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PATIENT SAFETY CULTURE: A TRADITION TO PROMOTE PATIENTS SATISFACTION IN HEALTHCARE PROVISION IN GHANA

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PATIENT SAFETY CULTURE: A TRADITION TO PROMOTE PATIENTS SATISFACTION IN HEALTHCARE PROVISION IN GHANA

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Highlights

- Policies, measures or strategies to promote patient safety culture in the health facility have not been prioritised thus resulting into poor patient safety culture compliance observed by respondents in this study.
- Positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction.
- Wrong prescription or surgeries can result into patients paying extra money to rectify these problems at the same health facility or elsewhere.
- Wrong medication could cause some of the respondents to suffer worsening health conditions and contraction of chronic health conditions due to delayed healthcare or risky drug interactions with the body.
- The high level of dissatisfaction with care received at the health facility could be related to 38% of the respondents who were unemployed and hence could not have the financial capacity to pay for extra medication, injection or hospitalisation associated through the effects of adverse events such as increased cost for new medications, injection or charges for unintended or extra hospitalisations.

What the study adds

The study adds that policies, measures or strategies to encourage patient safety culture in the hospital have not been highlighted, consequently, occasioning poor patient safety culture compliance witnessed by the respondents in the study.

What is already known on this topic

Patient safety is held as an international health concern influencing patients in various health care settings globally due to the complexity of health care systems and the increase in unsafe care delivered to patients in various health institutions.

How this study might affect research, practice or policy

This study will add to existing literature on patient safety and serve as a guide to healthcare practitioners and other analogous health professionals in the discharge of their mandate. Again, the findings of this study will help policymakers to appreciate the relevance of patient safety culture in the attainment of "quality health for all" by strengthening the existing policies to check deviations in various health care facilities.

Abstract

Background: Globally, one of the measures of high performing healthcare facilities is the compliance of patient safety culture, which encompasses the ability of health institutions to avoid or drastically reduce patient harm or risks. These risks or harm is linked with numerous adverse patient outcomes such as medication error, infections, unsafe surgery and diagnosis error.

Objectives: The general objective of this study was to investigate into the impact of patient safety culture experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality.

Methods: This study was a descriptive cross-sectional study and a consecutive sampling technique was used to select 100 respondents for the study. Data was collected using a structured questionnaire and processed using Statistical Package for Social Sciences, version 21. Descriptive statistics were used to analyse the findings by summarising them into percentages, frequencies, charts and tables.

Results: The study found out that the overall patient safety compliance level observed by the respondents was poor (31%). The prevalence of adverse events experienced among the respondents was average (56%). The adverse events mentioned were medication error (45%), infections (40%), unsafe surgery (10%), diagnosis error (27%), wrong injection (12%), wrong treatment procedure (31%) and wrong prescription (48%). The mentioned consequences of these adverse events encountered by the respondents was hospitalisation (45%), followed by increased healthcare cost (35%), worsening of health condition (24%) and the least was contraction of chronic health conditions (13%). In all, 70% of respondents were dissatisfied with care received at the health facility and about one-third (30%) were satisfied.

Conclusion: The poor general compliance of patient safety culture in the facility is unfortunate and this can affect the reputation of the hospital. The study recommends that a collaboration between government and stakeholders to implement novel interventions to promote and sustain patient safety protocols compliance at the Kwesimintsim Government Hospital must be upheld.

Keywords: Patient satisfaction, Government, Prevalence, Hospitalisation and Prescription.

The article has a word count of 5670 excluding title page, references, figures and tables.

1. Background of the Study

Patient safety culture is an essential factor in determining the ability of hospitals to treat and reduce patient risks.[1] Patient safety is regarded as an international health concern affecting patients in various health care settings globally due to the complexity of health care systems and the increase in unsafe care delivered to patients in various health institutions.[2, 3] Patient safety culture is an integrated pattern of individual and organisational behaviour, based upon shared beliefs and values that continuously seek to minimise the patient harm, which may result from the process of care delivery.[3] It is also referred to as the outcome of individual and organisation's values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management.[4] All these could be achieved through setting up clear policies, having skilled healthcare professionals, all-level leadership, up-to-date data, and patient-centered care in order to maintain healthcare safety sustainability.[3] Several studies stress the importance of patient safety culture for patient safety processes and outcomes.[5] More specifically, research has shown that a sound patient safety culture is associated with fewer adverse events[6] and more positive patient experiences.[7] A systematic review by Braithwaite et al.[5] found that a positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction. Studies have also shown that promoting patient safety culture among healthcare providers is a key to reducing adverse events and maintaining quality of care.[8]

Adverse events also known as medical errors is one of the numerous factors that affect patient safety within health facilities. Adverse events are 'unintended injuries or complications that are caused by health care management rather than by the patient's underlying disease and can lead to death, disability at the time of discharge and prolonged hospital stay.[9] Adverse events or medical

errors that significantly contribute to unsafe care and harm to patients which subsequently affect patient safety are medication errors, nosocomial infections, unsafe surgeries, wrong injections, procedures, and diagnostic errors.[10] The prevalence of adverse events by medical professionals has been alarming. In Iran, a review study revealed that the prevalence of adverse events exists between 10 and 80%.[11] Another study conducted on the prevalence of adverse events revealed that about 7 out of 10 selected professional nurses declared engaging in adverse events resulting in harm to patients.[12]

Measures taken to improve upon patient safety have demonstrated different levels of effectiveness.[13] Moreover, several prior studies conducted among medical staff have shown that higher levels of awareness of patient safety culture are associated with higher patient overall satisfaction and lower occurrence of adverse events.[14,15] It is against this background that the researcher seeks to investigate into patient safety culture among patients and its impact on their overall satisfaction of care received at the Kwesimintim Government Hospital in the Takoradi municipality of Ghana.

2. Objective

The general objective of this study is to investigate into the impact of patient safety culture experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality. Specifically, this study sought to: (a) identify patient safety culture protocols compliance by health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality (b) measure the prevalence of adverse events and their effects on patients among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality and (c) examine the impact of patient safety culture on patient

satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality.

3. Methods

This study deployed a descriptive cross-sectional study design using a quantitative approach to obtain the necessary data required for the accomplishment of this study. This design and approach to research focuses on carefully measuring a set of variables to answer theory-guided research questions or hypotheses[16]. The study was conducted at Kwesimintsim Government Hospital. The target population for this study is all patients visiting the Kwesimintsim Government Hospital in the Takoradi Municipality for healthcare.

The Kwesimintsim Government Hospital receives averagely 150 patients per week (Health information records; Kwesimintsim Government Hospital, 2021). From this figure, Yamane's formula will be used to calculate the sample size for this study. Yamane's formula is given as

$$n = \frac{N}{1 + N(e^2)},$$

Where n is the sample size, N is the study population size and e is the level of precision. The study population for this study is presumed to be 150. The level of precision to be used is 0.05(95% confidence interval). After computation, the sample size derived is 100.

$$n = \frac{150}{1 + 150(0.005^2)},$$

n = 100.

Consecutive sampling method whereby every eligible and available participant was recruited till the desired sample size was reached based on the inclusion criteria applied in this study. This method was appropriate for the study because of the ill-health conditions of patients which often

make some of them not fit or ready for data collection. The study included patients visiting the Kwesimintsim Government Hospital who were present during the data collection period and who consented to participate in the study. Patients visiting the Kwesimintsim Government Hospital who were present during the data collection period in addition to those who refused to participate in this study were excluded from the study. The study also excluded patients admitted at the various wards of the health facility

Structured (closed and open-ended) questionnaire was used to seek information from the sampled respondents. The questionnaire was designed through extensive literature search and other similar studies conducted which were related to the study. The questionnaires was self-administered and a high level of discretion was kept to protect the identities and views of the respondents. The questionnaire was made up of four parts. The first part interrogated the respondents on their demographic information. The second part interrogated the respondents on the compliance of patient safety culture protocols witnessed in the facility. The third part interrogated the respondents on adverse events they have experienced in the health facility and it consequences among them. The final part of the questionnaire interrogated the respondents on their satisfaction regarding patient safety culture witnessed and care received at the health facility. Data obtained from the study were entered into a Microsoft Excel spreadsheet and imported into SPSS computational tool (version 22) to generate the study findings. The findings of the study were analysed and interpreted through the use of descriptive statistics such as percentages and frequencies. The findings of the study were presented using tables and charts. Participation in the study was voluntary; no coercion was used and respondents were assured that no repercussions will follow respondents who were unwilling to participate. Willing respondents signed an informed consent form expressing their willingness to participate in the study. Anonymity of respondents was assured by coding all

questionnaires uniquely using numbers and by not recording names of respondents. Confidentiality of information provided by the respondents was upheld. Permission was also sought from management of the ethics committee of the health facility before the study will commence

4. Presentation of Results

4.1 Demographic Characteristics of the Respondents

More than half of the respondents (n=63, 63%) were females and males constituted 37% of the respondents (n=37). More than half of the respondents were aged 31-40 years (n=54, 54%), followed by respondents aged 21-30 years (n=36, 36%), followed by respondents aged 41 years and over (n=7, 7%) and less than a quarter (n=3, 3%) were aged 16-20 years. An overwhelming majority of the respondents were Christians (n=95, 95%) and the remaining few were Muslims (n=5, 5%). Majority of the respondents were single in terms of marital status (n=46) denoting 63% of the respondents, a little over one-fourth were married (n=28, 28%) and almost one out of every 10 respondents was a divorcee (n=9, 9%). With respect to the educational qualification of the 100 respondents, almost half of them were basic school and Senior High School graduates (n=46, 46%), followed by respondents with no formal education (n=6, 6%) and very minute portion of the respondents (n=2, 2%) were University graduates. With regards to the employment category of the respondents, almost half of them were self-employed (n=49, 49%), followed by more than one-third who were unemployed (n=38, 38%), followed by students who were 8 in number (8%), followed by respondents who were private-sector employees (n=4, 4%) and only 1 of the respondents (1%) was a government-employee. Table 1 summarises the demographic characteristics of the respondents.

Table 1: Demographic characteristics of the respondents.

Characteristics	Frequency	Percentage (%)
Gender of respondents		
Females	37	37%
Males	63	63%
Age of respondents		
16-20	3	3%
21-30	36	36%
31-40	54	54%
41 and over	7	7%
Marital status of respondents		
Single	63	63%
Married	28	28%
Divorced	9	9%
Religion of respondents		
Christians	95	95%
Muslims	5	5%
Employment category of respondents		
Unemployed	38	38%
Government employee	1	1%
Private-sector employee	4	4%
Self-employed	49	49%
Student	8	8%
Educational qualification of respondents		
No formal education	6	6%
Basic education	46	46%
Secondary education	46	46%
Bachelor's degree	2	2%

Source: Field Survey, September (2022).

4.2 Patient safety culture protocols compliance

The first objective of the study was to identify patient safety culture protocols compliance by health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality from the perspectives of patients. The study presented 13 patient safety protocols statements for which the respondents (patients) were asked to state if each of the protocols were observed by staff

and management of the health facility. The overall score for compliance was computed through evaluating the mean score of the protocols investigated. The overall safety protocol compliance level was found to be very abysmal (31%) in this study. Table 2 presents these findings.

Table 2: Patient safety culture protocols compliance.

Safety Protocols	Frequency	Percentage
When one unit gets busy, other health workers help.	91	91%
Staff actively do things to improve patient safety.	35	35%
Hospital units work well together to provide the best care for patients.	72	72%
Hospital management provides a work climate that promotes patient safety.	52	52%
The actions of hospital management show that patient safety is a top priority.	47	47%
Important patient care information is often not lost among staff.	60	60%
Problems do not often occur in the exchange of information across the units.	14	14%
Patient safety is never sacrificed to get work done.	10	10%
The procedures and systems at the facility are good at preventing errors.	0	0
Staff freely speak up if they see something that may negatively affect patient care.	0	0
Staff feel free to question the decisions of those with more authority.	0	0
Staff are not afraid to ask questions when something does not seem right.	0	0
Staff report any error they make to promote patient safety.	1%	1%
Overall average compliance level	31	31%

Source: Field Survey, September (2022).

4.3 Prevalence of adverse events and their effects on patients

The study further investigated into the prevalence of adverse events and their effects on patients among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality. The study discovered that almost 6 out of 10 respondents (56 respondents) had encountered harm or problem as a result of care received at the Kwesimintsim Government Hospital thus denoting a prevalence rate of adverse events experienced to be 56%. The problems or harm encountered

among the respondents were medication error (n=45, 45%), infections (n=40, 40%), unsafe surgery (n=10, 10%), diagnosis error (n=27, 27%), wrong injection (n=12, 12%), wrong treatment procedure (n= 31, 31%) and wrong prescription (n=48, 48%). Table 3 presents these findings. The most mentioned consequence of these harm or problems encountered by the respondents was hospitalisation (45%), followed by increased healthcare cost (35%), worsening of health condition (24%) and the least was contraction of chronic health conditions (13%). Table 3 and Figure 1 show these results.

Table 3: Problems or harms encountered among the respondents.

Harm or problem encountered	Frequency	Percentage (%)
Medication error	45	45%
Infections	40	40%
Unsafe surgery	10	10%
Diagnosis error	27	27%
Wrong injection	12	12%
Wrong treatment procedure	31	31%
Wrong prescription	48	48%

Source: Field Survey, September (2022).

4.4 The impact of Patient Safety Culture Experienced on Patient Satisfaction among Respondents

The final objective of this study was to investigate the impact of patient safety culture experienced on patient satisfaction among respondents. Findings indicated that five out of every 10 respondents (52%) were dissatisfied with patient safety protocols at the Kwesimintsim Government Hospital, followed by a little below one-fifth (n=18, 18%) who were very satisfied, followed by 16% of the respondents (n=16) who were very dissatisfied and finally, 14 of the respondents (14%) were

satisfied with patient safety protocols at the Kwesimintsim Government Hospital. Therefore, the prevalence of adverse events (56%) is likely to affect the high dissatisfaction level of the respondents in this study. Figure 2 depicts these results.

