

REMOTE CONSULTATIONS IN GENERAL PRACTICE - A SYSTEMATIC REVIEW POSVET NA DALJAVO V DRUŽINSKI MEDICINI - PREGLED LITERATURE

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Review

ABSTRACT

Keywords:

remote consultation,
general practice,
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satisfaction

Introduction: Remote consultations in general practice can be very useful form of telemedicine, which is basically a way to exchange medical information to improve the clinical health of patients when the patient and their general practitioner (GP) are not on the same place at the same time. This concept was developed in the 1980s to provide health care to patients who lived in remote areas.

Methods: We were interested in researching what kind of remote consultations are available in general practice and what is the usage of these methods. We used four keywords - remote consultation and general practice or family medicine or primary care - and we searched in four different scientific databases: Medline-PubMed, Scopus, Web of Science and IEEX Xplore.

Results: We used a PRISMA diagram to identify studies and search the four main databases, we investigated 48 full text articles and when we applied our inclusion and exclusion criteria, 12 studies were included in this systematic review.

Conclusions: This systematic review covers the topics of remote consultation versus a traditional or classic physical consultation. Studies have shown its importance prior to the COVID-19 pandemic, and its value while in the mist of the pandemic then caring for infected patients. We have found that remote consultation is necessary, but it must be an improvement on the previous system. Teleconsultations can reduce the number of visits, especially during lockdown situations, with both patients and GPs satisfied with the method, but we should not forget that a physical consultation cannot be fully replaced by a remote consultation due to the limitations of the latter.

IZVLEČEK

Ključne besede:

posvet na daljavo,
splošna praksa,
družinska medicina,
primarni nivo,
zadovoljstvo

Uvod: Posvet na daljavo v družinski medicini je lahko zelo uporabna oblika telemedicine, ki je v bistvu način za izmenjavo medicinskih informacij za klinično zdravje pacientov, ko pacient in njegov splošni zdravnik nista na istem mestu ob istem času. Ta koncept je bil razvit v osemdesetih letih prejšnjega stoletja za zagotavljanje zdravstvene oskrbe pacientom, ki živijo na oddaljenih območjih.

Metode: Zanimalo nas je, katere vrste posvetov na daljavo so na voljo v družinski medicini in v kolikšni meri se te metode uporabljajo. Uporabili smo štiri ključne besede: posvet na daljavo in splošna praksa ali družinska medicina ali primarno zdravstvo, iskali pa smo v štirih različnih znanstvenih bazah podatkov: Medline - PubMed, Scopus, Web of Science in IEEX Xplore.

Rezultati: Za identifikacijo študij in iskanje po štirih glavnih bazah podatkov smo uporabili diagram PRISMA, raziskali smo 48 člankov s polnim besedilom in ko smo uporabili naša merila za vključitev in izključitev, je bilo v ta sistematični pregled vključenih 12 študij.

Zaključki: Ta sistematični pregled zajema teme posvetov na daljavo v primerjavi s tradicionalnim ali klasičnim fizičnim pregledom. Študije so pokazale njegov pomen pred pandemijo COVID-19 in njegovo vrednost med oskrbo okuženih bolnikov v megli pandemije. Ugotovili smo, da je posvet na daljavo potreben, vendar mora biti prejšnji sistem izboljššan. Telekonzultacije lahko zmanjšajo število obiskov, zlasti v času popolnega zaprtja države, tako da so tako pacienti kot splošni zdravniki zadovoljni z metodo, vendar ne smemo pozabiti, da fizičnega posveta zaradi njegove omejitve ni mogoče v celoti nadomestiti s posvetom na daljavo.

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1 INTRODUCTION

Remote consultations in general practice can be a very useful form of telemedicine, which is basically a way to exchange medical information to improve the clinical health of patients when the patient and their general practitioner (GP) are not in the same place at the same time (1). This concept was developed in the 1980s to provide health care to patients who lived in remote areas (2). Telemedicine includes a variety of applications and services through telephone calls, video calls, smartphone usage, wireless devices, and many other telecommunication technologies (3). It covers a wide range of medical specialties (4, 5) and can be used in communication between medical staff or patients. Telehealth is a cluster of means and methods for enhancing health care, public health and health education using technology (6).

