

Is patient navigation a solution to the problem of "leaving no one behind"? A scoping review of evidence from low-income countries

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Accepted on 29 July 2020

Abstract

Patient navigation interventions, which are designed to enable patients excluded from health systems to overcome the barriers they face in accessing care, have multiplied in high-income countries since the 1990s. However, in low-income countries (LICs), indigents are generally excluded from health policies despite the international paradigm of universal health coverage (UHC). Fee exemption interventions have demonstrated their limits and it is now necessary to act on other dimensions of access to healthcare. However, there is a lack of knowledge about the interventions implemented in LICs to support the indigents throughout their care pathway. The aim of this paper is to synthesize what is known about patient navigation interventions to facilitate access to modern health systems for vulnerable populations in LICs. We therefore conducted a scoping review to identify all patient navigation interventions in LICs. We found 60 articles employing a total of 48 interventions. Most of these interventions targeted traditional beneficiaries such as people living with HIV, pregnant women and children. We utilized the framework developed by Levesque et al. (Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health* 2013;12:18) to analyse the interventions. All acted on the ability to perceive, 34 interventions on the ability to reach, 30 on the ability to engage, 8 on the ability to pay and 6 on the ability to seek. Evaluations of these interventions were encouraging, as they often appeared to lead to improved health indicators and service utilization rates and reduced attrition in care. However, no intervention specifically targeted indigents and very few evaluations differentiated the impact of the intervention on the poorest populations. It is therefore necessary to test navigation interventions to enable those who are worst off to overcome the barriers they face. It is a major ethical issue that health policies leave no one behind and that UHC does not benefit everyone except the poorest.

Keywords: Patient navigation, indigents, access to health care, scoping review

Introduction

The goal of achieving universal health coverage (UHC) has for several years been a global priority (WHO, 2005, 2010; Garrett *et al.*, 2009). In 2005, the World Health Assembly defined UHC as: 'access

to key promotive, preventive, curative and rehabilitative health interventions for all at an affordable cost, thereby achieving equity in access'. However, no consensus exists regarding the conceptual definition of UHC (Abiuro and De Allegri, 2015), which thus allows for a multitude of interpretations and leaves room for various

KEY MESSAGES

- Despite user fee exemptions, the most vulnerable people still face non-financial barriers that prevent them from accessing care.
- Patient navigation interventions act on several barriers and seem to be effective in enhancing the abilities of poor and vulnerable populations in low-income countries to access healthcare.
- The scoping review shows that interventions promoting access to healthcare that target indigents are lacking.
- There is a need to test innovative interventions such as navigation-type interventions to link indigents to health systems.

political strategies to be implemented to achieve UHC. Despite calls to implement a pro-poor UHC ([Participants at the Bellagio Workshop on Implementing Pro-Poor Universal Health Coverage et al., 2016](#)), the question of how to take account of the indigents remains unsolved. Most of the health policies carried out in Africa focus on target populations such as pregnant women and children under five or target diseases such as HIV. The poorest, known as indigents, who have been excluded from the vulnerable categories in health policies ([Ridde, 2008](#)), continue to suffer the same treatment to this day.

The capacity to pay is a major determinant of care accessibility, and user fee exemptions have generally yielded good results in the increased use of services ([Ridde and Morestin, 2011](#)) despite the disruptive effects that need to be addressed ([Ridde et al., 2012](#)). However, a study in Burkina Faso has shown that, following an intervention, user fee exemptions failed to increase the use of health services by indigents ([Atchessi et al., 2016](#)). Such indigents, who are mainly widow(er)s under 45 years of age, unmarried people aged 45 years and over and married women aged 60 years and over ([Ouédraogo et al., 2017](#)), also face other barriers to accessing health services, such as a lack of health literacy, distance from health centres, lack of transportation and social exclusion ([Soors et al., 2013](#)). These barriers undermine the abilities of indigents to access care; quantitative and qualitative assessments of local non-financial barriers to accessing health services are therefore essential to achieve health equity ([Thiede and Koltermann, 2013](#)).

Innovative research is clearly needed to enable the indigents to overcome all the non-financial barriers they face. In fact, interventions in high-income countries (HICs) that target the most vulnerable populations are proliferating ([Valaitis et al., 2017](#); [Carter et al., 2018](#)). Initially introduced in 1990 in the USA, navigation interventions are based on findings that show poor people encounter substantial barriers when seeking the timely screening, diagnosis and treatment of cancer ([Freeman, 2006](#)). Such interventions have now progressively expanded to meet the needs of other patients. Patient navigation programmes are based on ‘navigators’ who accompany patients through all phases of care to overcome patient-level barriers to accessing care ([Valaitis et al., 2017](#); [Carter et al., 2018](#)). Although this type of intervention is becoming popular in HICs, knowledge about patient navigation intervention in low-income countries (LICs) is lacking. Reducing this gap could help address major ethical issues concerning the care of the poorest. The aim of our study was to synthesize what is known about navigation-type interventions to facilitate access to healthcare in LICs for poor and vulnerable populations.

Methods

We conducted a scoping review of patient navigation programmes in LICs using the methodological framework developed by [Arksey](#)

and [O’Malley \(2005\)](#). This type of literature review was chosen because it allowed us to identify the types of available evidence in a given field, identify key characteristics or factors related to a concept and to identify and analyse gaps in the knowledge base ([Munn et al., 2018](#)). We followed each distinct stage of the framework and, more specifically, the protocol with the improvements of the initial framework made by the VERDAS consortium ([Degroote et al., 2018](#)). Although not always applicable, the reporting of the scoping review was guided by the preferred reporting items for systematic reviews and meta-analyses (PRISMA) checklist ([Tricco et al., 2018](#)), as described in [Supplementary File S1](#).

Definitions

The concept of patient navigation was introduced as MeSH terms in the PubMed database as recently as 2013. Several articles in the literature provide definitions of patient navigation ([Freeman and Rodriguez, 2011](#); [Paskett et al., 2011](#); [Wang et al., 2015](#); [Freund, 2017](#); [Valaitis et al., 2017](#); [Wells et al., 2018](#)), system navigation ([Carter et al., 2018](#)) or navigators ([Shommu et al., 2016](#); [McBrien et al., 2018](#)). However, these definitions fail to delineate the concept: it is not sufficiently explicit and defined, which leaves room for confusion. For instance, the definitions do not clearly distinguish between what is or what is not a navigation intervention (concrete actions are not very explicit). We therefore define patient navigation as an intervention involving a person, group of people or organization that aims to promote access to healthcare for people who are disconnected (marginalized, excluded) from health systems by acting on at least two of the five abilities needed to access healthcare (as defined by [Levesque et al., 2013](#)). Acting on a single barrier to access care (e.g. the financial barrier alone) is often insufficient. We therefore decided that support throughout the care path should act on at least two barriers if it is to truly empower patients to access health services.

The objective of this review is to find in the literature navigation interventions for the poor, vulnerable, and populations excluded from health systems, and in particular for the indigents. Using the scoping review method allowed us to do a very broad search and list all the terms potentially used to describe this type of population. Indeed, even if the term indigent is commonly used, definitions and criteria (especially quantitative criteria related to income or assets) vary from country to country or even do not exist. We therefore chose to base our work on a community-defined criteria for indigence which was formulated following a process of participatory reflection at the community level carried out in Burkina Faso:

someone who is extremely disadvantaged socially and economically, unable to look after himself (herself) and devoid of internal or external resources ([Ridde et al., 2010](#)).

We identified all the interventions which targeted people described by the authors as being in a situation of extreme poverty

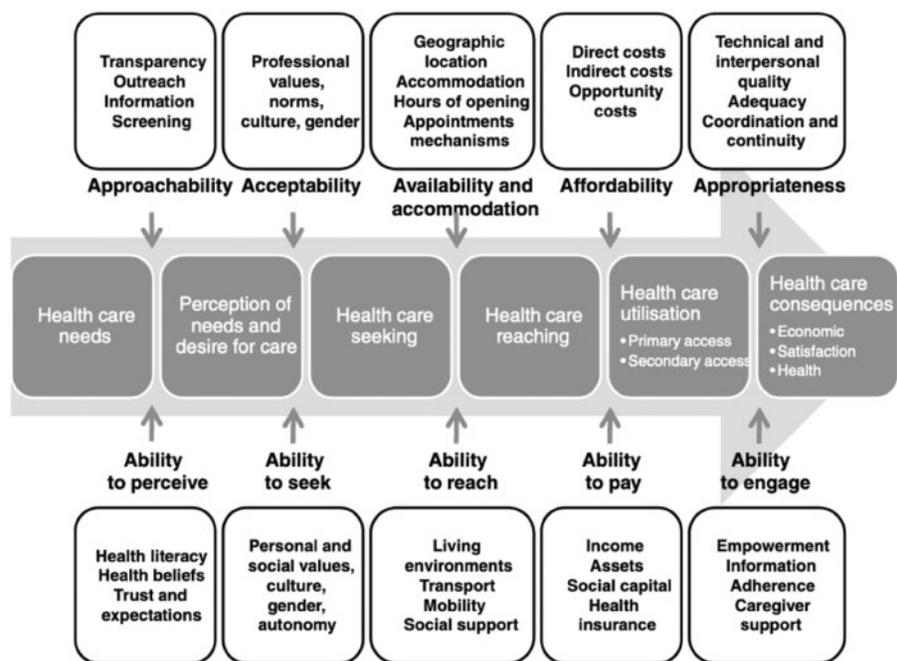


Figure 1 A conceptual framework of access to healthcare (Levesque *et al.*, 2013). Copyright ©2013 by Levesque *et al.*; licensee BioMed Central Ltd.

or vulnerability, and paid particular attention to whether the study targeted a sub-group within these populations, composed of the poorest of the poor, the worst off, i.e. the indigents.

