

# Communication mediums used by patients and health professionals during access and provision of healthcare in low resource settings: A cross-sectional study

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## Research article

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# Abstract

**Background:** The issue of mediums to communicate to make enquiries to a hospital in finding out the type of services available, availability of physicians and beds at the receiving hospitals, and a reminder system remains a challenge for patients and providers of the health service in the Sub-Saharan Africa. This present study sought to review the existing healthcare communication mediums from the perspectives of patients and health professionals at the Komfo Anokye Teaching Hospital, Kumasi

**Method** A cross-sectional design was employed with a multilevel sampling method to select a total of 651 participants consisting of 304 patients, 303 health workers and 44 hospital directorate managers for the study. A well-structured survey questionnaire was used to collect data from respondents.

**Results** Most hospital staff (66.4%) used a blend of social media and direct means (face-to-face medium) for communicating among themselves whereas 89.8% only communicates with management through meetings sections. Predominantly, 97.4% of the staff communicated by direct means (face-to-face medium) with patients. Almost all the management of the hospital communicated with the general public using mediums like letters and official memos.

**Conclusions** There is evidence of combination of both traditional mediums (face-to-face) and the technological mediums (social media) for communications by health providers and health consumers. However there is a dissatisfaction with delayed information flow and poor feedback with the use of these available mediums. Therefore, a digital mobile application communication system is recommended to offer efficient communication within and outside the Ghanaian health facilities.

## Background

Effective healthcare delivery that is patient-centered is a major contributor to the achievement of the 'one health for all' concept. In this regard, patients and their relatives along with health providers constitute a vital piece of the care group in making informed choices on the available clinical services and means of accomplishing these choices (1). One such effort is the adoption of an effective communication system.

Many countries across the globe have laid down appropriate policies and strategic plans to help transform their health economy into information and knowledge-based economy of which Ghana as a sub-Saharan nation is not an exception (2). Such policies help bring out clearly the need for and how a communication system should be implemented within organizations. For instance, communicating using the mobile phone as a medium for information sharing across the healthcare divide has proven to be very effective (3,4). For health experts, this medium has seen a quick advancement in the development of effective communication systems. This has therefore facilitated better communication and information sharing at the hospital wards (3,4).

Generally, in Ghana, mediums for communicating and information sharing have been known to play a critical role during communicating among *professionals and personnel in organizations most especially*

*in health service delivery points.* Due to this positivity, interventions such as the m-Health have been tested and proven effective in the Ghanaian health system, even though the system is yet to be funded and adopted in its entirety by the nation.

Despite the importance and recommendations by major health players like the World Health Organization and the available country policies around the use of these mediums, communication systems in the Ghanaian healthcare system still remains a public health challenge. The issue of identifying the right medium in finding the nearest hospital, type of services available, availability of physicians and beds at the referred or receiving hospitals, and a reminder system among others remains a daunting challenge for patients and providers of the health service.

The Komfo Anokye Teaching Hospital is one of the major healthcare delivery centres in Ghana known to be devoid of a functional hospital-patient driven communication framework or system that allows for effective patients-staff interactions for efficient service delivery both within and outside the facility. The consequences of these challenges with its potential effect on patients and staff are worth investigating. This present study sought to identify the existing healthcare communication mediums being used by patients and health professionals at the Komfo Anokye Teaching Hospital for seeking and providing health services respectively.

## **Objectives**

To identify the communication mediums that are used for communications by patients when in or outside the hospital.

To examine the mediums staff use for internal interactions during the profession of care

To investigate hospital management evaluations of the mediums used to channeling information to staffs and the general public.

## **Methods**

### **Study design**

The study employed a descriptive cross-sectional design with the aim of finding out the major mediums used in communicating by taking views of a section of users of the communication system at the hospital (health workers and patients). This helped to obtain an overall picture of the communication flow during seeking and provision of health care within the study period.

