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The Practice of IT-Based Discharge Communication in General Surgery Wards at The Kenyatta National Hospital

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ABSTRACT

Purpose: The current study sought to investigate the practice of IT-based discharge communication in general surgery wards at the Kenyatta National Hospital.
Methodology: The study used the descriptive research design approach. A stratified sampling technique was used to recruit 180 patients who had been discharged in the last one month prior to the study from surgical wards namely General surgery ward, Urology ward and Neurology ward. A semi structured questionnaire was used to collect both qualitative and quantitative data with the use of SPSS version 25.
Results: The findings revealed that there is a significant difference between the mean responses of the patients in General surgery ward and Neurology ward (-.299*, P= 0.001). Likewise, there is a significant difference between the mean responses of the patients in Urology ward and General surgery ward (-.417*, P= 0.000). The correlation findings indicated that there is a positive and significant association between IT-based discharge communication practices and patient health outcomes at KNH (r=0.533**, p=0.000). This was supported by the regression findings that indicated that IT-based discharge communication practices have a positive and significant effect on patient health outcomes at KNH (β = 0.305, p=0.000). This implies that improvement in 1 unit of IT-based discharge communication practices leads to an improvement in patient health outcomes at KNH by 0.305 units (vice versa is also true).
Unique contributions to theory, policy and practice: Since, well-designed and implemented IT systems increase communication, coordination, and knowledge retention, resulting in better results for discharged patients, their families, caregivers, and primary healthcare professionals, Kenyan hospitals are encouraged to pursue the IT direction and put into practice the best IT-based communication infrastructure for current and future quality service delivery

1.0 INTRODUCTION

1.1 Background of the Study

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Continuity of treatment for patients discharged from the hospital is a vital feature of high-quality patient care. Sadly, inaccurate or erroneous data and coordination mistakes between healthcare services and various recipients also raise the risk of adverse effects. This can potentially lead to life-threatening cases, preventable procedures, unplanned re-hospitalizations and additional hospital expenses (McKenna et al., 2015). In addition, caregivers may be concerned about the health state of their patients and their capacity to recuperate while at home, which may influence their longing to rehearse or build up the essential aptitudes. This can be exacerbated if families/guardians feel like their youngster isn't prepared for delivery, or feel unequipped for thinking about the patient at home (Curran et al., 2017).

In the aim of enhancing patient quality and minimizing readmission, many hospitals are spending greater emphasis on post-acute care. Many health systems have started to add these services to their campuses, while others are creating networks of "preferred" facilities (Haque, Sartelli, McKimm & Bakar, 2018). This is an indication that effectiveness in discharge communication practices is one of the self-care programs that improve the healthcare outcomes of recovering patients especially, those from surgical care. However, inadequate discharge coordination has been linked with unfavorable health effects in both high-income and developed, low-and middle-income countries (Humphries et., 2020).

The challenges of delayed, premature or improperly scheduled discharge highlight the larger difficulty of combining health and social services (Glasby, 2003). A wide variety of setbacks have been noted as inadequate coordination between health and social services; lack of evaluation and preparation for release; lack of notification of clearance; lack of patient and family involvement; over-reliance on informal care and insufficient attention to the unique needs of disadvantaged groups (Waring et a., 2014). While studies have noted discharge issues in the psychological, operational, linguistic and technological sense, there is a lack of adequate evidence that has contributed to discoveries into more successful solutions in Kenyan context especially in the case of KNH. This makes it worthwhile for the current study.

1.2 Statement of the problem

Good communication at discharge is set to increase the outcomes and safety of the patients especially after major surgeries. Information transfer among healthcare providers and their patients (Newnham et al., 2017). In essence, the transition from hospital to home while the patient is still recovering, is a high-risk period in a patient's illness and in the event of poor communication between healthcare providers at hospital discharge adverse health outcomes on the patients after discharge usually is the result (Emes et al., 2019; Horstman et al., 2017). However, due to the inaccuracies, omissions, illegibility, logistical failure (for instance information is never delivered), and delays in generation (in essence, dictation or transcription) or transmission, the discharge communication has not been optimized in major public hospitals. In Kenya, the same has been noted in the context of the KNH.

Despite its high status, it often does not meet the desired requirements in everyday clinical practice. The risks create barriers for patients and doctors. Communication during patient discharge is still a major problem in KNH setup as it is portrayed in the patient complaint summaries done quarterly through patient Affairs unit (KNH, 2019). Poor communication during discharge results in poor

health outcomes that may lead to patient re-admission, increased financial burden and hospital congestion (Shawa et al., 2017; Kaguongo, 2018).

With the prevalence of the given problem, there is still scanty empirical findings shedding light to alleviate the problem. relating to discharge communication thus need to do research. For instance, Lembeck et al. (2019) investigated the effect of single follow-up home visit on readmission in a group of frail elderly patient in Danish randomized clinical trial. The study was only focused on readmission rate as the healthcare outcome leaving out the other measures. The study was conducted on a sample of 65 samples in Danish hospital, Denmark while the current study seeks to generalize the findings in at KNH on 90 samples. The study by Kaguongo (2018) was based on mothers and late pre-term infants while the current study tries to extrapolate the findings to all patients in the Surgical department. Okerosi (2016) only provides evidence and recommendations for medication discrepancies on admission of elderly diabetics at Kenyatta National Hospital while neglecting the aspect of hospital discharge. Gai and Pachamanova (2019) concentrated on discharges from community hospitals in 27 states during 2010–2014 while the current study seeks to update the findings as of 2020. These among other studies provide the basis of the current study to investigate the current problem in Kenyan Context, specifically at the Level 5 hospital - KNH.

1.3 Research Objective

To evaluate the practice of IT-based discharge communication in general surgery wards at the Kenyatta National Hospital.

1.4 Research Questions

The study sought to answer the following research question: what is the practice of IT-based discharge communication in general surgery wards at the Kenyatta National Hospital?