Analytical framework

We therefore used the Levesque *et al.* (2013) framework to define a navigation intervention. Levesque and colleagues conceptualized five dimensions pertaining to the accessibility of services: (1) approachability, (2) acceptability, (3) availability and accommodation, (4) affordability and (5) appropriateness and five corresponding personal abilities that interact with the dimensions of accessibility to generate access: (1) ability to perceive, (2) ability to seek, (3) ability to reach, (4) ability to pay and (5) ability to engage, as shown in Figure 1. Patient navigation is an intervention that acts primarily at the patient level, enabling them to overcome all the obstacles they face throughout their care journey. We choose to use Levesque *et al.*'s framework because it enabled us to analyse barriers to care from the patient's perspective and in terms of the care pathway. Moreover, it has previously been used in a study aimed at understanding barriers to access care in the Hauts-Bassins region in Burkina Faso and is easily understood by health professionals, making it easier to link theory and practice. We focused on the abilities of patients rather than the characteristics of services (e.g. professional values, geographic location of the facilities, costs) that lie mainly outside the scope of navigators. Indeed, the navigator can accompany the patient if the latter is not able to go to the health centre but cannot decide to set up a centre closer to the target populations. However, actions to improve health systems are also clearly needed because barriers subsist at the health system level, and, for optimal effects, the demand and supply of care must both be improved.

Research strategies

The research question that guided our review was: 'what is known about patient navigation interventions that facilitate access to modern health systems for poor and vulnerable people in low-income countries?' We listed all keywords related to the four key concepts

of our research question: navigation/navigator, health, poor/vulnerable and LICs. An example of our search strategy is provided in Supplementary Appendix S1. We identified relevant literature in March 2019 by searching for articles based on combinations of our keywords in six scientific databases (PubMed, Scopus, Cairn, EconLit, EBSCOhost (Business source and academic search premier) and Web of Science) and three grey literature databases (Wholis, OpenGrey and the World Bank database). All the records collected were saved in the Zotero reference manager software. Duplicates were removed in Zotero.

We selected papers at two stages using exclusion and inclusion criteria: one screening was based on the titles and abstracts and the second was a full-text selection. All uncertainties were discussed collectively. To be included, the references had to meet the following criteria: (1) the text is written in French or English, (2) the intervention takes place in an LIC (defined by the World Bank for the current 2019 fiscal year), (3) the article relates to a navigation intervention as we have defined it, (4) the full-text is available and (5) the intervention was evaluated, and the article presents the results of the evaluation. Our aim was to identify interventions that aimed to improve people's abilities to access health services, regardless of the reason for the request for care (e.g. whether due to illness or pregnancy), and, as the definition we give for patient navigation intervention indicates, the goal is for people to be able to access care in health facilities rather than at home. Following the selection of full texts, we checked the bibliography of the articles included in the scoping review to identify additional potentially relevant studies. The selected articles were charted in Excel according to a data charting form we had jointly developed. We extracted data on the characteristics of articles (authors, year of publication, etc.), the characteristics of interventions (country of intervention, target populations, the abilities on which the intervention acts according to the Levesque *et al.*, 2013 framework, etc.), navigators (gender, remuneration, etc.) and evaluation of the interventions (type of evaluation, method, results, etc.).

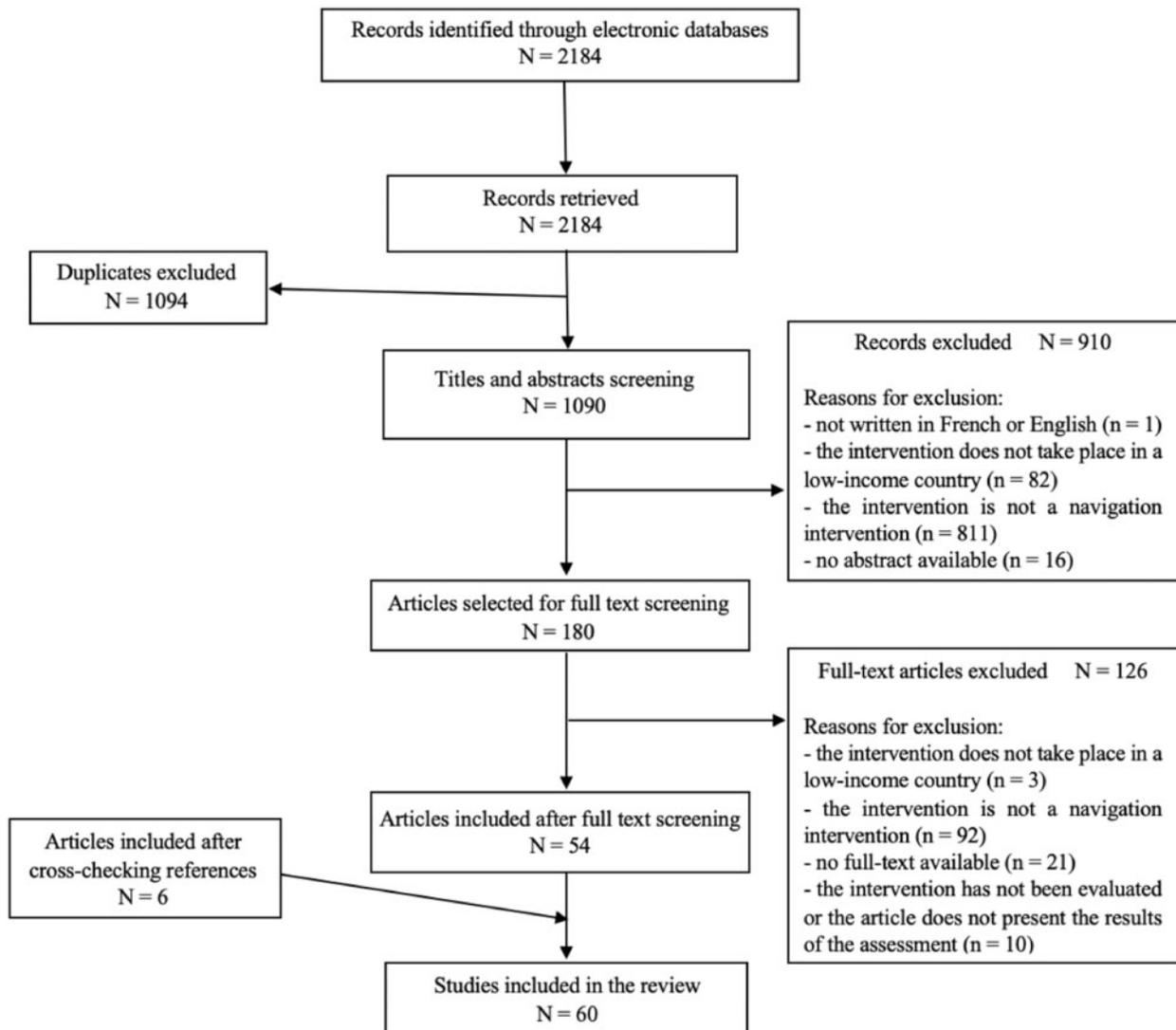


Figure 2 Flow diagram of study selection procedure and results (adapted from PRISMA 2009).

Results

Our search strategy yielded an overall total of 2184 citations. Totally 1094 duplicate records were then excluded, leaving a total of 1090 articles. One hundred and eighty of these were then selected on the basis of their titles and abstracts. A final set of 60 articles met all inclusion criteria and were selected for analysis. The main reason for excluding articles was that they did not report patient navigation interventions (either no intervention at all or interventions that acted on a single barrier to accessing care as defined by Levesque *et al.*, 2013). The PRISMA diagram (Moher *et al.*, 2009) was used to guide the selection process (Figure 2).

The included articles were published between 1997 and 2019 (see Figure 3). They reported 48 patient navigation interventions (sometimes several articles were published on the same intervention) in 16 LICs: Burkina Faso, Democratic Republic of Congo, Ethiopia, Guinea-Bissau, Haiti, Liberia, Malawi, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Tanzania, Togo, Uganda and Zimbabwe. The geographic distribution of the included studies is shown in Figure 4.