5. Discussion of Results

5.1 Demographic Characteristics of Respondents

More than half of the respondents (63%) were females and males constituted 37% of the respondents. This finding could be attributable the selection criteria used for the study. More than half of the respondents were aged 31-40 years (54%), followed by respondents aged 21-30 years (36%), followed by respondents aged 41 years and over (7%) and less than a quarter (3%) were aged 16-20 years. An overwhelming majority of the respondents were Christians (95%) and the remaining few were Muslims (5%). This finding is not surprising because the latest information from the Ghana Statistical Service indicate that majority of Ghanaians (70%) are Christians.[17] Majority of the respondents were single in terms of marital status (63%), a little over one-fourth were married (28%) and almost one out of every 10 respondents was a divorcee (9%). With respect to the educational qualification of the 100 respondents, almost half of them were basic school and SHS graduates (46%), followed by respondents with no formal education (6%) and very minute portion of the respondents (2%) were University graduates. Findings may provide evidence of the impact of the free SHS policy in Ghana that has resulted into a very high enrolment of Ghanaians in Senior High Schools. With regards to the employment category of the respondents, almost half of them were self-employed (49%), followed by more than one-third who were unemployed (n=38, 38%), followed by students who were 8 in number (8%), followed by respondents who were private-sector employees (4%) and only 1 of the respondents (1%) was a government-employee.

Irrespective of the fact that sample size and selection eligibility used for this study could account for these findings, findings support information from Ghana Statistical Service that the private sector is the largest source of employment in the country.[17]

5.2 Patient safety culture protocols compliance by health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality

The first objective of this study was to identify patient safety culture protocols compliance by health workers of the Kwesimintsim Government Hospital in the Takoradi Municipality from the perspectives of patients. The study presented 13 patient safety protocols statements for which the respondents (patients) were asked to state if each of the protocols were observed by staff and management of the health facility. The overall score for compliance was computed through evaluating the mean score of the protocols investigated. The overall safety protocol compliance level was found to be very abysmal (31%) in this study. Findings were lower compared with the studies by[4] where the overall safety protocol compliance level was 47% as well as[18] where overall safety protocol compliance level was 58%. It is worthy to note that these studies assessed patient safety culture compliance from the perspectives of medical staff as compared to this study where patients were used to assess patient safety culture compliance. This factor could significantly affect these findings in relation to over or under reporting of patient safety culture compliance among them. Nonetheless, findings in this study imply that the assessed patient safety culture compliance at the Kwesimintsim Government Hospital is unsatisfactory and unacceptable.

Research have shown that patient safety culture is an essential factor in determining the ability of hospitals to treat and reduce patient risks.[1] Not differently, it is the outcome of individual and organisation's values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organisation's health and safety

management.[4] All these could be achieved through setting up clear policies, having skilled healthcare professionals, all-level leadership, up-to-date data, and patient-centered care in order to maintain healthcare safety sustainability.[3]

In as much as some of the respondents may be bias in their responses, findings give an indication that polices, measures or strategies to promote patient safety culture in the health facility have not been prioritised thus resulting into poor patient safety culture compliance observed by respondents in this study. The most observed safety protocols in this study were when one unit gets busy, other health workers help (91%), hospital units works well together to provide the best of care for patients (72%) and important patient care information is often not lost among staff (60%). Findings were somewhat similar to the study by.[18] where the most observed patient safety culture were one unit gets busy, other health workers help (65.1%), staff actively do things to improve patient safety (89.1%), hospital units works well together to provide the best of care for patients (78.1%), important patient care information is often not lost among staff (66.7%) and staff freely speak up if they see something that may negatively affect patient safety care (70.3%). Apart from 6% of the respondents who were uneducated and may not be acknowledgeable about patient safety culture compliance among medical staff, a greater majority of respondents (94%) were educated and hence findings regarding these patient safety protocols may reflect the true nature of these safety protocols observed by medical staff of the Kwesimintsim Government Hospital. However, protocols concerning the communication openness with authorities with regards to patient safety recorded the lowest score in this study. For instance, none of the respondents (0%) admitted that staff freely speak up if they see something that may negatively affect patient care, staff feel free to question the decisions of those with more authority and staff are not afraid to ask questions when something does not seem right. Also, only 1 of the respondents (1%) admitted that staff report any

error they make to promote patient. One reason for this poor finding may be related to the fact that apart from open conversation with authorities, patients may not be aware of other ways through which medical staff communicate with authority at the health facility. Also, the discrepancies in the number of visits to the health facility among the respondents could affect their observation of these patient safety protocols compliances. However, regardless of the fact that communication openness with authorities among medical staff (17.9%) was found to be low among others investigated in the study by[4] comparably, it was found to be high in relation to this study. The discrepancies could be related to differences in study population used for these studies. Notwithstanding this, findings were very low and could deprive the health facility from some benefits. For instance, it can be inferred from studies that positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction.[5]

5.3 Prevalence of Adverse Events and their Effects on Patients among Patients Who Attend the Kwesimintsim Government Hospital in the Takoradi Municipality.

The study further investigated into the prevalence of adverse events and their effects on patients among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality. The study discovered that almost 6 of the 10 respondents (56 of the respondents) had encountered harm or problem as a result of care received at the Kwesimintsim Government Hospital thus denoting a prevalence rate of adverse events experienced to be 56%. Adverse events are unintended injuries or complications that are caused by health care management rather than by the patient's underlying disease.[9] It has been well established by research that promoting patient safety culture among healthcare providers is a key to reducing adverse events and maintaining quality of care.[8] Therefore, any healthcare jurisdiction that compromises compliance with patient safety

culture is likely to expose their patients with these ramifications. The study found an overall patient safety culture among the respondents to be very low (31%). It is not surprising that some of the respondents (56%) have experienced these adverse events. Finding support literature that the negligence of medical staff leads to the development of adverse events among patients. This information can be inferred from a review study in Iran that revealed that the prevalence of adverse events exists between 10 and 80% in Iranian Hospitals.[11] Another study conducted on the prevalence of adverse events revealed that about 7 out of 10 selected professional nurses (70%) declared engaging in adverse events resulting in harm to patients.[12] All these findings were in line with what was discovered in this study. The problems or harm encountered among the respondents were medication error (45%), infections (40%), unsafe surgery (10%), diagnosis error (27%), wrong injection (12%), wrong treatment procedure (31%) and wrong prescription (48%). These findings could be related to poor communication of medical staff with authority, inadequate resources and medical staff as well as poor skills among medical staff at the health facility. For instance, poor communication and skills could lead to medication error, unsafe surgery, diagnosis error, wrong injection, wrong treatment procedure and wrong prescription as mentioned by the respondents. All these adverse events mentioned by the respondents are consistent with literature that adverse events or medical errors that significantly contribute to unsafe care and harm to patients which subsequently affect patient safety are medication errors, nosocomial infections, unsafe surgeries, wrong injections, procedures, and diagnostic errors.[10]

In addition to these adverse events which are problematic and avoidable through compliance with patient safety culture, the prevalence of adverse events can lead to death, disability at the time of discharge and prolonged hospital stay.[9] It may be for these consequences for which some of the respondents who have experienced adverse events mentioned hospitalisation (45%), followed by

increased healthcare cost (35%), worsening of health condition (24%) and contraction of chronic health conditions (13%) as consequences of adverse events they have experienced. Wrong prescription or surgeries can result into patients paying extra money to rectify these problems at the same health facility or elsewhere. Wrong medication could cause some of the respondents to suffer worsening of health condition and contraction of chronic health conditions due to delayed healthcare or risky drug interactions with the body.

5.4 The impact of Patient Safety Culture Experienced on Patient Satisfaction among Respondents

The final objective of this study was to investigate the impact of patient safety culture experienced on patient satisfaction among respondents. Findings revealed that five out of every 10 respondents (52%) were dissatisfied with patient safety protocols at the Kwesimintsim Government Hospital, followed by a little below one-fifth (18%) who were very satisfied, followed by 16% of the respondents (n=16) who were very dissatisfied and finally, 14% of the respondents were satisfied with patient safety protocols at the Kwesimintsim Government Hospital. The findings of this study contradict with[19], where patient satisfaction with protocols and services was excellent.

Therefore, the prevalence of adverse events (56%) is likely to affect the high dissatisfaction level of the respondents in this study. Patients visit the health facility for healthcare and not to worse their ill-health through encountering adverse events emanating from non-compliance of patient safety protocols among medical staff. Patients are therefore likely to express their frustration and disgust towards healthcare facility management and staff whenever they experience these problems at the health facility. In general, 7 out of 10 respondents (70%) were dissatisfied with care received at the health facility as about one-third (30%) were satisfied. The respondents who

were dissatisfied with care received at the health facility are likely to be those who had experienced adverse events (56%).

For instance, the respondents who had suffered hospitalisation, increased healthcare cost, worsening of health condition and contraction of chronic health conditions through the experience of adverse events such as medication errors, unsafe surgery, diagnosis error, wrong injection, wrong treatment procedure and wrong prescription are likely to be dissatisfied with care received at the hospital. The high level of dissatisfaction with care received at the health facility could be related to 38% of the respondents who were unemployed and hence could not have the financial capacity to pay for extra medication, injection or hospitalisation associated through the effects of adverse events such as increased cost for new medications, injection or charges for unintended or extra hospitalisations.

6. Conclusion

One of the hallmarks of modern healthcare institutions is the compliance of patient safety culture. This action exposes patients to less risks and harm at the health facilities. This study discovered that there was a poor general compliance of patient safety culture among staff at the Kwesimintsim Government Hospital. More than half of the respondents had experienced adverse events and were very likely to be dissatisfied with care received the health facility. This calls for a collaboration between government and stakeholders to implement novel interventions to promote and sustain patient safety protocols compliance at the Kwesimintsim Government Hospital.

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Findings of the Study Vis-à-Vis the Objectives

Objectives	Findings
i. What is the nature of patient safety culture protocols compliance among health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality?	• Findings revealed that polices, measures or strategies to promote patient safety culture in the health facility have not been prioritised thus resulting into poor patient safety culture compliance observed by respondents in this study. • Positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction.
ii. What is the prevalence of adverse events experienced and it effects among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality?	• Wrong prescription or surgeries can result into patients paying extra money to rectify these problems at the same health facility or elsewhere. • Wrong medication could cause some of the respondents to suffer from worsening health conditions and contraction of chronic health conditions due to delayed healthcare or risky drug interactions with the body.
iii. What is the impact of patient safety culture experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality?	• The high level of dissatisfaction with care received at the health facility could be related to 38% of the respondents who were unemployed and hence could not have the financial capacity to pay for extra medication, injection or hospitalisation associated through the effects of adverse events such as increased cost for new medications, injection or charges for unintended or extra hospitalisations.

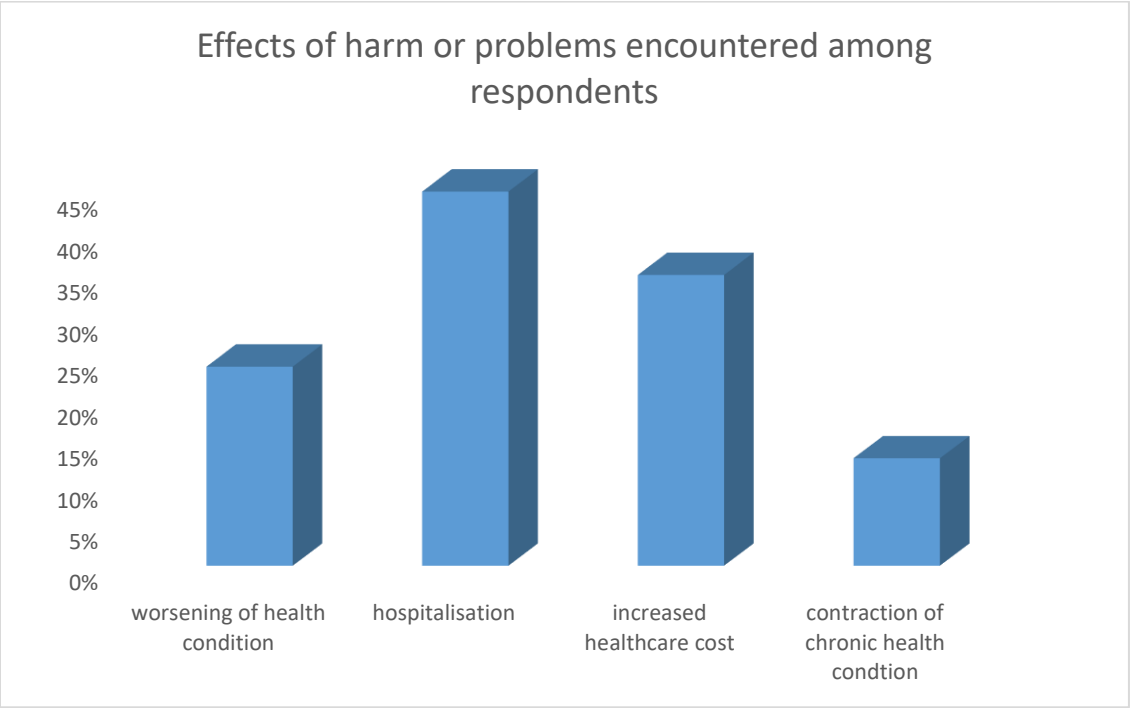


Figure 1: Effects of harm or problems encountered among respondents
Source: Field Survey, September (2022).