### **Setting**

The study was conducted at the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana on the 30<sup>th</sup> October to 27<sup>th</sup> November 2018. The hospital is located in the vibrant and culturally rich city of Kumasi, the regional capital of Ashanti, with a population of about 4.7 million (2010 population census). It is the second largest Teaching Hospital in the country, and the only tertiary institution in the Ashanti Region. It serves as a major referral centre in the northern sector of Ghana. The hospital has (12) clinical directorates, and (2) non-clinical directorates namely surgery, Obstetrics and Gynaecology, Child Health, Medicine, Polyclinic, Diagnostics, Emergency Medicine, Traumatology and Orthopaedics, Oncology, Anaesthesia and Intensive care, EENT, Oral health, Domestic and Technical Services. The hospital has a staff population of 3,909 who fall under these categories, Doctors (9.4%), Top Management (0.2%), Nurses and Midwives (42.2%), Certified Registered Anaesthetist (1.3%), Pharmacist and Pharmacy technicians (3.8%), Administration and Finance (6.6%), Clinical support (10.9%) and Allied Health (5.6%) (KATH Annual Report, 2013).

## **Participants**

Included in the study were health workers such as doctors, nurses, pharmacists, Allied health staff, clinical support staff and directorates managers, who have worked at KATH for at least five years. These categories of staff were included because they had direct communication with the patients during diagnosing, treatment, client service satisfaction as well as payment of services rendered. Staffs who were neither involved in direct provision of health care to clients nor involved in the daily administrative activities of the clinical directorates in relation to patient care were excluded from the study. Again, another set of participants who were included in the study were patients present in the outpatient department in various directorates. This category of patients was included because they are assumed to be in their conscious state and would give reasonable responses on the communication system at KATH. Patients who did not voluntarily consent to be part of the study and those who were not present at the outpatient department of the clinical directorates during the survey were also excluded from the study.

A total of 652 participants consisting of 304 patients, 303 health workers (medical officers, nurses, pharmacists, allied health staff and clinical support staff) and 45 hospital directorate managers were purposively sampled to participate in the study.

## **Study Outcome**

The outcome of interest was effectiveness of all communication mediums used by patients and health professionals during access and provision of healthcare.

## **Study Predictors**

To really get results for the outcome of interest, the study investigated predictors such as the Communication Mediums as used by patients before coming to the hospital and when in the hospital

mediums (e.g. Emails, letters, Text messaging, Telephone calls and direct interaction) used by health workers for internal interactions with themselves and with the patient. Lastly, mediums for channeling instructions or information to the staff and to the general public by the hospital managements about an available services. These predictors were assumed would give the clear picture of the effectiveness of the mediums use for patients-health workers interactions during the provision of care.

## Data Sources/ Measurement

Primary data was obtained from participants using a structured survey questionnaire. Information was gathered on the communication mediums available for patients' and health professionals' interactions and possible challenges emanating from these mediums in Komfo Anokye Teaching Hospital (KATH).

Three different questionnaires designed by the study were used. Each was used independently on the three different populations (health workers, patients and directorate managers). The reason was that each category has different ways of interacting within the hospital hence the different measuring tools.

Prior to the data collection, the questionnaire was pre-tested at the Kwame Nkrumah University of Science and Technology hospital (KNUST) which is in Kumasi to ensure the validity and reliability of the data to be collected from the study. Responses, opinions, and views generated from the pre-testing exercise were used as a guideline to review and refine the data collection tools to be used in the study.

## Bias

Respondents of different categories were gathered at one place at a time during tool administration. They were given oral and written explanations as well as necessary instructions and were allowed to complete questionnaires independently.

All questionnaires were labelled numerically to differentiate the completed questionnaires. The completed questionnaires were retrieved on site. Data extracted from the questionnaires was computed and stored on a hard disk. The research document was encrypted to prevent unauthorized access to the stored information.

