The early dissemination of patient navigation interventions: results of a respondent-driven sample survey

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Abstract

Patient navigators (PNs) coordinate medical services and connect patients with resources to improve outcomes, satisfaction, and reduce costs. Little national information is available to inform workforce development. We analyzed 819 responses from an online PN survey conducted in 2009–2010. Study variables were mapped to the five Consolidated Framework for Implementation Research (CFIR) constructs to explore program variations by type of PN. Five logistic regression models compared each PN type to all others while adjusting for covariates. Thirty-five percent of respondents were nurse navigators, 28% lay navigators, 20% social work (SW)/counselor navigators, 7% allied health navigators, and 10% were “other” types of PNs. Most were non-Hispanic White (71%), female (94%), and at least college educated (70%). The primary differences were observed among: the core intervention tasks; position structure; work setting; health conditions navigated; navigator race/ethnicity; personal cancer experiences; navigation training; and patient populations served. Lay PNs had fewer odds of identifying as Hispanic, work in rural settings and assist underserved populations compared to others. Nurse navigators showed greater odds of clinical responsibilities, work in hospital or government settings and fewer odds of navigating minority populations compared to others. SW/counselor navigators also had additional duties, provided greater assistance to Medicare patient populations, and less odds of navigating underserved populations than others. In summary, our survey indicates that the type of PN utilized is an indicator of other substantial differences in program implementation. CFIR provides a robust method to compare differences and should incorporate care coordination outcomes in future PN research.

Keywords

Patient navigation, patient navigator, health disparities, care coordination

INTRODUCTION

Patient navigation is “a model of care coordination designed to reduce barriers to achieving positive health outcomes” [1]. Patient navigators (PNs) coordinate medical services, connect patients with resources, and conduct follow-up to improve outcomes, increase satisfaction, and reduce costs [2]. Originally, patient navigation used both professional and lay navigators with a combination of “culturally sensitive and familiar care coordinators and disease management principles in an attempt to reduce disparities in breast cancer detection and treatment” [3].

Implications

Practice: There are substantial variations in how patient navigation programs are implemented including program structure, community settings, and individuals serving in the patient navigator role.

Policy: Due to the variability of individuals and programs providing patient navigation, systems utilizing this intervention model would benefit from the standardization of the patient navigator role, duties, competencies, and training, in order to sufficiently support this growing workforce.

Research: Further dissemination and implementation research is needed to understand the impact of variations of patient navigation intervention implementation on patient outcomes.

BACKGROUND

Recent results from the Patient Navigation Research Program, the largest trial of patient navigation conducted at 10 sites with more than 10,500 participants, have demonstrated that among the most vulnerable populations, PNs ensure greater completion of cancer-related treatment [4] and diagnostic procedures following abnormal cancer screening tests [5–9]. Patient navigation programs have shown improvements in the rates of cancer-related screenings [10] and impact on other health care outcomes including chronic diseases, mental health, HIV/AIDS, and primary care services [10–15]. The growing body of evidence has resulted in the development of standards and guidelines for the practice of navigation by legislation, guideline groups, and national associations including the Patient Protection and Affordable Care Act of 2010, American College of Surgeons Commission on Cancer, the National Accreditation Program for Breast Centers, and the Oncology Nursing Society [16]. Key to these guidelines across professions and accreditation bodies is the recognition that care coordination is an important PN role.

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Care coordination is described as a range of services to facilitate the receipt of appropriate health care while acknowledging patient preference and needs, in a multidisciplinary and multisite setting [17, 18]. Elements of care coordination services are found throughout the navigation literature particularly in analyses of navigator tasks [19–21]. An analysis of 10 breast cancer navigation programs using Freeman’s Nine Principles for Patient Navigation as the framework identified key care coordination activities in 90% of the sites [20]. Similarly, a task and network analysis of the same 10 navigation programs found a pattern of care coordination-related tasks involving communication with patients, providers, and clinical administrative staff for the purpose of facilitating health care [21]. Care coordination activities contributed the third largest grouping (20.3%) of activities after patient and support-focused efforts (24.8%) and interaction and coordination with other individuals to provide services and support (22.6%) [21]. Furthermore, seven of eight articles describing professional (licensed) and nonprofessional navigator competencies encompass knowledge and skills related to care coordination [19–27]. More recently, the care coordination activities in navigator programs are considered an important component of the patient-centered medical home (PCMH) model to reach quality care goals as a strategy for PN sustainability [4].

The emergence of PNs as providers of care coordination has evolved over time. A recent systematic review and meta-analysis of care coordination studies found that care coordination interventions of varied types contributed to improvements in 81% of the cancer outcomes across the cancer continuum [28]. Almost a quarter of the studies reviewed used patient navigation as the care coordination intervention. In a number of the studies, patient navigation had moved from a barrier-focused intervention to a broader patient support approach.

