cancerless

Cancer prevention and early detection among the **homeless** population in Europe: Co-adapting and implementing the Health Navigator model

Synthesis Report on Systematic Review to Synthesize the Theoretical Foundations of the Health Navigator Model in the Homeless Population.

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ARU

WP2: Participatory co-adaptation of the Health Navigators Model in the European context meeting the needs of organisations, professionals and the homeless population.

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LIST OF ACRONYMS

- CHW – Community Health Worker
- H2020 – Horizon 2020
- HNM – Health Navigator Model
- PCP – Primary Care Provider
- PN – Patient Navigator/Navigation
- RCT – Randomised Control Trial
- WP – Work Package

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EXECUTIVE SUMMARY

Background and objectives

Underserved and marginalised populations – including people experiencing homeless – have been shown to face substantial challenges in accessing health services and are at risk of poor health-related outcomes. The CANCERLESS project aims to improve cancer prevention and early detection among the homeless population, through the development of a patient-centered intervention, The Health Navigator Model (HMN). This model draws on both the principles of patient empowerment and the core features of the patient navigator model.

The aim of this synthesis report is to bring together existing studies to better understand how these types of approach have been implemented with people who are homeless and other comparable populations, through a systematically conducted scoping review. It is guided by the following research questions:

1) What are the core features and components of patient/health navigator models?
2) What factors are known to influence the outcomes of patient/health navigator models with people who are homeless, and other underserved populations?
3) How has the use of patient/health navigator models impacted the health outcomes of people who are homeless, and other underserved populations?

Design, data sources and eligibility criteria

To identify relevant studies, this scoping review involved comprehensive data searches which were conducted in Web of Science, PubMed, and Scopus on 15th June 2021. This review was limited to studies published in peer-reviewed publications. Inclusion was based upon the following:

a) Population: Adults over the age of 15 who are homeless (defined according to the ETHOS typology), or who belong to a comparable underserved population (e.g., people with mental health conditions or substance abuse disorders).

b) Project/intervention type: Evaluation or measurement of a patient/health navigator model or programme.

c) Timescale: Studies published between January 1st, 2000, and June 15th, 2021.

Results

21 studies, comprising nine review papers and 12 single study papers, were selected for inclusion. The results of the review indicate that navigation models have been successfully implemented with a range of underserved populations including people who are homeless and have consistently been associated with increased and more timely access to healthcare, and improvements in a wide range of other health-related outcomes. While the implementation and measurement of navigation varied, a series of consistent features, facilitators and barriers are identified.

Conclusion

Findings from the present scoping review support the implementation of the patient/ health navigator model among underserved communities. Interventions to date have utilised a longitudinal approach and a navigator who is a non-clinical expert, shares common characteristics with the patient, and whose key role is to focus on facilitation and emotional support. Finally, gendered tailored interventions may yield the greatest results. To maximise success with the implementation of future health navigator models, further research that focuses on the effectiveness of the approach outside the USA and identifying important characteristics of the navigator (e.g., situation similarities, disease similarities or both) is warranted.

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INTRODUCTION

Across Europe, many underserved, marginalised people – including people experiencing homelessness – are at high-risk of poor health-related outcomes. For example, Thomson et al [1] carried out a systematic review on housing improvements for health and found that compared with the general population, those who are homeless or at risk of homelessness were at increased risk of respiratory conditions, depression, anxiety, and excess winter mortality. Importantly, homelessness, and risk of, is associated with premature mortality, with the homeless population having an average age at death of just 47 years, 30 years lower than that for the general population [2]. While it is essential that interventions are developed to prevent and manage homelessness, there is also a pressing need for interventions to improve access to healthcare in those who are currently homeless. Indeed, nearly one in three deaths of people experiencing homeless are due to causes amenable to timely and effective healthcare. Importantly, cancer is the second most common cause of death among the homeless population [3], with cancer-mortality being twice as high compared to the general adult population in high-income countries [4].

A growing body of literature has highlighted the value of person-centred interventions as a way to tackle such health disparities and improve timely access to healthcare among underserved and marginalised populations. 'CANCERLESS: Cancer prevention and early detection among the homeless population in Europe: Co-adapting and implementing the health navigator model' is an EU Horizon 2020 financed project that aims to deliver innovative solutions based on an aggregate intervention that combines the principles of patient empowerment [5] and the core features of patient navigator models [6] to create a new framework known as the Health Navigator Model. The Health Navigator Model will be an evidence-based patient-centred intervention, which develops patient empowerment through health education and social support and promotes timely access to primary and secondary prevention services. CANCERLESS includes partner organisations with long-standing experience in working in the field of health and social care for the homeless in the south, east, northwest, and central Europe, as well as academic institutions and local governments. Timely and evidence-based preventive

strategies including optimising health care pathways provide a solution to the high cancer mortality and could improve overall health outcomes in this underserved population. Moreover, the CANCERLESS project aims to harness the transformative potential of the integrated care pathways in cancer as well as provide health and social care policy recommendations for the adoption and implementation of the Health Navigator Model across Europe.

In order for the CANCERLESS project to design and implement this intervention in a way that is appropriate and meaningful for people experiencing homelessness, there is a need to bring together and review existing studies to better understand how these types of approach have been implemented with people who are homeless and other comparable populations. However, given both that patient empowerment is effectively a set of principles rather than a clearly defined intervention, and that there was scope only for a single review to take place at this point of the project, this review paper places primary focus on understanding the application and measurement of patient navigation models. That being said, this review will also explicitly consider whether and how aspects of patient empowerment have been integrated alongside the use of navigators.