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Peplau’s interpersonal relations theory

This nursing theory was developed and coined by Peplau in 1952 (Peplau, 1997; Forchuk, 1993). In 1968, the theory is further improved and acknowledged by authors like Henry Stack Sullivan (Sullivan, 1940), Abraham Maslow (Maslow, 1958), and Neal Elger Miller (Cohen, 1977). This principle is the basis of the art of nursing. The core of Peplau's philosophy is the development of mutual knowledge between the doctor and the patient, as compared to the passive care of the patient (Callaway, 2002). Healthcare workers need to make this simpler through evaluation, definition, formulation, explanation, confirmation and engagement. For instance, when the nurse listens to the patient, he/she gets a general view of the condition of the patient. The physician then confirms their inferences by testing for consistency with the patient. The effect will be experiential learning, better coping skills and professional development for both parties (D'Antonio, Beeber, Sills & Naegle, 2014).

Basically, the theory emphasizes on the four components/phases of effective nursing communication: the orientation phase, identification phase, exploitation phase, and resolution phase (Peplau, 1952, 1991). Later, these four stages were condensed into three stages: orientation phase, working phase, and termination phase (Peplau, 1988, 1997). This therefore, a

process where the nurse–patient relationship is expected to be long-term even after the patient has been discharged from the healthcare facility (D'Antonio, 2004). Evidence, has long recognized the need for interpersonal relations and relationships on nursing (Duffy & Hoskins, 2003). In so doing, the build-up of trust and communication between the two helps to give the patient enough and satisfactory assurance that his/her recovery is of value to the caregivers.

Peplau places emphasis on the importance of patients' experiences of nursing care through interpersonal relations. Therefore, the focus needs to be on the patients, their needs, and their perceptions about the care they received from nurses. The care likewise has to be effective right form the time the patient check in the hospital to the time he/she leaves and even during the recovery period after discharge (Gastmans, 1998).

This theory is, therefore, relevant and instrumental to the current study since it introduces the aspect of interpersonal relations between the patients, caregivers, nurses and the family members. Given the importance placed on communication as a human resource factor in every organizational setting and an integral part in interpersonal relations, the current study finds the theory in a better position to explain the discharge communication practices (from the orientation, identification, exploitation and through to the resolution phase) that influence the patient health outcomes of in surgical wards at the Kenyatta National Hospital.

2.2 Relationship between IT-based discharge communication and patient health outcomes

Graumlich et al. (2007) tried to assess the value of a software program to promote the communication of data at hospital discharge by contrasting the effects of discharge of clinical IT to the normal treatment of high-risk patients newly discharged from severe hospital treatment. The study randomized the study criteria and observed that when readmitted within 6 months, adverse effects were likely to be correlated with efficacy and comfort with the discharge planning from a patient and medical viewpoint. The expense effect is the time the practitioner has to use the discharge app. The root causes of poor interaction and adverse health effects included memory error, elevated patient job demands, system deficiencies, and insufficient preparation of physicians in the discharge. Many of the shortcomings in the existing method of knowledge transmission at patient discharge may be easily resolved by the use of information technology. Curran et al. (2017) agree that video monitoring of discharge contact can offer an ability to collect essential data such as temporality, duration and non-verbal actions that can affect the post-discharge information exchange.

Haire (2017) investigated the effectiveness of using Use Teach-Back Toolkit in alleviating discharge confusion for older patients. Five nurse practitioners and a physician assistant, who are responsible for discharge instructions, were recruited to participate in the study and the results revealed that the use of Teach-Back Toolkit for education and evaluation was found to improve the health care outcomes through timely responses. All the clinicians agreed that Teach-Back education was very instrumental, timely and effective in communication. They were in like manner sure about their capacities to apply the Teach-Back techniques utilizing a 1-10 Likert scale. Moreover, the experts demonstrated critical upgrades when looking at the pre-usage and one-month, post-approach execution.

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Hachem et al. (2014) have recognized that the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) study is a viable measure to assess understanding experience. Past investigations have shown a huge connection between persistent recognitions and nature of care, and have discovered patients to be dependable evaluators of their consideration. great correspondence has been noted to have a positive supplier relationship with higher fulfillment and higher paces of treatment consistence (Anil, Elbuluk, Ziegler et al., 2018; Piper & Tallman, 2016).

Through a cross-sectional design Hachem et al. (2014) studied the influence of HCAHPS on and readmissions at 30 days, explicitly at the patient level. Of the eight HCAHPS questions dissected, higher scores on inquiries with respect to medical caretakers tuning in and specialists clarifying data were decidedly connected to great wellbeing results that is limited danger of readmission. Help after release identified with an expanded danger for readmission. This suggests that a patient's seriousness of sickness and clinic methods have on clarifying HCAHPS results, accordingly, there is desperate need to perceive potential compromises while looking into HCAHPS results and utilizing them to drive tolerant experience activities

Carroll and Dowling (2007) investigated the influence of discharge planning as a mechanism to ensure effective communication, education and patient participation after their discharge form the wards. The study underscored that, release from clinic is standard and unremarkable. In any case, release from intense care requires cautious wanting to guarantee progression of care. This is especially the situation with more older patients who have complex clinical requirements. The examination uncovers that the fundamental components for release arranging incorporate however not restricted to correspondence, coordination, training, quiet investment and joint effort between clinical work force. Results measures after successful discharge, for example, quiet fulfillment and personal satisfaction are naturally bound to improve because of decreased pressure and uneasiness for the patient, immovably, nurture, specialist, emergency clinic and network administrations.

Inadequately planned release arrangement adversely impacts a patient's status to release, the nature of release educating, and the appraisal and distinguishing proof of a patient's post-release needs that influence ideal release and the general quality results of care (Opper et al., 2019). Release delays have been related with a patient's decrease in practical capacity in performing exercises of day-by-day living (ADLs), delicacy, expanded age, difficulties, psychological misfortune, reliance, and conduct issues (Everall et al., 2019).