Advanced digital technology proved its worth during the COVID-19 pandemic and enabled patient care from a safe distance (7). COVID-19 thus accelerated the usage of teleconsultations or remote consultations, and created an opportunity to reorganize work in GPs' offices (8).

Remote consultation is a virtual appointment that a patient makes with their GP via telephone or video call, or through a written message/mail instead of using a classic, physical consultation (9). The rapid implementation of remote consultations during the COVID-19 pandemic has resulted in digital becoming the new norm for health care delivery (10). It has also made it easier for people to accept the physical distance involved, and adapt to no touch consultation (11). It does, however, require various forms of literacy (12):

- traditional (knowing how to write and read),
- information (knowing how to find and use appropriate information),
- media (knowing how to obtain critical thinking and filtering),
- health (knowing how to act on health information),
- scientific (knowing how to understand science), and
- computer (knowing how to use the digital technology).

The implementation of remote consultations should be gradual and take into consideration patient consent, the principle of confidentiality, protecting the data in any information gathered, and professionalism in a remote virtual consultation (13). It is very important to keep the standards associated with a physical consultation as much as possible, keeping both patients and GPs satisfied with the method, and not to forget that a physical consultation cannot be fully replaced by a remote one (14). In this context, we were interested in researching what kind of remote consultations are available in general practice, and what is the usage of these methods.

2 MATERIAL AND METHODS

2.1 Research question

What kind of remote consultations are available in general practice and what is the usage of these methods?

2.2 Search strategy and study selection

We used MeSH terms for our four keywords - remote consultation and general practice or family medicine or primary care - and searched in four different scientific databases: Medline-PubMed, Scopus, Web of Science and IEEEX Xplore. We limited our search to articles published from 2018 to 2022. The search strategy was carried out in May 2022, and is presented in Table 1. After removing duplicates, we reviewed articles' titles and abstracts, and performed screening according to our inclusion/exclusion criteria. We included only open access full text articles.

Table 1. Search strategy for each database.

Database	Search Strategy	Result all (free)
PubMed	"Remote Consultation"[Mesh] AND ("General Practitioners"[Mesh] OR "Family Medicine" [Mesh] OR "Primary care" [Mesh])	42 (23)
Scopus	TITLE-ABS-KEY "Remote Consultation" AND ("General Practitioners" OR "Family Medicine" OR "Primary care")	611 (431)
Web of Science	TS=(remote consultation)) AND TS=(general practice)	73 (47)
IEEE library	("All Metadata": "Remote Consultation") AND ("All Metadata": "General Practice " OR "Family Medicine" OR "Primary care")	2 (0)

2.3 Study selection criteria

Inclusion criteria were studies made on patients in general practice to whom remote services were provided or their GPs in general (not for specific diseases). Exclusion criteria were studies published in a language other than English language, studies that were not original research, studies made in hospital settings and studies with a specific topic or focus on one disease (such as teledermatology, telecardiology).

2.4 Data extraction and analysis

To extract data from the included articles we used a form in Excel. We extracted the following data for each study: authors' name, year, country, study design, study topic,

sample size, duration, type of service, results, limitations and related to COVID-19. To describe and compare the results we used a narrative synthesis, and due to the diversity of the results and outcomes we did not apply meta-analysis. Two independent authors screened the titles and abstracts for potential eligibility and examined the full-text articles. We classified studies based on the inclusion of COVID-19 patients in two groups: studies that included patients with the suspicion of diagnosed infections with COVID-19, and patients without considering COVID-19. Some studies were made in pre-pandemic times, and some during but with no regard to COVID-19 infection. Data analysis was summarized by reported effects of GPs, patients, economic effects, and negative effects.

3 RESULTS

3.1 Results of article search

We used a PRISMA diagram to identify studies and search the four main databases, as shown in Figure 1. We retrieved a total of 728 articles, and after deleting duplicates there were 650 remaining to screen. We then screened the articles by title and abstract and deleted 602 articles. We investigated the remaining 48 full text articles, and when we applied our inclusion and exclusion criteria 12 studies that met these were included in this systematic review.