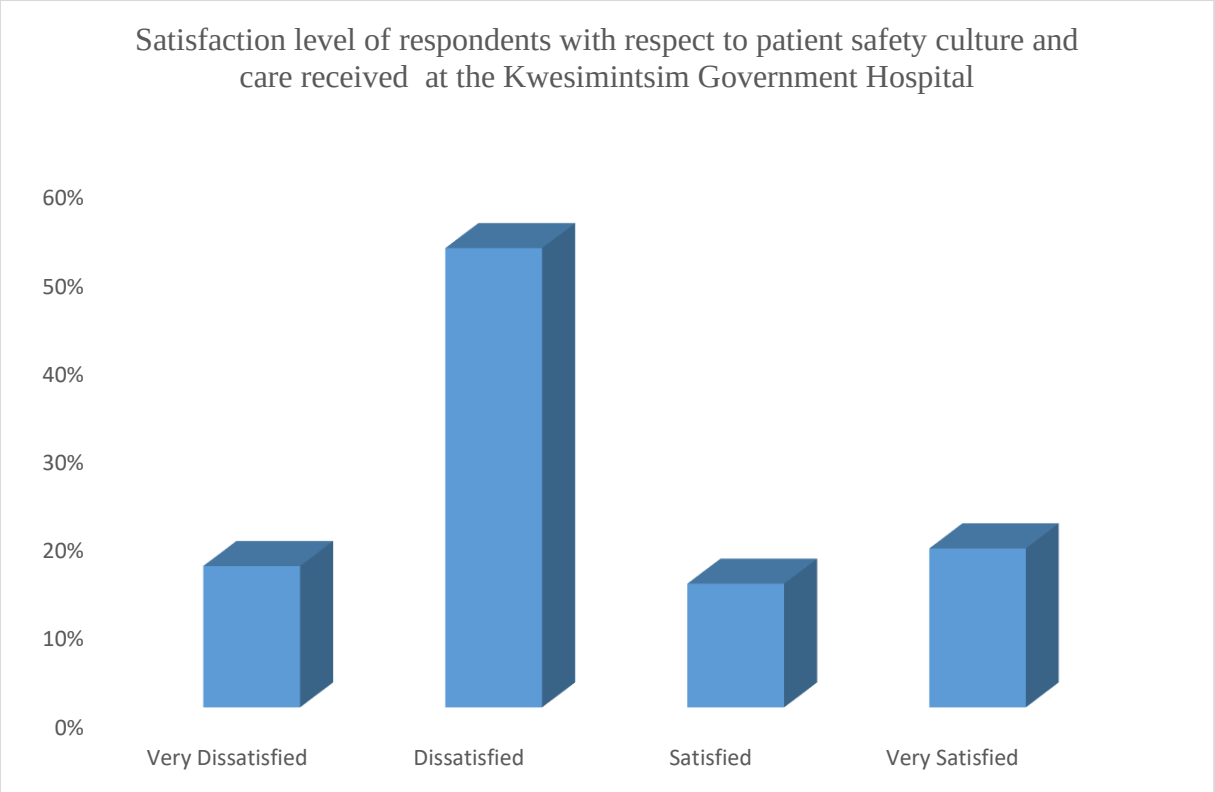
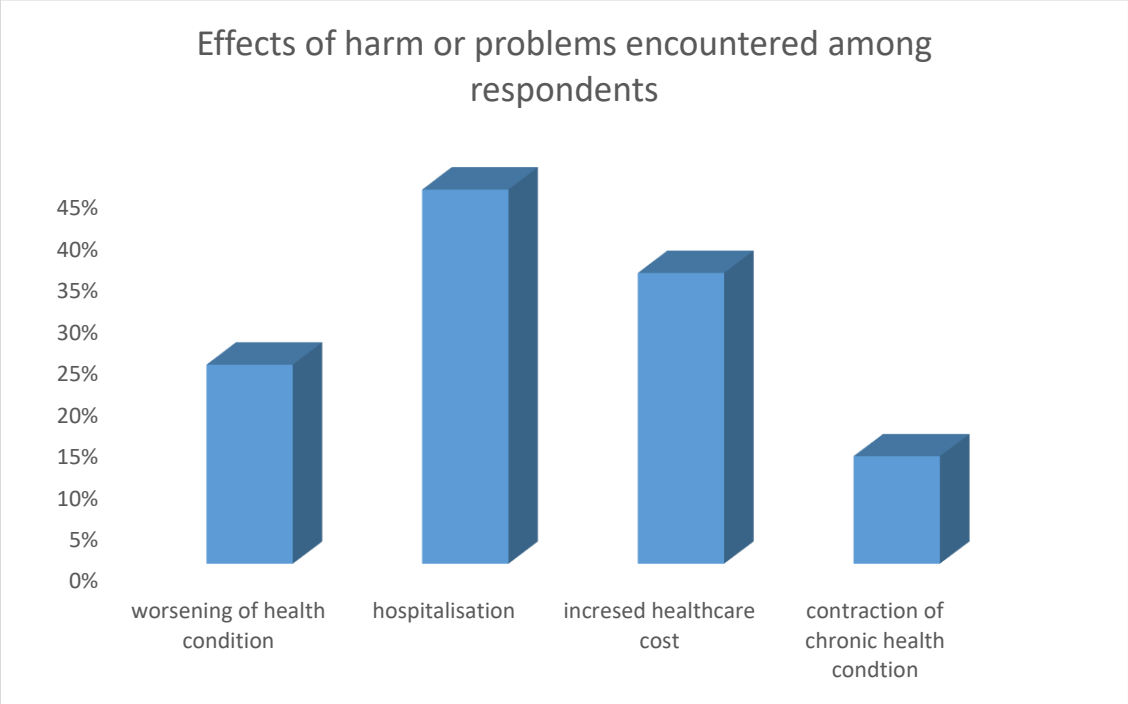


Figure 2: Level of satisfaction with patient safety protocols and care received among the respondents

Source: Field Survey, September (2022).



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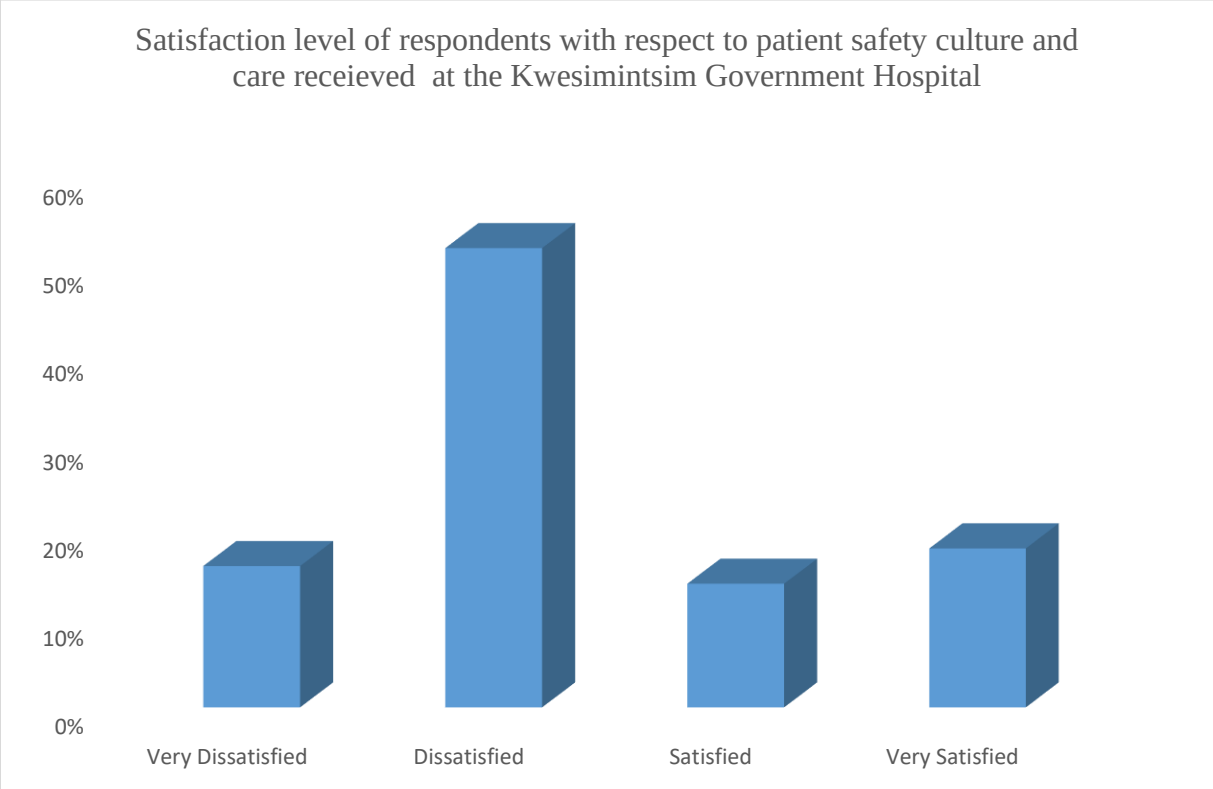

Figure 2: Level of satisfaction with patient safety protocols and care received among the respondents
Source: Field Survey, September (2022).

I have looked through the reporting checklists on the Equator Network, I am not able to find one appropriate to this type of study, and so I have not been able to upload a checklist on submission of the manuscript. The checklist in the Equator Network was for qualitative study but not for quantitative research. So, what is the way forward?

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PATIENT SAFETY CULTURE AND SATISFACTION IN GHANA: A FACILITY-BASED CROSS-SECTIONAL STUDY

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PATIENT SAFETY CULTURE AND SATISFACTION IN GHANA: A FACILITY-BASED CROSS-SECTIONAL STUDY

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Abstract

Background: Globally, one of the measures of high performing healthcare facilities is the compliance of patient safety culture, which encompasses the ability of health institutions to avoid or drastically reduce patient harm or risks. These risks or harm is linked with numerous adverse patient outcomes such as medication error, infections, unsafe surgery and diagnosis error.

Objectives: The general objective of this study was to investigate into the impact of patient safety culture practices experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality.

Methods: This study was a descriptive cross-sectional study and a consecutive sampling technique was used to select 336 respondents for the study. Data was collected using a structured questionnaire and processed using Statistical Package for Social Sciences, version 21. Both descriptive and inferential statistics were carried out and result present using figures and tables.

Results: The study found that the overall patient safety compliance level observed by the respondents was poor (29.2%). The prevalence of adverse events experienced among the respondents was high (58%). The leading adverse events mentioned were medication errors, followed by wrong prescriptions and infections. The consequences of these adverse events encountered by the respondents were mentioned as increased healthcare costs (52%), followed by hospitalisation (43%), worsening of health conditions (41%), and contraction of chronic health conditions (22%). Patient safety cultural practices such as teamwork ($\beta = 0.17$, $p = 0.03$), response to error ($\beta = 0.16$, $p = 0.005$), communication openness ($\beta = 0.17$, $p = 0.003$), and handoffs and information exchange ($\beta = 0.17$, $p = 0.002$) were found to positively influence patient satisfaction.

Conclusion: The poor general compliance of the patient safety culture in the facility is unfortunate, and this can affect healthcare outcomes significantly. The study therefore entreats facility managers and various stakeholders to see patient safety care as an imperative approach to delivering quality essential healthcare and to act accordingly to create an environment that supports it.

Keywords: Patient satisfaction, Government, Prevalence, Hospitalisation and Prescription.

'Strengths and limitations of this study'

Strengths of the Study

- The study ensured brevity in the construction of the study instrument.
- The cross-sectional study helped to describe the characteristics of the population under investigation.
- Parametric assumptions were met to ensure reliable results.
- A representative sample size was used.

Limitations of the Study

- The effect due to time was not captured due to the cross-sectional nature of the study design.
- Respondent responses may be exaggerated.
- The consecutive sampling technique could introduce biases in sampling.

Background of the Study

Patient safety culture is an essential factor in determining the ability of hospitals to treat and reduce patient risks.[1] Patient safety is regarded as an international health concern affecting patients in various health care settings globally. This is due to the complexity of health care systems and the increase in unsafe care delivered to patients in various health institutions[2, 3]. The global healthcare landscape is said to be undergoing a transformative shift as health systems continue to operate within increasingly complex environments[4] driven by technology. Though fresh actions, emerging technologies and care models can have healing prospect, they can also trigger different dangers to safe care. Patient safety is a vital standard of health care and is now being acknowledged as a huge and rising global public health encounter. Worldwide determinations to decrease the affliction of patient harm have not accomplished considerable transformation over the previous one and half decades. As also highlighted by the World Health Organisation, unsafe care leading to adverse events is said to have the potential to be counted among the top 10 causes of death and disability worldwide[5] with associated annual cost amounting trillions[6]. It thus, indicate that patient safety during care is crucial in improving health in a long term.

Patient safety culture is an integrated pattern of individual and organisational behaviour. This is based upon shared beliefs and values that continuously seek to minimise the patient harm, which may result from the process of care delivery.[3] It is also referred to as the outcome of individual and organisation's values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management[7].

All these could be achieved through setting up clear policies, having skilled healthcare professionals, all-level leadership, up-to-date data, and patient-centered care in order to maintain healthcare safety sustainability.[3] Several studies stress the importance of patient safety culture for patient safety processes and outcomes.[8] More specifically, research has shown that a sound patient safety culture is associated with fewer adverse events[9] and more positive patient experiences.[10]

A systematic review by.[8] found that a positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction. Studies have also shown that promoting patient safety culture among healthcare providers is a key to reducing adverse events and maintaining quality of care.[11]

Adverse events also known as medical errors are one of the numerous factors that affect patient safety within health facilities. Adverse events are 'unintended injuries or complications that are caused by health care management rather than by the patient's underlying disease. These can lead to death, disability at the time of discharge and prolonged hospital stay.[12] Adverse events or medical errors that significantly contribute to unsafe care and harm to patients which subsequently affect patient safety are medication errors, nosocomial infections, unsafe surgeries, wrong injections, procedures, and diagnostic errors.[13] The prevalence of adverse events by medical professionals has been alarming.

In Iran, a review study revealed that the prevalence of adverse events exists between 10 and 80%.[14] Another study conducted on the prevalence of adverse events revealed that about 7 out of 10 selected professional nurses declared engaging in adverse events resulting in harm to patients.[15]

Measures taken to improve upon patient safety have demonstrated different levels of effectiveness.[16] Moreover, several prior studies conducted among medical staff have shown that

higher levels of awareness of patient safety culture are associated with higher patient overall satisfaction and lower occurrence of adverse events.[17,18] In Ghana, the vital points acknowledged in the patient safety situational exploration were knowledge and learning in patient safety while patient safety surveillance was the frailest act identified. There were also flaws in areas such as national patient policy, healthcare related infections, surgical safety, patient safety partnerships and patient safety funding, respectively[19]. It is against this background that the researchers seek to investigate into patient safety culture among patients and its impact on their overall satisfaction of care received at the Kwesimintim Government Hospital in the Takoradi Municipality of Ghana.