Linton (2018) analyzed the effect of interdisciplinary joint effort system/technique on release arranging and length of remain for clinical careful patients. An everyday release group meeting was executed as a best practice procedure to recognize and guarantee the accomplishment of correspondence between the attendants, social laborers, caseworkers, actual advisor, word related specialist, nutritionist, use the executive organizers, doctors and the patients. The investigation noticed that day by day interdisciplinary group gatherings (IDT) were executed week by week. This proof-based arrangement encouraged shared dynamic in the release cycle and improved patient fulfillment identified with the release cycle. What's more, 92 per cent of the members reviewed accepted the data traded during IDT emphatically affected patient results after their release from the emergency clinics. Length of remain was diminished for three of four clinical units and avoidable bed long periods of care decreased for two of the four units.

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2.3 Conceptual Framework

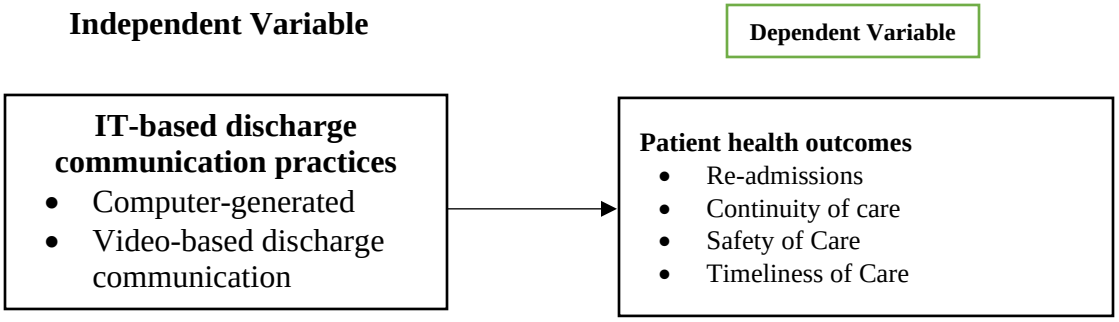

Figure 1: Conceptual Framework

3.0 RESEARCH METHODOLOGY

3.1 Research design

The current study took a descriptive cross-sectional research design approach. The design is concerned with experiments that yield facts that are of special interest to society and the state of most objects. This means that consistency and standing facts are given significance in a descriptive survey as described by (Baker, 2017).

3.2 Study variables

The study variables are dependent and independent variables. Dependent variable is the patient health outcomes while independent variable includes the IT-based discharge communication practices.

3.3 Study area

Kenyatta National Hospital (KNH) is the public Referral Hospital of choice in Kenya; a level 6 hospital in Kenya that offers quality specialized health care to patients including open heart surgery, neurosurgery, orthopedic surgery, reconstructive surgery, burns management, critical care services, new born services, ophthalmology (cornea transplant), oncology, palliative care and renal services (including kidney transplantation), among others. KNH has a capacity of 40 beds and operates as a unit of the Ministry of Health until 1987 when its status changed to a State Corporation through Legal Notice No. 109 of 6th April 1987. Over the years KNH has grown to its present capacity of 1,800 beds and attends to an annual average of 700,000 inpatients and 600,000 outpatients (Kenyatta National Hospital, 2018).

3.4 Target population

The study targeted discharged surgical patients from the past 30 days after discharge from the Kenyatta National Hospital. The respective target respondents were targeted in the general surgery clinics (from the 3 wards/units namely General surgery ward, Urology ward and Neurology ward) at the KNH. The study will track the daily discharge for the last 30 days. From the KNH records, 10 patients are discharged every day from each selected ward which is equivalent to 30 patients a day. Therefore, the study targeted the 900 discharged patients (30 discharged patients * 30 days) (Kenyatta National Hospital, 2020). The population is as shown below:

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Table 1: Target Population

Ward (units)	Population targeted (the past 30 days)
General surgery ward	300
Urology ward	300
Neurology ward	300
Total	**900**

Source: (Kenyatta National Hospital, 2020).

3.4.1 Inclusive criteria

Inclusion criteria for the study included patients who were admitted at the general surgery unit (the 3 wards namely General surgery ward, Urology ward and Neurology ward) discharged to their usual place of residence and given clinic appointments.

3.4.2 Exclusion criteria

The study excluded the patients with cognitive impairment unable to participate.

3.5 Sample and Sampling Techniques

The sample of the current study was selected using a stratified random sampling design. Kothari (2004) and Mugenda (2013) recommends that a sample size of between 10 per cent to 30 per cent is an adequate representation population under study. Therefore, the study chose 20 per cent of 90 discharged patients who are recovering and ready clinic appointment from their residential places (that is from the past 30 days after discharge). These respondents (discharged patients) were randomly selected from each of the strata (units) by use of a proportionate sampling allocation technique (that is stratified random sampling). The distribution is as shown below:

Table 2: Sampling Frame

Ward (unit)	Population targeted (the past 30days)	Proportionate allocation	Sample size (the past 30days)
General surgery ward	300	0.2*300	60
Urology ward	300	0.2*300	60
Neurology ward	300	0.2*300	60
Total	**900**		**180**

Source: (Kenyatta National Hospital, 2020).

3.6 Research Instruments

The primary data was gathered from 180 discharged patients using self-administered semi-structured questionnaires. Semi-structured interviews describe the use of qualitative details over and beyond quantitative knowledge to assist in the collection of person data. They help the participant to answer individually and to make incredibly broad and comprehensive rationales. The use of questionnaires helps to collect unbiased and objective data (Malvey & Neigel, 2017).

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3.7 Data Collection

After receiving the official consent of the KNH Ethics Committee and the actual researchers, the investigator proceeded to collect primary data collected through self-directed questionnaires. Therefore, the rigid/structured questions were used to collect quantitative data while the open-ended questions were used to collect qualitative data. Secondary data was gathered through the review of past research materials. Study assistants were hired and qualified to help gather results. Where appropriate explanations were offered. The research performed direct interviews. Then follow-ups were carried out from time to time to ensure a good response rate of approximately 70 to 100 per cent. Data collection was assisted by 2 research assistants whom prior to the collection were rigorously trained and inducted on how to proceed with the collection procedure. This ensured professionalism and reproducibility of the findings.

