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Predictors for Telephone Outreach Post-Hospital Discharge

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ABSTRACT

Purpose of Study: The specific aims of this study were to examine whether sociodemographic variables and medical–surgical diagnoses were associated with telephone follow-up (TFU) reach rates, emergency department visits, and hospital readmissions.

Primary Practice of Setting: Acute care inpatient units in an academic medical center.

Methodology and Sample: A correlational design was utilized, and a prospective medical record review of patients was conducted while implementing face-to-face prehospital discharge meeting interventions. The study sample (N = 176) included adult patients in two neurosurgical wards who were admitted between June 2016 and September 2016. Parametric and nonparametric tests were used to explore the balance between the intervention group receiving a face-to-face prehospital discharge meeting and comparison group receiving standard prehospital discharge care. Bivariate statistics were employed to determine associations between variables.

Results: A total of 15 sociodemographic and medical–surgical variables were used to correlate TFU reach rates, emergency department (ED) visits, and readmission rates. Educational attainment (p = .002), employment status (p = .014), parental status (p = .010), and hospital service (p = .039) had significant differences between the intervention and comparison groups. Results demonstrated an improved reach rate for the intervention group but despite the differences in the groups, phi and Cramer's V coefficients did not correlate any associations with TFU reach rate, ED visits, and readmission rates with sociodemographic and surgical variables. This outcome affirmed that despite the similarities and differences in the sample, a face-to-face meeting prehospital discharge is an effective intervention to improve telephone outreach.

Implications to Case Management Practice: There is a need to determine the most cost-effective way to increase TFU reach rates to prevent subsequent ED visits and hospital readmissions. There is also a need to develop a tool that can predict the hardest-to-reach patients posthospital discharge, so that case managers can meet those patients before leaving the hospital. In addition, it is important to identify alternative methods of "face-to-face" interactions during the COVID-19 pandemic crises. Case managers must explore ways with caution to leverage secured digital technology to bridge the gap of communicating with patients and family members when hospital visitations are limited.

Key words: *case managers, emergency department visits, face-to-face meetings, readmission rates, telephone outreach*

Several studies demonstrate that nurse-led telephone follow-up (TFU) interventions have the potential to improve patient outcomes (Berkowitz et al., 2018; Woods et al., 2019). Telephone follow-up is an essential component of care coordination and may promote patient safety, increase patient satisfaction, reduce emergency department (ED) visits, and prevent hospital readmissions (Hoyer et al., 2018;

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Jayakody et al., 2018; Kind et al., 2016). Posthospital discharge follow-up is an important initiative to assist patients in their transitions of care to the community. Improving TFU reach rates for discharged patients is significant because it provides a patient safety net by identifying problems, assisting and streamlining patients' transitions of care, and averting preventable readmissions (Hsiao et al., 2018; Reese et al., 2019). Although there is a growing body of literature that suggests that face-to-face meeting with patients' prehospital discharge is beneficial for increasing TFU reach rates posthospital discharge, the evidence is limited regarding the effectiveness of such intervention because past studies focused on medical patients (Harrison et al., 2011; Kind et al., 2012; Vergara et al., 2017). The predictors of telephone outreach and the best practice on how to increase TFU reach rates are not well established in the surgical population (Vergara et al., 2018). This study focused on the neurosurgical population.

Purpose of Study

The purpose of this project was to examine the following hypotheses:

1. Sociodemographic and medical–surgical variables are associated with TFU reach rates.
2. Sociodemographic and medical–surgical variables are associated with subsequent ED visits.
3. Sociodemographic and medical–surgical variables are associated with hospital readmission rates.

Design and Setting

The study utilized a descriptive correlational design to explore any relationships between sociodemographic and medical–surgical variables in the data collected from June 13, 2016, to September 16, 2016. The participants were recruited at a large academic and medical research institution in Baltimore, Maryland. The participants were requested to voluntarily participate, and appointment cards were provided to those who agreed to be in the study. Data were deidentified and saved in the secured server of the health system.

