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NURSING-LED DIGITAL PATIENT NAVIGATION TO REDUCE HEALTHCARE ACCESS INEQUALITIES AND IMPROVE CONTINUITY OF CARE AMONG UNDERSERVED POPULATIONS: A SYSTEMATIC REVIEW

Nursing-led digital patient navigation

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KEYWORDS

patient navigation; nurse navigator; telehealth; digital health; underserved populations; health inequalities; continuity of care; access to health care; systematic review

ABSTRACT

Background: Underserved populations face delays, missed care and breaks in follow-up. Patient navigation led by nurses is increasingly delivered by telephone, video, messaging and tools within electronic health records, but digital delivery can widen as well as narrow inequalities.Objective: To synthesise evidence on nursing-led patient navigation delivered wholly or partly by digital or remote means among underserved populations, with a focus on access to care and continuity of care. Methods: PubMed was searched for English-language records published up to 31 October 2026, combining terms for navigation, nursing and digital delivery. Titles were screened and abstracts assessed against predefined criteria, and findings were synthesised narratively in line with PRISMA 2020. Results: Of 261 records, 94 abstracts were assessed and 17 studies were included: three randomised controlled trials, one non-randomised trial, eleven observational, pilot or quality-improvement evaluations and two qualitative studies. Populations were socioeconomically, racially or linguistically disadvantaged (4 studies), rural or remote (3), in middle-income countries (5) or otherwise vulnerable (5). The telephone was the main channel in nine studies. Navigation was associated with near-universal completion

of colonoscopy in low-income patients, closure of a racial gap in curative lung cancer treatment, avoided travel for rural patients, more advance care planning in frail older adults and better psychological outcomes in two trials. Patient experience was consistently positive. Effects on health service use were rarely measured, and only one study showed a reduction in a measured disparity. Conclusions: Nursing-led digital navigation is feasible and acceptable in underserved populations and shows promise for access and continuity of care, but the evidence is limited in size and quality. Programmes that pair a named nurse with simple channels and data systems that flag patients at risk appear most promising.

1. Introduction

Access to health care is unequal. People with low incomes, members of racial, ethnic and linguistic minorities, residents of rural and remote areas, and people living with frailty, disability or mental illness are more likely to face delays, missed appointments and breaks in follow-up. Patient navigation was developed to address these barriers. A navigator guides individual patients through the health system, removes obstacles to timely care and keeps them connected between services[28]. In a systematic review of cancer care coordination, patient navigation was the most frequently studied intervention, followed by home telehealth and nurse case management, and coordination interventions as a whole almost doubled the odds of appropriate health care use [1].

Navigators may be lay workers or clinicians. A national survey in the United States found that nurse navigators had become a substantial part of the navigation workforce, while lay navigators remained vital in underserved communities [2]; a later survey showed that clinical navigators more often performed care coordination and treatment support than non-clinical navigators [3]. Nurses can combine navigation with assessment, education and clinical decisions, which matters most for patients with complex needs[31].

Continuity of care, meaning an ongoing relationship with a known professional, consistent information and coordinated management across settings, is especially fragile for underserved groups, because every transition between services is a point at which a patient can be lost to follow-up.

Navigation is increasingly delivered at a distance. Telephone calls, text messages, video consultations, patient portals and remote monitoring allow one nurse to support patients across a wide area[29], and the oncology nurse navigator has been described as a virtual resource for patients who lack local access to specialist care [4]. The strongest trial evidence comes from general oncology populations: in the randomised CAPRI trial, a nurse navigator-led programme with a web portal and mobile application improved treatment dose intensity and patient experience and reduced days in hospital and severe toxicity [5].

Digital delivery, however, is not automatically equitable. Access to technology and digital literacy are themselves determinants of health, and existing disparities shape who adopts telehealth, so disadvantaged groups can be left further behind [6]. Telehealth could reduce disparities in cancer care by widening access to specialists, but only if the digital divide is addressed [7]. Whether digital navigation led by nurses reaches underserved groups and improves their access and continuity of care is therefore an open question, and the evidence has not been brought together.

