

Pressure for health service delivery and its implications on safety behaviour of health care practitioners

Kwesi Amponsah-Tawiah PhD, Associate Professor | Branden E. Anuka (Hons) MPhil (HRM),
Research Assistant

Department of Organization & Human Resource Management, University of Ghana Business School, Legon, Accra, Ghana, West Africa

Correspondence

Kwesi Amponsah-Tawiah, Department of Organization & Human Resource Management, University of Ghana Business School, Legon, Accra, Ghana, West Africa.
Email: kamponsah-tawiah@ug.edu.gh

Aim: The study aim to examine whether management commitment and prioritization of safety at the hospital had any relationship with health care workers' safety behaviour under pressure to deliver health care.

Background: Sub-Saharan Africa faces a human resource crisis in the health sector, leading to a compromise of the safety practices of nurses and other care providers. Hence there is a need to probe the influence of pressure for health service delivery on safety behaviour.

Methods: The sample consisted of 295 respondents consisting of nurses, medical doctors and biological scientists from two teaching hospitals (Tamale Teaching Hospital and Komfu Anokye Teaching Hospital). A quantitative research design approach was used. Simple linear regression was carried out to test the hypotheses formulated.

Results: The results showed that pressure for health service delivery negatively affected health care workers' safety behaviour whereas management commitment to safety and priority of safety at the hospital were positively related to safety behaviour.

Conclusion: Priority and the commitment of management to safety can influence the safety behaviour of nurses and other caregivers who are under pressure to deliver quality health care to the great number of patients.

Implication for Nursing Management: Upholding high safety standards by management can create an enabling environment that would compel nurses and other caregivers to provide apt safety behaviours which in the long run can improve the quality of safety of nurses and other care providers.

KEYWORDS

health care workers, management commitment to safety, pressure for health service delivery, priority of safety at the hospital, safety behaviour, safety climate

1 | INTRODUCTION

The work environment of health care workers is faced with several hazards, spanning from needle pricks, to infections contracted from patients and musculoskeletal risks because of bad posture among others. Given this precarious work environment, it is necessary for optimum measures to be put in place to safeguard health care workers from work related hazards. The hospital environment within the African sub-region leaves much to be desired as far as occupational

health and safety issues are concerned. For instance, Ndejjo et al. (2015) allude to the notion that health care workers are still under much risk due to the scarce measures put in place by management to safeguard them from work related risks in most sub-Saharan African countries (Lamprey & Awojobi, 2014; Ndejjo et al., 2015).

Developing countries have 10 times fewer nurses compared with developed countries such as the United States (WHO, 2010). Around three in every 10 nursing positions currently remain unfilled and the report predicts that developing countries will be short of 10,000

nurses to help care for their ageing population by 2025 (WHO, 2010). The story in sub-Saharan Africa is no different. For instance, in Malawi there are only 17 nurses for every 100,000 people (WHO, 2010) meanwhile the World Health Organization sets a target of a 1:500 nurse–patient ratio.

Ghana's health sector, like that of many other developing countries, is plagued with several challenges. These challenges include unequal and misdistribution of nurses and a brain drain of trained personnel to developed countries because of lower remunerations and other working conditions (GHS, 2014). The country's doctor and nurse population ratios stand at 1:10,452 and 1: 1,251 respectively, as per the 2012 annual report on the Ghana Shared Growth and Development Agenda (GSGDA, 2013). Although, the doctor and nurse to population ratio has improved in many regions, it remains woefully inadequate in sub-Saharan Africa (Ndejjo et al., 2015) as well as in some other countries within the subregion. For instance, there has been a marginal improvement in the doctor population ratio from 1: 10,000 in 2013 to 1:9,043 in 2014 per the 2014 annual Ghana Health Service report (GHS, 2015). Although this situation seems to be impressive there is still a need for more health personnel to close the wide gap (WHO, 2010). The situation in Ghana is further worsened by the dwindling medical colleges, poor infrastructure, inefficient government planning, poor remuneration opportunities following course completion (Ministry of Health, 2014).

Doctors, nurses and biomedical scientists seem to be in constant contact with patients at the various health centres (Prüss-Üstün, Rapiti, & Hutin, 2005), they are thus prone to exposure to infectious diseases. These situations might influence health care workers to compromise their own health and safety in the line of duty, given the high demand on their services. Under such intense pressure to deliver excellent health care to meet the ever-increasing demands, how would the workload pressure affect the health care workers' ability to adhere to safety practices and procedures? And how would safety specific dimensions such as management commitment to safety and priority on safety (Bosák, Ford, Glazek, & Horáček, 2013) impact on safety behaviour outcomes? Unearthing the likely factors that contribute to occupational hazards among health care workers is thus needed to deepen the knowledge base on Occupational Health and Safety (OHS) in health care service in Ghana and other developing and underdeveloped countries.

Maslow's theory of needs (1943) pegged safety second in order of priority, this is based on the critical importance of safety behaviours to the preservation of life and property and organisational effectiveness. The implications of workplace pressure have engaged the interest of researchers in recent times (Demerouti, Bakker, & Bulters, 2004; Felstead, Gallie, Green, & Henseke, 2016; Sindi & Omar, 2015). Even though, the literature on workplace pressures and safety behaviours speaks extensively to the consequences of workplace pressures in developed countries. The situation is not the same in developing countries such as Ghana. This lack of focus on the consequences of workplace pressure in developing countries presents a lacuna in the literature necessitating further studies in developing countries and specifically the health sector. Additionally, the impact of management

prioritization and commitment to safety cannot be overemphasized when it comes to checking safety behaviours. It is against this backdrop that this study investigates the impact of workplace pressure on the safety behaviour of health personnel in Ghana. Based on this aim, the following hypotheses were tested:

- Pressure for health service delivery will correlate positively with unsafe behaviours by health care workers.
- A positive commitment of hospital management to safety will also encourage health care workers to comply with safety procedures and practices.
- The level of priority placed on safety by health care workers would also have a positive relationship on how they comply and participate in safety.