Population and Sample Size

Participants were postoperative patients from two neurosciences units arbitrarily labeled Unit A and Unit B. The units admit a very similar mix of patients and both used a novel care coordination program from the Johns Hopkins Community Partnerships (Berkowitz et al., 2018), with TFU being a component of discharge planning without prehospital discharge face-to-face meetings. We purposively selected the neurosurgical patient population because previous studies focused on the reimbursements, awards, and penalties of patients' readmissions with the following medical diagnosis: pneumonia, congestive heart failure, chronic obstructive pulmonary diseases (Joynt Maddox et al., 2018), and total joints (Li et al., 2019). A convenience sampling technique was utilized. This study used a modified Consolidated Standards of Reporting Trials (CONSORT) flow diagram (Kuriyama et al., 2017; see Figure 1) for determining included and excluded participants.

Intervention Unit

After flipping a coin, Unit A was selected as the intervention unit, with Unit B as the comparison unit. A prehospital discharge face-to-face meeting was implemented on the intervention unit. Vergara et al. (2017, 2020) developed the essential components of a prehospital discharge face-to-face meeting intervention (see Figure 2) using a telephonic case manager (see Figure 3).

Comparison Unit and Routine Care

Patients admitted to the comparison group (Unit B) received routine care, which was a cold call from staff members of the telephonic case management team. Routine care provided three random "cold" call attempts and if the patient was not reached after three calls, no more call attempts were made.

Study Variables

The following sociodemographic variables were collected: age, gender, race, educational attainment, employment status, marital status, children at home younger than 18 years, primary insurance status, housing status, and religious affiliation. The following medical–surgical–related variables were collected for each participant: admission type, hospital service, surgical procedures, Early Screening Discharge Planning scores, and length of stay.

Statistical Analysis

A power analysis a priori was conducted to ensure sufficient sample size to achieve adequate power (Gray & Grove, 2020). A medium effect size was chosen for the purposes of sample size selection. Sample size estimates using medium-range effects sizes (0.3) were calculated using the Power Analysis and Sample Size online computer software based on Cohen's (1988) formula. Descriptive analyses of sociodemographic and medical–surgical variables were conducted to summarize the data.

To determine whether the sociodemographic and medical–surgical variables were balanced between