Despite dissemination of navigation beyond cancer care, little is known about the implementation of PN programs in the USA and how care coordination is executed by the patient navigation workforce. The authors previously reported the results of a baseline national survey of patient navigators, which revealed that the characteristics most associated with performing care coordination tasks included: Hispanic or “other”/multiracial ethnicity; allied health navigator type; has received training for navigation; has experience as a cancer caregiver; is located in a suburban area; works in a hospital setting; and is more likely to navigate Hispanic and Asian patients groups as well as patients with private health insurance [29]. Respondents noted that care coordination, making resource arrangements, and completing referrals were primarily associated with assisting racial and ethnically diverse and underserved patient groups, suggesting the importance of care coordination in addressing health disparities.

There is great diversity in education and training among PNs who perform a range of job-related activities in addition to care coordination depending on licensure, and program needs [30]. As a result of these variations, three types of patient navigation interventions have been observed: lay (nonprofessional, nonlicensed) navigators; professional (nurse or social worker, licensed) navigators; and team-based navigation [16]. Recent publications have recommended specific types of patient navigators for interventions (RN, MSW, lay, or team) [31–34] despite the promise exhibited by each PN program type [35, 36].

Although much of the descriptive and efficacy data regarding PN programs come from the cancer arena, diffusion and dissemination theory helps to explain the spread of patient navigation within the cancer field and its further expansion into noncancer health care settings [37, 38]. This spread has resulted in “observed variation in local implementation” [20]. For example, the authors previously evaluated the geographical dissemination of patient navigation by economic and health disparity indicators [39]. Cancer navigator programs showed no differences in dissemination by area-level socioeconomic status (SES) indicators, while programs using lay navigators were more likely to be found in high poverty areas than low poverty areas ($p < .001$). Nurse navigators were more likely to be located in more affluent areas ($p < .001$) [39]. Therefore, describing the variations in PN programs across patient populations, as well as organizational and geographic settings, is important in understanding the potential impact of PNs on care coordination activities.

The widespread implementation of patient navigation is worthy of evaluation. The Consolidated Framework for Implementation Research (CFIR) provides a set of constructs that can be used to evaluate an intervention across different environments [40]. The CFIR framework recognizes the multilevel influences on implementation and is used to elucidate where implementation variations occur. According to the CFIR, changes can happen at five different levels during implementation including the aspects of the program considered core to the intervention, individuals selected to conduct the intervention, how the implementation process transpires, the infrastructure of the agency to support the intervention, and the larger community environment. In our study, rather than using a CFIR instrument, we have mapped our study variables to each of the CFIR constructs to describe our findings of program differences by PN type used (Fig. 1). We previously reported that basic navigation tasks should be considered a core competency; and that care coordination and making arrangements and referrals for resources are tasks used particularly for PN programs reducing health disparities [29, 39]. Thus, we will focus on describing differences across PN programs by PN type using the study variables to operationalize the CFIR constructs of: core tasks of the PN, PN characteristics; implementation process;

Fig 1 | Mapping of Study Variables to Consolidated Framework for Implementation Research (CFIR) Constructs

inner setting of the PN agency; and outer setting of the community served by the patient navigation program.

The authors conducted a national survey in 2009–2010 to describe the implementation characteristics of different PN types in the early phase (pre-Affordable Care Act) of diffusion of patient navigation. This study evaluates the relationships between type of PN and characteristics of the PN intervention as mapped to each CFIR construct. A rapid review of 863 patient navigation peer-reviewed articles in PubMed identified four cross-sectional surveys of health care professionals. These studies identified the following: that public health nurses report widespread adoption of care coordination and patient navigation responsibilities [41]; community clinic medical directors demonstrate high support of PN interventions to improve rheumatology care [42]; breast imaging centers have largely embedded PNs [43]; and the Centers for Disease Control and Prevention’s Colorectal Cancer Control Program has utilized a variety of types of PNs to conduct colorectal screening and promotion [44]. To our knowledge, our study is among the first to provide a large-scale description of patient navigation programs by surveying those conducting navigation. The study provides data regarding program characteristics as a baseline to monitor the dissemination and implementation of patient navigation programs and illustrate their potential contribution to care coordination services in the USA.