This systematic review aimed to identify and synthesise published evidence on nursing-led patient navigation delivered wholly or partly by digital or remote means among underserved populations, with a focus on access to care and continuity of care.

2. Methods

2.1 Design and reporting

This systematic review with narrative synthesis is reported in line with the PRISMA 2020 statement. The protocol was not registered.

Eligibility criteria

Studies were eligible if they met four criteria. First, the intervention was patient navigation, defined as individual guidance through health services, coordination of care or removal of barriers to care. Second, navigation was led or delivered by nurses. Third, at least part of the navigation was delivered by digital or remote means, including telephone, text or app messaging, video consultation, telehealth clinics, web platforms or tools built into electronic health records. Fourth, the population was underserved. This was defined in advance as any of the following:

socioeconomic disadvantage or lack of insurance; racial, ethnic or linguistic minority status; rural or remote residence or long distance from specialist services; a low- or middle-income country setting; or another group described by the study authors as vulnerable or as facing barriers to access, such as frail older adults or people with mental illness or disabling neurological disease. Studies had to report original quantitative or qualitative data on access, continuity of care, health outcomes or patient experience. Access outcomes included uptake or completion of screening, consultations or treatment, travel avoided and differences between population groups. Continuity outcomes included follow-up after discharge, attendance, care planning, medication use and use of emergency or inpatient services. Protocols, reviews, commentaries and studies of navigator training alone were excluded. Only records in English were considered.

2.2 Information source and search strategy

PubMed was searched for records published from database inception to 31 October 2026. Three blocks of terms for navigation, nursing and digital delivery were combined (Box 1). Terms for underserved populations were not used in the search, so that studies describing their populations in other words would not be missed; this criterion was applied during screening. Reference lists were not hand-searched and no other database or grey-literature source was used.

Box 1. PubMed search strategy

Block	Terms
Navigation	"patient navigat*"[tiab] OR "nurse navigat*"[tiab] OR "care navigat*"[tiab] OR navigator*[tiab] OR "Patient Navigation"[Mesh]
Nursing	nurs*[tiab]
Digital delivery	digital*[tiab] OR telehealth[tiab] OR telemedicine[tiab] OR telenursing[tiab] OR telephone*[tiab] OR mhealth[tiab] OR ehealth[tiab] OR "mobile health"[tiab] OR "mobile app*"[tiab] OR smartphone*[tiab] OR virtual*[tiab] OR "text messag*"[tiab] OR web-based[tiab] OR online[tiab] OR "patient portal*"[tiab] OR video*[tiab] OR remote*[tiab] OR "electronic health record*"[tiab] OR Telemedicine[Mesh]
Combination and limits	Navigation AND Nursing AND Digital delivery; English language; publication date to 31 October 2026

2.3 Selection and data collection

Titles were screened first, and the abstracts of potentially relevant records were then assessed against the eligibility criteria. Screening and assessment were done in a single pass, without independent duplicate review. For each included study, the citation, setting, population, design, sample, navigation model, digital mode and main findings were collected from the abstract in the PubMed record; where the abstract did not name the country, the first author's affiliation was used. Full texts were not retrieved.

2.4 Appraisal and synthesis

No formal risk-of-bias tool was applied, because data were taken from abstracts and designs varied widely; design limitations are noted in the synthesis. Meta-analysis was not appropriate.

Findings were grouped under access to care, continuity of care and patient experience, and results are reported as given by the study authors.

3. Results

3.1 Study selection

The search returned 261 records, with no duplicates. After title screening, 167 records were excluded and 94 abstracts were assessed. Seventy-seven were excluded: 40 because the population was not underserved, 13 because navigation had no digital or remote component, 11 because the study did not evaluate a navigation intervention, 9 because navigation was not led by nurses, and 4 because they were not primary studies. Seventeen studies were included (Figure 1).