Objective

The general objective of this study is to investigate the impact of patient safety culture experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital Takoradi. Specifically, this study sought to: (a) assess patient safety culture protocol compliance at Kwesimintsim Government Hospital, Takoradi Municipality (b) measure the prevalence of adverse events of patient safety culture protocols compliance and their effects on patients safety among patients who attend Kwesimintsim Government Hospital, Takoradi and (c) determine the impact of patient safety culture practises on patient satisfaction among patients who attend the Kwesimintsim Government Hospital, Takoradi.

Methods

This study deployed a facility-based cross-sectional study design using a quantitative approach to obtain the necessary data required for the accomplishment of the study. This design and approach to research focuses on carefully measuring a set of variables to answer theory-guided research questions or hypotheses[20]. The study was conducted at Kwesimintsim Government Hospital

because of its strategic location and the numerous communities it serves. The Kwesimintsim Government Hospital was selected due to its size, as well as the number of communities it serves.

The Kwesimintsim Government Hospital is the district hospital for the Effia-Kwesimintsim Municipal Assembly in Ghana. It is the referral point for an estimated population of 89,342 and the second major referral health facility in Takoradi. The hospital was established in the year 1977, was expected to cater for the healthcare needs of the communities in, and around the Kwesimintsim municipality but the facility is now serving the communities beyond its catchment area including Ahanta West, Mpohor, Wassa East and the Tarkwa Nsuaem Districts. The hospital supervises other health institutions (both private and public) within the Kwesimintsim sub-metro. The sub-districts are West Tanokrom, Lagos town, Sawmill, Kwesimintsim town, Kwesimintsim Zongo, Anaji and Apramdo.

A 5-member management team made up of the Medical Superintendent, Health Service Administrator, the Head of Nursing, the Head of Pharmacy and the Head of Finance guides the operations of the hospital. There are also a number of operational committees, which help in the management of the hospital. They include the Disciplinary Committee, the Audit Committee, the Welfare Committee, the Entity Tender Committee, and Data Validation Committee among others.[21]

The target population for this study encompassed all individuals seeking healthcare services at the Kwesimintsim Government Hospital in Ghana. Therefore, the estimated number of 89,342 patients served by the facility was considered as the size of the target population. The assumptions of using Yamane's[22] sampling formula to compute the sampling size was based on a 95% confidence interval, and 5% margin of error. To achieve a statistical power of 0.9 and at an alpha level of 0.05, the study computed the sampling size as follows: $n = \frac{N}{1 + N(e^2)}$,

Where n is the sample size, N is the study population size for the proposed period of data collection and e is the level of precision. The study population (N) for this study is presumed to be 89,342. The level of precision (e) is 0.05 (95% confidence interval).

$$n = \frac{89{,}342}{1 + 89{,}342(0.05^2)},$$

$$n = \frac{89{,}342}{1 + 89{,}342(0.0025)},$$

$$n = \frac{89{,}342}{1 + 223.355},$$

$$n = \frac{89{,}342}{224.355},$$

n = 398.23

Therefore, 398 was the estimated sample size for the study.

Consecutive sampling method whereby every eligible and available participant was recruited until the desired sample size was reached based on the inclusion criteria applied in this study. This method was appropriate for the study because of the ill-health conditions of patients, which often made some of them not fit or ready for data collection. The study recruited patients who visited the hospital during the data collection period. To ensure ethical compliance, prior to their participation, all patients involved in the study provided informed consent by signing the consent form. Additionally, the hospital granted its approval for the study. The study excluded inpatients admitted to the hospital due to their perceived inability due to ill-health (i.e., inability to perhaps not provide accurate responses).

Structured (closed and open-ended) questionnaire was used to collect data from the sampled respondents. The questionnaire was self-administered and a high level of discretion was kept to protect the identities and views of the respondents. The questionnaire was made up of four parts.

The first part interrogated the respondents on their demographic data. The second part interrogated the respondents on the compliance of patient safety culture protocols witnessed in the facility. The third part interrogated the respondents on adverse events they have experienced in the health facility and their consequences on them. The final part of the questionnaire interrogated the respondents on their satisfaction regarding patient safety culture practices witnessed and care received at the health facility.

In order to ensure the validity of the content of the questionnaires, they were given to two experts who understood the topic under investigation to comment and add their input. The patient safety practices were adapted from[23].The study used single-item measures for the variables used in the inferential statistics because of brevity and the need to assess several constructs[24]; hence, there was no need to carry out construct validity analyses such as confirmatory factor analysis and others. Nevertheless, various tests needed to confirm parametric assumptions such as normality, homogeneity of variance, and multicollinearity, among others, to ensure reliable estimation were carried out and met before the main inferential analysis of interest was carried out.

Data obtained from the study were entered into a Microsoft Excel spreadsheet and imported into SPSS computational tool (version 22) to generate the study findings. Both descriptive and inferential statistics were carried out and result visualized using tables and figures. The study was conducted between 2nd September, 2022 and 30th June, 2023 and achieved a response rate of 84%.

Patient and public involvement

Patients and the public's involvement was encountered during the gap identification stage, the questionnaire design stage, and the data collection stage. The areas to be explored and wording of items were discussed with randomly selected patients prior to the data collection, and their output was considered during the final design of the questionnaire. The facility engagement resulted in

the approval of the study and the nomination of staff to assist in the data collection process. The authors also intend to disseminate the published results of the study to the public through a seminar at the hospital and various community communication channels.

Data sharing statement

Authors want to state that the data for this study would be made available upon a written request.

Presentation of Results

Demographic Characteristics of the Respondents

In all, three hundred and thirty-six (336) respondents responded to the study. More than half of the respondents (n=212, 63%) were females and males constituted 37% of the respondents (n=124). More than half of the respondents were aged 31-40 years (n=181, 54%), followed by respondents aged 21-30 years (n=121, 36%), followed by respondents aged 41 years and over (n=24, 7%) and less than a quarter (n=10, 3%) were aged 16-20 years. An overwhelming majority of the respondents were Christians (n=319, 95%) and the remaining few were Muslims (n=17, 5%). Majority of the respondents were single in terms of marital status (n=212) denoting 63% of the respondents, a little over one-fourth were married (n=94, 28%) and almost one out of every 10 respondents was a divorcee (n=30, 9%). With respect to the educational qualification of the 336 respondents, almost half of them were basic school and Senior High School graduates (n=155, 46%), followed by respondents with no formal education (n=19, 6%) and very minute portion of the respondents (n=7, 2%) were University graduates. With regards to the employment category of the respondents, almost half of them were self-employed (n=165, 49%), followed by more than one-third who were unemployed (n=128, 38%), followed by students who were 27 in number (8%), followed by respondents who were private-sector employees (n=13, 4%) and only 1 of the respondents (1%) was a government-employee. **Table 1** summarises the demographic characteristics of the respondents.

Table 1: Demographic characteristics of the respondents.

Characteristics	Frequency	Percentage (%)
Gender		
Females	124	36.90
Males	212	63.10
Age		
16-20	10	2.98
21-30	121	36.01
31-40	181	53.87
41 and over	24	7.14
Marital		
Single	212	63.10
Married	94	27.98
Divorced	30	8.93
Religion		
Christians	319	94.94
Muslims	17	5.06
Employment category		
Unemployed	128	38.10
Government employee	3	0.89
Private-sector employee	13	3.87
Self-employed	165	49.11
Student	27	8.04
Educational qualification		
No formal education	19	5.65
Basic education	155	46.13
Secondary education	155	46.13
Bachelor's degree	7	2.08

Patient safety culture protocols compliance

The first objective of the study was to assess patient safety culture protocols compliance by health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality from the perspectives of patients. The study presented 13 patient safety protocols statements for which the respondents (patients) were asked to state if each of the protocols were observed by staff and management of the health facility. The overall score for compliance was computed through

evaluating the mean score of the protocols investigated. The overall safety protocol compliance level was found to be very abysmal (29.2%) in this study. **Table 2** presents these findings.

Table 2: Patient safety culture protocols compliance.

Safety Protocols	Frequency of yes responses (N = 336)	Percentage (%)
When one unit gets busy, other health workers help.	306	91.1
Staff actively do things to improve patient safety.	115	34.2
Hospital units work well together to provide the best care for patients.	245	72.9
Hospital management provides a work climate that promotes patient safety.	175	52.1
The actions of hospital management show that patient safety is a top priority.	160	47.6
Important patient care information is often not lost among staff.	199	59.2
Problems do not often occur in the exchange of information across the units.	44	13.1
Patient safety is never sacrificed to get work done.	30	8.9
The procedures and systems at the facility are good at preventing errors.	0	0
Staff freely speak up if they see something that may negatively affect patient care.	0	0
Staff feel free to question the decisions of those with more authority.	0	0
Staff are not afraid to ask questions when something does not seem right.	0	0
Staff report any error they make to promote patient safety.	3	0.9
Overall average compliance rate (%)		**29.2**

N= total number of respondents

Prevalence of adverse events of patient safety culture protocols compliance and their effects on patient's safety

To assess the adverse events of patient safety culture protocols compliance, respondent were asked to indicate whether they have encountered harm or problem as a result of care received at the facility for the past three years. As in **Fig 1**, 195 representing 58% of the respondents indicated

that they have incurred harm before as a result of care received at the facility for the past three years. A chi-square test was then run to evaluate whether there was an association between gender and harm experienced, but the result turned out to be insignificant ($\chi^2(1) = 0.14$, $p = 0.711$). See Figure 1 in appendix.

The study further asked those who indicated that they have experience harm before as a result of care received to identify or associate the possible harm received or problem encountered across a list of problems or harm. Medical error followed by wrong prescription and infections were found to be the most problems or harm encountered as a result of none adherence to patient safety culture protocol compliance as detailed in **Table 3**.

Table 3: Harms or Problems encountered as a result of none adherence to patient safety culture protocol compliance.

Problems/Harms encountered	Frequency (N=195)	Percentage (%)
Medication error	105	53.8
Infections	96	49.2
Unsafe surgery	21	10.8
Diagnosis error	86	46.1
Wrong injection	45	23.1
Wrong treatment procedure	91	46.7
Wrong prescription	101	51.8

N = number of people who indicated they have esperience problem or harm in the cause of receiving care.

Respondent were again asked to indicate the effect such problems or harm encountered at the facility yields to. Increasing of health expenditure (n = 102) followed by hospitalization (n = 83) and worsening of health condition (n = 80) were the popular effect mentioned as shown in **Fig 2**. See Figure 2 in appendix.

Inferential Statistics

The final objective of this study was to determine the impact of patient safety culture practices on patient satisfaction. The study established this through regression analysis. Before undertaking such analysis certain assumptions were very crucial to be met in order to product accurate and robust results. The first assumption to be explored was multicollinearity. **Table 4** shows the correlation matrix between the dependent and independent variables. The result of the correlations

was examined using the Holm correction to adjust for multiple comparisons based on an alpha value of .05. It could be observed that there is no multicollinearity present as no correlation value exceed 0.5.

Table 4: Correlation between the independent and dependent variables

Variable	1	2	3	4	5	6	7	8
1. Satisfaction	-							
2. Frequency of event reported	-0.02	-						
3. Teamwork	.17*	0.06	-					
4. Response to error	0.11	-0.05	.19*	-				
5. Communication openness	.19*	-0.12	.17*	-0.12	-			
6. Management support	0.03	0.1	-0.16	-0.12	0.02	-		
7. Handoffs and information exchange	0.13	0.1	-0.09	-.28*	-0.03	.23*	-	
8. Staffing	.17*	-.23*	0.11	-0.05	.24*	0	0.11	-

Note. *p value is significant*

The normality assumption was explored with the Q-Q plot, and the result did not deviate much from normality; besides, the sample size was even greater enough to evoke the central limit theorem. Studentized residuals plot for outlier detection was explored and there was no presence of outlier. The assumption of homoscedasticity was tested using the Breusch-Pagan the result turns to be insignificant indicating homoschedascity. We attached all these assumption analysis as an appendix**.** Following the satisfactory fulfillment of these crucial parametric assumptions, we conducted the regression analysis. As indicated in Table 5, the regression model exhibited statistical significance, as evidenced by the F-statistic and R-square values ($F(7,325) = 5.71$, $p < .001$, $R^2 = .11$).

Table 5: Model Fit Measures

	Overall Model Test

R	R^2	F	df1	df2	p
0.331	0.11	5.71	7	325	< .001

From the regression output (see Table 6), it is established again that there is no presence of multicollinearity looking at the variance inflation factor (VIF) across all the independent variable indicating some level of confidence in the regression output. From the regression output, it is observed that teamwork ($\beta = 0.17$, $p = 0.03$), response to error ($\beta = 0.16$, $p = 0.005$), communication openness ($\beta = 0.17$, $p = 0.003$) and Handoffs and information exchange ($\beta = 0.17$, $p = 0.002$) all significantly predict patient satisfaction. Management support, frequency of event reported and staffing did not however significant predict patient satisfaction at the selected significant level of 0.05.