METHODS

The online cross-sectional survey was developed after review of existing literature on navigation and with input from the multidisciplinary team including a health services researcher, epidemiologist, nurse, PN supervisor, health care administrator, and a job analysis consultant. Face and content validity were checked by this same panel of experts for understandability, literacy level, and redundancy. The survey was beta-tested with several current lay and professional navigators. The survey instrument was programmed using Survey Monkey (version 2009) at the University of Colorado Anschutz Medical Campus and was comprised of eight sections containing questions with closed-ended responses and open-ended comments per topic. The sections requested information on the following: respondent demographics; job title, salary, and benefits; education and training; patient group demographics; job tasks; program characteristics; survey evaluation; and an invitation to a follow-up survey.

Recruitment

The survey team utilized a respondent-driven sampling (RDS) technique. Although this sampling technique disallows the use of probability sampling, RDS has been an effective method of reaching hard to find populations and is therefore well suited for a field like patient navigation [45]. An electronic invitation was distributed to the first wave of survey respondents, including national and

local public health associations, nurse and social worker associations, community health worker coalitions, health care institutions, and disease-specific advocacy organizations (Supplementary Table 1). Personnel at these organizations were asked to distribute the survey to their PN colleagues and associates. Respondents were allowed to self-identify as PNs, which we defined as providing patient navigation services. Patient navigation was defined as the act of assisting a patient through the health care system to access health services. Up to three waves of recruitment occurred through these key stakeholders to achieve a stable composition of respondents. The e-mail invitation introduced the survey; provided the survey webpage link that included an introduction page and contact; and described the sponsor, benefits, and risks of the research and institutional review board approval. The survey was approved by the University of Illinois, Chicago Institutional Review Board. Assent was provided by the respondent when initiating the survey from the introductory webpage. An information sheet was provided as a downloadable document from the survey introduction webpage prior to accessing the online survey. Participants could also complete the survey using a paper format (English or Spanish) or by phone. All participants were offered a \$25 gift card.

Measures

The survey items were mapped to each CFIR construct (characteristics of intervention, individuals delivering the intervention, implementation process, inner setting, and outer setting) [40, 46] in order to operationalize each construct for comparison (Fig. 1).

Characteristics of Intervention

Characteristics of the PN intervention is described using the PN type and PN tasks. Five PN type categories were created (nurse, social worker (SW)/counselor, lay, allied health and “other”) for the analysis. Nurse navigators included those with a 2-year educational degree or higher in nursing, such as registered nurses, advanced practice nurses, and nurse practitioners. The social worker/counselor category included respondents with at least a bachelor’s degree in social work as well as master’s level social work and counselor degrees. Lay patient navigators did not have a professional degree, any type of clinical licensure or credential and had an education not greater than a bachelor’s degree. Allied health navigators included non-nurse professionals with clinical backgrounds, such as medical assistants and nonclinical degrees past a bachelor’s degree (i.e., Master’s in Public Health). A final “other” type of navigator was used to describe those who did not meet criteria for the other PN types. Respondents were asked to rate how often they perform 83 tasks, selecting from none, some, most, or all of the time.

A principal component analysis, described in depth elsewhere [29], identified five categories (factors) of patient navigation services provided: (1) basic navigation which includes identifying and addressing patient needs and barriers; providing information; and patient follow-up; (2) arrangements and referrals to resources and services; (3) care coordination for the coordination and preparation of medical visits, medical appointment scheduling and facilitating communication between providers and patient; (4) treatment support describes supporting treatment by providing information regarding the treatment plan; assessing and supporting emotional health and psychosocial concerns; and (5) clinical trials and peer support [29].

Individuals Delivering the Intervention

The individuals involved in providing the navigation intervention are described using six study variables. Respondents self-identified their racial/ethnic background, age, gender, and experience as a cancer caregiver and cancer survivor.

Implementation Process

Three variables (training, education work release, and partnership building) defined the patient navigation program implementation process. Training received for navigation (training days), provision of work release time for education and community engagement activities (partnership building) conducted by respondents were collected.

Inner Setting

Sixteen variables defined the inner setting or structure of the patient navigation program including: position type (full-time, part-time, volunteer); additional nonnavigator responsibilities (administrative, clinical/medical, research, and SW/counseling); work site (hospital, community-based organization, government agency and other); health conditions eligible for patient navigation services (breast cancer, cervical cancer, all cancer types, HIV/AIDS, and chronic conditions combining diabetes, cardiovascular disease, asthma, and chronic obstructive pulmonary disease [COPD], and other diseases); and average weekly number of patients navigated (1–10 patients, 11–20 patient, and greater than 21 patients).

Outer Setting

To describe the outer setting of the patient navigation programs, respondents categorized how many of their patients, in a typical week, are members of specific population groups of interest (no patients, some patients, most patients, and all patients). Populations of racial and ethnic minority groups were combined into a minority population variable. Insurance status groups included Medicare, private insurance and underserved (Medicaid or uninsured) populations.