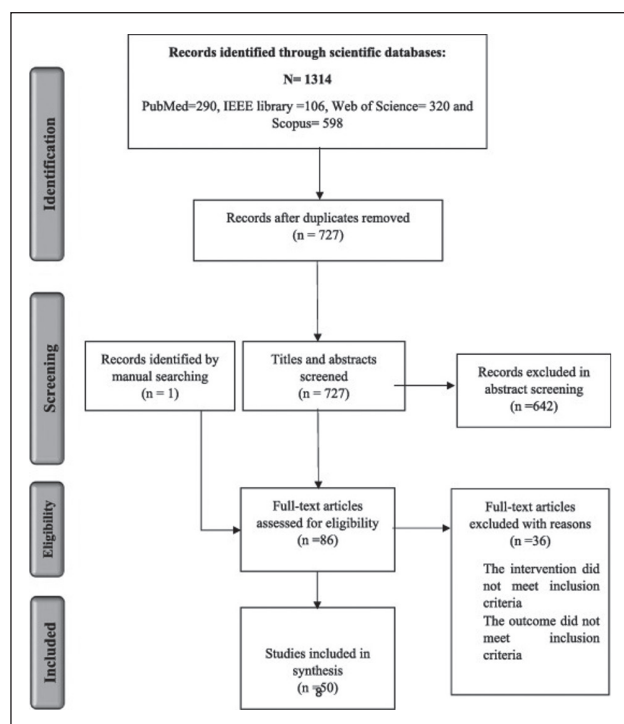


Figure 1. Flow diagram of the literature search and study selection.

3.2 General characteristics of the included studies

The general characteristics of the included studies are shown in Table 2. The oldest was performed in 2014, the newest in 2021, they were all published after 2018. Most of the studies (67%) were conducted in the United Kingdom (UK), and one each in Norway, Spain, Belgium and Australia. We only included studies made on patients' homes or GPs' offices. Ten studies were observational (83%), two interventional (17%).

The sample size varied from 11 to 2,268 participants (IQR1: 23, median 53, IRQ3:104). The minimum duration was 3 days, the maximum duration was 450 days (IQR1: 0.5, median 2, IRQ3:4).

3.3 Type of service of remote consultation

The types of remote consultation used were by mail alone in three of the 12 studies examined, telephone calls only in one study, video calls only in one study, physical consultation in combination with home visits in two studies, while in the remaining give some or all of the types were combined. Most (9) consultations were made on non-COVID-19 patients, 7 of them before the pandemic and two during it.

3.4 Outcomes of studies

We divided the main results into four categories: GPs reported effects, patients reported effects, economic effects, negative effects, and study limitations. Some of them reported more than one effect.

3.4.1 GPs reported effects

Studies have shown that if we implement alternatives to physical consultation, it should be moderate and gradual. GPs report that remote consultations are necessary, and an improvement on the previous system. Teleconsultations can reduce the number of visits and video consultations can be useful and practical.

GPs changed their way of working rapidly - almost immediately - and were very satisfied, because it improved the quality of care.

3.4.2 Patients reported effects

Patients reported that remote consultations are an effective complement to physical consultations, and their perception of telephone consultations in strongly positive. They believe that it improves the quality of care.

3.4.3 Economic effects

The study done in Norway showed that e-consultation can improve the quality of care. Other studies show that teleconsultations can reduce the number of visits, but that the implementation of remote consultations requires

Table 2. General characteristics of the included studies.