3.8 Data analysis

The study applied both qualitative and quantitative research methods where first the responses was coded in such a manner that the information can be analyzed using SPSS software v25.0 and provided descriptive and inferential output. Findings were presented in form of means, percentages and frequencies where tables, graphs and figures aided in their presentations. Qualitative data was evaluated using thematic analysis and presented in content analysis. The causality analysis was performed by use of R squares, F statistic values and beta parameters all set at 0.05 significance degree. The following model shows the conceptual representation:

$$Y=\beta_0+ \beta_1X_1 + e$$

Where;

Y= Patient health outcomes

β = Constant

β_1 = the coefficient for X_1.

X_1 = IT-based discharge communication practices

e = error term

3.9 Data Management and Ethical consideration

After receiving the formal consent of the KNH/UON-ERC and the individual participants, the investigator conducted the final analysis. The anonymity and confidentiality of the subjects are both ensured and the right to delete each stage of the analysis is granted to the researchers.

4.0 FINDINGS AND PRESENTATIONS

4.1 Response Rate

The results below give the level of respondents' cooperation on their view regarding the questions asked, which reflected on different themes.

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Table 3: Response Rate

Response	Frequency	Percentage
Returned	180	100%
Unreturned	0	0%
Total	**180**	100%

4.2 Patient health outcomes

The findings showed that 3% of the patients were readmitted, safety of care efficacy was 7%, level of timeliness in communication was 43% while continuity of care was 49% rating as shown in Figure 2.

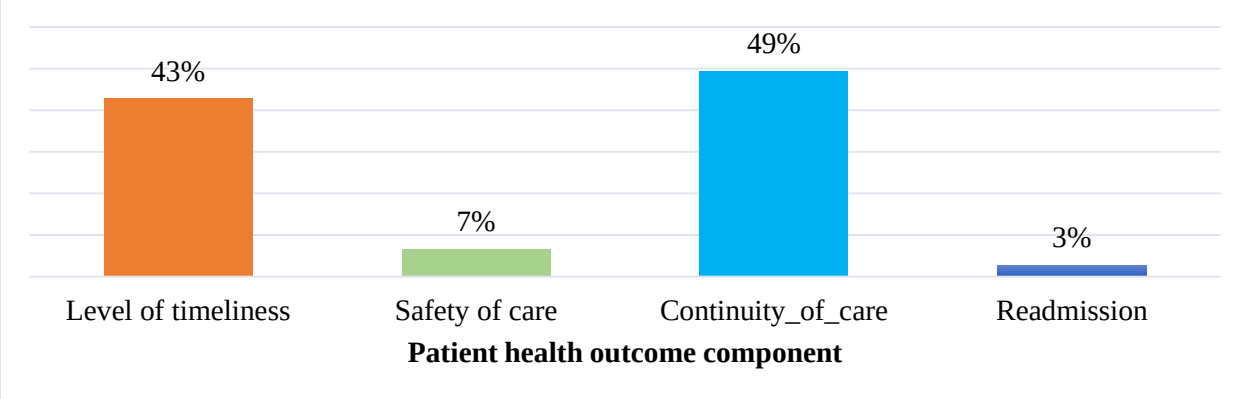

Figure 2: Patient health outcomes

The respondents were asked to rate the extent to which they agreed with the statements on patient health outcomes. Their responses were averaged as shown in Table 4:

Table 4: Descriptive statistics showing the patient health outcomes

	More than twice		1-2 times		Never		Total	
Statements	**%**	**C**	**%**	**C**	**%**	**C**	**M**	**Std Dev**
How many times have you been re-admitted	2.8	5	13.3	24	83.9	151	2.8	0.5
	Yes		**Not Sure**		**No**			
The visits and/or communication from the healthcare provider is timely/prompt	46.2	85	1.6	3	52.2	96	2.1	1.0
Do you fear for your life after discharge from the hospital?	16.9	31	2.2	4	81.0	149	2.6	0.8
Care coordination programs and interventions are/were effective in improving care transitions from the hospital to your home	66.3	122	1.1	2	32.6	60	1.7	0.9

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Your condition has improved greatly since discharge	85.9	158	0.5	1	13.6	25	1.3	0.7
It has taken shorter time than expected for me to recover from the surgery	81.5	150	2.2	4	16.3	30	1.4	0.8
The pains have significantly reduced after discharge impacting on your comfort	64.1	118	0.5	1	35.3	65	1.7	1.0
There are few clerical and discharge mistakes made since my official discharge	7.6	14	0.0	0	92.4	170	2.9	0.5
Average							**1.9**	**0.8**

Note: C= count, %= Percentage distribution, M= Mean, Std Dev= Standard deviation

Table 4 revealed that 83.9% (151) indicated that they have never been re-admitted to KNH after their surgery. The results further show that, 52.2% (96) of the respondents indicated that the visits and/or communication from the healthcare provider are not timely/prompt. Moreover, 81.0% (149) of the respondents also indicated that they do not fear for their lives after discharge from the hospital. It was noted that 66.3% (122) of the respondents indicated that care coordination programs and interventions are/were effective in improving care transitions from the hospital to their homes. The results likewise showed that 85.9% (158) of the respondents indicated that their condition has improved greatly since discharge. The results further show that, 81.5% (150) of the respondents indicated that it has taken shorter time than expected for me to recover from the surgery. The results further show that, 64.1% (118) of the respondents indicated the pain has significantly reduced after discharge impacting on their comfort. The results showed that 92.4% (170) of the respondents indicated that there are few clerical and discharge mistakes made since their official discharge.