To date, this information has not been collated meaning this scoping review also fills a key gap in the existing literature. A scoping review format was chosen as the aim here is to explore and map current evidence relating to the topic, rather than to answer and synthesise findings in relation to a narrow research question. Scoping reviews are also particularly well-suited for identifying key characteristics or features relating to a concept or approach [7].

To this end, this scoping review is guided by following research questions:

1) What are the core features and components of patient/health navigator models?

2) What factors are known to influence the outcomes of patient/health navigator models with people who are homeless, and other underserved populations?

3) How has the use of patient/health navigator models impacted the health outcomes of people who are homeless, and other underserved populations?

METHODS

Literature search strategy

The review followed a pre-designed but unpublished protocol, reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). To identify relevant studies, comprehensive data searches were conducted in Web of Science, PubMed, and Scopus on 15th June 2021. The search strategy used across all the databases was: ("patient navigat*" OR "health navigat*") AND (homeless* OR marginali* OR vulnerable OR underserved). These terms were determined by trialling several combinations with the aim of casting a wide net over existing peer-reviewed research studies.

To check that the database searches did not miss key texts, a researcher also scanned the reference lists of included studies identified through the search. Two journals of relevance – '*Health and Social Care in the Community*' and '*Cancer*' - were also screened for papers covering 2000 – 2021.

Study selection

Two authors (CC and LS) independently screened titles, abstracts and, where necessary, full texts for eligibility against pre-determined criteria. Any disagreements between authors were settled by a third reviewer (IG). Quantitative and qualitative studies and review papers were included, with no set restrictions on study design. This review is limited to studies published in peer-reviewed publications. Inclusion was based upon the following:

a) Population: Adults over the age of 15 who are homeless (defined as persons fitting any category in the ETHOS typology of homelessness [8]), or who belong to a comparable underserved population (e.g., people with mental health conditions and/or substance abuse disorders, refugees, ex-offenders etc.)

b) Project/intervention type: Evaluation or measurement of a patient/health navigator model or programme.

c) Timescale: Studies published between January 1st, 2000, and June 15th, 2021.

The exclusion criteria therefore included removing papers published before 2000, those that took a conceptual or theoretical approach to health/patient navigation, and studies that involved the use of health/patient navigation models with general or unspecified populations.

Data charting

Once the final selection of studies for inclusion was determined, two authors (CC and LS) extracted key data from each publication into a standardised Excel spreadsheet. For each publication, study characteristics (including lead author, method, year, location, study population, outcome measures etc.) and the characteristics of the intervention (setting, profile and training of navigator(s), core activities of navigator and key findings etc.) were extracted.

Synthesis of findings

Data were analysed thematically and are summarised in a narrative format. Given that a scoping review was carried out, there is a wide variety in methods, population and information provided by each publication. It is therefore not possible to make a direct comparison of results or conduct a meta-analysis.

RESULTS

The search strategy yielded an overall total of 1203 papers (PubMed - 254, Web of Science - 296, Scopus - 653). 475 duplicates were removed, leaving a total of 728 papers for screening (see Figure 1).

The initial search returned a high number of primary studies relating to a wide range of underserved populations, the majority of which were relatively broad in their remit (for example, interventions delivered in low-income areas, or areas with a high proportion of ethnic minorities or migrants). The research team therefore made the decision to focus on primary studies which had been used with or tailored to either (a) people who are homeless or (b) specific underserved populations with which comparisons with to homelessness may be drawn, or where overlaps with the homeless population are very well-established. Based on the studies identified through the search, this included people with serious mental health conditions and people with substance abuse disorders [9, 10]. While those publications which focused on broader underserved populations do still hold relevance to the aims of this review and do also in some cases have established links with homelessness (for example, migrant populations), there was a need to manage the size of the scoping review. It was therefore decided that in the case of these broader underserved populations, inclusion would be limited to review papers only. These review papers were cross-checked against the primary studies selected for inclusion to avoid duplication which resulted in three primary study papers being removed from selection.

The screening process resulted in a total of 10 primary study papers and 9 review papers, which met the inclusion criteria listed above, being selected for analysis. An additional two primary study papers were then added after scanning reference lists, meaning a total of 12 primary study papers were included in the final selection (see Figure 1). As two pairs of papers report on distinct aspects or stages of the same study/intervention, the sample of primary study papers represents 10 individual studies.

Figure 1. Flowchart of search process

Review papers

A total of nine review papers which evaluate the use of navigation with underserved populations were included for review. Table 1 provides an overview of the descriptive characteristics of these papers. The review papers comprised of four systematic reviews [11, 16, 18, 19], two systematic-scoping or scoping reviews [14, 17], one mixed method review [13], one qualitative meta-synthesis [15] and one unspecified/narrative review paper [12]. Review papers were published between 2014 and 2021, and the vast majority (n=8) were focused solely or predominantly on interventions that took place in the USA. The most recent review included was the only paper to focus on low-income countries [14], which may be reflective of a widening application of patient navigation in the last few years.