Table 6: Results for Linear Regression with Frequency event reported, Teamwork, Response to error, Communication openness, Management support, Handoffs and information exchange, and Staffing predicting patient Satisfaction

Variable	B	SE	95.00% CI	β	t	p	VIF
(Intercept)	0.46	0.36	[-0.25, 1.18]	0	1.27	0.206	
Frequency of event reported	0.006	0.04	[-0.07, 0.08]	0.008	0.15	0.88	1.1
Teamwork	0.04	0.02	[0.004, 0.07]	0.12	2.16	0.031	1.13
Response to error	0.11	0.04	[0.03, 0.18]	0.16	2.85	0.005	1.15
Communication openness	0.17	0.06	[0.06, 0.28]	0.17	3	0.003	1.12
Management support	0.02	0.04	[-0.07, 0.10]	0.02	0.4	0.686	1.09
Handoffs and information exchange	0.13	0.04	[0.05, 0.21]	0.17	3.07	0.002	1.17
Staffing	0.08	0.04	[-0.005,0.16]	0.1	1.85	0.065	1.15

Discussion

This study sought to assess patient safety culture compliance, determine the prevalence of adverse events related to patient safety culture protocols and their effects, and evaluate the impact of patient safety culture practices on patient satisfaction.

Patient safety culture compliance has become the sine qua non approach to delivering healthcare that does not only minimise medical errors but also captures the responsiveness of a healthcare system entrenched in meeting patient's frivolous expectations. The World Health Organisation recognised patient safety-centred care as the pivotal foundation for delivering quality essential health services[3]. It is unfortunate that the study's findings on safety culture compliance overall estimation was not that appreciable (29.2% adherence rate) and therefore seems to support the existing evidence. [5, 14, 15] On the other hand, it is not surprising to observe this outcome given the study setting. Reports from the Media in Ghana have consistently highlighted how patients are taken for granted especially in government healthcare facilities. This ill safety culture compliance could be attributed to several factors. Medical negligence on the part of the healthcare profession as documented in the country[25], poor facility management and supervision[3], infrastructure and technological limitation among others. Infrastructure and appropriate technology to meet the needs of the population who are constantly seeking care is a deficit or limitation for almost every Ghanaian government healthcare facility. Even so, poor management and supervision may be the most plausible factor for the ill patient safety culture compliance among professionals since it is common to observe government institutions, including healthcare facilities, being operational but lacking effective management. Public workers often prioritize their monthly remuneration over the quality and quantity of their output, in contrast to their counterparts in the private sector. Facility managers and leaders could do better in ensuring proper supervision.

The reported ill patient safety culture compliance among professionals in the study collides with the resulting significant number of people (58% of the respondents) who claim to have experienced harm or problems due to receiving care at the facility. This finding outcome was also in consistence with the finding of some existing studies where prevalence of adverse events was estimated from 10 to 80%.[14,15] Medical errors, wrong prescription, infections and hospitalization mentioned in

literature as being part of the problem or harm often encountered when receiving care[13] is also highlighted in the study. Hygienic practices in most Ghanaian healthcare facilities are not up to standard even at the top resourced tertiary facilities and so the infection rate reported in the study may not be over-estimated. With several trained professional teachers in the country (Ghana) who cannot spell correctly basic daily words and write clearly[26], it is not unlikely that their counterpart (trained nurses) who administer medication and some instances prescribe medications (even though not certified for prescribing drugs) together with trained medical doctors offer or lure patients into getting wrong medications as observed in the study.

Such anomaly (patient harm) in healthcare delivery most often elongate time and resource spent in seeking care, and so increasing of healthcare cost as the leading effect of this anomaly captured by the study was not unexpected. It is estimated that the aggregate costs of patient harm amount to trillions of dollars each year[6]. With a significant number of people in Ghana living below the poverty line[27], this could jeopardise people's willingness to seek appropriate healthcare. Hospitalisation and worsening of healthcare conditions as a result of adverse events in patient safety culture protocols and compliance rates in the study are also concerning. If the attempt to seek healthcare is perceived to be accompanied with a new and deteriorating health condition, then a rational being would desist from making such attempts. The consequent effect may include routine self-medication and a delay in seeking appropriate healthcare services.

The study's last objective was to evaluate the impact of patient safety culture practices on patient satisfaction in the Ghanaian context since the two have been found to be associated with each other[8,11]. The study found four key patient safety practices that predicts patient satisfaction including teamwork, responsiveness to error, communication openness and handoffs and information exchange. If patient sees professional working as a team by supporting each other in addressing their healthcare needs, then they are likely to feel welcome to the facility and appreciate the healthcare professionals' efforts either than each professional appearing to be working on a function and tossing patients around without effective coordination. Moreover, if professionals are found admitting their limitations as human when they encounter them, a certain level of trust would be built and hence improve patient-professional relationship and the same argument holds for effective exchange of information and openness to communication. All of these would go a long way of reducing adverse events and ensuring some level of quality of care[11]. These practices do

not require hard or external resources, hence constant training of healthcare professional on these patient safety culture practices with effective management and supervision thereafter could play a major in creating a healthcare atmosphere that thrives on patient safety culture.

The findings of this study identify a possible gap in patient safety care in the Ghanaian public healthcare system and recognise managers and leaders of the various healthcare facilities as catalysts to stimulate an atmosphere that supports patient safety-centred care given the forever anticipated limited available healthcare resources.

Conclusion

One of the hallmarks of modern healthcare institutions is the compliance of patient safety-centered care. This approach to healthcare delivery exposes patients to less risks and harm at the health facilities. The study however identified poor patient safety care and associated harms and effect. The study also identified teamwork, effective communication and free exchange of information as having a positive impact on patient satisfaction. The study therefore entreats facility managers and various stakeholders to see patient safety care as an imperative approach to delivering quality essential healthcare services and monitor and implement novel interventions to promote and sustain patient safety protocol compliance in their respective settings.

Study Limitations

Just as in any empirical study, this particular inquiry is likewise susceptible to various methodological constraints, albeit concerted efforts were exerted to mitigate a subset of these limitations. The study used a cross-sectional survey, implying that changes due to time were not captured. The consecutive sampling technique deployed in the study also implies that several benefits of probabilistic sampling may not be attained. Finally, even though the sample size was adequate given the sampling technique and context of the study, including other facilities in the region with a larger sample size would have enriched the findings and allowed for comparative analysis. Given the aforementioned limitations, the study contends that it is pivotal and incumbent to undertake additional research endeavours as a means of procuring an enriched and holistic

understanding of patient safety care. This includes the examination of supplementary secondary facilities pertaining to the topic at hand, thereby engendering a more all-encompassing apprehension of the topic's intricate dynamics nationwide. By encompassing other pertinent facilities within forthcoming investigations, a more expansive purview can be attained, resulting in heightened discernment and profound elucidation regarding patient safety care in Ghana.

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Figure legends

Figure 1: Prevalence of adverse events of patient safety culture protocols compliance

Figure 2: Effect of harms or problems encountered as a result of none adherence to patient safety culture protocol compliance

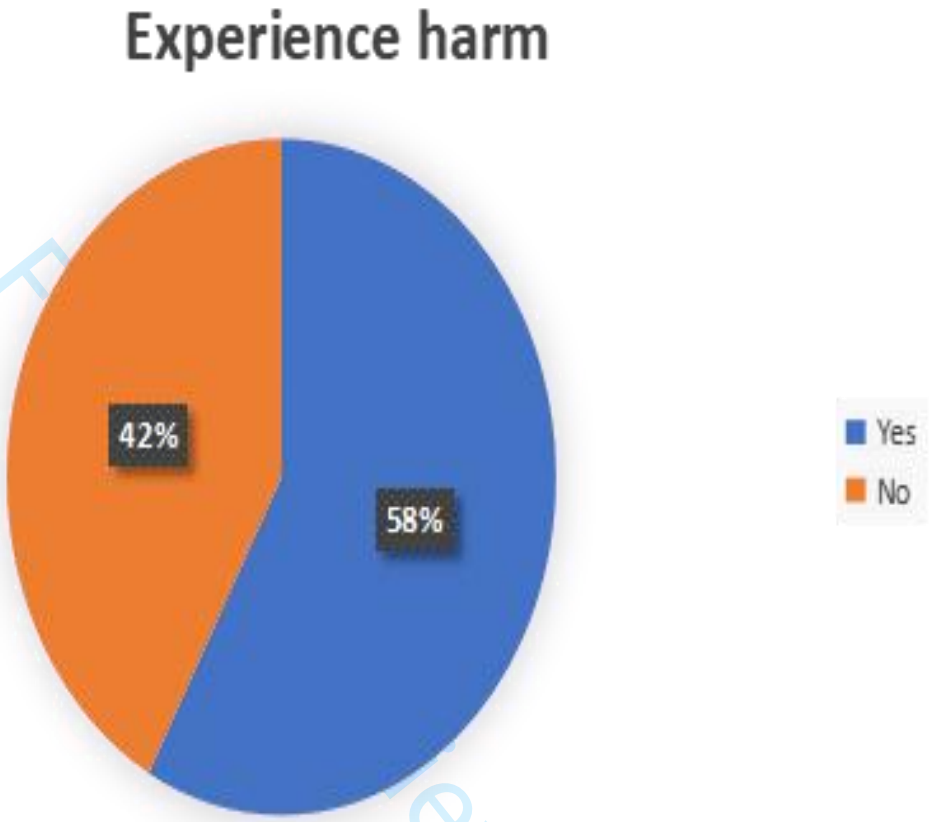

Figure 1

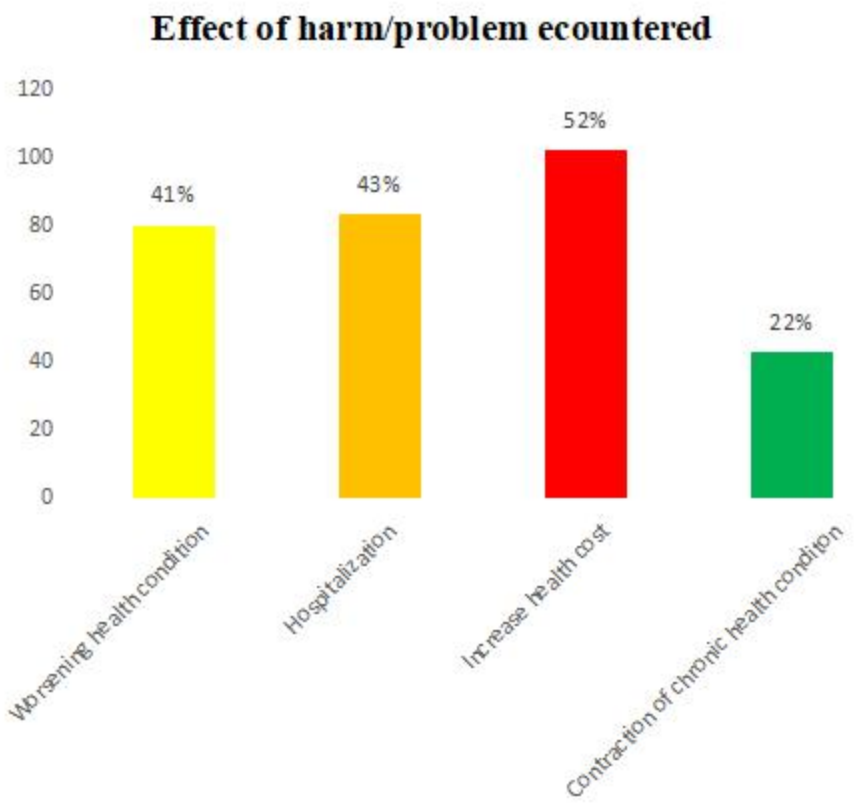

Figure 2

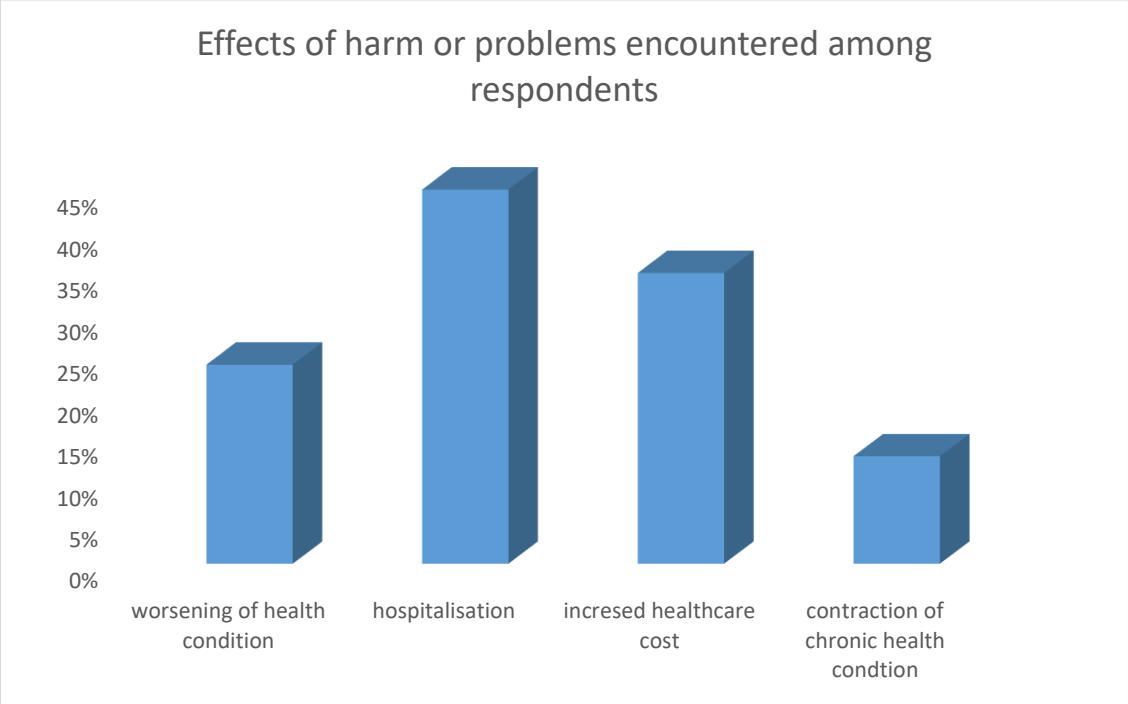

Figure 1: Effects of harm or problems encountered among respondents
Source: Field Survey, September (2022).