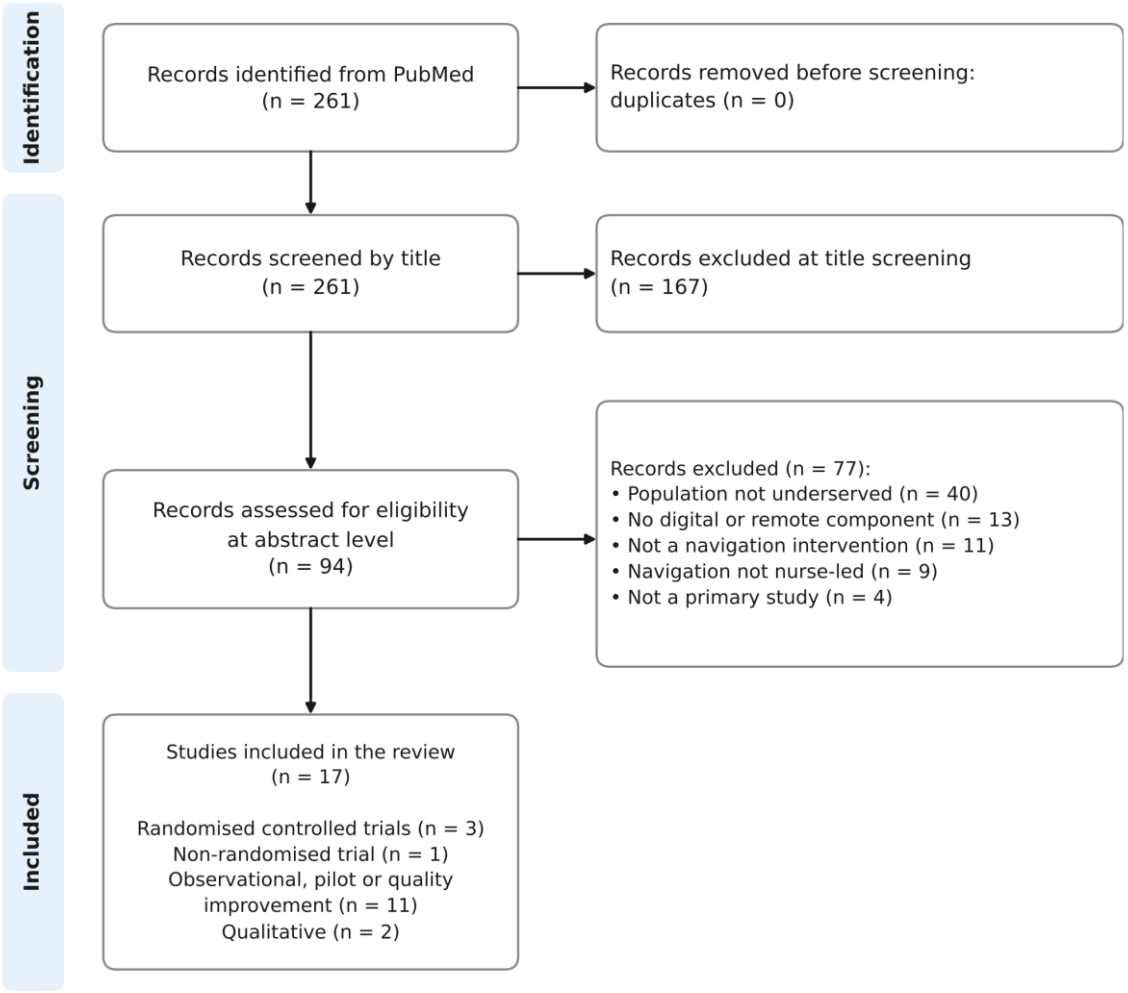


Figure 1. PRISMA 2020 flow diagram of study selection.