The underserved populations examined by the papers include ethnic minorities [12, 17, 18], immigrants [17], uninsured persons [11], patients of community/public health centres [16], residents of low-income countries [14], HIV patients with histories of offending and/or care [15], women in rural areas [13], and non-specific vulnerable populations [11, 18, 19]. Cancer (both prevention and treatment) was the most common health condition covered by review papers (n=4) [11, 13, 16, 18]. Other health issues/conditions included were primary care access [17, 19], chronic disease management [17], HIV treatment [15], and general/non-specific health [12, 14].

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Authors (year)	Stated aim of review	Review type	No. studies	Types of study	Areas covered	Year of last publication	Health issue	Study population(s)
Bush et al. (2018) [11]	To systematically assess the efficacy of PN and similar models to improve diagnosis and treatment of diseases affecting medically underserved populations.	Systematic	16	All primary studies	USA	2011	Cancer care adherence	Uninsured, non-English speaking, and underserved residents from urban or rural locations
Corrigan et al. (2014) [12]	To examine PN's key ingredients for cancer care for relevance to patients of colour for application of peer services to psychiatric goals	Unspecified / narrative	8	Randomised control trials	USA	2013	General physical health	Ethnic minorities with serious mental health illness
Falk (2018) [13]	To identify and compare programs aimed at improving mammogram and Pap screening rates for rural women	Mixed methods	30	RCTs, quasi-experimental and qualitative studies	USA	2016	Cancer screening	Women living in rural communities
Louart et al. (2021) [14]	To synthesize what is known about PN interventions to facilitate access to modern health systems for vulnerable populations in low-income countries.	Scoping	60	Intervention studies	Low-income countries	2019	Not specified	Residents of low-income countries
Roland et al. (2020) [15]	To understand and describe client experiences with HIV PN.	Qualitative meta-synthesis	7	Interview-based qualitative studies	USA	2018	HIV	HIV patients, predominantly with a history of offending or care.

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Table 1. Descriptive characteristics of review papers.

Authors (year)	Stated aim of review	Review type	No. studies	Types of study	Areas covered	Year of last publication	Health issue	Study population(s)
Roland et al. (2017) [16]	To identify studies of cancer related CHW/PN interventions in FQHCs, and to describe the components of those interventions.	Systematic	24	Intervention studies	USA	2013	Cancer outcomes	Patients served by federally qualified health centres
Shommu et al. (2016) [17]	To search and summarise the literature on community navigators to help immigrant and ethnic minority groups in Canada and the United States overcome barriers to healthcare.	Systematic Scoping	30	Intervention studies	USA and Canada	Not stated	Chronic disease management and/or primary care access	Immigrants and/or ethnic minorities
Shushted et al. (2019) [18]	To identify quality metrics used in navigation programs, as well as to recommend standardized metrics, and to define excellence in lung cancer navigation.	Systematic	26	Randomised control trials, retrospective chart reviews	USA, Denmark and Canada	Not stated	Cancer screening	Ethnic minorities or other broadly vulnerable populations
Thomas et al. (2019) [19]	To identify whether a Health Service Broker working with health and social service providers in the community can (a) identify individuals experiencing vulnerability who may benefit from improved access to quality primary care,	Systematic and realist synthesis	11	All primary studies	Australia and USA	2015	Primary care access	Vulnerable populations

	and (b) link these individuals with appropriate PCPs.

Table 1 (continued). Descriptive characteristics of review papers

Table 2 provides an overview of the key features of the navigation programmes as summarised in the review papers, as well as the key findings and outcomes reported on. The way in which navigation models/programme have been implemented with general underserved populations (in terms of their core components) appears to be highly varied. To summarise the key findings of the review papers, the data charting process focused on extracting the most common and consistent features, meaning the information provided in Table 2 is not exhaustive. Moreover, and reflecting the wide range of stated aims across the review papers, the features of the interventions were not consistently reported on.

Six of the nine papers provided details of the person(s) who acted as navigators in the studies reviewed [11, 14, 15, 16, 17, 19]. This was highly varied, but commonly included non-clinical lay persons or community members [11, 14, 16, 17, 19], clinical professionals [11, 15, 16] or a mixed team combining clinical professionals and lay persons [11]. In several of the reviews, it was noted that both professionals and community members often also represented a peer, that is a person with lived experience similar to the participant population [14, 15]. The training provided to navigators was only fully detailed by one review paper [16], which reported that the most common content of training was general education around cancer and cancer screening, but often also included interpersonal skills such as communication, motivational interviewing and support/counselling. The same review paper also noted that ongoing supervision was common, and most often delivered by the research/project manager [16].

Four papers provided some information regarding the setting of the intervention, although this was often in very general terms [15, 16, 17, 19]. Both clinical and community settings had been utilised, with one paper specifically mentioning the use of both home visits and walking and support groups [17]. Two papers also mentioned that navigation activities commonly took place both in person and over the phone [15, 17]. Most of the papers (n=5) reported on the most consistent activities/functions that took place as part of the navigation [11, 14, 16, 17, 19]. Common functions included: identifying and addressing barriers to healthcare [11, 14, 16, 17, 19], providing tailored health education [14, 16, 17], organising and attending appointments [11, 14, 16, 19], and facilitating self-care/self-management [14, 17, 19].

Regarding specific outcome measures, review papers consistently reported that patient navigation is associated with a wide range of positive effects including engagement/linkage into healthcare [11, 12, 13, 14, 16, 19], timeliness of screening [11, 13, 16], diagnosis and treatment [11, 16] and overall health outcomes [12, 17]. The benefit of utilising peers and/or community members who are culturally competent to deliver was a consistent theme across several of the review papers [12, 14, 17], although one paper also noted that the use of peers can reinforce stigmatised attitudes towards treatment [14]. The importance of the relationship between the participant and the navigator was repeatedly noted as being particularly key to the success of interventions [15].