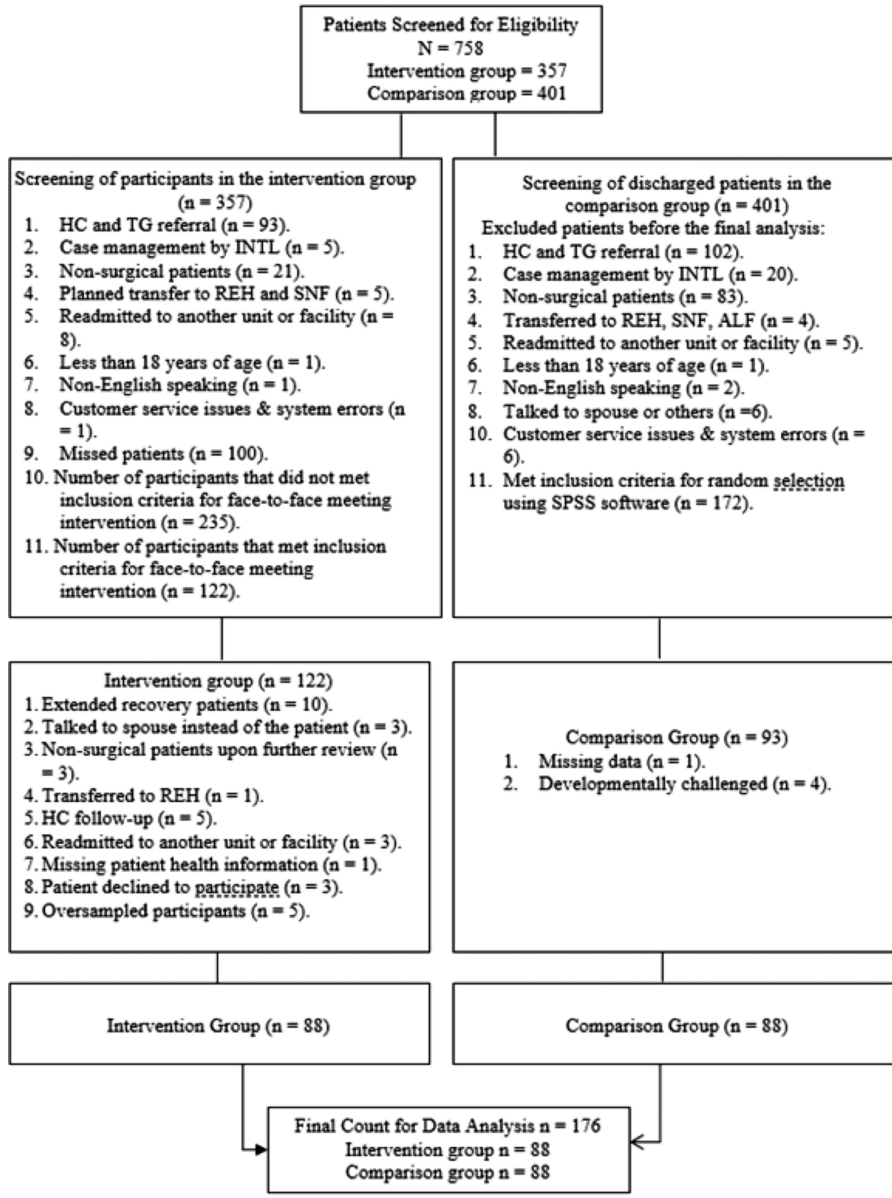

FIGURE 1
CONSORT flow diagram: Inclusion and exclusion criteria. ALF = assisted living; HC = home care; INTL = international; REH = rehabilitation; SNF = skilled nursing facility; TG = transition guide. Adapted from "Face-to-Face Meetings With Neurosurgical Patients Before Hospital Discharge: Impact on Telephone Outreach, Emergency Department Visits, and Hospital Readmissions," by F. H. Vergara, J. E. Davis, C. Budhathoki, N. J. Sullivan, and D. J. Sheridan, 2020, *Population Health Management*, *23*(2), pp. 179–180. https://doi.org/10.1089/pop.2019.0038. Copyright 2019 by Franz H. Vergara et al. Creative Commons License (http://creativecommons.org/licenses/by/4.0). Used with permission

the intervention and comparison groups, χ^2 test and Fisher exact test were employed for categorical variables (see Table 1). Bivariate statistical measures (Denis, 2018) such as phi coefficients (ϕ) were used for variables with two categories and Cramer's V coefficients (ϕ_c) were used for variables with more than two categories (see Table 2). The Statistical Package for Social Sciences (SPSS) Version 26.0 software (SPSS, Inc., Chicago, IL) was used for all statistical analyses.

Results

The mean age of the participants in this study was 49.51 years, with no significant differences between intervention and control groups. Of the 15 sociodemographic and medical–surgical variables, four demonstrated significant differences between the intervention and comparison groups: educational attainment ($p = .002$), employment status ($p = .014$), number of children who are younger than 18 years ($p = .010$),

FIGURE 2
Patient access line nurse case manager explaining the purpose of the telephone follow-up to the patient.

and the medical–surgical variable of hospital service ($p = .039$; see Table 1).

The intervention group had a higher level of education: 58% of participants in the intervention group completed a 4-year college degree or higher compared with only 34.1% of the comparison group (difference, 23.9%; $p = .002$). The employment status of the participants also differed greatly. The intervention group had a higher level of employment: 70.5% ($n = 62$) as compared with the comparison group: (47.7%; $n = 42$; $p = .014$). Thirty-one (35.2%) participants in the intervention group had young children living at home, in contrast with the comparison group, in which 15 (17%) participants had children living at home ($p = .010$). Furthermore, more patients from the intervention unit had undergone spinal surgery ($n = 26$; 29.5%), compared with the control group ($n = 15$; 17%; $p = .039$).

FIGURE 3
A patient access line nurse case manager conducting the telephone follow-up.