3.2 Study characteristics

The 17 studies were published between 2016 and 2026 (Table 1). Eight were from the United States, three from Turkey, two from Brazil, and one each from Australia, New Zealand and Canada; one did not state the country. Four addressed socioeconomic, racial or linguistic disadvantage [8–11], three addressed rural or remote residence [12–14], five were set in middle-income countries [15–19], and five concerned other groups described as vulnerable or as facing barriers to care [20–24]. There were three randomised controlled trials, one pragmatic trial with non-randomised controls, eleven observational, pilot or quality-improvement evaluations and two qualitative studies. Samples ranged from 10 participants in two pilots to several hundred in the trials and programme evaluations. Seven studies concerned cancer screening or cancer care. The others covered chronic and neurological conditions (type 1 diabetes, chronic pain, multiple sclerosis,

progressive supranuclear palsy, long COVID and complex chronic illness), neurosurgical outpatient care, postpartum care, psychiatric emergency care and advance care planning in older adults. The telephone, alone or with text messages or visits, was the main channel in nine studies; five used video or telehealth consultations or a virtual service; two used tools within electronic health records; and one used a messaging application (Figure 2).

Table 1. Characteristics of the included studies (n = 17)

Study	Setting	Underserved group	Design and participants	Navigation model and digital mode
Cykert 2019 [8]	United States; five cancer centres	Black patients with early-stage lung cancer (racial disparity in treatment)	Pragmatic trial with retrospective and concurrent controls; 360 intervention patients, 2,841 retrospective controls	Real-time warning system from electronic health records, race-specific feedback to teams, nurse navigator
DeGroff 2019 [9]	United States; state-wide colorectal cancer screening programme , New Hampshire	Low-income patients meeting income and insurance criteria	Mixed-methods evaluation; 443 navigated patients	Telephone navigation by registered nurses using a six-topic protocol and a real-time data system
Bigelow 2021 [10]	United States; cancer hospital resource centre	Patients with risk factors for barriers to care, with emphasis on non-English speakers	Descriptive programme report; 586 patients, 1,459 encounters	Virtual nurse-led resource centre; nurse navigators triaged referrals, supported by volunteer navigators
Shusted 2024 [11]	United States; urban academic medical centre, lung cancer screening	Urban screening population; outcomes analysed by race and education	Cross-sectional; 605 people who smoked	Nurse navigation with tobacco counselling in person and by telephone
Critchley 2024 [12]	New Zealand; rural hospital	Rural residents distant from the	Survey and audit after 10 clinics; 21 of 31 new	Telehealth clinic with the surgeon remote and a nurse navigator with the patient

	neurosurgery clinics	neurosurgical centre	patients surveyed	before, during and after
Heritage 2020 [13]	Australia; Far North Queensland	People with chronic and complex conditions living remotely from the hospital	Analysis of telephone call records	Free telephone line answered by nurse navigators 7 am to 10 pm daily, plus navigators' mobile numbers
Zwingerman 2020 [14]	Canada; regional cancer centre remote from a tertiary fertility clinic	Women with cancer living far from fertility services	One-year pilot; 22 eligible women, plus physician survey	On-site oncofertility nurse navigator arranging specialist consultations by telemedicine
Altınışık 2026 [15]	Turkey; university hospital	Patients with newly diagnosed lung cancer, most with low income	Randomised controlled trial; 84 patients	Twelve-week programme of regular telephone calls and monthly face-to-face sessions
Öztoprak 2023 [16]	Turkey; public hospital	Primiparous mothers in a middle-income country	Randomised controlled trial; 64 women	Three home visits, four telephone calls and five text messages
Donmez 2024 [17]	Turkey	Patients with colorectal cancer in a middle-income country	Qualitative; 15 patients and 8 health professionals	Telephone follow-up by oncology nurses (tele-navigation)
Foppa 2025 [18]	Brazil; university hospital	Adults with type 1 diabetes in a middle-income country	Qualitative; 35 participants	Remote patient navigation by nurses
Bandeira Barboza 2026 [19]	Brazil	Patients and health professionals after COVID-19 in a middle-income country	Observational; 177 participants, 7,016 messages	Nurse navigation over a messaging-app platform with a predictive model for long COVID