Very few articles used the term 'navigation' to designate patient navigation interventions. Only five mentioned this term, four to

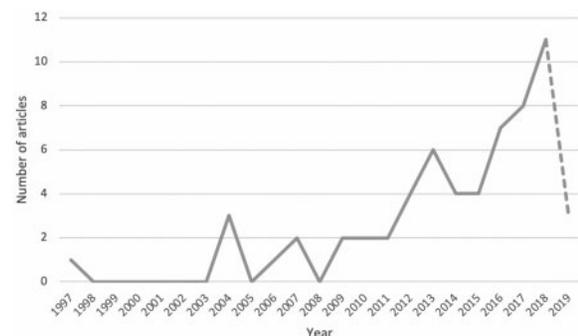


Figure 3 Time trends of publication of patient navigation interventions in LICs*. *The decrease in the number of publications in 2019 can be explained by the fact that the literature search was conducted in March 2019.

designate navigation within the centre (to help navigate patients inside the facility to the services they require) (Ware *et al.*, 2016; Besada *et al.*, 2018; MacKellar *et al.*, 2018; Rogers *et al.*, 2018), whereas one referred to a navigation close to the way we have defined it, stating 'patient navigation is designed to identify and overcome barriers to care for the most disadvantaged patients and

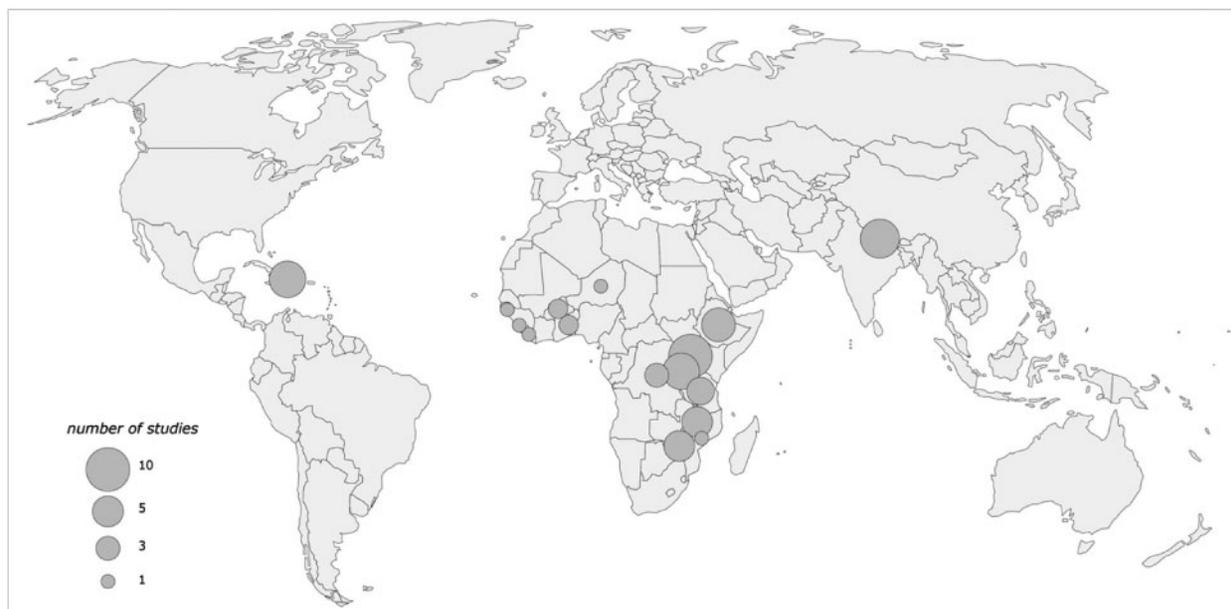


Figure 4 Geographic distribution of included studies in the scoping review.

therefore has the potential for broad applications in global health' (Matousek *et al.*, 2017).

Of the 48 interventions, 6 were conducted at a national level, 21 at a level of one or more districts, 17 interventions at a lower level (community, health centre, health area, sub-district) and 2 were multilevel interventions. One intervention had been scaled up from one hospital to seven public clinics (Behforouz *et al.*, 2004; Koenig *et al.*, 2004; Mukherjee *et al.*, 2006; Mukherjee and Eustache, 2007), whereas another was a networked programme involving several projects at different scales (Penny *et al.*, 2007). Two navigation programmes comprised actions set up by the communities themselves (Skovdal *et al.*, 2013; Muzyamba, 2019).

The interventions identified were implemented in rural ($n=29$), urban ($n=6$), both rural and urban ($n=12$) and suburban ($n=1$) settings. Thirteen interventions were based on a participative approach where the target populations were involved in the design, implementation or evaluation of the intervention.

What is the content of these interventions?

No patient navigation intervention in LICs specifically targeted individuals (not even the elderly). The target populations of the interventions (some targeted several populations) were people living with or at risk of HIV ($n=17$), pregnant women and newborns ($n=16$), people with a specific disease (such as tuberculosis, schizophrenia or breast cancer) ($n=13$), children (with diseases such as pneumonia, diarrhoea or malaria) ($n=6$) or the entire community ($n=1$).

The health issues targeted by the interventions (some targeted several health issues) (see Figure 5) were: HIV ($n=19$), maternal and newborn health ($n=14$), child health (various diseases such as pneumonia, diarrhoea and malaria) ($n=7$), tuberculosis ($n=4$), epilepsy ($n=2$) (Guinhouya *et al.*, 2010; van Diessen *et al.*, 2018), hypertension ($n=2$) (Korwani *et al.*, 2014; Chimberengwa and Naidoo, 2019), obstetric complications ($n=2$) (Kandeh *et al.*, 1997; Seim *et al.*, 2014), surgical care ($n=1$) (Matousek *et al.*, 2017), measles ($n=1$) (Gignoux *et al.*, 2018), schizophrenia ($n=1$) (Asher *et al.*, 2018), leprosy ($n=1$) (Rogers *et al.*, 2018), breast cancer ($n=1$) (Kassam *et al.*, 2017), elevated blood pressure ($n=1$)

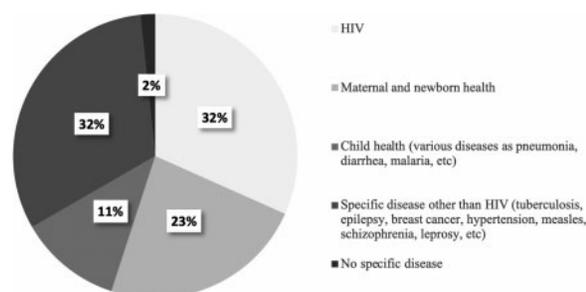


Figure 5 Health issues targeted by the interventions.

(Neupane *et al.*, 2018), rehabilitative care and orthopaedic reconstruction ($n=1$) (Penny *et al.*, 2007), sexually transmitted diseases ($n=1$) (Behforouz *et al.*, 2004; Koenig *et al.*, 2004; Mukherjee *et al.*, 2006; Mukherjee and Eustache, 2007) and no specific disease ($n=1$) (Musunguzi *et al.*, 2017).

Although the interventions were patient centred, they were not always individualized and sometimes targeted multiple people simultaneously. We therefore distinguished interventions that targeted individuals only (e.g. sensitization activities conducted through individual home visits) ($n=16$) from interventions that targeted groups only (e.g. sensitization activities that targeted the whole community through sensitization meetings) ($n=1$) as well as interventions that targeted both individuals and groups, depending on their actions ($n=31$). This yielded a wide variety of interventions, from Integrated Community Case Management strategies for children to women's groups for pregnant women. All met our definition of navigation.

Following Levesque *et al.*'s (2013) framework, we found that all interventions ($n=48$) acted on the ability to perceive, 6 interventions targeted the ability to seek, 34 the ability to reach, 8 the ability to pay and 30 the ability to engage (Figure 6). No intervention acted on all five abilities simultaneously. Table 1 provides an overview of the actions implemented for each ability. An example of a detailed patient navigation programme is presented in Box 1.

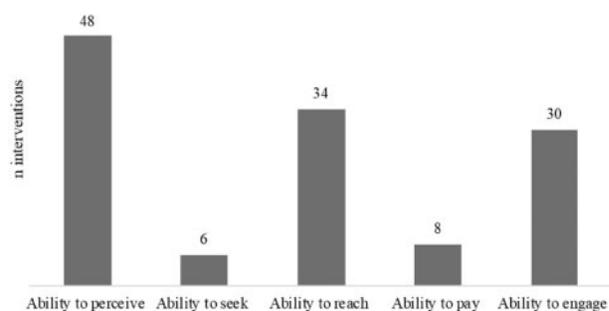


Figure 6 Abilities (according to Levesque *et al.*, 2013) on which the interventions act.

How are these navigation programmes implemented?