To determine associations between the sociodemographic variables, medical–surgical variables, TFU reach rates, subsequent ED visits, and hospital readmissions, a bivariate analysis was employed. Phi and Cramer's V coefficients demonstrated that none of the variables were associated with TFU reach rates, subsequent ED visits, and hospital readmissions (see Table 2).

Discussion

Intervention Group

As described in a recent study by Vergara et al. (2020), the participants received the face-to-face meetings prehospital discharge (see Figure 2). The case manager:

- "introduced himself and greeted the patient by shaking hands;
- asked the patient's permission to sit down so that the case manager could speak without looking down at the patient;
- informed the patient of the purpose of TFU post-hospital discharge; and assisted the patient in completing a patient handout used by the case manager to contact the patient post-hospital discharge.

The patient handout requested the following information:

- the best phone number(s) to reach the patient;
- the best time and date for TFU; and
- a reminder of paperwork and items needed at the time of the telephone call (Vergara et al., 2020)."

The intervention group that received face-to-face meeting interventions had a higher TFU reach rate (97.7%; $n = 86$; $p = .000$) compared with the control group (76.1%; $n = 67$) that did not receive face-to-face meeting interventions in the prospective posttest-only quasi-experimental study conducted by Vergara et al. (2020). In addition, the majority of the patients in the intervention group answered the TFU during the first attempt and demonstrated statistical significance (71.6%; $n = 63$; $p = .001$) compared with the control group (42%; $n = 37$) that did not receive a face-to-face meeting intervention (see Table 3). The outcomes were not surprising because the components of

The intervention group that received face-to-face meeting interventions had a higher TFU reach rate compared with the control group that did not receive face-to-face meeting interventions.

TABLE 1
Sociodemographic and Medical–Surgical Characteristics of Participants and Differences Between Groups (*N* = 176)

	Categorical Variables						
	Intervention (*N* = 88)		Comparison (*N* = 88)		Total		
Characteristics	***N***	**%**	***N***	**%**	***N***	**%**	***p***
Age in years							.939[a]
18–29	9	10.2	12	13.6	21	11.9	
30–39	13	14.8	11	12.5	24	13.6	
40–49	22	25.0	17	19.3	39	22.2	
50–59	20	22.7	23	26.1	43	24.4	
60–69	17	19.3	16	18.2	33	18.8	
70–79	5	5.7	7	8.0	12	6.8	
>80	2	2.3	2	2.3	4	2.3	
Gender							1.000[b]
Male	38	43.2	38	43.2	76	43.2	
Female	50	56.8	50	56.8	100	56.8	
Race							.833[a]
African American	9	10.2	12	13.6	21	11.9	
White	73	83.0	71	80.7	144	81.8	
Others	6	6.8	5	5.7	11	6.3	
Educational attainment							**.002**[a*]
Less than high school	1	1.1	1	1.1	2	1.1	
Some high school	1	1.1	1	1.1	2	1.1	
High school graduate	13	14.8	9	10.2	22	12.5	
Some college	9	10.2	14	15.9	23	13.1	
Four-year college graduate or higher	51	58.0	30	34.1	81	46.0	
No answer	13	14.8	33	37.5	46	26.1	
Employment status							**.014**[a*]
Employed	62	70.5	42	47.7	104	59.1	
Retired	10	11.4	13	14.8	23	13.1	
Disabled	1	1.1	2	2.3	3	1.7	
Unemployed	15	17.0	29	33.0	44	25.0	
No answer or unknown	0	0.0	2	2.3	2	1.1	
Marital status							.151[a]
Single	15	17.0	19	21.6	34	19.3	
Married	66	75.0	60	68.2	126	71.6	
Widowed	1	1.1	6	6.8	7	4.0	
Divorced/separated	6	6.8	3	3.4	9	5.1	
Children younger than 18 years							**.010**[b*]
No	57	64.8	73	83.0	130	73.9	
Yes	31	35.2	15	17.0	46	26.1	
Primary insurance status							.215[b]
Public	17	19.3	25	28.4	42	23.9	
Private	71	80.7	63	71.6	134	76.1	
Housing status							.307[b]
Lives alone	6	6.8	11	12.5	17	9.7	
Lives with family or significant other	82	93.2	77	87.5	159	90.3	