Author	Navigator details	Training/ supervision received	Setting(s) of navigation	Length(s) of navigation	Core functions/activities of navigator	Reported outcomes/ key findings
Bush et al. (2018) [11]	Most commonly lay persons/ peers, nurses or a mixed lay/peer and nurse team	Not reported	Not reported	Not reported	Assisting with transportation, overcoming issues relating to insurance, co-ordinating healthcare appointments, explaining follow-up process, assisting with language barriers.	Timing of initial contact with a PN after diagnostic or screening testing is correlated to the effectiveness of the navigator intervention. Majority of studies reported significantly shorter time intervals to diagnosis and to treatment with patient navigation.
Corrigan et al. (2014) [12]	Not reported	Not reported	Not reported	Not reported	Not reported	Among cancer patients, navigators lead to greater treatment engagement and improved health outcomes for ethnic minority groups. Peers can improve integrated care by providing effective psychiatric services to individuals with mental illness.
Falk (2018) [13]	Not reported	Not reported	Not reported	Not reported	Not reported	Rural areas need greater implementation and evaluation of screening interventions. Significant variation in the implementation of PNs, but all reported successful screening improvements.
Louart et al. (2021) [14]	Most commonly CHWs (16) or peers/community members (13) Mix between volunteers and employed workers.	Not reported	Not reported	Not reported	Identifying at risk members of the community, providing health promotion and education, accompanying and transporting patients to appointments, carrying out home visits to facilitate treatment adherence.	PN interventions act on several barriers and are effective in enhancing the abilities of poor and vulnerable populations in low-income countries to access healthcare. Importance of familiarity with local context; however, use of peers associated with both facilitators and barriers to health access.

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Table 2. Details of navigation intervention – review papers.

Author	Navigator details	Training/ supervision received	Setting(s) of navigation	Length(s) of navigation	Core functions/activities of navigator	Reported outcomes/ key findings
Roland et al. (2020) [15]	Non-medical professionals, nurses or clinical social workers. Some professionals also represent peers or near-peers.	Not reported.	Phone and/or in person.	Ranging from a single meeting to 10 months.	Not reported.	The unifying theme across all studies was the value and impact of the client–navigator relationship on client experience and quality of life.
Roland et al. (2017) [16]	Most commonly lay workers, community members or nurse assistants.	General education on cancer (11), patient support (4) motivational interviewing (4). Ongoing supervision often delivered by research project manager.	Clinic and/or community settings	Not discussed	Health education, identifying and addressing barriers to care, scheduling, reminding of and attending appointments, facilitating referrals or linkage to health and social care services, motivational support and encouragement.	Community Health Worker/PN programs can improve completion and timeliness of cancer screening and diagnosis. Barriers to screening identified include inflexible programmes, housing instability and concerns about immigration status.
Shommu et al. (2016) [17]	Non-clinical community members.	Training by health professionals	Phone and/or in person.	Highly varied, ranging from 65 days to 88 months; 6 months as most common.	Providing culturally tailored health education, lifestyle workshops, self-care training, guidance to overcome barriers to accessing healthcare.	The majority of studies reported substantial improvements in the health outcomes. Culturally competent guidance provided by navigators from a patient's own ethnic community might play a major role in overcoming barriers to healthcare.

Table 2 (continued). Details of navigation intervention – review papers.

Author	Navigator details	Training/ supervision received	Setting(s) of navigation	Length(s) of navigation	Core functions/activities of navigator	Reported outcomes/ key findings
Shushted et al. (2019) [18]	Not reported	Not reported	Not reported	Not reported	Not reported	Authors propose seven metrics for measuring PN relating to lung cancer: (1) screening rate, (2) compliance with follow-up, (3) time to treatment initiation, (4) patient satisfaction, (5) quality of life, (6) biopsy complications, and (7) cultural competency.
Thomas et al. (2019) [19]	Lay workers	Not reported	Hospital or public health clinics; community health centres.	Not reported	Linking to primary care or screening services, raising awareness of services through referral, arranging and transporting to appointments, facilitating self-management.	The majority of studies successfully linked their target group to primary care. Interventions predominantly focused on assisting patients to reach services, rather than considering how health services could alter the way they deliver care to improve access. Individual advocacy may be a key element in the success of these types of interventions.

Table 2 (continued). Details of navigation intervention – review papers.

Primary studies

A total of 12 papers which report on and evaluate the use of a navigation model/programme were included for review. As two pairs of papers report on distinct aspects/outcomes of the same study [22 + 23; 30 + 32], this sample comprises 10 individual studies.

As above, these were selected on the basis that the intervention reported on was used with or tailored to either (a) people who are homeless or unstably housed (n=7) or (b) a specific underserved population with which comparisons with to homelessness may be drawn, or where overlaps between populations are well-established (n=5). To report on these results, studies have been organised under two headings: *homelessness*, and *mental health related conditions,* the latter of which takes a broad view of mental health to include substance related disorders [20].

Homelessness

Table 3 provides an overview of the study characteristics of the seven papers (six individual studies) which focused on or included participants who were experiencing homelessness. Research design varied across the papers, with three randomised pilot or control trials [22, 23, 24], two non-randomised interventions [21, 25], one observational cohort study [26], and one paper presenting a case study to exemplify a navigation intervention that had taken place [27]. Following the pattern noted in the review papers, all but one of the studies [26] took place in the USA.