Gabbard 2021 [20]	United States; eight primary care practices	Older adults with multimorbidity and impairment or frailty	Randomised trial; 759 patients	Nurse navigator-led advance care planning pathway with an electronic health record interface
Patel 2026 [21]	United States; psychiatric emergency service	People discharged after psychiatric emergency care	Quality improvement ; 69 patients	Nurse navigator telephone call within 72 hours of discharge
Donovan 2026 [22]	United States; community programme	Adults with chronic pain	Pilot; 10 adults	Two videoconference sessions with a pain nurse navigator plus online self-assessment and education
Tietjen 2017 [23]	Community neurology clinic (country not stated in abstract)	People with multiple sclerosis	Feasibility pilot; 10 participants	One face-to-face meeting and five telephone calls over 12 weeks by a nurse navigator
Dunlop 2016 [24]	United States	People with progressive supranuclear palsy and their caregivers	Pilot with before-and-after measures	Two telephone calls from a nurse leading to an individual care guide

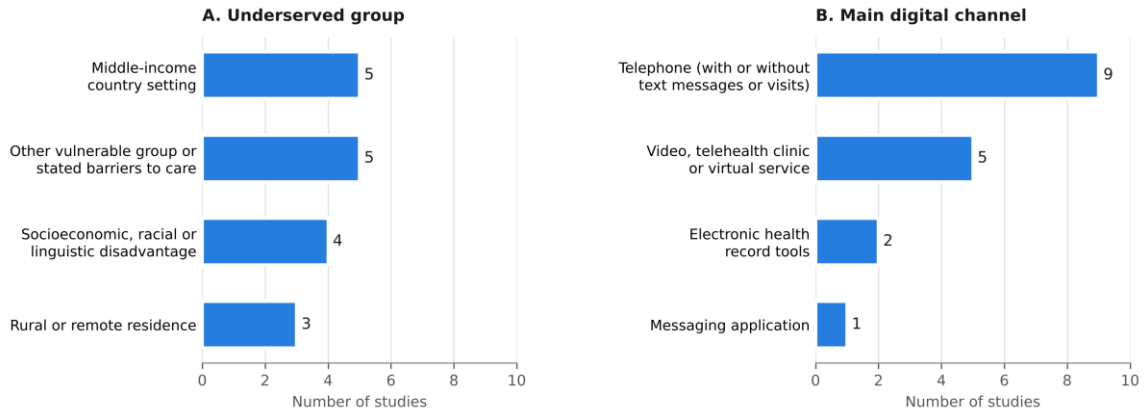


Figure 2. Included studies by underserved group and by main digital channel.

3.3 Access to care

Seven studies reported on entry to care or completion of recommended care. The clearest equity result came from a pragmatic trial in five cancer centres, where a real-time warning system drawn from electronic health records, race-specific feedback to clinical teams and a nurse navigator were introduced for patients with early-stage lung cancer. Before the intervention, 69% of Black patients and 78% of White patients received curative treatment; within the intervention cohort the rates were 96.5% and 95%, and the racial gap was no longer evident [8]. In a state-wide screening

programme for low-income patients, registered nurses delivered a six-topic telephone protocol; 97.3% of 443 navigated patients completed colonoscopy, none missed an appointment and 0.7% cancelled late. Nurses spent a mean of 124.3 minutes per patient, and the evaluators attributed the result to funded colonoscopies, the use of registered nurses, a clinical champion, fidelity to the protocol and a real-time data system for tracking patients [9]. In an urban lung cancer screening programme that combined nurse navigation with tobacco counselling, 49.8% of 605 people who smoked wanted treatment and received a personal plan. Interest was higher among Black patients, those with more education and those returning for a repeat visit; 11.6% of interested patients had a documented quit, and quitting was associated with receiving at least one follow-up counselling call [11].

Distance was addressed in three studies. Telehealth neurosurgery clinics held in a rural hospital, with a nurse navigator beside the patient, were rated as satisfactory in comparison with an in-person clinic by 86% of surveyed patients and saved an estimated 10,785 km of travel over ten clinics [12]. An on-site nurse navigator at a regional cancer centre arranged fertility consultations by telemedicine for women living far from a tertiary clinic; four of 22 eligible women had a consultation and two went on to cryopreservation, and local physicians reported discussing fertility preservation and referring more often by the end of the pilot [14]. A virtual, nurse-led resource centre engaged 586 patients with cancer over 1,459 encounters. Nurse navigators triaged referrals to team members, including volunteer navigators; distance from the hospital was the most common risk factor (59.7%), education and emotional support were the most common interventions, and Spanish-speaking patients received about twice as many visits and 69% more interventions than other patients [10]. In Brazil, nurse navigation over a messaging application identified long COVID in a third of 177 participants, delivered structured education and referred 20 for evaluation. Users rated the service highly, although the embedded predictive model had an accuracy of 72% and a sensitivity of only 38% [19].