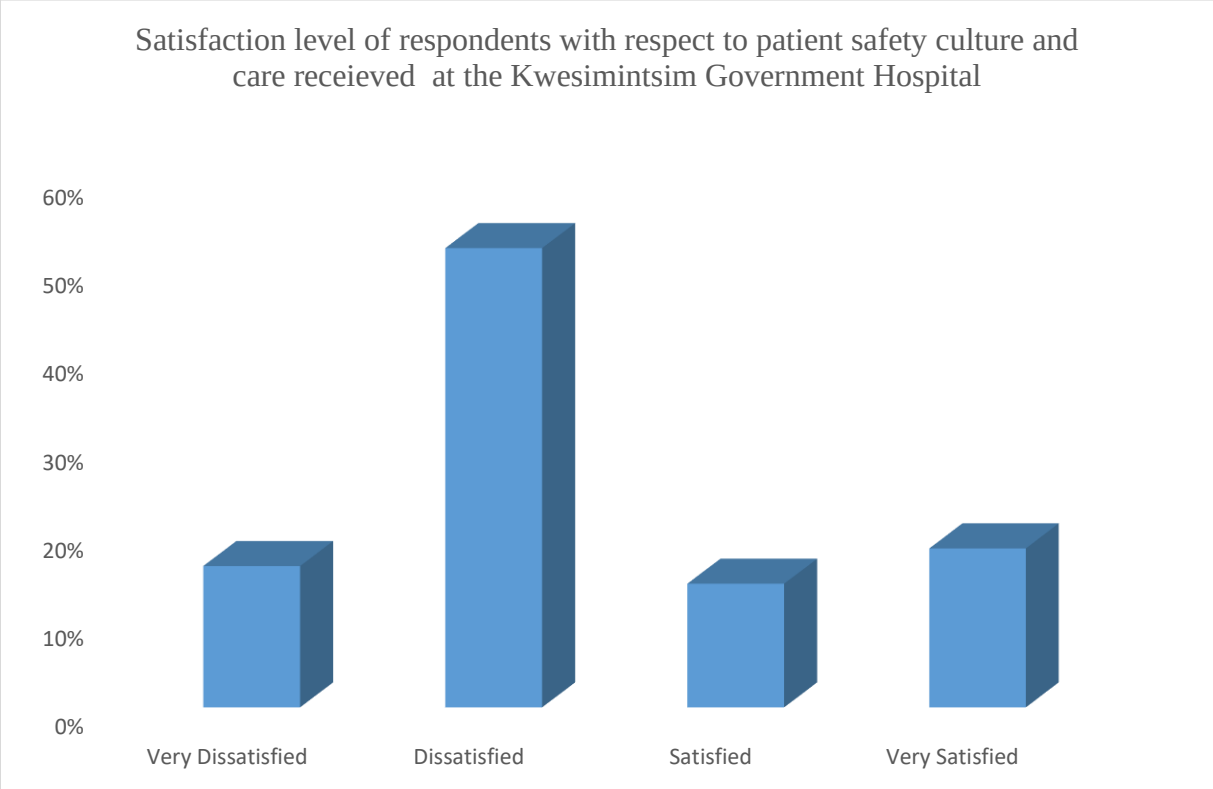

Figure 2: Level of satisfaction with patient safety protocols and care received among the respondents
Source: Field Survey, September (2022).

STROBE Statement—checklist of items that should be included in reports of observational studies

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PATIENT SAFETY CULTURE AND SATISFACTION IN GHANA: A FACILITY-BASED CROSS-SECTIONAL STUDY

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PATIENT SAFETY CULTURE AND SATISFACTION IN GHANA: A FACILITY-BASED CROSS-SECTIONAL STUDY

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Abstract

Background: Globally, one of the measures of high performing healthcare facilities is the compliance of patient safety culture, which encompasses the ability of health institutions to avoid or drastically reduce patient harm or risks. These risks or harm is linked with numerous adverse patient outcomes such as medication error, infections, unsafe surgery and diagnosis error.

Objectives: The general objective of this study was to investigate into the impact of patient safety culture practices experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital in the Takoradi Municipality.

Methods: This study was a descriptive cross-sectional study and a consecutive sampling technique was used to select 336 respondents for the study. Data was collected using a structured questionnaire and processed using Statistical Package for Social Sciences, version 21. Both descriptive and inferential statistics were carried out and result present using figures and tables.

Results: The study found that the overall patient safety compliance level observed by the respondents was poor (29.2%). The prevalence of adverse events experienced among the respondents was high (58%). The leading adverse events mentioned were medication errors, followed by wrong prescriptions and infections. The consequences of these adverse events encountered by the respondents were mentioned as increased healthcare costs (52%), followed by hospitalisation (43%), worsening of health conditions (41%), and contraction of chronic health conditions (22%). Patient safety cultural practices such as teamwork ($\beta = 0.17$, $p = 0.03$), response to error ($\beta = 0.16$, $p = 0.005$), communication openness ($\beta = 0.17$, $p = 0.003$), and handoffs and information exchange ($\beta = 0.17$, $p = 0.002$) were found to positively influence patient satisfaction.

Conclusion: The poor general compliance of the patient safety culture in the facility is unfortunate, and this can affect healthcare outcomes significantly. The study therefore entreats facility managers and various stakeholders to see patient safety care as an imperative approach to delivering quality essential healthcare and to act accordingly to create an environment that supports it.

Keywords: Patient satisfaction, Government, Prevalence, Hospitalisation and Prescription.

'Strengths and limitations of this study'

Strengths of the Study

- The cross-sectional study helped to describe the characteristics of the population under investigation.
- Parametric assumptions were met to ensure reliable results.
- A representative sample size was used.

Limitations of the Study

- The effect due to time was not captured due to the cross-sectional nature of the study design.
- The consecutive sampling technique could introduce biases in sampling.

Background of the Study

Patient safety culture is an essential factor in determining the ability of hospitals to treat and reduce patient risks(1). Patient safety is regarded as an international health concern affecting patients in various health care settings globally. This is due to the complexity of health care systems and the increase in unsafe care delivered to patients in various health institutions(2, 3). The global healthcare landscape is said to be undergoing a transformative shift as health systems continue to operate within increasingly complex environments(4) driven by technology. Though fresh actions, emerging technologies and care models can have healing prospect, they can also trigger different dangers to safe care. Patient safety is a vital standard of health care and is now being acknowledged as a huge and rising global public health encounter. Worldwide determinations to decrease the affliction of patient harm have not accomplished considerable transformation over the previous one and half decades. As also highlighted by the World Health Organisation, unsafe care leading to adverse events is said to have the potential to be counted among the top 10 causes of death and disability worldwide(5) with associated annual cost amounting trillions(6). It thus, indicate that patient safety during care is crucial in improving health in a long term.

Patient safety culture is an integrated pattern of individual and organisational behaviour. This is based upon shared beliefs and values that continuously seek to minimise the patient harm, which may result from the process of care delivery(3). It is also referred to as the outcome of individual and organisation's values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management(7). Patient safety and related practices or activities include but not limited to, patient and family engagement and communication; management support; response to error; adherence to ethical practices such as respect, privacy, and confidentiality; adherence to clinical protocols in the delivery of care such as proper hand washing practices; personnel training on quality improvement

and relations; and use of standard and certified medical devices, among others in healthcare organisations(1, 8, 9, 10).

All these could be achieved through setting up clear policies, having skilled healthcare professionals, all-level leadership, up-to-date data, and patient-centered care in order to maintain healthcare safety sustainability(3). Several studies stress the importance of patient safety culture for patient safety processes and outcomes(11). More specifically, research has shown that a sound patient safety culture is associated with fewer adverse events(12) and more positive patient experiences(13).

A systematic review(11) found that a positive workplace culture was related to several desirable patient outcomes, such as fewer infections, reduced rates of mortalities and increased patient satisfaction. Studies have also shown that promoting patient safety culture among healthcare providers is a key to reducing adverse events and maintaining quality of care(14).

Adverse events also known as medical errors are one of the numerous factors that affect patient safety within health facilities. Adverse events are 'unintended injuries or complications that are caused by health care management rather than by the patient's underlying disease. These can lead to death, disability at the time of discharge and prolonged hospital stay(15). Adverse events or medical errors that significantly contribute to unsafe care and harm to patients which subsequently affect patient safety are medication errors, nosocomial infections, unsafe surgeries, wrong injections, procedures, and diagnostic errors(16). The prevalence of adverse events by medical professionals has been alarming.

In Iran, a review study revealed that the prevalence of adverse events exists between 10% and 80%.(17). Another study conducted on the prevalence of adverse events revealed that about 7 out

of 10 selected professional nurses declared engaging in adverse events resulting in harm to patients(18).

Measures taken to improve upon patient safety have demonstrated different levels of effectiveness(19). Moreover, several prior studies conducted among medical staff have shown that higher levels of awareness of patient safety culture are associated with higher patient overall satisfaction and lower occurrence of adverse events(20, 21). In Ghana, the vital points acknowledged in the patient safety situational exploration were knowledge and learning in patient safety while patient safety surveillance was the frailest act identified. There were also flaws in areas such as national patient policy, healthcare related infections, surgical safety, patient safety partnerships and patient safety funding, respectively(22). It is against this background that the researchers seek to investigate into patient safety culture among patients and its impact on their overall satisfaction of care received at the Kwesimintim Government Hospital in the Takoradi Municipality of Ghana.

Objectives

The general objective of this study is to investigate the impact of patient safety culture experienced on patient satisfaction among patients who attend the Kwesimintsim Government Hospital Takoradi. Specifically, this study sought to: (a) assess patient safety culture protocol compliance at Kwesimintsim Government Hospital, Takoradi Municipality (b) measure the prevalence of adverse events of patient safety culture protocols compliance and their effects on patients safety among patients who attend Kwesimintsim Government Hospital, Takoradi and (c) determine the impact of patient safety culture practises on patient satisfaction among patients who attend the Kwesimintsim Government Hospital, Takoradi.

Methods

This study deployed a facility-based cross-sectional study design using a quantitative approach to obtain the necessary data required for the accomplishment of the study. This design and approach to research focuses on carefully measuring a set of variables to answer theory-guided research questions or hypotheses(23). The study was conducted at Kwesimintsim Government Hospital because of its strategic location and the numerous communities it serves. The Kwesimintsim Government Hospital was selected due to its size, as well as the number of communities it serves.

The Kwesimintsim Government Hospital is the district hospital for the Effia-Kwesimintsim Municipal Assembly in Ghana. It is the referral point for an estimated population of 89,342 and the second major referral health facility in Takoradi. The hospital was established in the year 1977, was expected to cater for the healthcare needs of the communities in, and around the Kwesimintsim municipality but the facility is now serving the communities beyond its catchment area including Ahanta West, Mpohor, Wassa East and the Tarkwa Nsuaem Districts. The hospital supervises other health institutions (both private and public) within the Kwesimintsim sub-metro. The sub-districts are West Tanokrom, Lagos town, Sawmill, Kwesimintsim town, Kwesimintsim Zongo, Anaji and Apramdo.

A 5-member management team made up of the Medical Superintendent, Health Service Administrator, the Head of Nursing, the Head of Pharmacy and the Head of Finance guides the operations of the hospital. There are also a number of operational committees, which help in the management of the hospital. They include the Disciplinary Committee, the Audit Committee, the Welfare Committee, the Entity Tender Committee, and Data Validation Committee among others(24).

The target population for this study encompassed all individuals seeking healthcare services at the Kwesimintsim Government Hospital in Ghana. Therefore, the estimated number of 89,342 patients served by the facility was considered as the size of the target population. The assumptions of using Yamane's(25) sampling formula to compute the sampling size was based on a 95% confidence interval, and 5% margin of error. To achieve a statistical power of 0.9 and at an alpha level of 0.05, the study computed the sampling size as follows: $n = \frac{N}{1 + N(e^2)}$,

Where *n* is the sample size, *N* is the study population size for the proposed period of data collection and *e* is the level of precision. The study population (*N*) for this study is presumed to be 89,342. The level of precision (*e*) is 0.05 (95% confidence interval).

$$n = \frac{89{,}342}{1 + 89{,}342(0.05^2)},$$

$$n = \frac{89{,}342}{1 + 89{,}342(0.0025)},$$

$$n = \frac{89{,}342}{1 + 223.355},$$

$$n = \frac{89{,}342}{224.355},$$

n = 398.23

Therefore, 398 was the estimated sample size for the study.

Consecutive sampling method whereby every eligible and available participant was recruited until the desired sample size was reached based on the inclusion criteria applied in this study. This method was appropriate for the study because of the ill-health conditions of patients, which often made some of them not fit or ready for data collection. The study recruited patients who visited the hospital during the data collection period. To ensure ethical compliance, prior to their participation, all patients involved in the study provided informed consent by signing the consent form. Additionally, the hospital granted its approval for the study. The study excluded inpatients

admitted to the hospital due to their perceived inability due to ill-health (i.e., inability to perhaps not provide accurate responses).

Structured (closed and open-ended) questionnaire was used to collect data from the sampled respondents. The questionnaire was self-administered and a high level of discretion was kept to protect the identities and views of the respondents. The questionnaire was made up of four parts. The first part interrogated the respondents on their demographic data. The second part interrogated the respondents on the compliance of patient safety culture protocols witnessed in the facility. The third part interrogated the respondents on adverse events they have experienced in the health facility and their consequences on them. The final part of the questionnaire interrogated the respondents on their satisfaction regarding patient safety culture practices witnessed and care received at the health facility. Patient satisfaction and safety cultural practices were the main dependent and independent variables of the study respectively. The study considered seven independent safety culture and related practices and these include: frequency of event reported; teamwork; response to error; communication openness; management support; handoffs; information exchange and staffing.

In order to ensure the validity of the content of the questionnaires, they were given to two experts who understood the topic under investigation to comment and add their input. The patient safety practices were adapted from(26).The study used single-item measures for the variables used in the inferential statistics because of brevity and the need to assess several constructs(27); hence, there was no need to carry out construct validity analyses such as confirmatory factor analysis and others. Nevertheless, various tests needed to confirm parametric assumptions such as normality, homogeneity of variance, and multicollinearity, among others, to ensure reliable estimation were carried out and met before the main inferential analysis of interest was carried out.