(*continues*)

TABLE 1
Sociodemographic and Medical–Surgical Characteristics of Participants and Differences Between Groups (N = 176) (*Continued*)

	Categorical Variables						
	Intervention (*N* = 88)		Comparison (*N* = 88)		Total		
Characteristics	***N***	**%**	***N***	**%**	***N***	**%**	***p***
Religious affiliation							.722[a]
Christianity	41	46.6	47	53.4	88	50.0	
Jewish	7	8.0	4	4.5	11	6.3	
Other (no answer or unknown)	15	17.0	13	14.8	28	15.9	
None	25	28.4	24	27.3	49	27.8	
Admission type							.331[b]
Emergency	7	8.0	12	13.6	19	10.8	
Elective	81	92.0	76	86.4	157	189.2	
Hospital service							**.039**[a*]
Neurosurgery, brain tumor	45	51.1	44	50.0	89	50.6	
Neurosurgery, spine	26	29.5	15	17.0	41	23.3	
Neurosurgery, vascular	12	13.6	15	17.0	27	15.3	
Orthopedic surgery, spine	4	4.5	5	5.7	9	5.1	
Others	1	1.1	9	10.2	10	5.7	
Surgical procedures							.060[a]
Craniectomy	5	5.7	11	12.5	16	9.1	
Craniotomy	28	31.8	24	27.3	52	29.5	
Microvascular decompression	7	8.0	2	2.3	9	5.1	
Decompression and fusion	3	3.4	3	3.4	6	3.4	
Deep brain stimulator placement	2	2.3	0	0.0	2	1.1	
Endoscopic resection of tumor	8	9.1	10	11.4	18	10.2	
Laminectomies, discectomies, and fusions	24	27.3	16	18.2	40	22.7	
Placement of epidural blood patch	2	2.3	1	1.1	3	1.7	
Ventriculoperitoneal shunt and revision	3	3.4	6	6.8	9	5.1	
Other surgical procedures	6	6.8	9	10.2	15	8.5	
Cranioplasty	0	0.0	6	6.8	6	3.4	
ESDP scores of ≥10							.827[b]
No	75	85.2	77	87.5	152	86.4	
Yes	13	14.8	11	12.5	24	13.6	
Length of stay (days)							.809[a]
1–7	81	92	82	93.2	163	92.6	
8–14	6	6.8	4	4.5	10	5.7	
≥15	1	1.1	2	2.3	3	1.7	

Note. ESDP = Early Screening Discharge Planning. Adapted from "Face-to-Face Meetings With Neurosurgical Patients Before Hospital Discharge: Impact on Telephone Outreach, Emergency Department Visits, and Hospital Readmissions," by F. H. Vergara, J. E. Davis, C. Budhathoki, N. J. Sullivan, and D. J. Sheridan, 2020, *Population Health Management, 23*(2), pp. 179–180. https://doi.org/10.1089/pop.2019.0038. Copyright 2019 by Franz H. Vergara et al. Creative Commons License (http://creativecommons.org/licenses/by/4.0). Used with permission.

[a]Fisher's exact test.

[b]Pearson's χ^2 test.

*$p < .05$ (statistical Significance). There was a statistically significant difference between the intervention and comparison groups' educational attainment ($p = .002$), employment status ($p = .014$), and children younger than 18 years ($p = .010$).

prehospital discharge face-to-face meeting interventions were developed using the essential concepts and framework of the Transitions Theory (Meleis, 2017). The concepts included establishing prior connection, prior knowledge, and establishing trust.

Comparison Group

On the other hand, the comparison group used the standard operating procedure, and case managers randomly called patients posthospital discharge.