3.4 Continuity of care

Five studies examined follow-up, transitions or care planning. In a randomised trial in 759 older adults with multimorbidity and frailty, a nurse navigator-led pathway supported by an electronic health record interface led to new documentation of advance care planning in 42.2% of patients compared with 3.7% under usual care. More patients named a surrogate decision maker (64% vs 35%) and completed legal forms (24.3% vs 10.0%), but emergency visits and admissions did not differ [20]. Two Turkish randomised trials combined telephone contact with in-person sessions. In 84 patients with newly diagnosed lung cancer, most of whom had a low income, a 12-week programme of regular calls and monthly meetings lowered depression and stress, improved adaptation and quality of life, and was followed by fewer emergency visits than in controls [15]. In 64 first-time mothers, three home visits, four calls and five text messages improved self-care and quality of life and lowered the risk of depression and anxiety [16]. A nurse navigator's telephone call within 72 hours of discharge from psychiatric emergency care reached 37.7% of 69 patients; among those reached, half were taking their medication and more than two-thirds had a follow-up appointment. Patients used the call to ask about medicines, appointments and transport, and rated it 4.95 out of 5 [21]. In remote northern Queensland, patients and carers called their nurse navigators mainly about clinical issues and preferred the navigator's own mobile number to a free central line [13].

3.6 Patient experience

Experience was positive wherever it was measured. Adults with type 1 diabetes in Brazil and patients with colorectal cancer in Turkey valued remote navigation and wanted it to continue or expand; they described better self-care, reassurance and reliable access to information, and health professionals shared this view [17,18]. Three small pilots, in chronic pain, multiple sclerosis and progressive supranuclear palsy, reported high satisfaction, progress towards personal goals and better caregiver knowledge, although caregiver strain did not change [22–24]. The main findings of each study are listed in Table 2.

Table 2. Main findings of the included studies

Study	Main findings
Cykert 2019 [8]	Curative treatment at baseline 69% of Black vs 78% of White patients; with the intervention 96.5% vs 95% (P = 0.56)
DeGroff 2019 [9]	97.3% completed colonoscopy; no missed appointments; 0.7% late cancellations; mean 124.3 minutes of navigation per patient
Bigelow 2021 [10]	Most common risk factor was distance (59.7%); Spanish-speaking patients had about twice as many visits (4.27 vs 2.04) and 69% more interventions
Shusted 2024 [11]	49.8% wanted tobacco treatment, more often Black patients; 11.6% of these quit, and quitting was associated with follow-up telephone counselling
Critchley 2024 [12]	86% satisfied compared with an in-person clinic; an estimated 10,785 km of patient travel saved
Heritage 2020 [13]	Calls came mainly from patients and carers about clinical issues; the navigator's own mobile number was preferred to the free line
Zwingerman 2020 [14]	Four women had a fertility consultation and two proceeded to cryopreservation; physicians discussed and referred more often
Altınışık 2026 [15]	Lower depression and stress, better adaptation and quality of life, and fewer emergency visits than controls
Öztoprak 2023 [16]	Higher self-care capability and quality of life, lower risk of depression and anxiety than controls (P < 0.05)
Donmez 2024 [17]	Patients and professionals found tele-navigation helpful and reassuring and recommended wider use
Foppa 2025 [18]	Care quality viewed positively; participants reported better self-care and wanted the service to continue
Bandeira Barboza 2026 [19]	Long COVID identified in 60 participants (33%) and 20 referred; model accuracy 72%, sensitivity 38%; Net Promoter Score 92