Data obtained from the study were entered into a Microsoft Excel spreadsheet and imported into SPSS computational tool (version 22) to generate the study findings. Both descriptive and inferential statistics were carried out and result visualized using tables and figures. The study was conducted between 2nd September, 2022 and 30th June, 2023 and achieved a response rate of 84%.

Patient and public involvement

Patients and the public's involvement was encountered during the gap identification stage, the questionnaire design stage, and the data collection stage. The areas to be explored and wording of items were discussed with randomly selected patients prior to the data collection, and their output was considered during the final design of the questionnaire. The facility engagement resulted in the approval of the study and the nomination of staff to assist in the data collection process. The authors also intend to disseminate the published results of the study to the public through a seminar at the hospital and various community communication channels.

Data sharing statement

Authors want to state that the data for this study would be made available upon a written request.

Ethical clearance reference number

The study sought ethical approval from its study sitting and its reference number is: GHS/WR/EKMA/KH/ATT/2022

Presentation of Results

Demographic Characteristics of the Respondents

In all, three hundred and thirty-six (336) respondents responded to the study. More than half of the respondents (n=212, 63%) were females and males constituted 37% of the respondents (n=124). More than half of the respondents were aged 31-40 years (n=181, 54%), followed by respondents aged 21-30 years (n=121, 36%), followed by respondents aged 41 years and over (n=24, 7%) and less than a quarter (n=10, 3%) were aged 16-20 years. An overwhelming majority of the

respondents were Christians (n=319, 95%) and the remaining few were Muslims (n=17, 5%). Majority of the respondents were single in terms of marital status (n=212) denoting 63% of the respondents, a little over one-fourth were married (n=94, 28%) and almost one out of every 10 respondents was a divorcee (n=30, 9%). With respect to the educational qualification of the 336 respondents, almost half of them were basic school and Senior High School graduates (n=155, 46%), followed by respondents with no formal education (n=19, 6%) and very minute portion of the respondents (n=7, 2%) were University graduates. With regards to the employment category of the respondents, almost half of them were self-employed (n=165, 49%), followed by more than one-third who were unemployed (n=128, 38%), followed by students who were 27 in number (8%), followed by respondents who were private-sector employees (n=13, 4%) and only 1 of the respondents (1%) was a government-employee. **Table 1** summarises the demographic characteristics of the respondents.

Table 1: Demographic characteristics of the respondents.

Characteristics	Frequency	Percentage (%)
Gender		
Females	124	36.90
Males	212	63.10
Age		
16-20	10	2.98
21-30	121	36.01
31-40	181	53.87
41 and over	24	7.14
Marital		
Single	212	63.10
Married	94	27.98
Divorced	30	8.93
Religion		
Christians	319	94.94
Muslims	17	5.06
Employment category		
Unemployed	128	38.10
Government employee	3	0.89
Private-sector employee	13	3.87
Self-employed	165	49.11

Student	27	8.04
Educational qualification		
No formal education	19	5.65
Basic education	155	46.13
Secondary education	155	46.13
Bachelor's degree	7	2.08

Patient safety culture protocols compliance

The first objective of the study was to assess patient safety culture protocols compliance by health workers and management of the Kwesimintsim Government Hospital in the Takoradi Municipality from the perspectives of patients. The study presented 13 patient safety protocols statements for which the respondents (patients) were asked to state if each of the protocols were observed by staff and management of the health facility. The overall score for compliance was computed through evaluating the mean score of the protocols investigated. The overall safety protocol compliance level was found to be very abysmal (29.2%) in this study. **Table 2** presents these findings.

Table 2: Patient safety culture protocols compliance.

Safety Protocols	Frequency of yes responses (N = 336)	Percentage (%)
When one unit gets busy, other health workers help.	306	91.1
Staff actively do things to improve patient safety.	115	34.2
Hospital units work well together to provide the best care for patients.	245	72.9
Hospital management provides a work climate that promotes patient safety.	175	52.1
The actions of hospital management show that patient safety is a top priority.	160	47.6
Important patient care information is often not lost among staff.	199	59.2
Problems do not often occur in the exchange of information across the units.	44	13.1
Patient safety is never sacrificed to get work done.	30	8.9

The procedures and systems at the facility are good at preventing errors.	0	0
Staff freely speak up if they see something that may negatively affect patient care.	0	0
Staff feel free to question the decisions of those with more authority.	0	0
Staff are not afraid to ask questions when something does not seem right.	0	0
Staff report any error they make to promote patient safety.	3	0.9
Overall average compliance rate (%)		**29.2**

N= total number of respondents

Prevalence of adverse events of patient safety culture protocols compliance and their effects on patient's safety

To assess the adverse events of patient safety culture protocols compliance, respondent were asked to indicate whether they have encountered harm or problem as a result of care received at the facility for the past three years. As in **Fig 1**, 195 representing 58% of the respondents indicated that they have incurred harm before as a result of care received at the facility for the past three years. See Figure 1 in appendix.

The study further asked those who indicated that they have experience harm before as a result of care received to identify or associate the possible harm received or problem encountered across a list of problems or harm. Medical error followed by wrong prescription and infections were found to be the most problems or harm encountered as a result of none adherence to patient safety culture protocol compliance as detailed in **Table 3**.

Table 3: Harms or Problems encountered as a result of none adherence to patient safety culture protocol compliance.

Problems/Harms encountered	Frequency (N=195)	Percentage (%)
Medication error	105	53.8
Infections	96	49.2
Unsafe surgery	21	10.8
Diagnosis error	86	46.1

Wrong injection	45	23.1
Wrong treatment procedure	91	46.7
Wrong prescription	101	51.8

N = number of people who indicated they have esperience problem or harm in the cause of receiving care.

Respondent were again asked to indicate the effect such problems or harm encountered at the facility yields to. Increasing of health expenditure (n = 102) followed by hospitalization (n = 83) and worsening of health condition (n = 80) were the popular effect mentioned as shown in **Fig 2**. See Figure 2 in appendix.

Inferential Statistics

The final objective of this study was to determine the impact of patient safety culture practices on patient satisfaction. The study established this through regression analysis. Before undertaking such analysis certain assumptions were very crucial to be met in order to product accurate and robust results. The first assumption to be explored was multicollinearity. **Table 4** shows the correlation matrix between the dependent (patient satisfaction) and safety culture practices (i.e., variables 2 to 8), the independent variables. The result of the correlations was examined using the Holm correction to adjust for multiple comparisons based on an alpha value of .05. It could be observed that there is no multicollinearity present. This is because there is no correlation between any of the variables exceeding 0.5.

Table 4: Correlation between the independent and dependent variables

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. Satisfaction	1	0.02	.17*	0.11	.19*	0.03	0.13	.17*
2. Frequency of event reported	0.02	1	0.06	-0.05	-0.12	0.1	0.1	-.23*
3. Teamwork	.17*	0.06	1	.19*	.17*	-0.16	-0.09	0.11
4. Response to error	0.11	-0.05	.19*	1	-0.12	-0.12	-.28*	-0.05
5. Communication openness	.19*	-0.12	.17*	-0.12	1	0.02	-0.03	.24*

6. Management support	0.03	0.1	-0.16	-0.12	0.02	1	.23*	0
7. Handoffs and information exchange	0.13	0.1	-0.09	-.28*	-0.03	.23*	1	0.11
8. Staffing	.17*	-.23*	0.11	-0.05	.24*	0	0.11	1

Note. *p value is significant.*

The normality assumption was explored with the Q-Q plot, and the result did not deviate much from normality; besides, the sample size was even greater enough to evoke the central limit theorem. Studentized residuals plot for outlier detection was explored and there was no presence of outlier. The assumption of homoscedasticity was tested using the Breusch-Pagan the result turns to be insignificant indicating homoschedascity. We attached all these assumption analysis as an appendix**.** Following the satisfactory fulfillment of these crucial parametric assumptions, we conducted the regression analysis. As indicated in Table 5, the regression model exhibited statistical significance, as evidenced by the F-statistic and R-square values ($F(7,325) = 5.71$, $p < .001$, $R^2 = .11$).

Table 5: Model Fit Measures

		Overall Model Test			
R	**R²**	**F**	**df1**	**df2**	**p**
0.331	0.11	5.71	7	325	< .001

From the regression output (see Table 6), it is established again that there is no presence of multicollinearity looking at the variance inflation factor (VIF) across all the independent variable indicating some level of confidence in the regression output. From the regression output, it is observed that teamwork ($\beta = 0.17$, $p = 0.03$), response to error ($\beta = 0.16$, $p = 0.005$), communication openness ($\beta = 0.17$, $p = 0.003$) and Handoffs and information exchange ($\beta = 0.17$, $p = 0.002$) all significantly predict patient satisfaction. Management support, frequency of event reported and staffing did not however significant predict patient satisfaction at the selected significant level of 0.05.

Table 6: Results for Linear Regression with Frequency event reported, Teamwork, Response to error, Communication openness, Management support, Handoffs and information exchange, and Staffing predicting patient Satisfaction

Variable	B	SE	95.00% CI	β	t	p	VIF
(Intercept)	0.46	0.36	[-0.25, 1.18]	0	1.27	0.206	
Frequency of event reported	0.006	0.04	[-0.07, 0.08]	0.008	0.15	0.88	1.1
Teamwork	0.04	0.02	[0.004, 0.07]	0.12	2.16	0.031	1.13
Response to error	0.11	0.04	[0.03, 0.18]	0.16	2.85	0.005	1.15
Communication openness	0.17	0.06	[0.06, 0.28]	0.17	3	0.003	1.12
Management support	0.02	0.04	[-0.07, 0.10]	0.02	0.4	0.686	1.09
Handoffs and information exchange	0.13	0.04	[0.05, 0.21]	0.17	3.07	0.002	1.17
Staffing	0.08	0.04	[-0.005,0.16]	0.1	1.85	0.065	1.15

Discussion

This study sought to assess patient safety culture compliance, determine the prevalence of adverse events related to patient safety culture protocols and their effects, and evaluate the impact of patient safety culture practices on patient satisfaction.

Patient safety culture compliance has become the sine qua non approach to delivering healthcare that does not only minimise medical errors but also captures the responsiveness of a healthcare system entrenched in meeting patient's frivolous expectations. The World Health Organisation recognised patient safety-centred care as the pivotal foundation for delivering quality essential health services(3). It is unfortunate that the study's findings on safety culture compliance overall estimation was not that appreciable (29.2% adherence rate) and therefore seems to support the existing evidence(5, 17, 18). On the other hand, it is not surprising to observe this outcome given the study setting. Reports from the Media in Ghana have consistently highlighted how patients are taken for granted especially in government healthcare facilities. This ill safety culture compliance could be attributed to several factors. Medical negligence on the part of the healthcare profession as documented in the country(28), poor facility management and supervision(3), infrastructure and technological limitation among others. Infrastructure and appropriate technology to meet the needs of the population who are constantly seeking care is a deficit or limitation for almost every Ghanaian government healthcare facility. Even so, poor management and supervision may be the most plausible factor for the ill patient safety culture compliance among professionals since it is common to observe government institutions, including healthcare facilities, being operational but lacking effective management. Public workers often prioritise their monthly remuneration over the quality and quantity of their output, in contrast to their counterparts in the private sector. Facility managers and leaders could do better in ensuring proper supervision.

The reported ill patient safety culture compliance among professionals in the study collides with the resulting significant number of people (58% of the respondents) who claim to have experienced harm or problems due to receiving care at the facility. This finding outcome was also in consistence with the finding of some existing studies where prevalence of adverse events was estimated from 10% to 80%(17, 18). Medical errors, wrong prescription, infections and hospitalisation mentioned

in literature as being part of the problem or harm often encountered when receiving care(16) is also highlighted in the study. Hygienic practices in most Ghanaian healthcare facilities are not up to standard even at the top resourced tertiary facilities and so the infection rate reported in the study may not be over-estimated. With several trained professional teachers in the country (Ghana) who cannot spell correctly basic daily words and write clearly(29), it is not unlikely that their counterpart (trained nurses) who administer medication and some instances prescribe medications (even though not certified for prescribing drugs) together with trained medical doctors offer or lure patients into getting wrong medications as observed in the study.

Such anomaly (patient harm) in healthcare delivery most often elongate time and resource spent in seeking care, and so increasing of healthcare cost as the leading effect of this anomaly captured by the study was not unexpected. It is estimated that the aggregate costs of patient harm amount to trillions of dollars each year(6). With a significant number of people in Ghana living below the poverty line(30), this could jeopardise people's willingness to seek appropriate healthcare. Hospitalisation and worsening of healthcare conditions as a result of adverse events in patient safety culture protocols and compliance rates in the study are also concerning. If the attempt to seek healthcare is perceived to be accompanied with a new and deteriorating health condition, then a rational being would desist from making such attempts. The consequent effect may include routine self-medication and a delay in seeking appropriate healthcare services.

The study's last objective was to evaluate the impact of patient safety culture practices on patient satisfaction in the Ghanaian context since the two have been found to be associated with each other(11, 14). The study found four key patient safety practices that predicts patient satisfaction including teamwork, responsiveness to error, communication openness and handoffs and information exchange. If patient sees professional working as a team by supporting each other in addressing their healthcare needs, then they are likely to feel welcome to the facility and appreciate the healthcare professionals' efforts either than each professional appearing to be working on a function and tossing patients around without effective coordination. Moreover, if professionals are found admitting their limitations as human when they encounter them, a certain level of trust would be built and hence improve patient-professional relationship and the same argument holds for effective exchange of information and openness to communication. All of these would go a long way of reducing adverse events and ensuring some level of quality of care(14). These practices do

not require hard or external resources, hence constant training of healthcare professional on these patient safety culture practices with effective management and supervision thereafter could play a major in creating a healthcare atmosphere that thrives on patient safety culture.

The findings of this study identify a possible gap in patient safety care in the Ghanaian public healthcare system and recognise managers and leaders of the various healthcare facilities as catalysts to stimulate an atmosphere that supports patient safety-centred care given the forever anticipated limited available healthcare resources.