STATISTICAL ANALYSIS

Basic inferential statistics (Pearson chi square, analysis of variance, and Kruskal–Wallis tests) were used to evaluate univariate relationships between PN types (nurse, SW/counselor, lay, allied health, and other) and items within each CFIR construct (core, intervention individuals, implementation process, inner setting, and outer setting), using a value of $p < .05$ to indicate statistical significance.

In order to identify characteristics associated with each PN type, a series of five multiple logistic regression models with nurses navigators, SW/counselor navigators, lay navigators, allied health navigators, and “other” navigators were each compared to all other PN types combined while adjusting for all variables in the model to generate multiple odds ratios (ORs). To control for the Familywise error rate due to the multiple tests, the Bonferroni procedure was used where the alpha was set at 0.01 [47]. The tests were performed using Proc Logistic with SAS version 9.4. (Cary, NC: SAS Institute, Inc.).

RESULTS

Recruitment yielded 1,107 respondents, with six completing the survey on paper and the remainder (99.5%) accessing the online version. The sample identified 850 unique zip codes of PN coverage with 75% of all zip codes reported by two or fewer respondents, suggesting considerable survey reach across the country and organizations conducting some type of patient navigation (not shown). Responses were associated with zip codes across 49 states, spanning 145 Metropolitan Statistical Areas (MSAs). A more detailed description of the sample representation has been previously described [39]. All but one participant completed the survey in English. Of the initial 1,107 respondents, 819 (74%) completed both the programmatic and task sections required for this analysis (Fig. 2). Most respondents

were non-Hispanic white, female, and between 40 and 59 years old. Almost all spoke English as a primary language, yet one in five were bilingual. A third of the PNs had less than a college degree, and almost 40% had some graduate level education.

PN Type

Differences in the frequency of characteristics by PN type are shown in Table 1. Nurse navigators made up 35% of the survey respondents, 20% were SW/counselor navigators, 28% lay navigators, 7% allied health navigators, and the remaining 10% were other types of navigators. Frequencies varied across all CFIR constructs and only two variables (administrative/research duties and community-based organization work setting) failed to show differences by PN type.

Core Elements

All PN types demonstrated the primary tasks of basic navigation and treatment support, followed by care coordination for all except SW/counselor navigators. Making arrangements and referrals for resources was the next most common task category, followed by clinical trial and peer support activities except among nurse PNs.

PN Characteristics

The non-nurse and non-SW/counselor PNs reported more bilingual skills. The SW/counselor, lay, and “other” navigators were slightly younger than their counterparts. Lay, allied health, and “other” navigator types were considerably more diverse than nurse and SW/counselor navigators. Nurse and allied health navigators overwhelmingly had experience as a caregiver to a cancer patient.

Implementation Process

The implementation process differed by type of PN. Over three-quarters of lay and allied health

Fig 2 | Recruitment Cascade

Table 1 | Differences between Patient Navigator Type and Variables Mapped to CFIR Constructs