Study Year of publication	Country	Study design	Study topic	Sample size	Participants	Duration	Type of service	Main outcomes	Limitation	Covid-19 related
Banks 2017 (15)	UK	Qualitative interview study	Usage of electronic consultation system	23 GPs	GPs and other health workers	15 months in 2016	<ul style="list-style-type: none"> E-consultations (by mail) Physical consultati 	The technology did not justify the financial investment.	Evaluation of only one e-system	No
Atheron 2017 (16)	UK	Case study	What are the alternatives to physical consultation?	45 staff members in GPs' office	other health workers and patients	10 months in 2015 and 2016	<ul style="list-style-type: none"> Telephone calls Video calls Mail 	Implementing alternatives to physical consultation should be moderate and gradual.	One specific ethnic group was included	No
Newbould 2018 (17)	UK	Qualitative study	To identify enablers and barriers to adopting a telephone first approach	Semi- structured interview 53 GPs	GPs	6 months in 2018	<ul style="list-style-type: none"> Telephone first approach 	Approach is an improvement of previous system.	Only included staff who believe in this approach	No
Randhawa 2018 (18)	UK	Qualitative pilot study	Views of GPs on video consultations	Semi- structured interview 12 GPs	GPs	1 month in 2014	<ul style="list-style-type: none"> Video consultations 	Video consultations can be useful, practical.	Success of service depends on availability and quality of technology	No
Cowie 2018 (19)	UK	A multi- methods study	Evaluation of digital consultations	11 GPs	GPs	4 months in 2017	<ul style="list-style-type: none"> eConsult (web-based triage and consultation system) 	GPs had high satisfaction, improves quality of care.	Short time, low number of participants	No
Zanaboni 2020 (20)	Norway	Online survey	Use and experience with e-consultation	2,043 patients	patients	14 days in 2017	<ul style="list-style-type: none"> E-consulta- tions (by mail) 	One of the first countries that implemented e-consult- ation, it improves the quality of care.	Online survey was used by patients who have computer knowledge, not applicable for the whole population	No
López Seguí 2020 (21)	Spain	Retro- spective cross- sectional study	Can teleconsult- ations reduce the number of visits?	3,559 messages for 2,268 teleconsult- ations	GPs	4 months in 2018	<ul style="list-style-type: none"> eConsulta (by mail) 	Teleconsult- ations can reduce the number of visits.	No systemized approach, only a few GP were included	No
Sharma 2020 (22)	UK	Cross- sectional study	Satisfaction of patients with remote consultations	95 GPs	GPs and other health workers	1 month in 2020	<ul style="list-style-type: none"> Telephone calls Video calls Mail Physical consultation 	The implemen- tation of remote consultation requires good financial support for the IT infrastructure.	Small sample	Yes

Study Year of publication	Country	Study design	Study topic	Sample size	Participants	Duration	Type of service	Main outcomes	Limitation	Covid-19 related
Morreel 2020 (23)	Belgium	Real-time observational study	Organizations and characteristics of primary care	21 GPs 15,655	GPs	5 weekends in 2019	<ul style="list-style-type: none"> • Home visits • Telephone- • Physical consultation 	GPs changed their way of working rapidly, almost immediately.	Safety problems	Yes
Murphy 2021 (24)	UK	A mix- methods longitudinal study	Impact of rapid implemen- tation of remote consultations in pandemic of Covid-19	87 GPs	GPs and other health workers	4 months in 2020 compared to 2019	<ul style="list-style-type: none"> • Telephone calls • Video calls • Mail 	Remote consultation is necessary.	Patients were not interviewed	Yes
Andreson 2021 (25)	UK	Satisfaction measur- ement using a four-step question- naire	Satisfaction of patients with remote consultations	104 patients	patients	3 separate days in 2021	<ul style="list-style-type: none"> • Telephone calls • Video calls 	Remote consultations are effective complement to physical consultation.	Online survey was used by patients who have computer knowledge, not applicable for the whole population	No
Mathew 2021 (26)	Australia	Online survey	What kind of telehealth tool is the most acceptable for patients?	154 patients	patients	2 months in 2020	<ul style="list-style-type: none"> • Telephone calls • Video calls 	The perception of telephone consultation is strongly positive.	Study performed on a local level	No

good financial support for the IT infrastructure needed. However, a study from UK suggested that the cost of the technology did not justify the investment.

3.4.4 Negative effects and study limitations

Negative effects were also reported in the sense that the use of this approach must be an improvement on the previous system, and the process of implementing alternatives to physical consultation should be moderate and gradual. In one case the results of using the technology did not justify the financial investment.

The most common study limitations were a small sample size or the work was carried out for one specific ethnic group or performed on a local level. Some studies did not use a systemized approach, only few GPs were included, or they included patients who have computer knowledge or staff who believe in this approach.