## Study Size

The sample size was estimated using a statistical formula developed by Sullivan (2012) that had a confidence interval (CI) of 95% ( $\alpha = 0.05$ ), which was used as the standard to make statistical inferences (Frankfort-Nachmias & Nachmias, 2008). This sample was calculated from the study population of health workers, directorate managers and patients using the following formula for dichotomous outcomes Where  $z$  is the value from the standard normal distribution for the CI used (e.g.  $z = 1.96$  for 95%);  $E$  is the desired margin of error (i.e.,  $0.5$ ); and  $p$  is the population proportion which is approximate to  $0.5$ .

- sample size for health workers

$$n = 0.5 (1-0.5) (1.96/0.5)^2 = 384$$

To estimate for non-respondents and incomplete data, 10% was included to approximate to 422.

## Sample size for patients

$$n = 0.5 (1-0.5) (1.96/0.5)^2 = 384$$

To estimate for non-respondents and incomplete data, 10% was included to approximate to 422.

- The sample size for directorate managers

The sample size was calculated using an estimated number of managers selected from 10 directorates with an estimation of N = 50. All the 50 were purposively selected.

## Statistical methods

Data was collected using Open Data Kit (ODK) and were transferred onto an excel spreadsheet. It was cleaned and imported into STATA V.14.0 application software for statistical analysis.

To help answer the research questions on the current internal patient-hospital communication mediums used for communications by both patients and healthcare providers, a descriptive analysis was done to describe the counts on each research question and the percentage of responses to each question. This helped the study to get the general picture on the frequency of responses to each research question.

## Results

### Response rate

The study collected a total of 651 questionnaires from the targeted size of 899 including health workers, directorate managers and patients. In addition, 248 incomplete questionnaires were not properly filled and therefore were not eligible for analysis. The response rate for this study was 72.4%.

### Respondents' characteristics

Of the health workers, 52.15 (n = 158) were nurses/midwives, 24.4% (n = 74) medical doctors, 4.42% (n = 14) pharmacists, 8.91% (n = 27) allied health professionals and 9.9% (n = 30) clinical support staffs.

- Communication Mediums as Examined by Patients

Table 1 present results of mediums used for communications by patients before coming (External) and during the time when in the hospital (internal). It also presents results of the participants' assessment of the effectiveness of such mediums.

From the 304 patients who responded on the mediums for internal communications, a small portion of them (2.64%) identified emails as the usual media for communicating with providers and majority (81.8%) indicated they normally walk to health providers directly ( Face-to-face) for all interactions. 14.2% preferred communicating through meeting sections with many health professionals around whereas 10.6% usually communicated with professionals through WhatsApp (social media). 4.3% indicated they normally have a Letter/Note in hand to show to providers from referral facilities and lastly 11.5% of them usually call their provider with mobile phones when in the hospital to announce their presence.

For the effectiveness of the above mediums used by patients within the hospital premises, 46.5% of the participants indicated that the mediums were effective whiles 10.2% indicated they were not effective at all.

In terms of mediums for external (before hospital visits) communications, a few of them (2.6%) chose Emails as the usual means of communicating with providers. 28.1% preferred having a direct contact with a provider (face-to-face) before due date for visit. 5.3% normally use social media for discussions and making of enquires, and 26.4% indicated that they normally call someone in the hospital or the help desk with their mobile phones before coming to the hospital.

The effectiveness of the usage of such mediums during external communication from respondent's perspective shows that 29.4% saw the mediums to be effective whiles a few of 6.6% indicated that the mediums were not effective at all. 5.9% and 14.9% of the respondents also indicated that the mediums were a little and very effective respectively.

- Communication Mediums as Examined by Health Worker

Table 2 shows the mediums used for staff-to-management communications including staff-to-staff communications and staffs-to-patient communications. It also shows a detailed description of the rating of the performance of the various mediums used for communication.

Among the various mediums, more than half (56.4%) of the staff used memos while 5.9% used emails to interact with management. For staff-to-staff communications, almost ninety percent (89.8%) of the participants used face-to-face as a medium to communicate with each other. Only a few (11.6%) used emails. When mediums for staff-to-patient communication were assessed, a majority of 97.4% indicated they used face-to-face means to communicate with patients.