TABLE 2
Associations of TFU Reach Rates, ED Visits, and Hospital Readmissions

	TFU Reach Rates		ED Visits		Hospital Readmissions	
Characteristics	**Coefficients**	***p***	**Coefficients**	***p***	**Coefficients**	***p***
Age (years)	0.212[a]	0.244	0.259[a]	0.067	0.22[a]	0.196
Gender	0.134[b]	0.076	−0.004[b]	0.962	0.060[b]	0.426
Race	0.032[a]	0.913	0.006[a]	0.997	0.053[a]	0.778
Educational attainment	0.196[a]	0.237	0.102[a]	0.870	0.216[a]	0.144
Employment status	0.055[b]	0.469	−0.102[b]	0.175	0.008[b]	0.915
Marital status	0.154[a]	0.245	0.113[a]	0.523	0.130[a]	0.397
Children younger than 18 years	0.077[b]	0.306	0.008[b]	0.914	−0.011[b]	0.881
Primary insurance	0.099[b]	0.188	−0.038[b]	0.615	−0.046[b]	0.544
Housing status	−0.070[b]	0.355	0.030[b]	0.687	0.032[a]	0.672
Religious affiliation	0.146[a]	0.289	0.126[a]	0.425	0.140[a]	0.325
Admission type	0.028[b]	0.709	−0.046[b]	0.539	0.023[b]	0.761
Hospital service	0.202[a]	0.126	0.174[a]	0.256	0.224[a]	0.065
Surgical procedures	0.276[a]	0.203	0.286[a]	0.157	0.266[a]	0.258
ESDP scores of ≥10	0.056[b]	0.459	−0.047[b]	0.532	−0.004[b]	0.959
Length of stay	0.122[a]	0.271	0.089[a]	0.496	0.057[a]	0.748

Note. ED = emergency department; ESDP = Early Screening Discharge Planning; TFU = telephone follow-up.
[a]Cramer's V coefficient. Sociodemographic and medical–surgical variables did not demonstrate any associations with TFU reach rates.
[b]Phi coefficient.

Without a prehospital discharge face-to-face meeting, there was no prior connection and prior knowledge that a TFU would occur in the next 24–72 hr.

Age

The mean age of neurosurgical patients in this study was much younger compared with the mean age of medical patients (>75 years) in similar literature (Jack et al., 2009; Kind et al., 2012; Parry et al., 2009). Most past studies focused on older medical patients (Coleman et al., 2006; Jack et al., 2009). However, due to the evolving and recent trends of population health, there is now a greater focus on improving the quality of posthospital discharge care plans for all age groups and medical–surgical specialties

TABLE 3
Telephone Follow-Up Reach Rates and Phone Call Attempts

	Intervention (*N* = 88)		Comparison (*N* = 88)		Total		
Call Status	***N***	**%**	***N***	**%**	***N***	**%**	***P***
Reach rate							**.000**[a*]
Not reached	2	2.3	21	23.9	23	13.1	
Reached	86	97.7	67	76.1	153	86.9	
Total	88	100	88	100.0	176	100.0	
Number of phone call attempts							**.001**[a*]
One	63	71.6	37	42	100	56.8	
Two	15	17	27	30.7	42	23.9	
Three	10	11.4	19	21.6	29	16.5	
Four	0	0	3	3.4	3	1.7	
Five	0	0	2	2.3	2	1.1	
Total	88	100	88	100.0	176	100.0	

Note. Adapted from "Face-to-Face Meetings With Neurosurgical Patients Before Hospital Discharge: Impact on Telephone Outreach, Emergency Department Visits, and Hospital Readmissions," by F. H. Vergara, J. E. Davis, C. Budhathoki, N. J. Sullivan, and D. J. Sheridan, 2020, *Population Health Management*, *23*(2), pp. 179–180. https://doi.org/10.1089/pop.2019.0038. Copyright 2019 by Franz H. Vergara et al. Creative Commons License (http://creativecommons.org/licenses/by/4.0). Used with permission.
[a]Pearson's χ^2 test. Prehospital discharge face-to-face meeting interventions demonstrated a statistical significant impact on TFU reach rates ($p = .000$) and the number of phone call attempts ($p = .001$).
*$p < .05$ (statistical Significance). There was a statistically significant difference between the intervention and comparison groups' educational attainment ($p = .002$), employment status ($p = .014$), and children younger than 18 years ($p = .010$).