4 DISCUSSION

We found that in all studies remote consultations were found to improve the quality of patient care (24), the effects on patients were strongly positive (26) and thus it can be an effective replacement for physical consultations or home visits (25). Patients also agree that they are an effective complement to physical consultation, and believed that this approach improves the quality of care. Some studies also reported good economic effects.

Advanced digital technology proved its worth during the COVID-19 pandemic, which accelerated the usage of teleconsultations or remote consultations (8). This technology has enabled care for patients from a safe distance, and has created an opportunity to organize work in GPs' offices differently (7). The studies used a variety of telehealth tools, such as consultation by mail (15, 19, 20, 21), by telephone (17), by video call (18) or various combinations of these (16, 22-26). We established in our review that teleconsultations can reduce the number of visits (21). Video consultations can be useful, practical and can help reassuring both patients and GPs of the correct diagnosis (18). We also found that GPs were able to change their way of working rapidly, almost immediately (23), and that they were very satisfied with this method,

since it improved the quality of health care given. But they also stressed that remote consultations should be an improvement on the previous system, rather than a replacement (17).

Most studies were performed before COVID-19 (15-19), and these had already shown that remote consultations can be a good alternative to physical consultations, but the change should be moderate and gradual (16). During the pandemic the era of remote consultations blossomed (27). Many more studies were conducted on this field but excluded from our review due to our inclusion and exclusion criteria. We divided studies performed during the pandemic into two categories: for COVID-19 patients (22-24) and non-COVID-19 patients (21, 25, 26). All studies concluded that remote consultations are necessary (24), the effect on patients is strongly positive (26), and they can be an effective replacement for physical consultations or home visits (25).

Patients also reported that remote consultations are an effective complement to physical consultation and acceptable to them, they felt encouraged by telephone consultations with their GP (26), and believed that this approach improves the quality of care.

Some studies also reported the economic effects - one done in Norway showed (20), that Norway was one of the first countries which implemented e-consultation and that it did improve the quality of health care. Other studies show that teleconsultations can reduce the number of visits, but that the implementation of remote consultations requires good financial support for the IT infrastructure needed (22). A study from the UK suggested that the technology did not justify the financial investment (15), but it was done before COVID-19. The same study also reported that while the technology did offer patients some benefits, it appeared to be less beneficial for GPs. It was also stated that remote consultations have some negative effects, and thus should only be introduced if it offers an improvement on the previous system and can be used as complementary tool (17).

This review has its strengths and limitations. The strengths are applying a broad search strategy according to mesh terms, which led to the identification of many studies (728 citations). However, studies were mostly done on a special topic or condition using specific telemedical approaches and thus were excluded from our review. There are also limitations to this study, with two of the biggest being the small sample size and focusing on a specific area or ethnic group. There were also some non-English language citations that were excluded from the sample. The lack of a systemized approach, inclusion of only a few GPs or patients who have computer knowledge or staff who believe in this approach is another limitation. Thirdly the success of the remote service depends on the availability and quality of

the technology needed, and some studies only presented an evaluation of one e-system, and thus the results are not applicable for all e-systems and populations. Fourthly the effects of remote consultations are different depending on the various types of consultations. For example, telephone triage or advice about dieting or taking medicine can completely replace a face-to-face consultation. In contrast, in most cases teleconsultation by email or telephone cannot replace a face-to-face consultation if there is an exacerbation of a chronic disease, the appearance of new symptoms or complications.

5 CONCLUSION

This systematic review covers the topics of remote consultations versus traditional or classic physical consultations. Studies have shown the importance of such technology prior to the COVID-19 pandemic and its value during it with regard to caring for infected patients. We have found that remote consultations are very beneficial, especially during a pandemic or in remote areas, but they must offer an improvement on the previous system. Teleconsultations can reduce the number of visits, especially during lockdown situations, and thus both patients and GPs are satisfied with this approach, but we should not forget that the physical consultations cannot be fully replaced by remote consultations, because the effects of the latter differ depending on the various types of consultations, and in some cases the physical contact is still necessary to make the right diagnosis and give the treatment needed.

CONFLICTS OF INTEREST

The authors declare that no conflicts of interest exist.

ETHICAL APPROVAL

The research carried no risk of violating ethical principles.

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