Face-to-face communication was rated excellent by 35.3% of the participants, same proportion (35.3%) rated it as good, while few of the respondents (0.9%) gave a poor rating for face-to-face communication. Meeting, social media and telephone were rated as good by higher proportions of 41.9%, 33.3%, and

36.3% respondents respectively. Memos performance was rated by 30.0% respondents as good, 14.5% as excellent and by 8.6% as poor.

- Communication Mediums as Examined by Management

Table 3 shows a detailed description of management's views on the mediums or channels used for communicating at the hospital. 50% of the management agreed that the current mediums notify staff of changes in the hospital with few (31.8%) disagreeing. On the mediums being used to notify the public and patients on the available services, 47.7 % of the management were in agreement to that but 38.6% disagreed to it. 45.5% of the management agreed that messages sent through the mediums are relevant while 38.6% disagreed to that. Again, more than half of the management (63.6%) agreed that messages sent through the mediums are consistent, with 38.8% disagreeing to that. About half of the management (47.7%) agreed that the mediums carried credible messages, while 38.6% were in disagreement.

The table also shows that 47.7% of the management who participated in the study disagreed that feedback was gathered through surveys but 36.4 % agreed that feedback was actually received through surveys. Again, 52.3 % of the management disagreed that feedbacks were gathered through anonymous response cards but 34.1% agreed to that fact. On the assessment of whether feedbacks were been gathered through direct contact with supervisors, more than half (63.6%) of the management agreed that feedbacks were gathered through direct contact with supervisors while 18.2% disagreed. 40.9% also disagreed that feedbacks were gathered through suggestion boxes, and 38.64% agreed to that means of gathering feedback. Furthermore, while 45.5% agreed that the hospital analyses feedbacks from employees, about 38.1% of the participants disagreed with that. Also, in terms of the effectiveness of the mediums used for gathering feedback, 56.9% of the management disagreed that the mediums were effective for feedbacks, while 34.1% agreed they were effective.

In assessing both the effectiveness and efficiency of the various communication mediums, more than half (54. 5%) of participants indicated that emails were sometimes effective for communication while 31.8% said it was not effective at all.

For face-to-face medium, 45.5% respondents noted it as effective all the time but a few (11.4%) said it was not effective at all.

For meetings as a channel of communication, more than half (68.2%) of the management responded that it was sometimes effective and a few (4.6%) said it was not effective at all. Again, 61.4 % of participants also endorsed social media as sometimes effective while 18.2 % said it was not effective at all. For newsletters, 45.4% respondents said it was not effective at all while a proportion of 22.7 % said it was effective all the time. 61.4% also said telephone usage was sometimes effective but 13.6% said it was not effective at all.

Assessment of the efficiency of the mediums indicated email as sometimes efficient for communication by 56.8% of the participants' while 11.4% respondents said it was not efficient at all. Face-to-face

medium was seen by 45.5% respondents as effective sometimes but a proportion of 20.5% saw it not efficient at all.

For meetings as a channel, more than half (59.1 %) of the management noted it as sometimes efficient, while a small portion of the management (18.2%) said it was not efficient at all. Again, 56.8% of the participants also endorsed social media as sometimes efficient, while 15.9 % said it was not efficient at all. For newsletters, 52.3 % of the respondents said it was efficient sometimes, while a few respondents (4.8%) said it was not efficient at all. 65.9 % also rated telephone usage as efficient sometimes but 11.2 % rated it not efficient at all. The efficiency of memos was also rated by 61.36% of the participants as efficient sometimes, while 6.8% noted it as not efficient at all. Generally, the communication mediums used at the hospital was rated by 38.6% of the management as good while a few (9.1%) rated the mediums as very poor.