Improving TFU reach rate is very significant in the success of a telephonic case management program because evidence suggests (Hoyer et al., 2018) that patients reached by the TFU after hospital discharge prevented 777 readmissions and saved a health system of approximately $11.8 million within 40 months.

(Berkowitz et al., 2018; Hoyer et al., 2018; Kind et al., 2016).

Literacy

Education level was not a factor in the ability of neurosurgical patients to be reached at home. Looking closely at the differences between the groups, the level of educational attainment was significantly different between the groups. However, upon review, 37.5% of patients from the comparison group did not have their education level on record compared with 14.8% of patients in the intervention group who did not have their education level on the electronic chart and is a potential confounding variable.

Employment

The study found that employment status is not a factor for TFU reach rates. It did not matter whether patients were employed or unemployed; they answered the TFU after face-to-face meetings were conducted before hospital discharge. A potential confounding variable is that the patients remained resting at home for a period of time posthospital discharge, making them available for the telephone call.

Young Children

Having young children at home who are younger than 18 years was also not associated with TFU reach rates, subsequent ED visits, and hospital readmissions. It is important to understand the family dynamics of the participants to identify any barriers or facilitators of transitions, as having younger children to take care of at home may pose a barrier for smooth transitions of care (Meleis, 2017) and may serve as a barrier in successfully coping and recovering from a surgical procedure. This study demonstrated that being a parent to young children is not a determinant or barrier in complying with posthospital discharge care plans such as a TFU.

Differences in Variables

Although some of the sociodemographic variables (educational attainment, employment status, young children at home) and medical–surgical variable (hospital service) differed significantly between the intervention and comparison groups, bivariate analysis demonstrated that:

- sociodemographic and medical–surgical variables are not associated with TFU reach rates in the neurosurgical population;
- sociodemographic and medical–surgical variables are not associated with subsequent ED visits in the neurosurgical population; and
- sociodemographic and medical–surgical variables are not associated with hospital readmission rates in the neurosurgical population.

This study demonstrated that the type of surgical procedure did not impact TFU reach rates. Our correlational study demonstrated that, in spite of similarities or differences between sociodemographic and medical–surgical variables, there was no associated differences in TFU reach rates, ED visits, or hospital readmissions, but the evidence clearly indicates the value of prehospital face-to-face meeting in increasing overall TFU reach rates.

Improving TFU reach rate is very significant in the success of a telephonic case management program because evidence suggests (Hoyer et al., 2018) that patients reached by the TFU after hospital discharge prevented 777 readmissions and saved a health system of approximately $11.8 million within 40 months. Several studies also demonstrated that successfully reaching patients posthospital discharge may decrease ED visits and hospital readmission due to a bundle of posthospital interventions during the telephone call (Kind et al., 2016; Vergara et al., 2020). The face-to-face meeting intervention demonstrated its significance to transitions of care because if case managers were unable to contact patients' posthospital discharge, it would be challenging to deploy posthospital discharge interventions.

Several studies also demonstrated that successfully reaching patients posthospital discharge may decrease ED visits and hospital readmission due to a bundle of posthospital interventions during the telephone call.

This analysis demonstrated that it is likely that the face-to-face meeting intervention maybe the most important variable in improving TFU reach rates and there are several reasons. The patients knew the case manager before hospital discharge and had prior connection, ultimately establishing trust and engagement. The patients had prior knowledge of the purpose of the telephone call, and the face-to-face meetings ultimately eliminated a "cold call," eventually diminishing multiple attempts to successfully connect with patients' posthospital discharge. Also, the meeting established the best time and accurate phone number to call, helping ensure that the patient was available.

This analysis demonstrated that it is likely that the face-to-face meeting intervention may be the most important variable in improving TFU reach rates and there are several reasons. The patients knew the case manager before hospital discharge and had prior connection, ultimately establishing trust and engagement. The patients had prior knowledge of the purpose of the telephone call, and the face-to-face meetings ultimately eliminated a "cold call," eventually diminishing multiple attempts to successfully connect with patients' posthospital discharge. Also, the meeting established the best time and accurate phone number to call, helping ensure that the patient was available.