Notably, all studies focused on a particular subsection of the homeless population such as women [21], youth [26], or African Americans [22, 23], with the majority also specifically focusing on people who were both homeless and experiencing some form of mental ill health [22-25, 27]. In terms of the specific health conditions targeted, these included cancer screening [21], HIV screening and/or treatment [25, 26], reduction of hospital utilisation [27] and improving general health and/or access to healthcare [22-24]. Outcome measures also varied, but commonly included rates of screening and

engagement with and/or utilisation of healthcare services. In the three randomised trials, the control measure was usual care [22-24], although in one study, participants in the control arm were also waitlisted to the intervention [24].

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Authors (Year)	Country	Research design	Health condition/ issue targeted	Study population(s)	Sample size	Outcome measures	Control
Asgary et al. (2017) [21]	USA	Non-randomised intervention study	Breast and cervical cancer screening	Women experiencing homelessness	162	Rates of breast and cervical cancer screening	N/A
Corrigan et al. (2017) [22]	USA	Randomised control trial	General health	African Americans with serious mental illness experiencing homelessness	67	General medical illness; psychiatric disorder; recovery; quality of life.	Usual care
Corrigan et al. (2017) [23]	USA	Randomised control trial	General health/ access to healthcare	African Americans with serious mental illness experiencing homelessness	67	Engagement with PCPs (scheduling and achieving healthcare appointments)	Usual care
Kelly et al. (2018) [24]	USA	Randomised pilot study	General health/ access to healthcare	People with serious mental illness and experiencing housing instability.	20	Engagement in intervention; services utilisation; PCP relationship; health screenings; pain; healthcare management	Usual care + waitlisted for intervention
Rajabiun et al. (2018) [25]	USA	Non-randomised intervention study	HIV treatment	People living with HIV who are unstably housed, with co-occurring substance abuse and psychiatric disorders.	700	HIV-related outcomes including linkage and retention in care; initiation of ART; viral suppression.	N/A
Shah et al. (2019) [26]	Kenya	Observational cohort study	HIV screening and treatment	'Street-connected' youth	781	HIV testing; initiation of ART; retention in care	N/A
Shearer et al. (2019) [27]	USA	Case study	Reduction of hospital utilisation	People experiencing homelessness with psycho-social issues	1	Hospital utilisation	N/A

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Table 3. Descriptive characteristics of primary study papers – homelessness

Each of the seven papers provided a substantive explanation of the navigation that took place. Table 4 provides an overview of the key features of the navigation intervention, and briefly summaries the outcomes reported on.

Every paper provided details of the person(s) who acted as navigator, with this most commonly being a peer (n=4) [22-24, 26]. The remaining studies employed a clinical professional [21], multiple clinical professionals [27], or a combination of peers and clinical professionals [25]. The majority of papers (n=6) [22-27] reported on the training received by the navigation which was usually wide-ranging, and often involved a formal or certificated programme [24, 27]. Three studies also explicitly mentioned ongoing coaching/mentoring/supervision by clinical professionals [24, 26, 27].

With regards to the setting of the navigation, that is where navigators engaged and met with service users, this was usually either a clinical setting (health centre, HIV clinic) [24 – 26] or a field-based location [26, 27]. One study, for example, described navigators attending a variety of locations including parks, pavements, and homeless encampments [26]. Two papers, reporting on the same study, described the setting as being flexible in response to the preferences of the participants [22, 23], and one took place solely within a homeless shelter [21]. In terms of the length of the navigation, all but one study reported a set timeframe, ranging from 90 days to 12 months. In the case of the observational cohort study, the navigation programme was described as ongoing [26].

All papers described the core functions/activities of the navigator in extensive detail. While the language used to describe these activities varied across the papers, common functions included: providing tailored education [21, 25], working collaboratively to identify/review health needs [22, 23, 26, 27], goal setting [22-24], organising and accompanying to health-related appointments [21, 25, 26], providing practical assistance (for example, transport or phones) [21, 25, 26], providing emotional support [21-23, 26, 27], and facilitating linkage to broader health and care providers [21, 25, 26].

In terms of the outcome measures, all seven papers reported that navigation had some degree of positive effect on some of or all the stated measures. Recorded effects included increased rates of screening [21], increased usage of and retention in care [23

-26], improved relationships with primary care providers [24], and improvements in self-reported physical and mental health [22, 24]. There are also a few notable outcomes in relation specifically to the homeless population. One study found that retention in (HIV) care was twice as likely when participants had access to stable housing, indicating that there may be specific difficulties associated with engaging people who are homeless with routine healthcare [25]. Conversely, another study reported that the rate of reduction in pain and improvement in self-management were both greater for those experiencing homelessness compared to those who were not [24]. However, this is potentially be explained by a lower overall standard of health among the homeless population.

In terms of specific barriers to successful implementation, evidence from these studies suggests that navigation may be less successful with both women in general [26], and older women [21]. It is also notable that one study reported no change in behaviours until three months into the intervention [23], suggesting longevity may be a key component in achieving positive outcomes.