## Discussion

The complete reliance on face-to-face as a medium of communication in hospitals is becoming a global worry in the 21<sup>st</sup> century. The challenge with a face-to-face approach in official communication is known for a number of challenges (5). The high figures reported on face-to-face in this study by both patients and health professionals as the most commonly identified medium of communication is in conformity with the report by Travers (2016) that the overreliance on face-to-face as a medium of communication in most health facilities particularly in low resource settings. The present study also observed very low responses in the use of electronic communication medium such as emails (ranging from 2 to 11%). This observation is in contrast with a recent study conducted by Niemi et al. (2016) where health workers were observed to be making use of the ICT for communication through mediums such as the emails and text messages in their routine work (6).

The factors that influenced the choice for electronic mediums such as emails ahead of others reported in the study by Niemi et al. (2016) included the ability to revert to pending tasks (“Writing or receiving email is not tied to the clock (6). Likewise, you can take care of matters by email when it’s convenient for you”) and as a matter of convenience (“You can take care of the matter at a time that suits you, and the patient/client is not tied to the phone at a specific time waiting for the call”).

The form of communication noticed in this study to be mostly used among staff and patients was verbal via face-to-face medium. Although this medium appears to be the ideal and rational means of communication, it does not adequately address the communication problems in the health system. Over the years, plans are being made worldwide in efforts to promote communication among patients with speech and hearing impairment (The case of deaf and dumb) (7). Respondents in the Niemi et al. study conducted in 2016 indicated that the approach of resorting to electronic medium seeks to enhance communication among persons with this disability (“Patients unable to communicate through speech can keep in touch through email and SMS”).

The real burden of using inefficient medium of communication and its challenges to persons with a disability was not set a major priority under the scope of this study and should be investigated further. The revelations from this study reinforce the need to incorporate the electronic system of communication into the current health system in Ghana.

## **Conclusion**

The mediums patients used for enquiries from the hospital were mainly telephones. Within the hospital, patients' communication was however limited to verbal via face-to-face. There were no directional signs to direct patients to service centers. Staffs mostly used social media and face-to-face method to interact with their colleague staffs. However, they communicated with patients by face-to-face only. Management also used memos more often to communicate with staffs and patients than the traditional verbal means via face-to-face.

The current mediums of communication allowed management to notify staffs of relevant administrative changes and other information in the hospital. However, getting feedback through the same mediums seemed poor.

It can be concluded that there are frustrations with the mediums used during internal and external communication. Health workers are dissatisfied with the delay of information flow from management whereas management is also worried about the delay of feedback from staff due to the poor mediums used.

These findings are evident that communication cannot always be effective as long as people insist on using poor mediums for communication in the healthcare sector. Any such attempt of not choosing a reliable medium for communication will inevitably lead to poor communication and default in health service delivery. There was, therefore, a general need for an alternative system such as the digital communication system that will be open for effective and efficient patient-hospital communications.

## **Declaration**

### **Ethical Approval and Consent to Participate**

Written approvals were respectively obtained from the Komfo Anokye Teaching Hospital and the Committee of Human Research, Publications and Ethics (CHRPE) of the Kwame Nkrumah University of Science and Technology (KNUST) with registration number CHRPE/AP/591/18 before the study was conducted.

Participants read, understood and signed a written informed consent to be part of the study. The consent form contained detailed information of the study and participants were given enough time to make an informed decision before enrolling on the study.

## **Consent for Publication**

Participants also consented to the publication of this work when the need arises.

## **Availability of data and material**

The datasets generated during the current study are available from the corresponding author on reasonable request.

## **Competing interest**

The authors declare that they have no competing interests.

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## **Authors' contribution**

DA, MD, FAO and SN designed the study, The work of Data collection and database construction was distributed equally among JB, EK A, KL, EXA, AA, DA, BAD, AKO and NKM. Provisional drafts of manuscript were written by MD and FAO. All authors read and approved the final manuscript.

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## **Abbreviations**

CHRPE-Committee of Human Research, Publications and Ethics

KReF-KNUST Research Fund

KNUST-Kwame Nkrumah University of Science and Technology

KATH-Komfo Anokye Teaching Hospital

ICT-Information and Communication Technology

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