In 29 interventions, navigators were one type of person, while in 19 other interventions, a mix of people were involved. The people who most often embodied the status of navigators were Community Health Workers (CHWs) ($n=16$) (Behforouz *et al.*, 2004; Koenig *et al.*, 2004; Mukherjee *et al.*, 2006; Mukherjee and Eustache, 2007; Penny *et al.*, 2007; Guinhoya *et al.*, 2010; Ivers *et al.*, 2011; Rich *et al.*, 2012; Franke *et al.*, 2013; Mugeni *et al.*, 2014; Gupta *et al.*, 2016; Reif *et al.*, 2016; Ferrand *et al.*, 2017; Matousek *et al.*, 2017; Busza *et al.*, 2018; Gignoux *et al.*, 2018; Munyaneza *et al.*, 2018; Rogers *et al.*, 2018; van Diessen *et al.*, 2018; Wroe *et al.*, 2018), also known in Uganda as village health teams (VHTs) (Altaras *et al.*, 2017; Ekirapa-Kiracho *et al.*, 2017; Musinguzi *et al.*, 2017). Other individuals ($n=13$) were also implicated in navigation programmes, such as community own resource persons (Kema *et al.*, 2012), community health agents (CHAs) (Savoie and Lambert, 2012), community cadres (Patel *et al.*, 2012), female community health volunteers (FCHVs) (Andersen *et al.*, 2013; Panday *et al.*, 2017; Neupane *et al.*, 2018), peer HIV educators (Vu *et al.*, 2017), peers (members of the community) (Muzymba, 2019), community-based rehabilitation workers (Asher *et al.*, 2018), lay counsellors (Barnabas *et al.*, 2016; Ware *et al.*, 2016), community motivators (Kandeh *et al.*, 1997), community volunteers (Seim *et al.*, 2014) and community relay workers (Hounton *et al.*, 2009). Other interventions involved the following types of people: community antiretroviral therapy (ART) groups and ‘regulatory cadres’ (counsellors) to form and monitor groups (Rasschaert *et al.*, 2014); breast cancer survivors, health professionals and medical and nursing students (Kassam *et al.*, 2017); nurses at the health centre and trackers for participants who had not visited either health facility within 6 months (Kotwani *et al.*, 2014); health extension workers (HEWs) and community health promoters (CHPs) (Datiko *et al.*, 2015; Tulloch *et al.*, 2015); CHWs, social workers and nurses (Gupta *et al.*, 2013); peer leaders, peer educators and social workers (Konate *et al.*, 2011); village health workers and co-operative inquiry groups (Chimberengwa and Naidoo, 2019); home-based care volunteers and volunteer community escorts (Nsigaye *et al.*, 2009); volunteer facilitators and maternal and neonatal health task forces (Colbourn *et al.*, 2013); CHWs and Animatrices de Santé Maternelle (ASMs) (Haver *et al.*, 2015); two HEWs in each health post and a network of women volunteers who formed the Women’s Development Army in each community (Wereta *et al.*, 2018); Health Development Army, HEWs and Women’s development groups (Jackson and Hailemariam, 2016; Jackson *et al.*, 2016); FCHVs and CHWs (Nonyane *et al.*, 2016); VHTs and male partner access clubs (Ediau *et al.*, 2013); peer HIV-positive and ART-adherent expert-client counsellors (MacKellar *et al.*, 2018); women’s groups with female facilitators

(Manandhar *et al.*, 2004; Morrison *et al.*, 2010; Houweling *et al.*, 2016, 2019); various community groups (church groups, AIDS support groups, burial society, rotating credit society, women’s groups, sports clubs, youth groups, co-operatives and farmer’s groups) (Skovdal *et al.*, 2013) and various community cadres (such as social assistants, community relays, health surveillance assistants, village health committees, linkage facilitators, VHTs, expert clients/peer educators living with HIV, male champions, mentor mothers living with HIV) (Besada *et al.*, 2018).

The gender of navigators was not mentioned in articles focused on 24 of the interventions. In the others, the navigators were all women in 8 interventions, mostly women (>50%) in 7, mostly men in 3 and mixed in 6. In addition to interventions that rely on women’s groups, which are often partially composed of women who have already experienced pregnancy, there were peer navigators in 10 of the interventions. Peer support within the healthcare context can help provide appropriate emotional and informational support and can be defined as ‘the provision of emotional, appraisal, and informational assistance by a created social network member who possesses experiential knowledge of a specific behaviour or stressor and similar characteristics as the target population, to address a health-related issue of a potentially or actually stressed focal person’ (Dennis, 2003). Peers were used to help take action against HIV (Behforouz *et al.*, 2004; Koenig *et al.*, 2004; Mukherjee *et al.*, 2006; Mukherjee and Eustache, 2007; Patel *et al.*, 2012; Skovdal *et al.*, 2013; Rasschaert *et al.*, 2014; Ferrand *et al.*, 2017; Vu *et al.*, 2017; Besada *et al.*, 2018; Busza *et al.*, 2018), hypertension (Chimberengwa and Naidoo, 2019) and breast cancer (Kassam *et al.*, 2017).

These navigators can be volunteers or may receive a degree of compensation for their work. Articles reporting 18 out of the 48 interventions gave no details on whether navigators received compensation. In six interventions, navigators were described as volunteers (Manandhar *et al.*, 2004; Morrison *et al.*, 2010; Skovdal *et al.*, 2013; Rasschaert *et al.*, 2014; Seim *et al.*, 2014; Altaras *et al.*, 2017; Neupane *et al.*, 2018). In four cases, volunteers received compensation in kind such as: t-shirts, bags, bicycle, rain gear and so on (Kandeh *et al.*, 1997; Hounton *et al.*, 2009; Kema *et al.*, 2012; Ediau *et al.*, 2013). In 12 interventions, navigators received financial incentives that were variously described as cash bonuses (Mugeni *et al.*, 2014), remuneration (Rogers *et al.*, 2018), monthly financial incentives (Rich *et al.*, 2012; Franke *et al.*, 2013; Gupta *et al.*, 2013, 2016; Munyaneza *et al.*, 2018), monthly stipends (Nsigaye *et al.*, 2009; Ferrand *et al.*, 2017; Busza *et al.*, 2018), small allowances at monthly meetings (Andersen *et al.*, 2013; Colbourn *et al.*, 2013), payments (Wroe *et al.*, 2018), daily monetary incentives (Panday *et al.*, 2017), cash incentives based on the activities performed (Nonyane *et al.*, 2016), monthly compensation and monetary incentives when service indicators were met (MacKellar *et al.*, 2018) and salaries (Behforouz *et al.*, 2004; Koenig *et al.*, 2004; Mukherjee *et al.*, 2006; Mukherjee and Eustache, 2007). For some interventions, whether navigators were paid depended on their status (e.g. HEWs are salaried and CHPs are volunteers) (Datiko *et al.*, 2015; Tulloch *et al.*, 2016; Jackson and Hailemariam, 2016; Jackson *et al.*, 2016; Besada *et al.*, 2018). In other cases, the navigators received both financial and non-financial compensations: for instance, CHAs received access to free healthcare, a bicycle and a payment of five euros per month and were entitled to some compensation due to the benefits from the sale of basic drugs they were responsible for (Savoie and Lambert, 2012); community cadres received a small monthly incentive and were supplied with a uniform (Patel *et al.*, 2012) and VHTs received incentive-led rewards

Table 1 Overview of the actions implemented for each ability

Ability	Actions	References	
Ability to perceive	Identify sick people or at-risk people in the community (case finding) (a) or pregnant women (b)	(a) 9, 15, 16, 17, 23, 29, 30, 33, 36, 37, 45, 46, 47, 48, 50, 53, 55; (b) 8, 19, 24, 25, 44	
	Provide a varied combination of health promotion, information, education, destigmatization, counselling and sensitization at the community level (via community gatherings, radio, local newspapers, etc.) or at group level (e.g. group education sessions) (a), at the household or individual level (e.g. via house-to-house visits) (b) or both at the collective and individual level (c)	(a) 2, 3, 9, 12, 26, 32, 45, 47, 49, 54, 55, 57; (b) 1, 6, 8, 17, 23, 31, 35, 53, 58, 59; (c) 5, 11, 20, 24, 25, 27, 28, 29, 39, 40, 41, 42, 50, 52	
	Accompany the patients to community support meetings	38	
	Tell patients where the sites to obtain treatment are located, how to get there and when to go	58	
	Conduct diagnostic campaigns through house-to-house visits, at the community level, or within the health facilities	4, 7, 9, 17, 19, 27, 30, 31, 32, 35, 37, 48, 49, 51, 55, 56, 58, 60	
	Facilitate the creation or operation of community groups to discuss health issues and develop strategies to address these	7, 10, 21, 22, 30, 34, 44	
	Inform patients about the activities set up by the intervention, such as the availability of incentives and the removal of user fees	42	
	Visit the patients in the event of non-appearance in the health centre after a diagnosis that revealed a disease (a), sometimes this will happen several times until they go to the centre (b)	(a) 43, 56; (b) 51	
	Refer participants or families to local organizations offering additional support services	13	
	Carry out meetings with community representatives and biannual meetings at facility level to identify major barriers to accessing services and gaps in service provision and to develop strategies and joint action plan to address these	59	
	Ability to seek	Use cultural groups for community mobilization and for communicating different health messages	28
		Use specific tools and graphics for awareness campaigns to contribute to cultural appropriateness	27
		Guide the patient through the entire medical process to obtain a hospital record, financial support and so on	33
Target men through outreach activities to incite them to encourage women to visit health centres		11, 53	
Inform patients that they are allowed to reproduce certain cultural traditions (e.g. rituals related to childbirth) in health facilities		24, 25	
Ability to reach	Use of a dedicated vehicle for transporting patients to the health centre	46	
	Create an ambulance service that can be called upon by navigators	24, 25	
	Equip navigators with cell phones to alert the local health centre and district hospital of emergencies and call ambulances to refer severe cases (a) or pregnant women quickly (b)	(a) 35; (b) 19	
	Facilitate referrals by helping organize transport to the referral facility	1, 53	
	Accompany the patients to the health centre (with transportation or on foot)	1, 2, 3, 14, 18, 19, 32, 33, 36, 38, 42, 43, 44, 47, 48, 60, 2, 52	
	Distribute referral cards that enable navigators to send patients to the health centre and to follow-up on them		
	Help patients to pay for transport: reimburse transportation (a), distribute travel vouchers (b), provide transportation allowances or stipend (c) and set up free transportation to the health centre (d)	(a) 50; (b) 31; (c) 14, 18, 27, 37, 42, 43, 49; (d) 55	
	Pay the cost of fuel for the ambulance to transfer people from villages to health centres	53	
	Help navigate patients to the services they require (introducing facility staff, guide patients through all necessary steps in the clinic, etc.)	5, 32, 33, 50, 51, 58	
	Refer cases using any motorbikes available in the area and reimburse the motorcyclists upon arrival at the hospital	15	
	Help provide safe passage to health facilities (in conflict areas)	40	
	Support community strategies to address or finance transport and referrals (such as bicycle ambulances, stretcher schemes, road maintenance, village savings and loans, emergency funds, etc.)	8, 10, 20, 21, 22, 34, 59	
	Mobilize the community to form action groups (e.g. people who volunteer to carry patients in hammocks to the health centre or to a place where transport can be obtained)	26	
Use motorbikes on a weekly basis to locate patients who have missed a visit and bring them back to clinic where possible	60		
Ability to pay	Partnership with local transporters to ease geographical access to healthcare	12	
	Provide subsidies to support families unable to finance treatment	46, 57	