In summary, the average mean of the responses was 1.90 with a standard deviation of 0.80. On a scale of five points, this means that majority of the respondents agreed with the statements on patient health outcomes. The findings correspond to Hesselink et al. (2014) that continuity of treatment for patients discharged from the hospital is a vital feature of high-quality patient care. Therefore, inaccurate or erroneous data and coordination mistakes between healthcare services and various recipients raise the risk of adverse effects (McKenna et al., 2015). Caregivers need to be concerned about the health state of their patients and their capacity to recuperate while at home, which may influence their longing to rehearse or build up the essential aptitudes. This can be exacerbated if families/guardians feel like their youngster isn't prepared for delivery, or feel unequipped for thinking about the patient at home (Curran et al., 2017).

4.3 Re-admissions

Table 5: Descriptive statistics in percentage showing the responses regarding re-admissions

Re-admissions	**More than twice**		**1-2 times**		**Never**		**Total**	
Statements	**%**	**C**	**%**	**C**	**%**	**C**	**M**	**Std Dev**
How many times have you been re-admitted	2.8	5	13.3	24	83.9	151	2.8	0.5

Note: C= count, %= Percentage distribution, M= Mean, Std Dev= Standard deviation

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In summary, on a scale of 1 to 3 where 1 implies never, 2 implying 1 – 2 times and 3 implying more than twice, the results in table 4.6a indicated an average mean of 2.80 with a standard deviation of 0.50. This implies that the majority of the respondents indicated that they have never been re-admitted after their discharge form KNH.

4.4 Timeliness of care

Table 6: Descriptive statistics in percentage showing the responses regarding timeliness of care

Timeliness of Care	Yes		Not Sure		No		Total	
Statements	%	C	%	C	%	C	M	Std Dev
It has taken shorter time than expected for me to recover from the surgery	81.5	150	2.2	4	16.3	30	1.4	0.8
The visits and/or communication from the healthcare provider is timely/prompt	46.2	85	1.6	3	52.2	96	2.1	1
Average							**1.8**	**0.9**

Note: C= count, %= Percentage distribution, M= Mean, Std Dev= Standard deviation

In summary, on a scale of 1 to 3 where 1 implies yes, 2 implying not sure and 3 implying no, the results in Table 6 indicated an average mean of the responses was 1.80 with a standard deviation of 0.90. This implies that the majority of the respondents indicated that they were not sure about the timeliness of care after their discharge form KNH.

4.5 Safety of care

Table 7: Descriptive statistics in percentage showing the responses regarding safety of care

Safety of Care	Yes		Not Sure		No		Total	
Statements	%	C	%	C	%	C	M	Std Dev
There are few clerical and discharge mistakes made since my official discharge	7.6	14	0	0	92.4	170	2.9	0.5
Do you fear for your life after discharge from the hospital?	16.9	31	2.2	4	81.0	149	2.6	0.8
Average							**2.8**	**0.7**

Note: C= count, %= Percentage distribution, M= Mean, Std Dev= Standard deviation

In summary, on a scale of 1 to 3 where 1 implies yes, 2 implying not sure and 3 implying no, the results in Table 7 presented an average mean of the responses was 2.8 with a standard deviation of 0.70. This implies that the majority of the respondents indicated that safety of care has not been continuous after their discharge form KNH.

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4.6 Continuity of care

Table 8: Descriptive statistics in percentage showing the responses regarding continuity of care

Continuity of care	Yes		Not Sure		No		Total	
Statements	%	C	%	C	%	C	M	Std Dev
Care coordination programs and interventions are/were effective in improving care transitions from the hospital to your home	66.3	122	1.1	2	32.6	60	1.7	0.9
Your condition has improved greatly since discharge	85.9	158	0.5	1	13.6	25	1.3	0.7
The pains have significantly reduced after discharge impacting on your comfort	64.1	118	0.5	1	35.3	65	1.7	1
Average							**1.6**	**0.9**

Note: C= count, %= Percentage distribution, M= Mean, Std Dev= Standard deviation

In summary, on a scale of 1 to 3 where 1 implies yes, 2 implying not sure and 3 implying no, the results in Table 8 presented an average mean of the responses was 1.6 with a standard deviation of 0.90. This implies that the majority of the respondents indicated that they were not sure about the continuity of care after their discharge form KNH.

4.7 IT-based discharge communication practices

The findings revealed that IT based discharge communication practices are rarely utilized in discharge communication although 10% of the participants agreed that they have been receiving frequent/regular phone calls. However, this was majorly from patients who had relatives working as healthcare service providers in the hospital as shown in Figure 3.

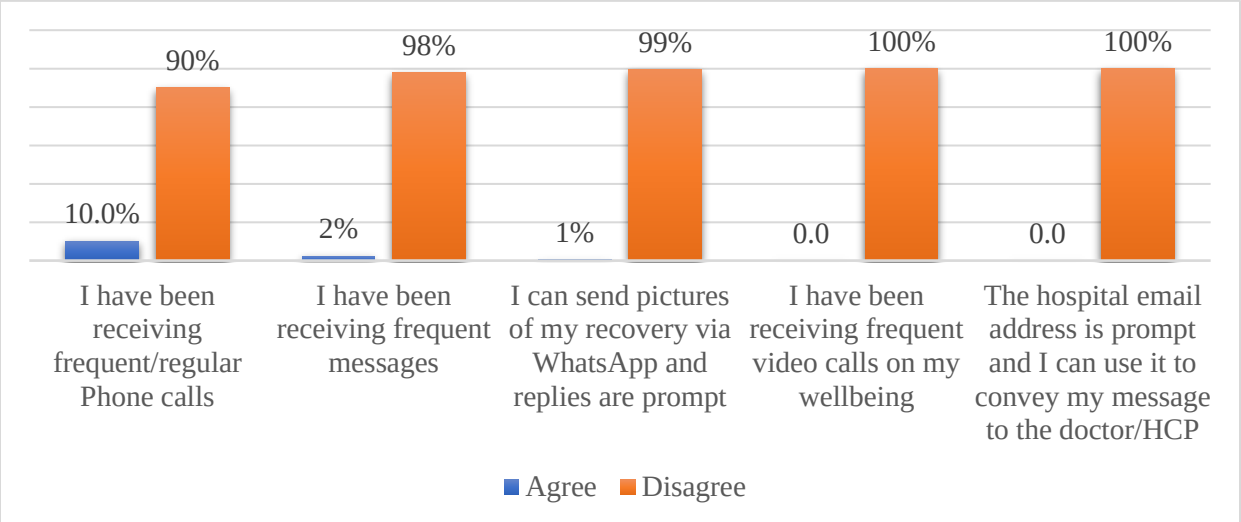

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Figure 3: IT Based discharge communication practices