CFIR construct variables	All (n = 819)	Nurse navigator (n = 289)	SW navigator (n = 164)	Lay navigator (n = 231)	Allied navigator (n = 56)	Other navigator (n = 79)	p value
Core Intervention							
PN Tasks (mean)							
Basic navigation	3.25	3.35	3.19	3.24	3.27	3.07	<.001 ^a
Care coordination	1.93	1.99	1.76	1.92	2.22	1.92	<.0001 ^a
Resource arrangement	1.81	1.68	1.97	1.83	1.84	1.87	<.0001 ^a
Treatment support	2.45	2.72	2.48	2.18	2.48	2.21	<.0001 ^a
Clinical Trial/peer support	1.84	1.99	1.72	1.72	1.84	1.86	<.0001 ^a
PN Characteristics							
Gender							
Female	766 (94%)	286 (99%)	151 (92%)	206 (89%)	48 (86%)	75 (95%)	<.0001
Bilingual	169 (21%)	18 (6%)	27 (17%)	80 (35%)	16 (29%)	28 (35%)	<.0001
Age							
Less than 40 years old	219 (27%)	38 (13%)	59 (36%)	83 (36%)	9 (16%)	30 (38%)	
40–59 years old	507 (62%)	216 (75%)	82 (50%)	126 (55%)	44 (79%)	39 (49%)	
≥60 years old	93 (11%)	35 (12%)	23 (14%)	22 (10%)	3 (5%)	10 (13%)	<.0001
Race/Ethnicity							
White	583 (71%)	256 (89%)	141 (86%)	120 (52%)	28 (50%)	38 (48%)	
Hispanic/Latino	92 (11%)	4 (1%)	10 (6%)	54 (23%)	10 (18%)	14 (18%)	
African							
American/Black	72 (9%)	5 (5%)	7 (4%)	29 (13%)	7 (13%)	14 (18%)	
Asian	37 (5%)	8 (3%)	5 (3%)	16 (7%)	2 (4%)	6 (8%)	
Other	35 (4%)	6 (2%)	1 (1%)	12 (5%)	9 (16%)	7 (9%)	<.0001
Experience							
Caregiver for cancer patient	454 (55%)	208 (72%)	71 (43%)	104 (45%)	38 (68%)	33 (42%)	<.0001
Cancer survivor	125 (15%)	289 (35%)	164 (20%)	231 (28%)	56 (7%)	20 (25%)	<.01
Implementation Process							
Training days							
<1 day	283 (35%)	133 (46%)	78 (48%)	38 (17%)	11 (20%)	23 (29%)	
1–5 days	241 (29%)	81 (28%)	34 (21%)	76 (33%)	20 (36%)	30 (38%)	
More than 5 days	295 (36%)	75 (26%)	52 (32%)	117 (51%)	25 (45%)	26 (33%)	<.0001
Work release time for education	204 (25%)	104 (36%)	51 (31%)	23 (10%)	13 (23%)	13 (17%)	<.0001
Community engagement							
Partners with national organizations	510 (62%)	191 (66%)	106 (65%)	126 (55%)	33 (59%)	54 (68%)	<.05
Inner Setting							
Position characteristics							
Navigation as main duty	23 (52%)	143 (50%)	69 (42%)	52 (66%)	27 (48%)	32 (41%)	<.0001
Position level							
Full-time	637 (78%)	232 (80%)	129 (79%)	185 (80%)	41 (73%)	50 (63%)	
Part-time	119 (15%)	44 (15%)	28 (17%)	26 (11%)	9 (16%)	12 (15%)	
Volunteer/Other	63 (8%)	13 (5%)	7 (4%)	20 (9%)	6 (11%)	17 (22%)	<.0001
Additional navigator responsibilities							
None	268 (33%)	92 (32%)	29 (18%)	100 (43%)	20 (36%)	27 (34%)	<.0001
Clinical work	135 (17%)	109 (38%)	5 (3%)	4 (2%)	16 (29%)	1 (1%)	<.0001
Administrative/ research	343 (42%)	124 (43%)	53 (32%)	103 (45%)	24 (43%)	39 (49%)	NS
Social work/ Counseling	325 (40%)	89 (31%)	123 (75%)	64 (28%)	19 (34%)	30 (38%)	<.0001
Work settings							
Hospital	422 (52%)	204 (71%)	74 (45%)	94 (41%)	17 (30%)	33 (42%)	<.0001
Community-based org	120 (15%)	15 (5%)	29 (18%)	53 (23%)	5 (9%)	18 (23%)	<.0001

Table 1 | Continued

CFIR construct variables	All (n = 819)	Nurse navigator (n = 289)	SW navigator (n = 164)	Lay navigator (n = 231)	Allied navigator (n = 56)	Other navigator (n = 79)	p value
Government agency	78 (10%)	32 (11%)	14 (9%)	20 (9%)	6 (11%)	6 (8%)	NS
Other	154 (19%)	31 (11%)	43 (26%)	50 (22%)	11 (20%)	19 (24%)	<.001
Program characteristics							
Number of patients navigated per week							
1–10 patients/week	335 (41%)	127 (44%)	55 (34%)	94 (41%)	16 (29%)	43 (54%)	
11–20 patients/week	259 (32%)	91 (32%)	58 (35%)	68 (29%)	20 (36%)	22 (28%)	
≥21 patients/week	225 (28%)	71 (25%)	51 (31%)	69 (30%)	20 (36%)	14 (18%)	<.05
Conditions eligible for PN program							
Breast cancer	427 (52%)	171 (59%)	58 (35%)	129 (56%)	33 (59%)	36 (46%)	<.0001
Cervical cancer	226 (28%)	64 (22%)	42 (26%)	83 (36%)	18 (32%)	19 (24%)	<.01
Any type of cancer	366 (45%)	100 (35%)	103 (63%)	104 (45%)	20 (36%)	39 (49%)	<.0001
HIV/AIDS	69 (8%)	15 (5%)	24 (15%)	21 (9%)	7 (13%)	2 (3%)	<.01
Chronic diseases	145 (18%)	16 (6%)	61 (37%)	42 (18%)	14 (25%)	12 (15%)	<.0001
Other type of disease	140 (17%)	52 (18%)	40 (24%)	32 (14%)	7 (13%)	9 (11%)	<.05
Outer Setting							
Geography							
Suburban	198 (24%)	107 (37%)	43 (26%)	27 (12%)	11 (20%)	10 (13%)	
Urban	424 (52%)	128 (44%)	90 (55%)	123 (53%)	26 (46%)	57 (72%)	
Rural	189 (23%)	54 (19%)	27 (17%)	79 (34%)	17 (30%)	12 (15%)	<.0001
Number of patient health conditions							
One condition	602 (74%)	244 (84%)	102 (62%)	157 (68%)	38 (68%)	61 (77%)	
Two conditions	75 (9%)	28 (10%)	13 (8%)	22 (10%)	5 (9%)	7 (9%)	
≥Three conditions	142 (17%)	17 (6%)	49 (30%)	52 (23%)	13 (23%)	11 (14%)	<.0001
Patient populations served—most or all of patients							
Minority	271 (33%)	52 (18%)	35 (21%)	108 (47%)	56 (7%)	46 (58%)	<.001
Private insurance	184 (23%)	92 (32%)	38 (23%)	28 (12%)	11 (20%)	15 (19%)	<.0001
Medicare	239 (29%)	83 (29%)	78 (48%)	49 (21%)	12 (21%)	17 (22%)	<.0001
Underserved	369 (45%)	289 (35%)	164 (20%)	231 (28%)	56 (7%)	79 (10%)	<.0001