(continued)

Table 1 (continued)

Ability	Actions	References
Ability to engage	Distribute referral vouchers that are redeemable for care and health services at the health facilities	
	Support community strategies to finance care (such as cost-sharing initiative in the community for finance health emergencies or community-generated funds)	10, 20, 21, 22, 34
	Promote savings through savings groups and other methods	12
	Support income-generating activity projects	3, 54
	Conduct follow-up visits to ensure continuity of care at home or in the health posts	9, 39, 46
	Carry out home visits to facilitate treatment adherence, good practices and correct treatment administration (a), to ensure that the obligatory health visits have been attended (b), to provide both psychosocial and clinical support (c), to inform patients regarding the importance of drug compliance (d), to identify danger signs and give an alert if there is any sign of complications (e) or to distribute food to make it easier to take daily medication (f)	(a) 1, 41; (b) 52; (c) 3, 5, 18, 23, 40, 49, 50, 60; (d) 56; (e) 19, 33; (f) 36, 50
	Directly observe medication intake at home (which is called home-based directly observed therapy)	4, 14, 17, 19, 29, 36, 37, 38, 49
	Accommodate patients requiring intensive daily physiotherapy in a rehabilitation hostel	46
	Use standardized registers to prevent loss-to-follow-up (make a home visit and offer support to those who are registered as not having received their medications)	45
	Support patient's participation in support groups, group education sessions or sensitization meetings that provide psychosocial support, information about adherence, advice on compliance and that discuss adherence issues and how to handle long-term therapy, etc.	4, 7, 30, 47, 54, 57, 60
	Call patients with cellphones to remind them of their clinical appointment and provide ongoing psychosocial and informational support	32
	Discuss with the patient to identify and resolve real and perceived barriers to adherence	6, 18, 23, 29, 32, 36, 38
	Accompany patients to the health centre for follow-up visits	33
	Track patients who did not visit a health facility after enrolment (phone calls and home visits) to determine care status and assess barriers to care	5, 11, 13, 17, 30, 31, 60
	Set up appointments with a clinical psychologist to evaluate, anticipate or address any issue with drug adherence patients may be experiencing	30
	Sensitize patients to the importance of regular treatment through radio, folk groups, audio-visual support and so on	16
Set up appointments at a patient's home with a social worker to analyse the household's financial situation and social support network; develop an individualized management plan on the basis of these assessments and the input of the navigators	29, 37	

Sources: (1) Altaras *et al.* (2017), (2) Andersen *et al.* (2013), (3) Asher *et al.* (2018), (4) Behforouz *et al.* (2004), (5) Besada *et al.* (2018), (6) Busza *et al.* (2018), (7) Chimberengwa and Naidoo (2019), (8) Colbourn *et al.* (2013), (9) Datiko *et al.* (2015), (10) Manandhar *et al.* (2004), (11) Ediau *et al.* (2013), (12) Ekirapa-Kiracho *et al.* (2017), (13) Ferrand *et al.* (2017), (14) Franke *et al.* (2013), (15) Gignoux *et al.* (2018), (16) Guinhouya *et al.* (2010), (17) Gupta *et al.* (2013), (18) Gupta *et al.* (2016), (19) Haver *et al.* (2015), (20) Hounton *et al.* (2009), (21) Houweling *et al.* (2016), (22) Houweling *et al.* (2019), (23) Ivers *et al.* (2011), (24) Jackson and Hailemariam (2016), (25) Jackson *et al.* (2016), (26) Kandehe *et al.* (1997), (27) Kassam *et al.* (2017), (28) Kema *et al.* (2012), (29) Koenig *et al.* (2004), (30) Konate *et al.* (2011), (31) Korwani *et al.* (2014), (32) MacKellar *et al.* (2018), (33) Matousek *et al.* (2017), (34) Morrison *et al.* (2010), (35) Mugeni *et al.* (2014), (36) Mukherjee and Eustache (2007), (37) Mukherjee *et al.* (2006), (38) Munyaneza *et al.* (2018), (39) Musinguzi *et al.* (2017), (40) Muzyamba, (2019), (41) Neupane *et al.* (2018), (42) Nonyane *et al.* (2016), (43) Nsigaye *et al.* (2009), (44) Panday *et al.* (2017), (45) Patel *et al.* (2012), (46) Penny *et al.* (2007), (47) Rasschaert *et al.* (2014), (48) Reif *et al.* (2016), (49) Rich *et al.* (2012), (50) Rogers *et al.* (2018), (51) Barnabas *et al.* (2016), (52) Savoie and Lambert (2012), (53) Seim *et al.* (2014), (54) Skovdal *et al.* (2013), (55) Tulloch *et al.* (2015), (56) Van Diessen *et al.* (2018), (57) Vu *et al.* (2017), (58) Ware *et al.* (2016), (59) Wereta *et al.* (2018) and (60) Wroe *et al.* (2018).

Box 1 Focus on patient navigation in Haiti (based on Matousek *et al.*, 2017)

In Haiti, although a social service programme is in place that provides financial assistance to the poorest, patients from the mountains are more likely to be excluded from health systems than those residing in the plains because they face several barriers such as low literacy rates, unfamiliarity with the health system and social disempowerment. The objective of this patient navigation programme was to increase the rate of elective surgery for patients from mountain areas.

Navigators identify people in the community who need surgery, enrol them in the programme and guide them through the entire medical process (help with administrative procedures, any required testing and so on). They sometimes physically accompany patients to hospitals, guide them through all necessary steps in clinic and, after the operation, make home visits to ensure that patients do not have an infection.

The evaluation of the project demonstrated its effectiveness as a 2-fold increase in the number of elective surgeries was observed among mountain populations following the intervention. Acting on the abilities to perceive, seek, reach and engage has therefore enabled a vulnerable population to access health services.

and were given bicycles and t-shirts (Musunguzi *et al.*, 2017). In one case, CHWs were organized by co-operatives, each of whom received money on a quarterly basis depending on the achievement of indicators (70% of the payment was directed to the co-operative, and 30% was directed to CHWs as an individual incentive) (Haver *et al.*, 2015).

What designs and methods have been used to evaluate these programmes?

The types of evaluation used for these navigation interventions varied widely. The majority of articles focused on effectiveness ($n=37$). Other types of evaluation were: cost-effectiveness ($n=7$), both effectiveness and acceptability ($n=3$), acceptability ($n=3$), equity ($n=2$), both feasibility and acceptability ($n=1$), both effectiveness and equity ($n=1$), both cost-effectiveness and acceptability ($n=1$), acceptability, feasibility, and effectiveness ($n=1$), effectiveness, acceptability and equity ($n=1$), both effectiveness and mechanism of effect ($n=1$), sustainability ($n=1$) and mechanism of effect ($n=1$). Only four evaluations differentiated beneficiaries by different socio-economic categories to assess the equity of intervention, two of which related to the same intervention (Houweling *et al.*, 2016, 2019; Nonyane *et al.*, 2016; Kassam *et al.*, 2017). No other articles differentiated the impact of the intervention on the poorest recipients.

According to the categories in the Mixed Methods Appraisal Tool (Hong *et al.*, 2018), the evaluation methods used were descriptive quantitative ($n=16$), mixed methods ($n=12$), randomized quantitative ($n=7$), quantitative without randomization ($n=11$) and qualitative ($n=14$), as shown in Figure 7.

What are the (expected and unexpected) effects of these interventions?

This type of intervention generally allows a substantial number of people in need to receive care (Penny *et al.*, 2007), reduces mortality rates (Savoie and Lambert, 2012; Mugeni *et al.*, 2014), improves health metrics (Neupane *et al.*, 2018), decreases the case fatality ratio (Gignoux *et al.*, 2018) and increases the use of health services (Kema *et al.*, 2012; Seim *et al.*, 2014), including the number of assisted deliveries (Savoie and Lambert, 2012). It reduces the negative influence of barriers to accessing care such as the financial costs

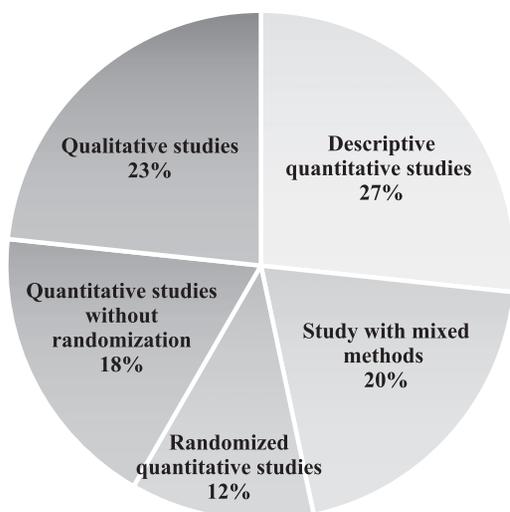


Figure 7 Evaluation methods used to assess the interventions.

of transport and the inaccessibility of health services (Gupta *et al.*, 2016).