These findings are not consistent with Newnham, Barker, Ritchie, Hitchcock, Gibbs and Holton (2017) who found that a well-designed IT solution may improve communication, coordination and retention of information, and lead to improved outcomes for patients, their families, caregivers and primary healthcare providers as well as expediting the task for hospital staff.

Likewise, the respondents were asked to indicate (in their opinion) what other ways has the IT-based discharge communication practices at the KNH influenced their health care outcomes. The following were their responses as shown in Table 9.

Table 9: Content responses regarding IT-based discharge communication practices at the KNH

Participant responses
I wish the hospital could communicate the appointment time I was here at 5 am saw the doctor at 12pm
I feel not cared for. I wish there was a patient checkup mechanism
The calls have helped in diet check and proper medication use
The catheter bust and I couldn't reach the doctor thus further infections to the uterus
I appreciate the regular calls on my wellbeing
When I called the doctor about my stitches rapturing, he was able to help but getting re admission is a major challenge
Grateful for a relative who works at the hospital
I appreciate the regular calls on my wellbeing
The hospital should have a follow up mechanism

4.8 Descriptive Statistics for the responses in Neurology ward, Urology ward and General surgery ward Surgical Units

This section presents a descriptive summary of the mean and standard deviation of the responses of the IT-based discharge communication practices and patient health outcomes in Neurology ward, Urology ward and General surgery ward Surgical Departments at KNH. The findings are presented in Table 10.

Table 9: Means and standard deviations of IT-based discharge communication practices and patient health outcomes in Neurology ward, Urology ward and General surgery ward Surgical Departments at KNH

Variables	**Surgical Departments**	**N**	**Mean**	**Std. Deviation**
IT-based discharge communication practices	Neurology ward	77	4.55	0.501
	Urology ward	51	4.66	0.545
	General surgery ward	52	4.25	0.471
	Total	**180**	**4.49**	**0.529**

Table 10 indicates that 77 of the respondents in the Neurology unit (mean = 4.55), 51 of them in the general unit (mean = 4.66) and 52 of them in the general unit (mean = 4.25) disagreed to the statements asked regarding the IT-based discharge communication practices. This implies that

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majority of the respondents indicated that IT-based discharge communication practices at KNH have not been optimized and thus this impacts negatively to the patient health outcomes.

4.9 Inferential statistics

In the current study inferential statistics were assessed using the Correlation and regression analyses.

4.9.1 Anova test in IT-based discharge communication practices and Patient health outcomes for Neurology ward, Urology ward and General surgery ward departments

Analysis of variance was tested to evaluate the difference in means of the Neurology ward, Urology ward and General surgery ward departments at KNH. That is, whether there are any statistically significant differences between the means of Neurology ward, Urology ward and General surgery ward departments.

Table 10: ANOVA test for means of Neurology ward, Urology ward and General surgery ward units at KNH.

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
IT-based discharge communication practices	Between Groups	4.85	2	2.425	9.483	0.000
	Within Groups	45.259	177	0.256		
	Total	50.109	179			

df= degree of freedom, F = calculated F statistic, Sig = significance level at 0.05

Table 11 indicates that there is a significant difference in the means of the patient healthcare outcomes in the Neurology ward, Urology ward and General surgery ward units at KNH given the IT-based discharge communication practices {*F (2, 177)* =9.483, *p=0.000< 0.05}.*

4.9.2 Post Hoc Tests (Multiple Comparisons)

Table 11: Multiple Comparisons for means of Neurology ward, Urology ward and General surgery ward departments at KNH

Dependent Variable	(I) Ward Name	(J) Ward Name	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
IT-based discharge communication practices	Neurology ward	Urology ward	0.117	0.091	0.201	-0.060	0.300
		General surgery ward	-.299*	0.091	0.001	-0.480	-0.120
	Urology ward	Neurology ward	-0.117	0.091	0.201	-0.300	0.060
		General surgery ward	-.417*	0.100	0.000	-0.610	-0.220

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	General surgery ward	Neurology ward	.299*	0.091	0.001	0.120	0.480
		Urology ward	.417*	0.100	0.000	0.220	0.610

Table 12 revealed that there was a significant difference between the mean responses of the patients in General surgery ward and Neurology ward (-.299*, P=0.001). Likewise, there was a significant difference between the mean responses of the patients in Urology ward and General surgery ward (-.417*, P= 0.000). However, there was no significant difference in the mean responses of the patients in Urology ward, 5D and 5A with regard to the patient health outcomes.

4.9.3 Correlation between IT-based discharge communication practices on patient health outcomes

The Pearson correlation coefficient was used to determine the association between the variables which is denotated by **r**. When r is above 1, the value of the other variable in linear comparison increases with a positive value, when r is below 1, this shows that there is a negative association and the linear relation decreases on the same line and r = 1, we assert that there is no correlation (Gogtay & Thatte, 2017).

Table 12: Correlation analysis between IT-based discharge communication practices and patient health outcomes in surgical wards at the Kenyatta National Hospital.