Gabbard 2021 [20]	New advance care planning documentation 42.2% vs 3.7%; surrogate decision maker named 64% vs 35%; no difference in emergency visits or admissions
Patel 2026 [21]	37.7% of patients reached; of these, half were taking medication and over two-thirds had a follow-up appointment; satisfaction with the call 4.95 of 5
Donovan 2026 [22]	All participants comfortable with the sessions; 90% satisfied with support; median satisfaction score 26
Tietjen 2017 [23]	Nine of 10 participants progressed towards their goals; low burden on clinic staff
Dunlop 2016 [24]	Caregiver knowledge improved; caregiver strain unchanged

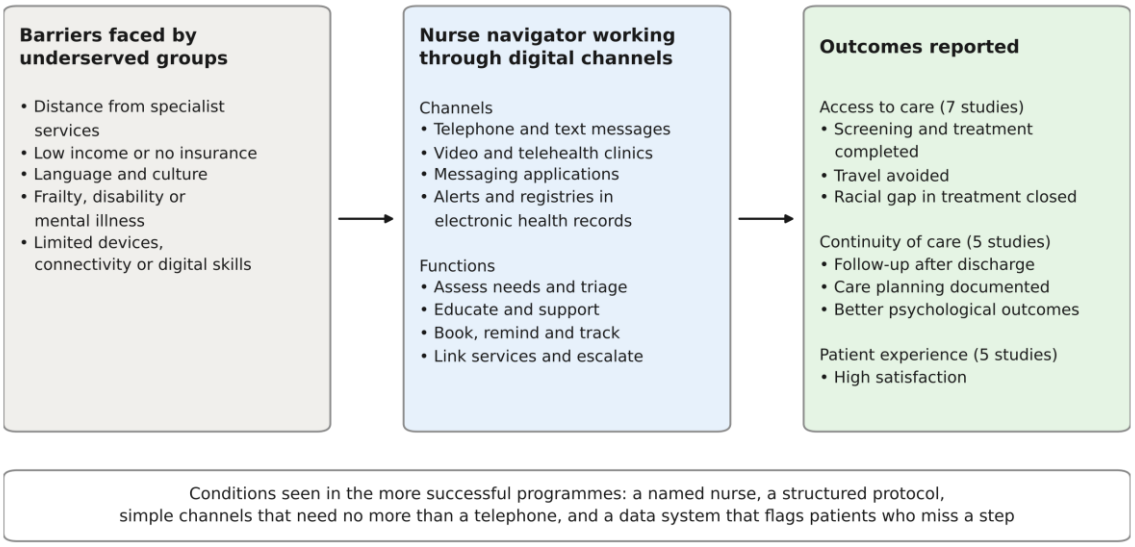


Figure 3. How nursing-led digital navigation addresses barriers to access and continuity, with the number of included studies supporting each outcome.

4. Discussion

4.1 Principal findings

This review found 17 studies of nursing-led navigation delivered by digital or remote means in underserved populations. Three conclusions can be drawn. First, such programmes are feasible and well accepted across very different groups, from low-income adults due for cancer screening to rural residents, frail older adults and people leaving psychiatric emergency care. Second, where access was measured, results were favourable: completion of colonoscopy was almost universal in a navigated low-income cohort, a racial gap in curative lung cancer treatment closed, and telehealth clinics supported by a navigator removed long journeys. Third, evidence for continuity of care is encouraging but thin. Trials showed gains in care planning, psychological outcomes and quality of life, and single evaluations showed that follow-up calls keep patients connected after discharge. Only three randomised trials were found, and most other studies were small, uncontrolled evaluations.

4.2 Interpretation

The technology in these studies was simple. The telephone was the main channel in nine of 17 studies, and none of the programmes relied on a patient-facing application without direct contact with the nurse. This contrasts with the CAPRI trial in a general oncology population, where nurse navigators worked through a web portal and mobile application [5]. Simple channels may be a strength. Because unequal access to technology and digital skills can widen disparities [6,7], navigation that needs only a telephone, or that places the nurse beside the patient during a telehealth consultation [12,14], avoids excluding the people it is meant to reach. The preference of remote patients for their navigator's own mobile number over a central line [13] suggests that the relationship with a known nurse matters more than the channel.