*Kruskal–Wallis test; Each PN Type was compared to all others.

PNs received at least 1 day of training compared to approximately half of nurse and SW/counselor PNs. About a quarter of all PNs' reported work release time for education ranging from 10% for lay navigators to 36% of nurse navigators.

Inner Setting

The majority of lay navigators and half of nurse navigators stated that navigation was their main duty, whereas less than half of SW/counselors, allied health, and "other" navigators reported the same. Although most PN's worked full-time, the "other" PN category reported a greater proportion of volunteer positions than the rest of PN types. The majority of all navigator groups had responsibilities in addition to navigation including administrative, research, clinical duties, or social work/counseling responsibilities.

Outer Setting

The work settings of PNs ranged from 71% of nurse navigators at hospitals; a quarter of lay and other PN types were located at community-based organizations, a small proportion of navigators at government agencies, and up to 26% of SW/counselor PN's at other work settings. Almost three quarters of all PN types navigated less than 20 patients each week. Overall, breast cancer was the most common condition navigated; SW/counselor and "other" navigator types reported navigating patients with any cancer diagnosis at greater proportions than others. Approximately half of the PN programs surveyed were located in urban areas, with nurse and SW/counselor navigators reporting more suburban locations while lay and allied navigators represented the largest proportion of PN's in rural areas. Three-quarters of the navigators focused on one patient

health condition. Larger proportions of SW/counselor, lay, and allied health PNs reported assisting patients with three or more health conditions, when compared to nurse and “other” PNs. Approximately half of lay and other PN types served minority populations, while a third of nurse navigators assisted privately insured patients. SW/counselor PNs were more likely to help Medicare patients and more than one fourth of nurse and lay PNs assisted underserved patient populations.

Each PN Type Compared to All Others

The series of models conducted comparing each PN type to all other PN types combined are summarized by CFIR construct in [Table 2](#).

Nurse Navigators

Starting with the core elements of a patient navigation program, nurse navigators were more likely to conduct treatment support and clinical trial/ peer support tasks and much less likely to make arrangements and referrals than the non-nurse navigator group ([Supplementary Table 2](#)). With regard to the

individuals conducting the intervention, nurse navigators were less likely to speak another language or identify as Hispanic/Latino compared to non-nurse PNs. Nurse navigators showed greater odds of having cared for a cancer patient previously yet lower odds of being a cancer survivor compared to non-nurse navigators. As part of the implementation process, nurse navigators were considerably less likely to have received training of 5 days or more compared to all other PNs. When comparing inner setting characteristic variables, nurse navigators reported greater clinical responsibilities and fewer administrative and research duties than others. Nurse navigators were more likely to work in hospital and government agency settings than non-nurses. Regarding patient populations served, nurse navigators were significantly less likely to serve minority populations compared to non-nurse PN types.

SW/Counselor Navigators

SW/counselor navigators showed considerable differences in core aspects of the intervention ([Supplementary Table 3](#)). SW/counselor navigators

Table 2 | Summary of Characteristics Associated with Each PN Type Compared to All other types