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Authors (Year)	Navigator details	Training/supervision received	Setting of navigation	Length of navigation	Core functions/activities of navigator	Reported outcomes
Asgary et al. (2017) [21]	Clinical professional	Not reported	Homeless shelter	Up to 6 months	Tailored education and counselling; scheduling and reminding of appointments; preparing for screening tests; arranging transportation and accompanying to appointments; documenting results of screening; co-ordinating with other professionals.	High rate of screening amongst participants, although older women more likely to refuse screening.
Corrigan et al. (2017) [22]	Peer	Training on 'helping skills' and local resources.	Flexible	12 months	Reviewing health concerns and goal setting; reflective listening; motivational interviewing, strengths assessment; and advocacy.	Improvement in physical and mental health self-report measures compared with control.
Corrigan et al. (2017) [23]	Peer	Training on 'helping skills' and local resources.	Flexible	12 months	Reviewing health concerns and goal setting; reflective listening; motivational interviewing, strengths assessment; and advocacy.	No change reported for first three months; increase in scheduling and achieving appointments in final nine months compared with control.
Kelly et al. (2018) [24]	Peer	Formal training programme and coaching.	Usual care settings	6 months	Use of a collaborative electronic health record. Screening, engagement, goal setting and designing of care plan (for 1 to 4 months); then regular coaching and ongoing support as needed	Increase in visits and improved relationship with primary care providers compared with control. No substantive change to self-management of healthcare. Intervention significantly more impactful for reducing pain and increasing self- management for those who were homeless, compared to those who were not.

Table 4. Details of navigation intervention – homelessness

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Authors (Year)	Navigator details	Training/supervision received	Setting of navigation	Length of navigation	Core functions/activities of navigator	Reported outcomes
Rajabiun et al. (2018) [25]	Mixed team of clinical professionals and peers.	Training on harm reduction, trauma-informed care, and motivational interviewing.	Public health centre	12 months	Providing practical assistance; assisting with access to cell phones; providing education and support around risk behaviours; linkage to housing, social care, and health providers.	High proportion of participants linked to and retained in care; prescribed ART and reached viral suppression. Participants who achieved stabilized housing were twice as likely to be retained in care.
Shah et al. (2019) [26]	Peer	Extensive multi-disciplinary training and mentoring by Social Worker.	HIV clinic; outreach/ field locations	Ongoing	Initial meeting to establish HIV status, offer condoms, discuss prevention, and provide linkage to counselling and testing services; assistance with scheduling appointments; providing emotional support and assistance; accompanying to appointment.	High proportion of HIV-positive participants linked to care. Navigator being known to participants recognised as a facilitator. Females less likely to accept HIV testing than men. Adherence to treatment low among population, potentially due to stigma associated with HIV.
Shearer et al. (2019) [27]	Clinical professionals	Formal training programme and clinical supervision.	Outreach/ field locations	90 days	"Talking story"; establishing patient's strengths; encouraging patients to identify needs and barriers; design and implementation of a co-designed action plan to meet needs.	Case study participant's hospital utilisation decreased.

Table 4 (continued). Details of navigation intervention – homelessness

Mental health related conditions

Table 5 provides an overview of the study characteristics of the five papers (four individual studies) which included participants with mental health related conditions, including substance abuse disorders.

Briefly, the sample consists of three randomised pilot or control trials [28, 29, 31], one non-randomised intervention study [30] and a single qualitative study [32], which reported on qualitative interviews with staff and service users involved in a navigation intervention. Consistent with the pattern noted above, all studies took place in the USA. Study populations included people with severe mental illness [28, 31, 32], people with histories of inpatient psychiatric stays [30, 32] and people with histories of substance abuse [28, 29] including ex-offenders. In terms of the health conditions targeted, the majority (n=4) focused on general health, often orientated towards recovery and/or access to healthcare [29-32], with the remaining study focusing on cancer screening [28]. Outcome measures again varied and included rates of screening and/or service use [28, 29, 31], self-reported barriers to care [28], attitudes and behaviours [31], and various measures of recovery [30]. In the three randomised trials, the control measure was usual care, although in one study, participants in the control arm also received facilitated enrolment into a general care programme [29].

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Authors (Year)	Country	Research design	Health condition/ issue targeted	Study population(s)	Sample size	Outcome measures	Control
Abuelo et al. (2020) [28]	USA	Randomised pilot study	Colorectal Cancer Screening	Older people with mental illness and/or substance abuse disorders	251	Screening	Usual care
Binswanger et al. (2015) [29]	USA	Randomised control trial	Access to healthcare	Recently released ex-offenders with histories of substance abuse	40	Self-reported barriers to care; rate of service use.	Facilitated enrolment into care programme
Compton et al. (2016) [30]	USA	Non-randomised intervention study	General health orientated towards recovery and recidivism	People with a history of inpatient psychiatric recidivism	72	Number of hospitalisations; arrest numbers; various measures of recovery.	N/A
Kelly et al. (2017) [31]	USA	Randomised control trial	General health/ access to healthcare	People with serious mental illness	151	Service utilisation; satisfaction with primary care provider; self-management attitudes and behaviours.	Usual care
Reed et al. (2014) [32]	USA	Qualitative study involving interviews with staff and service users.	General health orientated towards recovery	Repeat psychiatric stay patients, people with serious mental illness.	23	Participant and staff feedback on intervention	N/A

Table 5. Descriptive characteristics of primary studies – mental health related conditions

Table 6 provides an overview of the key features of the navigation intervention for each of the five papers, and briefly summaries the outcomes reported on.