The two studies with the strongest equity results combined the nurse with system-level tools. In the lung cancer trial, the navigator worked alongside automated warnings and race-specific feedback [8]; in the colonoscopy programme, nurses followed a structured protocol and used a real-time data system to track patients [9]. In both, digital tools identified who was falling behind and the nurse acted on that information. The advance care planning trial followed the same pattern [20]. Navigation by telephone alone produced benefits in patient-reported outcomes in the Turkish trials [15,16], but those trials did not compare disadvantaged and advantaged groups.

The nurse's work in these programmes was also shared. In the virtual resource centre, nurse navigators triaged each referral and passed suitable tasks to other team members and volunteer navigators [10]. This fits earlier survey findings that clinical and lay navigators do different work and that lay navigators are important in underserved communities [2,3]. A tiered team, in which nurses assess, decide and coordinate while trained support staff make routine contacts, may extend reach without lowering the quality of clinical judgement.

Several limits of the evidence should be noted. Only one study showed a reduction in a measured disparity [8], and it used non-randomised controls and a multicomponent intervention, so the navigator's separate contribution is unknown. Reach was sometimes low: the post-discharge call reached little more than a third of psychiatric patients [21]. An artificial intelligence model added to navigation missed most cases of long COVID [19], which is a reminder that such tools need validation before they guide triage. Health service use was rarely measured, and the one large trial that did so found no change in emergency visits or admissions [20].

4.3 Implications for practice and research

For health services with dispersed or disadvantaged populations, the findings support a practical model: a named nurse navigator, reachable by telephone, working to a structured protocol, with a registry or record-based system that flags patients who miss a step. Existing call centres, virtual clinics and model-of-care programmes offer a base for such roles. In Saudi Arabia, a hospital programme in which nurse case managers acted as cancer navigators and virtual clinics were used for follow-up reported shorter treatment intervals and higher patient satisfaction [25]; similar roles could be tested in regions where patients travel long distances for specialist care. Nurse navigators already work with rural, remote and Indigenous communities without a described digital component [26,27], and adding telephone or video contact to these roles is a natural next step.

Nurses can also act as digital navigators, teaching patients to use the tools on which remote care depends [6,30]. None of the included studies reported how many patients were excluded or lost because they lacked a telephone, a device, connectivity or the skills to use them, so the size of this problem within navigation programmes is unknown. Programmes should therefore keep a non-digital route open and record who cannot be reached.

Future studies should randomise where possible, report results separately for disadvantaged groups, measure reach as well as effect, and record access outcomes such as time to appointment, missed visits and completed referrals. Digital literacy and device access should be assessed at enrolment, and costs should be reported.

5. Limitations

Only one database was searched and reference lists were not checked, so eligible studies will have been missed, including navigation programmes described as case management or care coordination. Screening and data collection were done in a single pass and from abstracts, so details available only in full texts could not be used and some studies may have been misclassified. No formal risk-of-bias assessment was made. The definition of underserved was broad and partly depended on how authors described their populations; five studies qualified through a middle-income country setting and five through clinical vulnerability, not social disadvantage. The included studies were too varied for pooling, and most were small and uncontrolled.

6. Conclusions

Nursing-led patient navigation delivered by telephone, video, messaging or record-based tools is feasible and acceptable in underserved populations and, in the few studies that measured it, was associated with better access to screening and treatment, including the closing of a racial gap in lung cancer treatment. Evidence for continuity of care rests on a small number of trials and many small evaluations, and effects on health service use are unproven. The most promising programmes paired a named nurse navigator with simple communication channels and with data systems that identify patients at risk of being lost to care. Larger controlled studies that report outcomes by disadvantaged group are needed before firm claims about reducing inequalities can be made.

Declarations

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Conflicts of interest: The authors declare no conflicts of interest.

Ethical approval: Not required. This review used published literature only and involved no human participants or patient data.

Data availability: All data supporting this review are contained in the article and in the cited publications.

Author contributions: All authors contributed to the conception of the review, the interpretation of the findings and the revision of the manuscript, and all approved the final version.

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