Core elements of intervention					
Number of respondents <i>n</i> = 819 (%)					
PN type	PN task domains	Characteristics of patient navigator	Implementation process	Inner setting	Outer setting
Nurse navigator 289 (35%)	More likely to provide Treatment support and Clinical Trial & Peer Support tasks Less likely to Make Arrangements for resources	Monolingual English; has been a caregiver for a cancer patient; has not been a cancer survivor; less likely to be Hispanic/Latino	Less than 5 days of training	Also conducts Clinical Tasks; less likely to provide SW/ counseling services; Located at hospital or government agency work site	Less likely to serve minority populations
SW/Counselor navigator 164 (20%)	More likely to make Arrangements and Referrals to Services and provide Treatment support. Less likely to conduct Basic Navigation, Care Coordination and Clinical Trial & Peer Support tasks	<40 years old; has not been a caregiver for a cancer patient; less likely to be multiracial		Provides social & mental health counseling tasks; less likely to perform clinical tasks; less likely to serve patients with two conditions compared to one condition	Serves Medicare population; Less likely to assist underserved populations
Lay navigator 231 (28%)	Less likely to perform Treatment support tasks	Hispanic; has been a cancer survivor	Received more than 5 days of training; does not have work release time for education	Navigation is main duty; does not conduct clinical tasks; community-based organization work site	Rural; Assists underserved populations
Allied health navigator 56 (7%)	More likely to perform Care Coordination tasks	40–59 years old; has been a caregiver for a cancer patient; has not been a cancer survivor		Not at hospital or community-based organization work sites	Assists Minority populations
“Other” Type 79 (10%)				Volunteer position	

Factors identified by logistic regression as described in methods. Adapted from description and measurement of each type of navigation service and characteristics of navigator, setting, disease targeted by navigation, and patient characteristics associated with each type of navigation service by Wells et al., with permission from Elsevier [29].

were much more likely to make arrangements and resource referrals, perform treatment support tasks and significantly less likely to perform tasks related to basic navigation, care coordination, and clinical trial/peer support compared to non-SW/counselor PNs. SW/counselor navigators differed in PN characteristics showing considerably younger age, less likelihood to self-report race/ethnicity as “other” or to have been a caregiver for a cancer patient when compared to all other PN types. No differences in implementation process variables (amount of training, availability of educational work release, national partnerships) were found. In addition, SW/counselor navigators reported greater odds of assisting Medicare patients and lower odds of navigating underserved patient groups compared to all other PNs.

Lay Navigators

Several significant differences between lay navigators and non-lay navigators were identified ([Supplementary Table 4](#)). Of the core elements, lay navigators showed no differences in tasks except for considerably lower odds of performing treatment support tasks compared to all others. Among the PN characteristics, lay navigators reported more likelihood of being a cancer survivor than others. When implementing lay navigator programs, lay PNs were more likely to receive over 5 days of training days compared to all other types of PNs. Yet, lay navigators were significantly less likely to have work release time for education. The inner characteristics of lay navigator programs highlights some differences including a greater focus on navigation as their job responsibility and less clinical work responsibilities than others. Lay navigators were more likely to work in community-based organizations than PN's. The last construct, outer setting, showed two main differences between lay navigators and all other types. Lay navigator programs were much more likely to be in rural areas and to serve underserved populations.

Allied Health and “Other” Navigators

Allied health navigators displayed a few primary differences across the CFIR constructs ([Supplementary Table 5](#)). Allied health navigators exhibited greater odds of conducting care coordination tasks than all other PNs. Allied health navigators were also younger than other PN types. Allied health navigator programs were significantly less likely to be in hospital or community-based organization settings compared to others. Lastly, allied health navigators were significantly more likely to assist minority populations than all other PN types. The only significant difference found between the “other” PN categories compared to all PN types combined, was greater odds of holding a volunteer position ([Supplementary Table 6](#)).

DISCUSSION

This survey represents a major effort to describe the state of implementation and spread of PN and care coordination in the USA. Extensive data from over 800 respondents across 49 states revealed differences in the implementation of PN programs by type deployed (nurse, SW/counselor, lay, allied health, and other). In this study, the primary differences observed among types of PNs were in: position structure (navigation is primary work or additional duties included); work setting; patient health conditions navigated; PN race/ethnicities; personal experiences with cancer; and dedicated navigation training received; and patient populations from the broader community served by the PN intervention. Interestingly, allied health PNs significantly served more minority populations than all other PNs combined even though lay navigators were more likely to report Hispanic ethnicity. With regard to patient insurance status, the SW/counselor navigator type appeared to focus on Medicare patients and less on underserved (Medicaid or uninsured) populations, while lay PNs showed greater odds of assisting underserved patient groups.

It is unclear what drives PN program implementation differences. This study builds on our previous work identifying differences associated with PN task domains [29], a core element within the CFIR. PN type is likely determined by the needed PN skills, tasks, and additional duties required by the employer. Another potential influence on PN type determination is reimbursement and sustainability concerns. The broad use of individuals to conduct navigation along with other clinical (i.e., conducting clinical procedures) and social work/counseling duties demonstrates the challenge faced by the nonclinical PN categories. Few states currently reimburse lay health workers [48]. Also unclear is the reason for differences in PN race/ethnicities make-up of PN type categories. This may reflect on a lack of diversity among the demographic pool of position applicants, or the need to hire staff similar to the patient population of interest. In addition, there is debate regarding the impact of racial, ethnic, and linguistic congruency between PN and patient population served [49].

