"When they want a reply that's what I'm thinking I haven't got enough time to say what I can say and if it's not enough I lose out and that's it and that's what I've been doing, losing out so many… I don't know how to explain it that's what I mean yeah"* *"I got to learn my… go back to school I suppose and learn all them big words and all them conditions and then I could put that across to them but I think I'm too old for that."* [12, Male, 60s, Black British, Experiencing homelessness and alcohol dependency, community development charity] Here he presents his education levels as directly relevant to his ability to communicate with his GP, indicating health literacy as a key component of communication. **Self-surveillance** This self-surveillance expected of patients is particularly striking in that it shifts responsibility from the healthcare system to the individual, without a corresponding shift of skills or training. This expectation on patients, to notice and monitor, requires the medical gaze to turn inwards and to take on a form of biological reductionism to locate and explain symptoms in detail (Foucault, 2003). The accounts given by patients of feeling like they were being asked to do their GP's work over the phone indicates a recognition that they may be asked to conduct forms of work previously fulfilled by their doctor. However, as discussed in results chapter seven, the ability to take on this work is not equitably distributed and individuals experiencing marginalisation may experience barriers to their capacity to self-survey their symptoms either as a result of multi-morbidity which makes pinpointing new symptoms harder (Merrild et al., 2017), or low health literacy (Jansen et al., 2018; Svendsen et al., 2020). Chapter 10. - 275 – **Less caring care** Chapter 8 summary p240 (pdf)

	Patients and GPs are experiencing disruptions to therapeutic relationship building due remote consultations and reduced relational continuity of care; interactions between patients and doctors are becoming more discrete and interactionally light; and these two processes interact and compound to produce 'colder' and de-personalised experiences of care with a consequent disruption to patient-doctor relationships. This in turn has potential implications for clinical outcomes as well as safeguarding because of lowered disclosure levels and the loss of contextual information on the patient. Previous research has shown that remote consultations are less rich in information and harder to establish trust during (Car et al., 2020; Hammersley et al., 2019). A comparison of face-to-face and telephone consultations found that on average telephone consultations are shorter, deal with fewer health concerns, lead to less data gathering and less counselling and rapport building (Hammersley et al., 2019). This echoes findings from other studies, for instance Groundswells's study of remote primary care use during COVID-19 by people experiencing homelessness (Groundswell., 2020). They found that remote consultations were perceived as more likely to be 'mono issue' which was a particular challenge for this population group who often suffer from multi-morbidities and tend to consult less, meaning there's a strong preference for each consultation to cover a range of issues. The results of this study support this evidence as well as indicating that this may be interpreted by patients as less 'caring' care.
Rosen et al. 2022 (Rosen et al., 2022)	A patient with several long- term conditions, for example, described the stress of finding the right words to describe her symptoms, particularly if she was having a bad day: *'If I'm non compos mentis then it's hard to make it clear … I have foggy brain sometimes. I have fatigue most of the time. Today I've prepared myself [for the research interview]; I've had enough sleep; I'm articulate. If this was a situation where I need support from a GP, I may not be as articulate.'* (RBD patient FD)
Sweeney et al. 2024 (Sweeney et al., 2024)	The Deprived Urban group were significantly more likely to present with ≥3 problems and more often discussed complex problems in the consultation. They also reported significantly lower satisfaction at consultation and less symptom improvement following the consultation, as well as significantly lower perceived GP empathy.

Appendix 15 - Quantitative data comparison of the 3 cohort studies that focus on access, to demonstrate heterogenicity

Author + Study period	MLTCs definition	MLTCs measurement	MLTCs calculation	No of patients	Person years studied	Source	Design	What is available	Type of consultation looked at
Atherton et al June 2018 (Atherton et al., 2018b) 2014-2017	2 or more long term conditions	Authors own list of 15 disease clusters. QOF coding used to measure MLTCs	…by summating the number of chronic conditions, to create **binary MLTCs variable** for patients with a score of two or more	**77513** all ages **62809** >18 years **13%** with MLTCs n= **8264**	Not stated	6 case study practices in England	Descriptive statistics with regression models	MLTCs prevalence by age. Consultation rates by type of consultation and MLTCs but the consultation rates include children.	categorised as consultations; 'surgery', 'telephone', 'e-consult', 'home visit' 'e-mail sent' Staff categories; GP, nurse or health-care assistant (HCA), other clinician, administrative/managerial
Coles et al 2021 (Coles et al., 2021) 2000-2018	Type 2 diabetes mellitus plus comorbidities	Charlson comorbidity index used to calculate complexity of comorbidities	**Frequency** of comorbidity **related to T2DM** diagnosis	**120409** >18 years	679704	CPRD	Observational retrospective	Rates and Rate ratios (Calculated using patients without comorbidities as the reference group)	F2F nurse or GP Telephone Nurse or GP
Soley-Bori et al 2022 (Soley-Bori et al., 2022) 2005-2020	Co-occurrence of 2 or more long term conditions	Authors own list of 32 conditions from QOF and SNOMED codes	**Binary score for model 2** Five LTC clusters identified using multiple correspondence analysis (statistical technique)	**826166** >18 years **21%** MLTCs prevalence over time	5243478	Lambeth Data Net	Retrospective longitudinal panel	Incidence Rate Ratios	14 types; Total, Administrative and 12 combinations of four delivery modes and three provider types

QUALITATIVE HEALTH COMMUNICATION

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