Correlations		Patient health outcomes	IT-based discharge communication practices
Patient health outcomes	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	180	
IT-based discharge communication practices	Pearson Correlation	.533**	1
	Sig. (2-tailed)	0.000	
	N	180	180

** Correlation is significant at the 0.01 level (2-tailed).

Table 13 shows that there is a positive and significant association between IT-based discharge communication practices and patient health outcomes at KNH (r=0.533**, p=0.000). The strong r value of 0.533 indicates a value of greater than 0 which implies that IT-based discharge communication practices as a linear variable has a positive association with patient health outcomes at KNH. The finding agrees with Cené et al. (2016) who found that patient and family engagement (PFE) relate positively to physicians, communities, practitioners. Therefore, collaborating with patients and caregivers has a strong opportunity to promote high quality treatment and to improve outcomes. Likewise, Kwame and Petrucka (2020) indicates that occupational stress, lack of sufficient nursing resources, inadequate leadership abilities and lack of participation of nursing supervisors in the treatment process adversely affect the capacity of physicians to communicate efficiently with their patients.

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4.9.4 Regression between IT-based discharge communication practices and patient health outcomes

The study also sought to investigate the causal effect of the independent variables on the dependent variable.

Table 13: Regression of coefficients for IT-based discharge communication practices

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	Beta		
(Constant)	0.300	0.116		2.574	0.011
IT-based discharge communication practices	0.305	0.047	0.368	6.436	0.000

a Dependent Variable: Patient health outcomes

Table 14 revealed that IT-based discharge communication practices have a positive and significant effect on patient health outcomes at KNH (**β**= 0.305, p=0.000). This implies that improvement in 1 unit of IT-based discharge communication practices leads to an improvement in patient health outcomes at KNH by 0.305 units (vice versa is also true). The findings are consistent with Jazieh et al. (2018) who indicated that to improve the relationship, a clear communication was necessary, however, involving the family through identifying was considered as a plus in the process. Weetman et al. (2019) along the same vein notes that patient and specialist association in correspondence and plan choices improves the correspondence after release. Hence, improving release letters and the cycle of patients accepting letters was recognized as a method of educating guides on release information.

The following model shows the actual representation:

$$Y=0.300 + 0.305X + e$$

Where;

Y= Patient health outcomes

X = IT-based discharge communication practices

e = error term

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of the findings

The findings revealed that 77 of the respondents in the Neurology unit (mean = 1.45), 51 of them in the general unit (mean = 1.34) and 52 of them in the general unit (mean = 1.75) agreed to the statements regarding the IT-based discharge communication practices affecting patient health outcomes. Likewise, there is a statistically significant relationship between IT-based discharge communication practices at KNH given the 5D, Urology ward and 5A departments {$F\ (2, 177) =9.483, p=0.000< 0.05$}. ANOVA findings indicated that there is a significant difference between

the mean responses of the patients in General surgery ward and Neurology ward (-.299*, P=0.001). Likewise, there was a significant difference between the mean responses of the patients in Urology ward and General surgery ward (-.417*, P= 0.000). The correlation findings indicated that there is a positive and significant association between IT-based discharge communication practices and patient health outcomes at KNH (r=0.533**, p=0.000). This was supported by the regression findings that indicated that IT-based discharge communication practices have a positive and significant effect on patient health outcomes at KNH (**β** = 0.305, p=0.000). This implies that improvement in 1 unit of IT-based discharge communication practices leads to an improvement in patient health outcomes at KNH by 0.305 units (vice versa is also true).

5.2 Conclusion

Based on the findings above the study concluded that IT-based discharge communication practices are positive and significant explanatory variables of predicting patient health outcomes at KNH. The study concludes that phone calls, messages, social media platforms like WhatsApp, YouTube and skype among others have been found to significantly reduce the challenges such as costs of transport of the patient back and forth to the clinic. Instead, they can communicate directly with their personal doctors/therapists via skype, WhatsApp video calls or a simple phone call for example and be advised on what to do. It is only when need be that the patient will visit the clinic or hospital for check-up. The use of ICT has bridged the geographical gap of communication and improved promptness thus, avoiding severe complications.

5.3 Recommendations

Since, well-designed and implemented IT systems increase communication, coordination, and knowledge retention, resulting in better results for discharged patients, their families, caregivers, and primary healthcare professionals, Kenyan hospitals are encouraged to pursue the IT direction and put into practice the best IT-based communication infrastructure for current and future quality service delivery.

REFERENCES

Anil, U., Elbuluk, A. M., Ziegler, J., Schwarzkopf, R., & Long, W. J. (2018). Hospital consumer assessment of healthcare providers and systems scores do not predict outcomes after total hip arthroplasty. *The Journal of arthroplasty*, *33*(2), 337-339.

Baker, C. (2017). Quantitative research designs: Experimental, quasi-experimental, and descriptive. *Evidence-based practice: An integrative approach to research, administration, and practice*, 155-183.

Carroll, Á., & Dowling, M. (2007). Discharge planning: communication, education and patient participation. *British Journal of Nursing*, *16*(14), 882-886.

Cené, C. W., Johnson, B. H., Wells, N., Baker, B., Davis, R., & Turchi, R. (2016). A narrative review of patient and family engagement: the "foundation" of the medical home. *Medical care*, *54*(7), 697.

Curran, J. A., Bishop, A., Plint, A., MacPhee, S., Zemek, R., Chorney, J., ... & Sawyer, S. (2017). Understanding discharge communication behaviours in a pediatric emergency care

context: a mixed methods observation study protocol. *BMC health services research*, *17*(1), 1-7.

Curran, J. A., Gallant, A. J., Zemek, R., Newton, A. S., Jabbour, M., Chorney, J., ... & MacPhee, S. (2019). Discharge communication practices in pediatric emergency care: a systematic review and narrative synthesis. *Systematic reviews*, *8*(1), 83.

D'Antonio, P., Beeber, L., Sills, G., & Naegle, M. (2014). The future in the past: H ildegard P eplau and interpersonal relations in nursing. *Nursing inquiry*, *21*(4), 311-317.

Duffy, J. R., & Hoskins, L. M. (2003). The quality-caring model©: Blending dual paradigms. *Advances in nursing science*, *26*(1), 77-88.

Forchuk, C. (1993). *Hildegarde E. Peplau*: Interpersonal nursing theory.