Few studies are available that compare patient outcomes by PN type to help determine the most appropriate PN intervention characteristics. There is a lack of consensus on the use of nurses, social workers/counselors, lay individuals, or allied health professionals as navigators despite the rapid growth in the use of each type of PN [50] within healthcare systems.

This survey describes variation in elements of patient navigation programs nationally but does not evaluate the impact of those differences on patient outcomes. These outcomes range greatly given the breadth of PN interventions; recent studies provide

a set of patient navigator tasks for cancer care [28] colorectal cancer screening [51] medical home services for HIV-positive homeless patients [52] transitional care post discharge [53]. A systematic review and meta-analysis of care coordination demonstrated positive results across cancer continuum outcomes [28]. Also, an analysis of tasks by patient navigators in the Patient Navigation Research Program (PNRP) identified tasks similar to basic navigation ($r = 0.68$), care coordination ($r = 0.64$), and arrangement of resources ($r = 0.71$) as most strongly correlated with positive patient outcomes [54].

The growing number of published reports on PN tasks and their association with patient outcomes will facilitate the development of accurate competency standards and training regardless of PN type. Our survey demonstrated a considerable lack of specific navigation training received by all navigators except lay PN's. The lack of PN training is supported by a recent review of 75 patient navigation studies in which only 79% explicitly mentioned a training component [16]. In these studies, training varied greatly. The authors called for established standards for patient navigator training [16]. Standardized training that is linked to competencies supporting activities that improve patient outcomes is required to further advance the field and promote the implementation and dissemination of effective patient navigation interventions regardless of the PN type employed. Given the rapid growth of PN programs across and beyond the health care system, further evaluation of the impact of PN programs using the CFIR model or other dissemination frameworks is needed.

LIMITATIONS

This study is a cross-sectional survey and shares limitations of other survey research conducted in nonestablished and emerging fields. First and foremost, the recruitment strategy relied on snowball sampling and did not allow estimates of the representativeness of respondents. However, reviewing the zip codes distribution provides evidence of the widespread dissemination of the survey and the individuals completing the survey [39]. Despite the lack of our ability to estimate the patient navigator workforce at the time of the survey, the recruitment strategy allowed outreach to staff who work under a variety of job titles, often hold dual roles, and work as volunteers during the early phase of intervention diffusion. Second, all information is self-report, and we are unable to verify the description of the patient populations served.

The study did not obtain information on program outcomes and is unable to evaluate program characteristics associated with greater effectiveness. In addition, individuals conducting patient navigation use a variety of job titles such as care coordinators, community health workers, social workers,

coaches, patient advocates, and nurse navigators, which makes enumeration difficult. Until there are national and state consensus on the job duties of PNs, research into what PNs do, who they are, and how they impact care coordination systems, will continually be confounded by confusion about the PN role delineation and position responsibilities. Additionally, the application of the CFIR framework to patient navigation in this paper is novel and useful, but further studies are needed to investigate the implementation constructs more fully in an a priori fashion and using the CFIR measurement instrument or other instruments mapped to each construct [46]. We were greatly limited in our ability to describe the implementation process using our study variables and would encourage greater investigation into how PN programs are planned and championed within and outside of the organization and perceptions of the PN program by internal opinion leaders and external change agents [40].

Lastly, the survey was conducted prior to the enactment of the Affordable Care Act that provided support for care coordination, patient navigation, and community health worker programs. The proliferation of PN programs since enactment of the ACA requires further investigation. We wanted to describe the early implementation of PNs in the health care system and capture the variability across the elements of PN programs.

CONCLUSION

In summary, our survey found that the type of PN employed is an indicator of other substantial differences in navigation program implementation ranging from the tasks conducted, personal experiences, other duties, work setting, geographical location, and patient populations served. CFIR provides a robust method to compare differences in program implementation. In the future, studies of patient navigation should incorporate care coordination outcomes in the future.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Translational Behavioral Medicine* online.

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Compliance with Ethical Standards

Conflict of Interest: Authors have no actual or potential conflicts of interest.

Ethical Approval: The study has been approved by the institutional review board at the University of Illinois Chicago for Human Subjects Protection. No animals were utilized in this study.

Informed consent: Assent was provided by the respondent when initiating the survey from the introduction webpage. An information sheet was provided as a downloadable document from the survey introduction webpage prior to accessing the online survey.

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