Actions on the ability to perceive, such as information or sensitization, were evaluated and yielded extremely good results overall. There was good attendance at community health campaigns (Kotwani *et al.*, 2014). For example, some outreach meetings attracted 9000 participants (Guinhouya *et al.*, 2010). In addition, the information provided was considered useful: in one intervention, 72% of respondents found the health education useful (Kassam *et al.*, 2017) and participants demonstrated significant improvements in their comprehensive knowledge of the health issue targeted by the intervention and the self-efficacy needed to engage in healthy choices (Vu *et al.*, 2017). In some cases, community mobilization was shown to be a major factor contributing to the positive changes observed (Hounton *et al.*, 2009). For instance, women's groups were perceived as a source of support and a place for learning and sharing knowledge (Morrison *et al.*, 2010). The evaluation results also showed that information, health education and health promotion campaigns can help to destigmatize diseases such as HIV. For example, in Zimbabwe, the fact that most people now have a good knowledge of HIV transmission has demystified HIV and contributed to its normalization (Skovdal *et al.*, 2013). However, the primary advantage of navigation interventions that address several barriers is that they provide a continuum of care, including the link between prevention and treatment. In some sites, this has therefore led to an enormous increase in the demand for voluntary counselling and testing (Koenig *et al.*, 2004).

Actions undertaken as part of navigation interventions also have effects on healthcare use. For instance, they can increase the number of consultations (Savoie and Lambert, 2012; Wereta *et al.*, 2018); the number of people linked to care (Barnabas *et al.*, 2016); the number of people diagnosed and brought into care (Chimberengwa and Naidoo, 2019), sometimes on the same day as testing (Reif *et al.*, 2016) and can help enrol a high number of people in the programme (Patel *et al.*, 2012; Rogers *et al.*, 2018). Interventions also have other positive effects related to enrolment in care, such as encouraging people to seek care earlier and involving other people concerned such as men. For example, in one case, there was a decrease of 90% in the proportion of children arriving at the health facilities with severe disease conditions (Kema *et al.*, 2012), whereas in another, home visits by navigators in the intervention area predicted early antenatal care (ANC) attendance (Ekirapa-Kiracho *et al.*, 2017). In Uganda, following the intervention, the number of male partners counselled, tested and given their results together with their wives at the first ANC visit rose (Ediau *et al.*, 2013). The direct impact of navigators on this type of result was assessed in an article by Mukherjee and Eustache (2007), which showed that at the two clinics reviewed, over half of the patients with a new diagnosis of HIV were referred directly by, or could name, a CHW.

There were few elements of the evaluations that focused on actions implemented to influence the ability to seek and the ability to pay. All that is known is that the facilitators included the information on the provision of health services that are culturally more acceptable for women (Jackson and Hailemariam, 2016) and that the utilization rate of the vouchers distributed in one intervention was 81% (Vu *et al.*, 2017). Regarding the accompaniment related to the ability to reach, it was found that, in a linkage case management programme for HIV-positive patients in Tanzania, 83% of participants were escorted to an HIV care and treatment clinic on foot or by car (MacKellar *et al.*, 2018), whereas in Rwanda, 19 248 pregnant women in 1 year were accompanied to the health centre as a result of pregnancy-related danger signs being identified by the

navigators and a further 150 207 women in labour were accompanied by ASMs to deliver their babies in health facilities (Haver *et al.*, 2015).

Regarding the ability to engage, the results of the evaluation of activities undertaken during the intervention were encouraging. Most notably, multiple evaluations show a high number of people recorded as retained within the programme (Behforouz *et al.*, 2004; Patel *et al.*, 2012; Rich *et al.*, 2012; Munyaneza *et al.*, 2018) and a high number of patients diagnosed who successfully progressed from diagnosis to treatment (Konate *et al.*, 2011; Patel *et al.*, 2012). For example, in Liberia, the retention rate for HIV patient enrolment increased from 6.9% to 86.1% throughout the intervention period (Rogers *et al.*, 2018). In Togo, adherence to epilepsy treatment exceeded 95% in all primary care units of intervention (Guinhouya *et al.*, 2010). These results are often directly related to support from navigators, which is strongly correlated with a lower risk of attrition from care (Franke *et al.*, 2013). However, this support may sometimes have an unexpected effect. For example, in Rwanda, one evaluation identified a high proportion of people missing a health facility visit in the first 6 months of ART treatment. The authors attribute this effect to the fact that patients may consider these visits unnecessary as they receive daily visits from navigators at home (Munyaneza *et al.*, 2018). In terms of the support groups, several evaluations have shown that the number of people who continue to be involved with their groups throughout the intervention period was high (e.g. 91% in an intervention targeting HIV in Uganda, Vu *et al.*, 2017). However, in an Ethiopian programme for persons with schizophrenia, a family support group that had been set up in one sub-district of intervention ended after only three meetings, either because participants felt uncomfortable discussing personal issues or their relative was too ill to be left unattended (Asher *et al.*, 2018).

Some assessments also considered the cost of the programme. Navigation programmes vary enormously depending on their target audiences, the context (e.g. whether or not navigators are remunerated) and the abilities on which they act. Nevertheless, the majority of evaluations found the interventions to be effective. For example, their cost was estimated at US\$44 per patient in Tanzania (MacKellar *et al.*, 2018), US\$0.73 per person per day in Guinea-Bissau (if the initial start-up costs are not taken into account, this number falls to US\$0.38 per person per day) (van Diessen *et al.*, 2018), US\$186 per year per beneficiary in Haiti (Mukherjee *et al.*, 2006), US\$25–30 per patient per year in Tanzania (Nsigaye *et al.*, 2009), and US\$20 000 for the total cost in Haiti (Matousek *et al.*, 2017). In one intervention in Nepal, the cost per newborn life saved was US\$3442 and per life year saved US\$111 (Manandhar *et al.*, 2004). Another intervention in Malawi estimated that the effect on neonatal mortality was extremely cost-effective according to WHO criteria (Colbourn *et al.*, 2013). However, one evaluation of an intervention that cost a total of US\$5082 concluded this was inefficient (Kandeh *et al.*, 1997).

A somewhat cross-cutting element of interventions that was also evaluated in several articles was the acceptability of the intervention, from the perspective of both beneficiaries and health workers/navigators. In some cases, nurses and doctors supported the role of the navigators as complementing their own duties and recognized their presence as enabling them to spend time on more complicated tasks (Ivers *et al.*, 2011). When health workers were directly implicated, they felt rewarded for their role in delivering services to vulnerable, remote and rural disadvantaged community groups (Datiko *et al.*, 2015). However, in one intervention, the health workers did not want to recognize simple gestures such as preferential treatment for

patients referred by navigators and this affected the relationship between health workers and navigators (Musunguzi *et al.*, 2017). Overall, this type of intervention was appreciated and considered acceptable by both the beneficiaries (Andersen *et al.*, 2013; Tulloch *et al.*, 2015) and the navigators (Busza *et al.*, 2018).

In terms of the navigators themselves, key elements used to describe their role in one intervention in Haiti were that they were a source of support, a leader who can maintain confidentiality, a collaborator with the family and a bridge to the medical centre (Mukherjee and Eustache, 2007). This role is similar in most interventions. In fact, it was noted that the support provided by navigators was crucial in providing much needed economic, psychological, material and emotional support services (Muzyamba, 2019). Furthermore, feeling encouraged and followed by navigators creates a desire to reciprocate (Ware *et al.*, 2016). Regarding the appropriate type of navigators, one study of an HIV-targeted intervention showed that communities were often more accepting of generalist community cadres for broad health promotion activities while peer supporters and lay counsellors were preferred for an HIV-specific follow-up (Besada *et al.*, 2018). Finally, in one article, the authors explored the experiences and motivations of navigators. They concluded that the intrinsic drivers of motivation included a sense of gaining new skills, being supported and supervised, and being part of a team working together to respond to emerging challenges (Datiko *et al.*, 2015). However, another article reported that the frequent absences of those who play the role of navigator was a factor that limited the success of the intervention. This was because navigators have to engage in other activities as the service provided through the programme was not remunerated, which highlights some of the limitations of volunteering (Altaras *et al.*, 2017).

Moreover, only a few evaluations focused on the equity of interventions. Nevertheless, we were able to identify results regarding the equity of some of the interventions. For instance, in an intervention targeting breast cancer in Tanzania, the authors state that the programme was able to reach lower socio-economic households because participants were among the poorest households and lived on <US\$2.00 a day (Kassam *et al.*, 2017). In Ethiopia, an intervention to combat tuberculosis benefitted groups previously excluded from health services (such as the poorest of the poor, some women and the very sick) (Datiko *et al.*, 2015). Interventions that targeted pregnant women also showed signs of success among the poorest women. In Nepal, facility delivery increased across all wealth quintiles following the intervention and the poorest quintiles were more likely to receive a home visit for their newborn from a navigator within 3 days of giving birth than the least poor (Nonyane *et al.*, 2016). In an evaluation of multi-country (including Nepal and Malawi) randomized trials of women's groups, the intervention was shown to reduce neonatal mortality equitably and substantially across socio-economic strata. This means that the improvement was at least as strong among poor, illiterate and the most marginalized groups as it was among the better off (Houweling *et al.*, 2019). For the same intervention, another study showed that attendance at a women's group was generally equal between socio-economic strata and that, when there was a difference, attendance was lower among the elite. These results are encouraging and show the potential for developing this type of intervention to improve health equity and the situation of the most disadvantaged.