All the papers provided details on the person(s) who acted as navigator. Within this sample, the use of peer navigators was slightly less common than in the homelessness studies, with only one study employing a peer navigator alone [31]. The remaining studies employed either a 'near peer' [29], a team of clinical professionals [28], or a mixed team comprising clinical professionals, a 'near peer' and a peer [30, 32]. Here, the term 'near peer' is used to refer to a person with indirect experience of the study population, for example, a family member who has been incarcerated. Less detail was provided about the training of navigators within this sample, although one paper mentioned the use of a formal training programme delivered by experienced navigators [28], and two mentioned ongoing supervision [28, 29].

Four papers [28-31] reported on the setting of the navigation, which was either described as taking place in a professional clinical or non-clinical setting (healthcare centre, probation centre) [28, 29], or in field-based locations such as participant's homes [30, 31]. Two studies also explicitly mentioned the use of regular phone calls to contact participants [28, 29]. The lengths of the navigation were similar to that of the homelessness studies, ranging from three to 12 months.

All papers described the core functions/activities of the navigator in extensive detail. While the language used to describe these activities again varied across the papers, common functions were very similar to that described above and included: working collaboratively to identify/review health needs [28, 29], goal setting [31], organising and accompanying to health-related appointments [28, 29], providing practical assistance (for example, transport or medication) [28, 29] and facilitating linkage to broader health and care providers [30]. Notably, a number of these papers also mentioned activities that suggested a broad approach to health and wellbeing in that they were less explicitly related to accessing health services/treatment, for example, linkage to local police to reduce incarceration [30], encouraging vocational and volunteering activities [32], and assisting with access to housing [32].

Regarding the outcome measures recorded, all papers again reported that navigation had some degree of positive effect on some of or all the stated measures including increased screening [28], increased engagement with primary care [31], improvements in terms of measures of recovery [30], reduced usage of acute healthcare services/emergency hospitalisation [29, 30] and reduced barriers to healthcare [29]. One study also notably recorded an increase in diagnosis among those patients involved in the navigation intervention, explained by the tendency for chronic health conditions to go undetected amongst these populations [31]. Two studies also noted that for a few of the outcome measures reported on, the improvement was not apparent until late or the end of the intervention suggesting that navigation may also be associated with delayed positive effects [30, 31].

Results from one paper indicate that navigation interventions may be more successful with young people, males, those with substance abuse disorders [28]. Conversely, the navigation was noted as being less effective among participants who with a dual mental health and substance abuse diagnosis [28]. Other reported barriers include the lack of availability among primary care providers [29] and repeat incarceration on the part of participants [29]. The single qualitative study in the sample reported specifically on the perceived barriers and facilitators to success, as relayed by both participants and navigators. Noted facilitators included a 'joined-up' approach between relevant stakeholders and organisations, and a flexible approach to the delivery of the navigation, while barriers included issues around the implementation of technology, and a lack of consistency in approach across navigator teams [32].

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Authors (Year)	Navigator details	Training/supervision received	Setting of navigation	Length of navigation	Core functions/activities of navigator	Reported outcomes / Key findings
Abuelo et al. (2020) [28]	Clinical professionals	Formal training programme delivered by experienced navigator; supervision by project manager.	In person at healthcare centre, and over the phone	6 months	Initial meeting to assess barriers to healthcare; appointment reminders; assisting with translation; resolving insurance issues; arranging transportation; attending to barriers as required.	Higher level of cancer screening compared with control. Intervention most effective among participants with substance abuse disorders, young people and males. Less effective among participants with a dual diagnosis.
Binswanger et al. (2015) [29]	'Near peer'	Supervision by experienced navigator and physician.	In person at probation centre and over the phone	3 months	Assessment of the self-reported treatment needs of participants; assistance with appointments and medication; providing social support and health education; linkage to primary care.	Overall decrease in self-reported barriers to healthcare and decrease in rate of hospitalisation compared with control. Repeat incarceration as key barrier to success of intervention. Increase in use of hospital/acute care explained by lack of primary care availability.
Compton et al. (2016) [30]	Mixed team of clinical professionals, 'near peer' and peer.	Not reported	Homes and other non-clinical settings.	12 months	Provision of case management and recovery support; facilitating linkage to care providers; facilitating recovery and adequate treatment; linkage with local police to prevent incarceration.	Reduction in hospitalisation and improvements across all recovery measures; no significant change to arrest rate. Community ability improved, most quicky, whereas mental health recovery and quality of life took longer to improve.

Table 6. Details of navigation intervention – mental health related conditions

Authors (Year)	Navigator details	Training/supervision received	Setting of navigation	Length of navigation	Core functions/activities of navigator	Reported outcomes / Key findings
Kelly et al. (2017) [31]	Peer	Not reported.	Outreach/ field locations	6 months	Screening, engagement, goal setting and designing of care plan (for 1 to 4 months); then regular coaching and ongoing support as needed.	Those in intervention arm significantly more likely to become and/or stay connected with primary care. Higher rates of diagnosis and decrease in level of reported pain compared to control. Evidence of delayed improvements (after six months) to self-management and reduced hospital usage. Variation in the time taken by participants to progress, suggesting need for flexibility in intensity of navigation.
Reed et al. (2014) [32]	Mixed team of clinical professionals , 'near peer' and peer.	Not reported.	Not specified.	6 months	Assisting with access to adequate treatment; assisting with access to housing; encouraging community involvement; developing a ''meaningful day'' through vocational, volunteer, or educational activities; supporting use of technology to aid recovery.	Facilitators to success of intervention include partnerships among stakeholders with common goals, pooling of resources by agencies, a varied team of navigators, "whatever it takes" mentality, mobile 24hr availability. Barriers to success included slow pace of implementation of technology, lack of fidelity across teams.