Conclusion

One of the hallmarks of modern healthcare institutions is the compliance of patient safety-centered care. This approach to healthcare delivery exposes patients to less risks and harm at the health facilities. The study however identified poor patient safety care and associated harms and effect. The study also identified teamwork, effective communication and free exchange of information as having a positive impact on patient satisfaction. The study therefore entreats facility managers and various stakeholders to see patient safety care as an imperative approach to delivering quality essential healthcare services and monitor and implement novel interventions to promote and sustain patient safety protocol compliance in their respective settings.

Study Limitations

Just as in any empirical study, this particular inquiry is likewise susceptible to various methodological constraints, albeit concerted efforts were exerted to mitigate a subset of these limitations. The study used a cross-sectional survey, implying that changes due to time were not captured. The consecutive sampling technique deployed in the study also implies that several benefits of probabilistic sampling may not be attained. Finally, even though the sample size was adequate given the sampling technique and context of the study, including other facilities in the region with a larger sample size would have enriched the findings and allowed for comparative analysis. Given the aforementioned limitations, the study contends that it is pivotal and incumbent to undertake additional research endeavours as a means of procuring an enriched and holistic

understanding of patient safety care. This includes the examination of supplementary secondary facilities pertaining to the topic at hand, thereby engendering a more all-encompassing apprehension of the topic's intricate dynamics nationwide. By encompassing other pertinent facilities within forthcoming investigations, a more expansive purview can be attained, resulting in heightened discernment and profound elucidation regarding patient safety care in Ghana.

Contributorship

Design of study: Charles Owusu-Aduomi Botchwey and Patricia Ofori Ahimah; **Date collection:** Patricia Ofori Ahimah : **Analysis and or interpretation of data:** Charles Owusu-Aduomi Botchwey, Agartha Afful Boateng, Patricia Ofori Ahimah, Francis Acquah, Prince Owusu Adoma, Emmanuel Kumah, Dorothy Serwaa Boakye, Ebenezer Addae Boahen, Vivian Kruh, and Joseph Bob Kow Koomson: **Drafting the manuscript:** Charles Owusu-Aduomi Botchwey, Agartha Afful Boateng, Patricia Ofori Ahimah, Francis Acquah, Prince Owusu Adoma, Emmanuel Kumah, Dorothy Serwaa Boakye, Ebenezer Addae Boahen, Vivian Kruh, and Joseph Bob Kow Koomson: **Revising and proofreading of the manuscript:** Charles Owusu-Aduomi Botchwey, Agartha Afful Boateng, Patricia Ofori Ahimah, Francis Acquah, Prince Owusu Adoma, Emmanuel Kumah, Dorothy Serwaa Boakye, Ebenezer Addae Boahen; Vivian Kruh, and Joseph Bob Kow Koomson.

Competing interest

Authors declare no competing interest regarding this study.

Ethics Approval Statement

Authors declare that an approval was obtained from the Kwesimintsim Government Hospital before data collection commenced.

Data sharing statement

Authors declare that the data for this study will be made available upon a written request to the lead and corresponding author.

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Figure legends

Figure 1: Prevalence of adverse events of patient safety culture protocols compliance

Source: Authors' construct, 2022.

Figure 2: Effect of harms or problems encountered as a result of none adherence to patient safety culture protocol compliance

Source: Authors' construct, 2022.

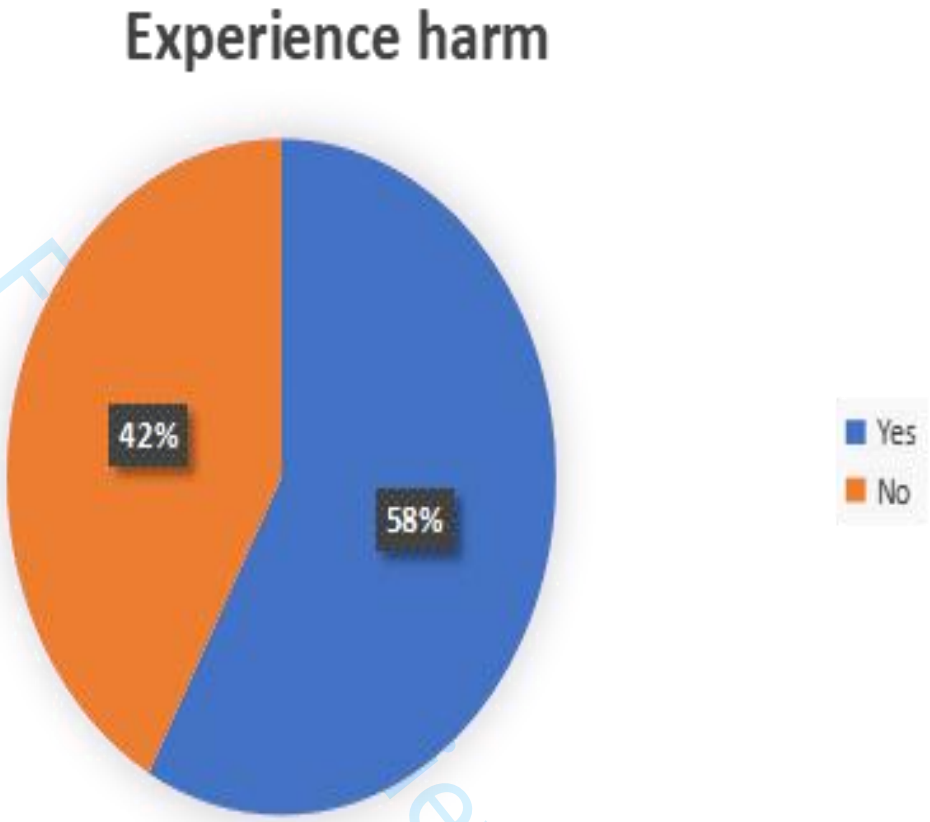

Figure 1

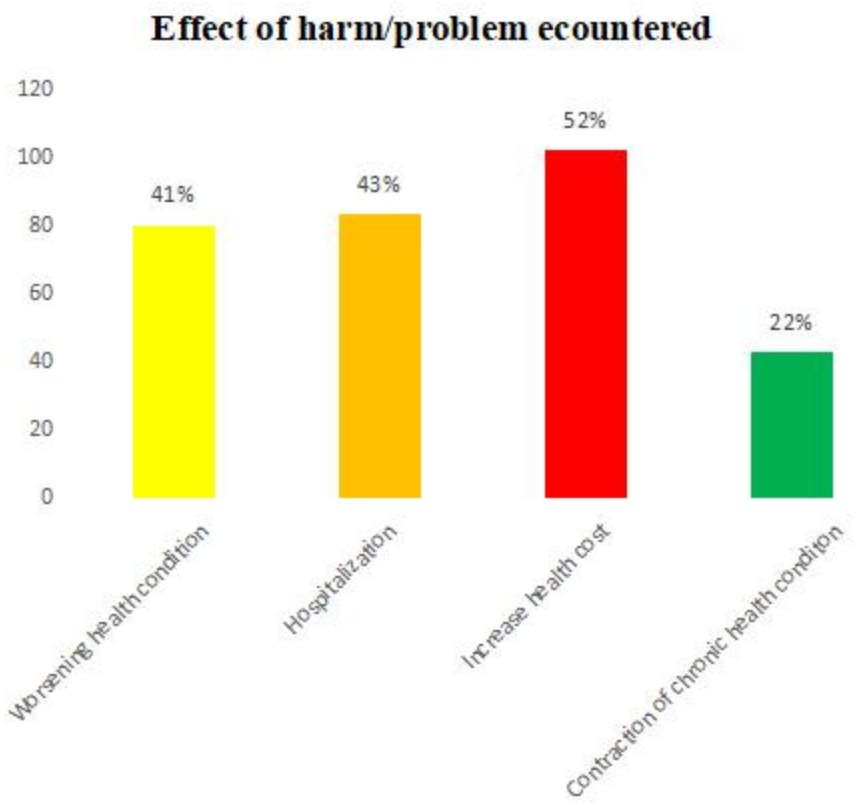

Figure 2

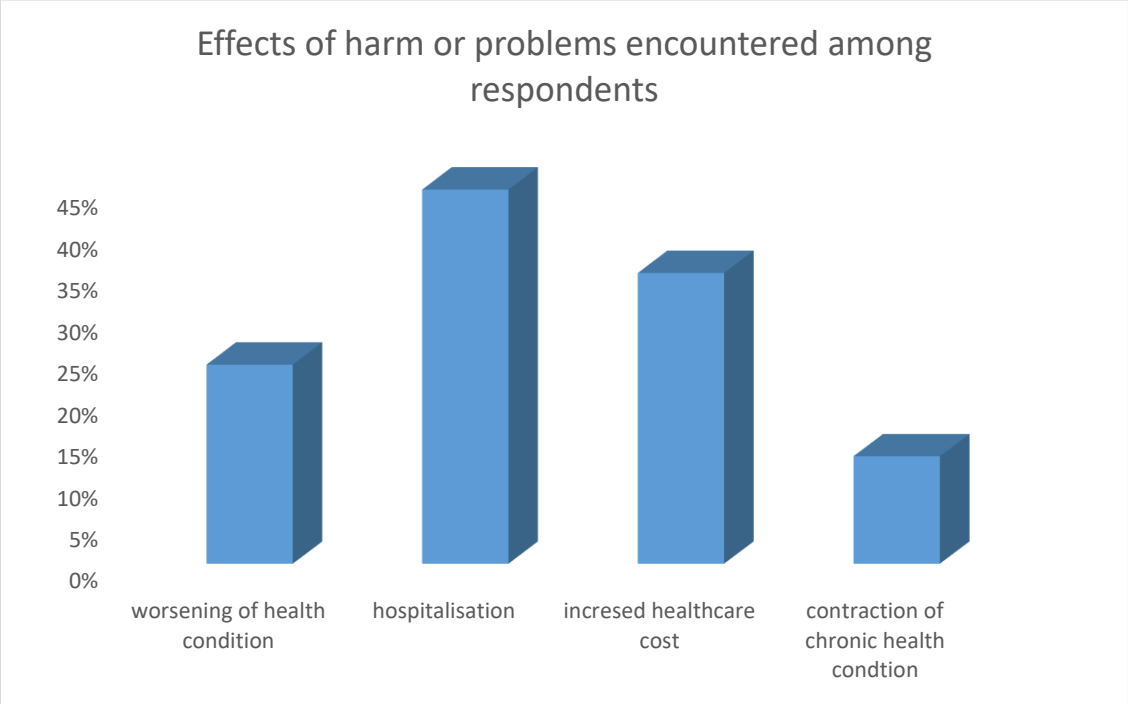

Figure 1: Effects of harm or problems encountered among respondents
Source: Field Survey, September (2022).

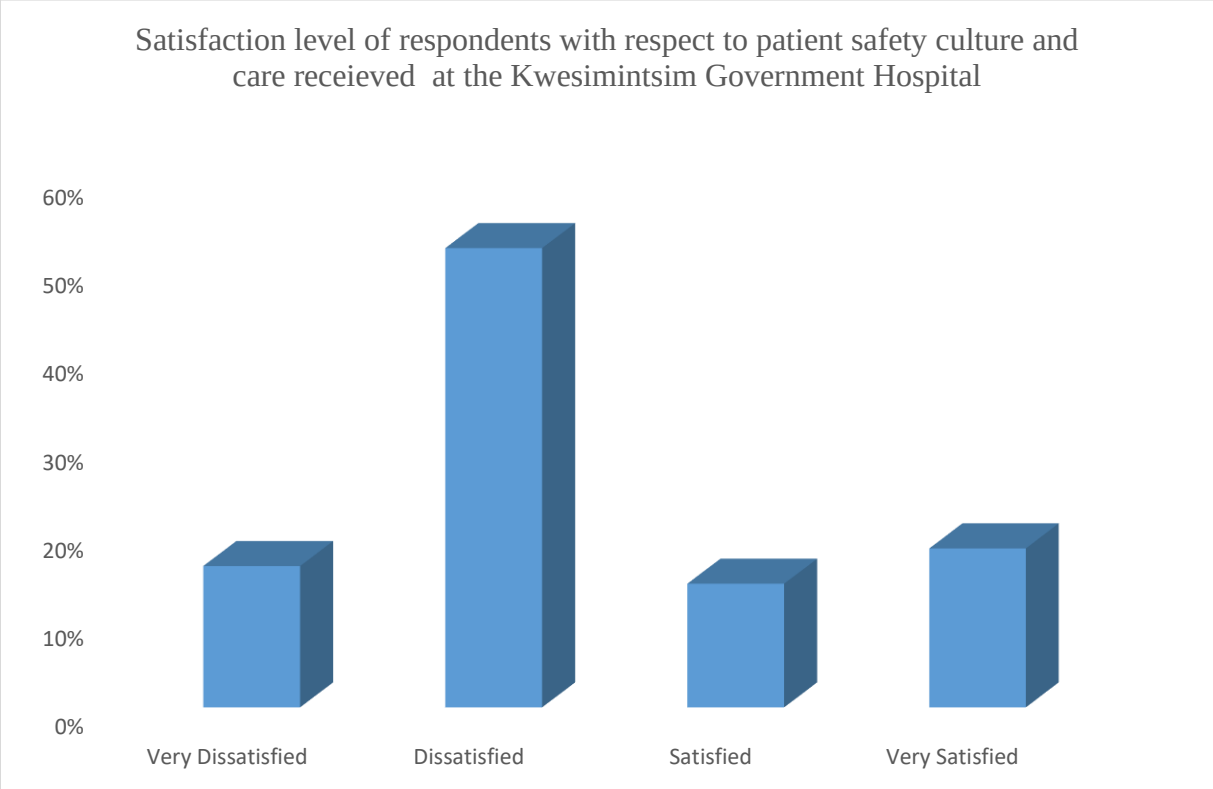

Figure 2: Level of satisfaction with patient safety protocols and care received among the respondents
Source: Field Survey, September (2022).

STROBE Statement—checklist of items that should be included in reports of observational studies

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