Limitations

There are several limitations in the study regarding the design, methods, and generalizability of findings. Although there is power in the total number of participants, we followed only a priori power analysis with medium size effect. The study also lacked randomization between groups and selection of participants. The participants comprised one specialty service from a world-renowned medical facility. The study was conducted at a large academic medical center and the results may not be generalizable to a rural or community hospital.

Recommendations

A larger cohort of samples may be needed to ensure that there are enough participants who visited and did not visit the ED, and enough patients who were readmitted and not readmitted. A multisite study comparing a large urban academic medical center, regional suburban hospital, and a community-based hospital may be used to analyze the impact of face-to-face meeting with a diverse group of patients. It is also recommended that a study be conducted using registered nurses, nonlicensed staff, and artificial intelligence, and harness technological advancement of remote face-to-face meetings prehospital discharge and then compare reach rates, subsequent ED visits, and hospital readmissions. Identifying a specific cohort of participants, such as non–English-speaking patients, may respond favorably to an innovative intervention that may increase TFU reach rates and reduce hospital readmissions.

Implications for Case Management

There is a need to determine the most cost-effective way to increase TFU reach rates to prevent subsequent ED visits and hospital readmissions. As a pragmatic intervention, it may be challenging and expensive for health care systems to hire and train case managers to conduct face-to-face meetings to improve TFU reach rates that can prevent hospital readmissions. To help meet that goal, developing a tool that can predict the hardest to reach patients posthospital discharge would allow case managers to prioritize conducting face-to-face meetings with those patients before leaving the hospital.

Although the COVID-19 pandemic crisis is now simmering down in some parts of the United States, it is important to explore alternative methods of "face-to-face" interactions. Case managers should learn to leverage digital technology with caution to bridge the gap of communicating with patients and family members when hospital visitations are very limited, and there is a mandate for physical and social distancing. Although technological advancements enhanced our ability to communicate remotely with our patients and family members (Steel et al., 2021), we need to be cautious to assume that all patients and family members, especially the vulnerable population, have access to these technologies. According to a Pew Research Center survey, the digital literacy level in the United States remained low "with only 20% of adults answering a range of digital topic questions correctly" (Vogels & Anderson, 2019). In addition, the gap between the affluent and the poor widened further due to the pandemic (Kahloon, 2020; Tsai et al., 2021). The complexity and cost of health care

Leveraging technological advancements and keeping pragmatic interventions such as a face-to-face meeting are essential ingredients for a successful telephonic case management program, especially for indigent patients.

technology may also serve as a barrier to delivering care to the most vulnerable populations. Leveraging technological advancements and keeping pragmatic interventions such as a face-to-face meeting are essential ingredients for a successful telephonic case management program, especially for indigent patients. Currently, there is no evidence that our homeless patients have the capacity and competency to use a Zoom call or similar platforms. Most importantly, telehealth delivery, such as a telephonic case management program, is effective only if we successfully reached the patient posthospital discharge.

Conclusion

There is no single predictor that can help guide case managers to determine whether a patient may be reached posthospital discharge. However, meeting face-to-face before hospital discharge contributes to increased TFU reach rates, a lower percentage of ED visits, and fewer hospital readmissions. With every successful TFU, case managers can provide another layer of safety to answer self-care management questions, identify problems at home, and assist and streamline patients' transitions of care. Face-to-face meeting as an intervention has increased TFU reach rates in several studies with specific patient populations, subsequently reducing ED visits and hospital readmissions. However, there is still a need to determine the most effective interventions for all vulnerable patient populations to improve TFU reach rates by telephonic case managers.

The COVID-19 pandemic crisis catalyzed innovative communication strategies and deployed health care remotely with technologically savvy patients and family members. However, as we move forward to the post-COVID-19 era, it is important to consider that our most vulnerable patients to hospital readmissions and health inequities may not have the technological competencies, access, and resources to harness advanced telehealth programs and novel communication platforms. The case manager must continue to assess the unique needs of patients to deploy the most appropriate method to reach out posthospital discharge.

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