Table 6 (continued). Details of navigation intervention – mental health related conditions

DISCUSSION

This scoping review sought to map the existing literature relating to the implementation of navigation models with underserved populations, and more specifically people who are homeless. In doing, this review has identified a series of key considerations for the design and implementation of the HNM within the CANCERLESS project.

Overall, this review indicates that navigation models have been successfully implemented with a range of underserved populations including people who are homeless and have consistently been associated with increased and more timely access to healthcare, and improvements in a wide range of other health-related outcomes. Given the substantive and persistent health disparities faced by people who are homeless [2], the use of a patient/health navigator appears to be an extremely promising approach in addressing the unmet needs of this population. It is however notable that to date there has been very limited application and evaluation of navigation models outside of the USA, meaning there remains the need to explore how such an approach could work in other contexts including in Europe. This is particularly important given that many countries have very distinct systems for delivering health and social care, and because the nature and scale of homelessness varies greatly country-to-country [33].

This review has highlighted that the way in which these models have been implemented and reported on is highly varied, making it difficult to draw clear comparisons. Having said that, a series of common themes can be identified. While the language used to explain the role of the navigator varied across studies, most interventions involved a relatively similar set of activities/functions and took place longitudinally, generally for six months or more, rather than as a one-off meeting. Perhaps the most defining feature of the navigator role is that this is effectively a non-clinical role, focused on practical and emotional support rather than delivering treatment. As briefly noted in the Introduction, this review was particularly interested in understanding whether and how the principles of the Patient Empowerment Model [5] were already being integrated alongside the use of navigators as the combination of these approaches is a key aim of the CANCERLESS project. That the emphasis in these interventions was often placed on facilitation,

collaboration between navigator and patient, and the promotion of self-care/self-management of health does indicate that many of these interventions are already implicitly drawing on the principles of patient empowerment and that navigators in themselves are understood to be source of empowerment for patients of underserved communities.

The use of peer or 'near-peer' navigators who share common characteristics with the study population was a common feature across the papers reviewed - particularly in those studies that focused on people who are homeless - and were associated with a range of positive outcomes. Given that a primary aspect of the navigator role is to provide emotional support and/or counselling, it is possible that peer navigators may be able to show a distinct level of empathy and understanding when compared with clinical professionals. Indeed, the importance of a strong relationship between participant and navigator was repeatedly noted. However, as discussed elsewhere [22], it remains unclear as to what qualities of the 'peer' are most important for achieving positive outcomes; for example, in the case of the CANCERLESS project, whether it is most important for peers to have lived experience of cancer, lived experience of homelessness or both. Further research of a qualitative nature is now required to elicit a greater understanding of this specific aspect of the model.

With regard to the setting of these interventions, it is notable that navigators often seemed to occupy a position – both physically and in terms of their activities - between more formal healthcare systems and the wider field. The need to be flexible in terms of location of delivery was regularly emphasised, with outreach and the use of less formal health settings (e.g., community health centres) both common. As with the use of peers, this aspect of previous studies again emphasises the importance of familiarity in the success of interventions with underserved and marginalised populations.

Also notable is that several of the interventions were focused on supporting a specific gender (for example, homeless women), while those that did not often reported different outcomes depending on gender. This suggests that gender-tailored interventions may yield more positive and consistent outcomes. Taking account of gender may also be particularly pertinent where cancer is the health issue targeted, given that there are

differences in the types of cancer that men and women are at risk of. As two of the studies reported that their interventions were less successful with older people, a similar consideration of age may also be beneficial.

The variety of search databases utilised, as well as extensive reference searches, reduced the risk of bias and are clear strengths of the present study. However, there are a number of limitations which should be noted. First, there is a potential influence of publication bias, with negative and null findings remaining in the 'file drawer.' Second, the use of additional search terms may have identified other relevant papers. Third, in order to manage the scale of the review, it was decided that primary studies which focused on broader underserved populations would be excluded. While review papers of this nature were still included in order to capture key themes from this body of research, it is possible that primary studies of relevance were missed – for example, those involving refugee or migrant populations. Finally, this review did not fully explore the use of strategies associated patient empowerment [5], which is a core feature of the Health Navigator Model being developed by the CANCERLESS project. While a rationale for this was presented in the Introduction of the review, it remains important to explore how the core principles of patient empowerment can be integrated into our intervention, and this is something that will be attended to through qualitative research.

CONCLUSION

In conclusion, findings from the present scoping review support the implementation of the navigator models among underserved communities and highlight a series of key considerations for the design and implementation of the Health Navigator Model within the CANCERLESS project. Interventions to date have utilised a longitudinal approach and a navigator who is a non-clinical expert, shares common characteristics with the patient, and whose key role is to focus on facilitation and emotional support. Finally, gendered tailored interventions may yield the greatest results. In order to maximise success with the implementation of future patient/ health navigator model further research that focuses on the effectiveness of the approach outside the USA and identifying important characteristics of the navigator (e.g., situation similarities, disease similarities or both) is warranted.

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cancerless

Cancer prevention and early detection among the homeless population in Europe: Co-adapting and implementing the Health Navigator model

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