Gai, Y., & Pachamanova, D. (2019). Impact of the Medicare hospital readmissions reduction program on vulnerable populations. *BMC health services research*, *19*(1), 837.

Gastmans, C. (1998). Interpersonal relations in nursing: a philosophical-ethical analysis of the work of Hildegard E. Peplau. *Journal of Advanced Nursing*, *28*(6), 1312-1319.

Gogtay, N. J., & Thatte, U. M. (2017). Principles of correlation analysis. *Journal of the Association of Physicians of India*, *65*(3), 78-81.

Graumlich, J. F., Nace, G. S., Aldag, J. C., Kaushal, H., Ibrahim-Ali, W., Theivanayagam, S., ... & Chiang, Y. P. (2007). Value of Technology to Transfer Discharge Information.

Hachem, F., Canar, J., Fullam MA, F., Gallan PhD, A. S., Hohmann, S., & Johnson, C. (2014). The relationships between HCAHPS communication and discharge satisfaction items and hospital readmissions. *Patient Experience Journal*, *1*(2), 71-77.

Haire, T. M. (2017). Alleviating Discharge Confusion for Older Patients Using the Teach-Back Method. (Dissertation, Walden University).

Haque, M., Sartelli, M., McKimm, J., & Bakar, M. A. (2018). Health care-associated infections–an overview. *Infection and drug resistance*, *11*, 2321.

Hesselink, G., Flink, M., Olsson, M., Barach, P., Dudzik-Urbaniak, E., Orrego, C., ... & Vernooij-Dassen, M. (2012). Are patients discharged with care? A qualitative study of perceptions and experiences of patients, family members and care providers. *BMJ quality & safety*, *21*(Suppl 1), i39-i49.

Horstman, M. J., Mills, W. L., Herman, L. I., Cai, C., Shelton, G., Qdaisat, T., ... & Naik, A. D. (2017). Patient experience with discharge instructions in postdischarge recovery: a qualitative study. *BMJ open*, *7*(2).

Humphries, C., Jaganathan, S., Panniyammakal, J., Singh, S., Dorairaj, P., Price, M., ... & Manaseki-Holland, S. (2020). Investigating discharge communication for chronic disease patients in three hospitals in India. *PloS one*, *15*(4), e0230438.

Jazieh, A. R., Volker, S., & Taher, S. (2018). Involving the family in patient care: a culturally tailored communication model. *Global Journal on Quality and Safety in Healthcare*, *1*(2), 33-37.

Kaguongo, L. N. (2018). *Prevalence of Readmission and Early Mortality of Late Preterm Infants Compared to Term Infants at the Kenyatta National Hospital* (Doctoral dissertation, University of Nairobi).

Kwame, A., & Petrucka, P. M. (2020). Communication in nurse-patient interaction in healthcare settings in sub-Saharan Africa: A scoping review. *International Journal of Africa Nursing Sciences*, *12*, 100198.

Lembeck, M. A., Thygesen, L. C., Sørensen, B. D., Rasmussen, L. L., & Holm, E. A. (2019). Effect of single follow-up home visit on readmission in a group of frail elderly patients–a Danish randomized clinical trial. *BMC health services research*, *19*(1), 751.

Linton, T. (2018). *Discharge Risk Screening and Interdisciplinary Communication: A Method to Mitigate Discharge Delays*. (Dissertation, Gardner-Webb University).

McKenna, B., Skipworth, J., Tapsell, R., Madell, D., Pillai, K., Simpson, A., ... & Rouse, P. (2015). A prison mental health in-reach model informed by assertive community treatment principles: Evaluation of its impact on planning during the pre-release period, community mental health service engagement and reoffending. *Criminal Behaviour and Mental Health*, *25*(5), 429-439.

Newnham, H., Barker, A., Ritchie, E., Hitchcock, K., Gibbs, H., & Holton, S. (2017). Discharge communication practices and healthcare provider and patient preferences, satisfaction and comprehension: a systematic review. *International Journal for Quality in Health Care*, *29*(6), 752-768.

Okerosi, E. K. (2016). *Prevalence and risk factors for medication discrepancies on admission of elderly diabetics at Kenyatta National Hospital, Kenya* (Doctoral dissertation, University of Nairobi).

Opper, K., Beiler, J., Yakusheva, O., & Weiss, M. (2019). Effects of Implementing a Health Team Communication Redesign on Hospital Readmissions Within 30 Days. *Worldviews on evidence-based nursing*, *16*(2), 121–130. https://doi.org/10.1111/wvn.12350

Peplau, H. E. (1997). Peplau's theory of interpersonal relations. *Nursing science quarterly*, *10*(4), 162-167.

Piper, L. E., & Tallman, E. (2016). Hospital Consumer Assessment of Healthcare Providers and Systems: an ethical leadership dilemma to satisfy patients. *The health care manager*, *35*(2), 151-155.

Shawa, E., Omondi, L., & Mbakaya, B. (2017). Examining Surgical Patients' Expectations of Nursing Care at Kenyatta National Hospital in Nairobi, Kenya. *European Scientific Journal*. 1313(2424). 1857-7881.

Waring, J., Marshall, F., Bishop, S., Sahota, O., Walker, M. F., Currie, G., ... & Avery, T. J. (2014). An ethnographic study of knowledge sharing across the boundaries between care processes, services and organisations: the contributions to 'safe'hospital discharge. *Health Services and Delivery Research*, *2*(29).

Weetman, K., Dale, J., Scott, E., & Schnurr, S. (2019). The discharge communication study: research protocol for a mixed methods study to investigate and triangulate discharge communication experiences of patients, GPs, and hospital professionals, alongside a corresponding discharge letter sample. *BMC health services research*, *19*(1), 825.

Yam, C. H., Wong, E. L., Cheung, A. W., Chan, F. W., Wong, F. Y., & Yeoh, E. K. (2012). Framework and components for effective discharge planning system: a delphi methodology. *BMC health services research*, *12*(1), 396.