Finally, we noted some possible unexpected or negative effects of these programmes. In terms of implication of using peers as navigators, one article found that involving peers can help reduce the stigma around the disease and challenge the myth of certain death (Kassam *et al.*, 2017). However, in a setting where communities

have set up their own navigation actions (peers help other HIV-infected people), the evaluation showed that peer support sometimes reinforced negative attitudes towards ART, most notably scepticism, and that it negatively affected adherence to treatment (Muzyamba, 2019). Regarding the objectives of this type of intervention, it was noted that in Uganda, early enthusiasm about the intervention gradually waned into indifference and feelings of desperation when community expectations regarding the receipt of drugs from navigators were not realized (Musinguzi *et al.*, 2017). In Ethiopia, the lack of financial benefit from participation in the programme was a key issue in relation to acceptability, as patients felt their needs were not being met (Asher *et al.*, 2018). Another issue was that there were factors jeopardizing the sustainability of programmes. For instance, Rasschaert *et al.* (2014) explained that the good daily functioning of the intervention described in their article was heavily dependent on the human, financial and logistical resources of the non-governmental organization that implemented it. Another article demonstrated that an intervention in a region where the navigators are supported by the government healthcare system was working beyond what was expected, whereas in the Nepalese region of Terai, a lack of connection between the navigators and healthcare centres was threatening the effectiveness and sustainability of the programme (Panday *et al.*, 2017). Finally, several articles highlight the fact that despite the improvements observed, barriers still remain in the patient's care pathway, including distance and lack of transportation, the absence of husbands, extra costs (Jackson *et al.*, 2016), the unaffordability of medication (Asher *et al.*, 2018) and drug stock-outs (Altaras *et al.*, 2017).

What are the key factors to consider in the design and implementation of a navigation intervention?

Despite the diversity of interventions, some key factors are highlighted in the articles as essential to take into account to ensure the success of navigation interventions in LICs.

First, navigators should be familiar with the local context to provide most comprehensive care to disadvantaged patients (Mukherjee and Eustache, 2007; Busza *et al.*, 2018). The fact that they are from the community helps to reduce the isolation of patients and their stigmatization (Behforouz *et al.*, 2004) and helps to strengthen their motivation since they can observe directly the impact they have in the community (Datiko *et al.*, 2015). They also must be deployed strategically and be in sufficient number to meet the needs of equitable geographic coverage and cultural preference (Busza *et al.*, 2018). So, to facilitate access to care, navigators must be close to the people they help, available most of the time and easily located (Altaras *et al.*, 2017). It therefore seems crucial to mobilize people from the community who understand the contexts and the situation of the populations they have to help, but it is essential to take into account the power issues, political dynamics and biases that can influence their selection process. The lack of involvement of communities in the selection and the lack of transparency in the process was perceived as a factor that could limit the effectiveness of an intervention. In particular, in one intervention, the selection of a navigator with political commitments has hampered the use of his services and has been perceived as causing discrimination in the services distributed (Altaras *et al.*, 2017).

Many articles also noted working conditions and in particular the remuneration of navigators as having a particular influence on the success and sustainability of interventions (Rasschaert *et al.*, 2014; Haver *et al.*, 2015; Panday *et al.*, 2017; Busza *et al.*, 2018), especially since they may face opportunity costs. The non-

remuneration or low remuneration of these navigators can create tensions and a decrease in motivation (Besada *et al.*, 2018). Furthermore, this position is predominantly held by women, so not paying them and considering them only as volunteers contributes to reinforcing gender inequalities (Panday *et al.*, 2017). Formal recognition of the status of navigators (as the provision of contracts or documents attesting to the training received) is also pointed as important (Besada *et al.*, 2018). These documents could provide a guarantee of payment and recognition of their work (Savoie and Lambert, 2012) and help to alleviate the community's doubts about navigators (Altaras *et al.*, 2017).

Regarding the links between navigators and health system, it is emphasized that navigators can bridge the gap between health services and communities, deliver services that are not easily delivered by clinic staff alone and improve the situation of patients regardless of the context of the healthcare system (Ivers *et al.*, 2011). However, some articles point out that the results have been positive but limited by the inability of the health system to manage all new patients (Andersen *et al.*, 2013; Barnabas *et al.*, 2016; Matousek *et al.*, 2017) or by the unavailability or too high price of the treatment (Asher *et al.*, 2018). It is also important to pay attention to the link among navigators, formal health workers and communities. Some authors have pointed out that regular meetings between navigators and health professionals were a crucial component of a successful programme (Ferrand *et al.*, 2017). However, in one case, health professionals refused to receive the children if they had not been previously referred by the navigators, which was badly experienced by the communities, which felt compelled to use these services even if they did not want to (Altaras *et al.*, 2017). Communities may also perceive navigators as 'policing' and as allies of power if they partner with formal care structures which may compromise their functions in the community (Musinguzi *et al.*, 2017).

Then, several articles highlighted that free healthcare and treatment was essential for poor communities but that additional support (reimbursement of transport, food distribution, etc.) is also absolutely needed to improve health outcomes of vulnerable populations (Mukherjee *et al.*, 2006; Rogers *et al.*, 2018). It is emphasized that the fact that the navigator is capable of 'managing the entire context of the patient's illness experience make the programmes successful' (Behforouz *et al.*, 2004). Many articles mention that taking into account the social determinants of health is crucial to the success of the programme (Wroe *et al.*, 2018). Since health is not necessarily the main concern of poor populations, the programme must allow them to express their needs and take them into account in the formulation of the intervention (Rasschaert *et al.*, 2014).

Finally, although there are few articles that have assessed the equity of interventions, we identified some elements that have enabled programmes to be equitable. The interventions that were found to be equitable all affected at least the ability to perceive, to reach and to pay. First, it seems necessary to think upstream of the intervention to assess the specific barriers faced by the lower socio-economic groups (Kassam *et al.*, 2017) in order to ensure that the intervention acts on a perceived need, for which these population categories are willing to get involved (Houweling *et al.*, 2016). The use of participatory tools and the use of participative approach makes it possible to use acceptable methods to deliver the intervention, to promote social acceptance and to reduce resistance (Houweling *et al.*, 2016; Ekirapa-Kiracho *et al.*, 2017). It is also important to target specific sites where vulnerable populations live, to use the mode of communication used by them (Kassam *et al.*, 2017), to take into account the cause-of-death distribution according to socio-economic strata (Houweling *et al.*, 2019), to use language and

approaches that are easily understood even by the least educated and to organize the intervention according to the convenience of these participants (adapted meeting times, etc.) (Houweling *et al.*, 2016). The navigators, even if they may be more educated or more able to move within the community, should not be too different from the participants in the intervention (Houweling *et al.*, 2016). One article explains that using navigators from the community had a better effect on reducing inequalities than when interventions of the same type were implemented by routine workers (Nonyane *et al.*, 2016). Finally, an intervention promoting women's group explains that 'principles for ensuring equitable intervention effects include universal coverage—making the intervention open to everyone—combined with soft-targeting to ensure uptake among lower strata' (Houweling *et al.*, 2019).

Discussion

To the best of our knowledge, this study is the first to synthesize evidence on this type of intervention in LICs. We observed a clear difference between navigation interventions in HICs and in LICs. Indeed, whereas navigation approaches in HICs are rather individualized, in LICs, the context and differences in financial resources mean that interventions sometimes require collective action in order to influence individualities. Furthermore, although the terms 'navigation' and 'navigator' are becoming popular in HICs, we rarely found these terms in the articles on LICs. In such contexts, navigators all have different names, although, in the end, they implement the same types of actions. Moreover, in LICs, navigators are often CHWs or similar. This raises questions about the sustainability and multiplication of these interventions as the amount of development assistance available for CHW-related projects is small and has been declining in recent years (Lu *et al.*, 2020).

We have also shown that no intervention specifically targeted indigents or even the elderly. While issues around access to healthcare for indigents have been raised for some time (Stierle *et al.*, 1999), thus far little seems to have been done. Of course, accompaniment and assistance in navigating the healthcare system is a universal problem and actions in this direction should be put in place for any person who expresses the need for it. Nevertheless, several studies have shown that certain categories of people, particularly the most deprived, are particularly excluded from health systems (regardless of their level of functionality) and require more support to overcome the multitude of barriers they encounter in accessing care. This can be linked to the concept of 'proportionate universalism' (Marmot *et al.*, 2010). Actions must be universal, like UHC, and must reach everyone to improve the situation for all. Reducing inequalities cannot be achieved through actions solely in favour of the most disadvantaged. However, a universal approach may neglect the most marginalized in health systems who need specific support. To act for health equity, it seems essential to combine a universalist approach (actions concern everyone) and a differentiated approach according to the publics (actions vary according to the level of need). Therefore, it is indispensable to find appropriate solutions depending on the social gradient and patient navigation interventions targeting vulnerable populations can be a way of responding to that necessity.

To disseminate knowledge around this type of intervention and encourage decision makers to test these programmes with the poorest populations, we believe that it is important to implement knowledge transfer strategies (Siron *et al.*, 2015) relating to these interventions. Only 9 of the 48 interventions reported in the review

implemented actions to transfer knowledge (although none of these articles stipulated that it was knowledge transfer). For example, a capitalization workshop with numerous actors in the development and health sectors (Savoie and Lambert, 2012), community feedback with representatives of the Ministry of Health (Chimberengwa and Naidoo, 2019), a dissemination meeting to share the results of the study to key stakeholders (Busza *et al.*, 2018; Wroe *et al.*, 2018), all can help to improve the use of evidence by politicians and intervention developers.

It is also important to improve the description of these interventions, and, in particular, to provide the crucial details that will make it possible to replicate these interventions in other settings. Indeed, we noted that the interventions were very succinctly described in the articles. We sometimes found two articles on the same intervention that did not describe exactly the same actions. At other times, it was difficult to know whether the actions undertaken were planned by the intervention or were carried out by independent individuals. In particular, in some articles that described the physical accompaniment of patients to the centres, it was impossible to know whether this was initially planned by the intervention or the navigators themselves took this initiative. To overcome these issues, it might be necessary to use the TIDieR-PHP checklist and guide (Campbell *et al.*, 2018) to improve the reporting of interventions.

Furthermore, taking account of the contextual factors that facilitated or constrained each intervention will be important in replicating and adapt interventions to other settings. Using Craig *et al.*'s (2018) features of context to extract data from articles, we initially wanted to know how the context influences the intervention, implementation, target population and intervention outcomes; however, we found little evidence regarding the influence of context. Yet understanding the relationship between an intervention and the context is essential in knowing why the intervention has or has not been successful, why the impact varies according to the context and how the intervention can be successfully applied in other contexts.

Along with our documentary research, we decided to carry out the sixth stage of a scoping review, which consisted of consultation with experts. This sixth step is considered optional in the Arksey and O'Malley (2005) scoping review framework, but it turned out to be essential as no intervention targeting indigents could be found. Therefore, we conducted a qualitative survey with African field experts to discuss the relevance and feasibility of this type of programme for indigents. Initial results show that the majority of experts find this type of intervention highly relevant and in line with the current situation for indigents. The various experts interviewed felt that some of the actions identified in the literature review were more or less relevant for this category of population. For example, many noted that awareness raising at the community level would have little effect for indigents because, due to their social isolation, few go to such events. Some experts highlighted the fact that some actions were focused on contagious diseases that needed to be contained and thus were not applicable in other cases. For example, daily observation at home of the treatment of patients was seen by some as a kind of 'sanitary police'. This research is ongoing, and the results will allow us to operationalize the knowledge resulting from this scoping review for indigents.

Indeed, it is now necessary to 'scale-out' these interventions to another population and/or different settings (Aarons *et al.*, 2017). It may also be essential to test new actions that were not identified in the literature review but which could have a positive impact on people's abilities to access health services. Indeed, no intervention identified in the literature acted on all five abilities together at the patient level. For example, navigators could promote the creation of

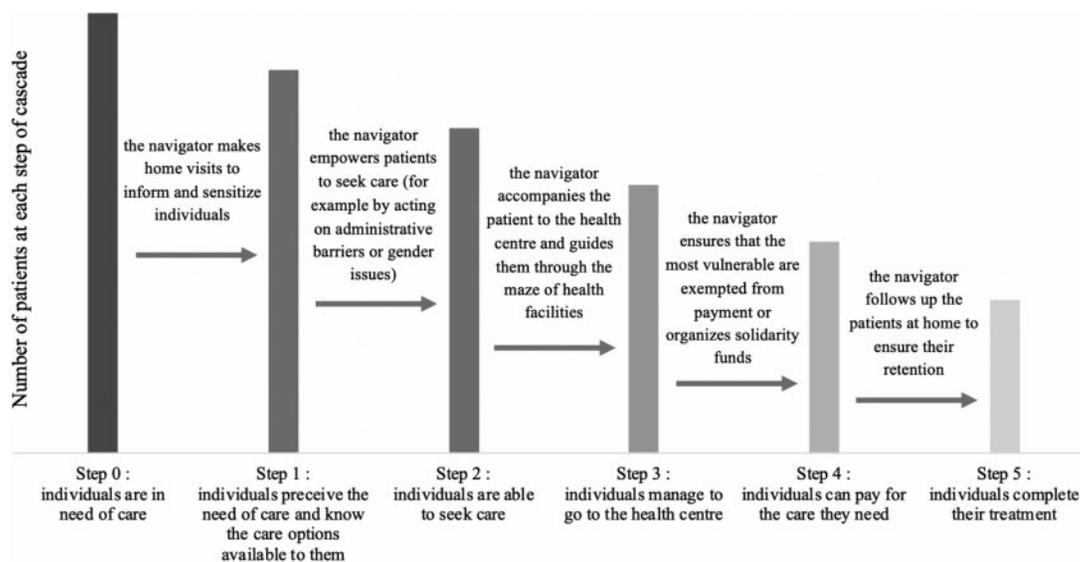


Figure 8 Care cascade and ideas to accompany the most vulnerable throughout their care path adapted from [Ridde et al. \(2019\)](#).

civil society groups to respect the rights of the most disadvantaged people. There is a need to develop more innovative interventions such as patient navigation interventions that will facilitate evidence-based policy development for the poorest and support LICs to achieve UHC by making sure no one is left behind. To guide the formulation of such programmes, it will be advisable to use schemes similar to the one shown in [Figure 8](#). Based on five steps, each of which is linked to an ability to access care as described by [Levesque et al. \(2013\)](#), this figure proposes examples of navigation actions that can be implemented at each step of the care pathway, to reduce the gap between those who need care and those who actually access care, by acting on the successive barriers that individuals may encounter between each step of their pathway to access care. Of course, the ideas presented are just examples of action and the reality is much more complex, but we wanted to propose this figure in a heuristic perspective. For different populations and contexts, it will therefore be necessary to assess the barriers encountered throughout the care process and propose innovative and adapted actions to overcome each barrier.

Our study also has some limitations. First, the fact that navigation interventions are never named as such in LICs made the keyword research more complicated. We tried to list the maximum number of synonyms for the concepts of navigation or navigator but the list is certainly not exhaustive. Similarly, we chose to focus on interventions that targeted the most disadvantaged and vulnerable groups; however, the list of keywords used to describe these populations may have been incomplete. Another potential limitation of our study concerns the definition we gave to navigation interventions. To formulate our definition, because a clear and precise definition was lacking in the literature, we relied on the conceptual framework of [Levesque et al. \(2013\)](#). However, not all dimensions for each ability were clearly defined, so the interpretation of actions that affect each ability may differ slightly from one researcher to another. Moreover, an action that affects one ability may sometimes have positive or negative repercussions on others, yet this is difficult to analyse as the interrelationships between each ability were not

explained. Finally, regarding the results of intervention evaluations, it is always necessary to be cautious about any publication that promotes positive results ([Jones, 2016](#)) and to be alert to the pressure all actors in the health development sector face to demonstrate great success ([Rajkotia, 2018](#)). Nevertheless, we believe that the diversity of evaluation methods, variables observed and results (positive and negative) obtained provides a robust overview of the effects produced by these navigation interventions.

Conclusion

It is now well demonstrated that user fee exemptions are necessary but not sufficient for poor and vulnerable populations to access health services. It is therefore essential to provide additional support to these vulnerable populations throughout their care pathway. This review showed that patient navigation interventions could be an adequate solution to enable such populations to overcome the many barriers to accessing care that they face. This type of patient-centred intervention appears to be effective and has shown good results in enhancing people's abilities to access healthcare in LICs and promising results in promoting equity. However, the scoping review also highlights a lack of interventions that target indigents in LICs. While the slogan 'leaving no one behind' structures discussions around UHC, it must be translated into action by systematically including particularly needy populations in programmes and paying special attention to their needs. There is an urgent need to test navigation-type interventions for indigents in Africa to prevent UHC benefiting all except them. The scoping review highlighted the diversity of patient navigation interventions, so there are many possibilities for action.

Acknowledgements

We would like to thank Stéphanie Degroote, scoping review's expert, for her careful review of the search strategy; Sandrine Maes, librarian of the University of Lille, for her advice during the elaboration of our research

equations and Bruno Boidin, full professor of economics at the University of Lille, who provided us with useful feedback on the first version of our article.

Funding

This study was funded by EuropeAid (EuropeAid/156333/DD/ACT/BF) as part of the creation of a territorial surveillance for free health care for the indigents. This work is also supported by Global Affairs Canada (grant number: D003027/P01475) and stems from the call for proposals “Technological Platforms for Strengthening Public Sector Accountability and Citizen Engagement”. The project was selected by Global Affairs Canada through a competitive process.

Author’s contribution

The study design, search strategy, inclusion and exclusion criteria and data extraction strategy were discussed and defined jointly by all authors. S.L. conducted the database searches and carried out the selection process for relevant articles. Any uncertainties were discussed with E.B. and V.R. and decisions were made collectively. Data extraction was carried out by S.L., who wrote the first draft of the manuscript. V.R. and E.B. provided comments and improvements on each version of the article. All authors read and approved the final manuscript.

Supplementary data

Supplementary data are available at *Health Policy and Planning* online.

Conflict of interest statement. None declared.

Ethical approval. No ethical approval was required for this study.

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