2 | METHOD

2.1 | Design and participants

A cross-sectional survey design was adopted in this study. Data were collected from two teaching hospitals in Ghana. These hospitals are the two major referral points within the country, hence they have the highest number of patients. The targeted population comprised of nurses, medical doctors and biological scientists. All three groups comprised of personnel who had been practising for not less than a year although there was no disparity with regards to their specialty due to the need of the research. The researcher chose these groups because they are the most exposed to hazards within the hospital environment (Prüss-Üstün et al., 2005). The research took approximately 9 months in 2016. The research made use of two non-probability sampling techniques: purposive sampling and stratified sampling. With 300 questionnaires distributed to the participants, a total of 295 questionnaires were returned without defects, representing a response rate of 98%. The demographic questionnaire of the studied respondents is shown in Table 1.

2.2 | Measures

Pressure for health service delivery was measured using an adapted scale from Bosák's (Bosák et al., 2013) safety climate questionnaire. Some of the items include:

- 'People in this hospital are sometimes under pressure to put production before safety'
- 'Whenever we fall behind schedule and we are not achieving daily targets, my supervisor wants us to work faster rather than by the rules.'

These items measured respondents' opinions on pressure for production on health delivery in their respective institutions. The scale has a Cronbach's alpha coefficient of .820 and therefore would be a reliable scale for measuring pressure for health service delivery.

TABLE 1 Demographic details of studied participants

Demographic variable	Frequency	Percentage %
Gender		
Male	163	55.3
Female	132	44.7
Total	295	100
Age		
Below 21 years	3	1
21–30 years	229	77.6
31–40 years	58	19.7
41–50 years	3	1
51–60 years	2	0.7
Total	295	100
Length of service		
Below 1 year	112	38
1–5 years	126	42.7
6–10 years	38	12.9
11–15 years	15	5.1
16 years and above	4	1.4
Total	295	100

Source: Author's own.

The management commitment to safety (MCS) was measured with five items adapted from Bosak's (Bosák et al., 2013) safety climate scale on MCS and covered five questions. Some of the items include:

- 'If you say too much about safety they might fire you';
- 'Hospital management will stop work due to safety concerns, even if it means they are going to miss targets.'

These items measured the respondents' opinions on management commitment to safety in their respective institutions. The scale has a Cronbach's alpha coefficient of .750 and therefore was a reliable scale for measuring management commitment to safety.

The priority of safety at the hospital was also measured with five items adapted from Bosak's (Bosák et al., 2013) safety climate questionnaire. Some of the items include:

- 'There are frequent checks to see if workers are all following safety rules';
- 'I am allowed to stop work if I feel the job is unsafe.'

These items measured the respondents' opinions on the priority of safety in their respective institutions. The scale has a Cronbach alpha coefficient of .952 and therefore would be a reliable scale for measuring the priority of safety at the hospitals.

Safety behaviour was assessed using the Neal and Griffin (2008) safety behaviour measure. It comprises 12 items that measure the extent to which respondents engaged in various safety-related practices such as 'wearing personal protective equipment (PPE)':

- 'I attend safety meetings and briefings'
- 'I find it worthwhile to be involved in the development of safety standards'
- 'I report colleagues who break safety rules to supervisor', etc.

Ratings were done on a four point Likert scale ranging from never (1) to very often (4). This scale which was piloted and had a Cronbach's alpha coefficient of .75.

2.3 | Procedure

A cover letter and the proposal of the study was submitted to the research units of the two teaching hospitals for review and endorsement, after which an approval letter was then given by the research officer to the various units concerned. Stipulated dates for administering survey questionnaires at the selected teaching hospitals were then arranged. Various units were administered the questionnaires with the targeted population in mind and follow ups were made within a 3 week period to gain an appreciable number of questionnaires filled and returned. The questionnaires were then cleaned and inputted.

2.4 | Ethical consideration

The research ethical committee of the two hospitals had to review the proposal of the research as well as the questionnaire before approval was given to conduct the research in order not to breach any ethical standards. Also, the respondents' anonymity and privacy were maintained by the exclusion of respondents' names, telephone numbers and social security numbers and any other personal details on the research instrument. Respondents were also made aware that they answered the questionnaire of their own volition and they could stop at any point in time if they felt they did not want to continue for whatever reason they may find.

3 | RESULTS

From Table 1, the majority of the respondents were males constituting 55.3% and the remaining 44.7% were females. The majority of the respondents were between the ages of 21 and 30 constituting 77.6% of the entire sample. The majority of respondents had been in the health service between 1 and 5 years (78.7%).

3.1 | Preliminary analysis

A Pearson correlation was conducted among the study variables. This step was aimed at determining the correlations among all the variables under study. This was done by computing the Pearson product moment correlations among all the variables. The results from this analysis are displayed in Table 2.

The results from Table 2 indicate that all the independent variables related significantly with the dependent variable.

There was a moderately negative correlation between pressure for health service delivery (PHSD) and safety behaviour (SB), $r = -.31$, $p < .001$, $n = 295$. There was a moderately negative correlation between PHSD and safety behaviour compliance (SBC), $r = -.383$, $p < .001$, $n = 295$. There was also a low negative correlation between PHSD and safety behaviour participation (SBP), $r = -.218$, $p < .001$, $n = 295$. There was a moderate positive relationship between MCS and SB, $r = .313$, $p < .001$, $n = 295$. There was a moderate positive relationship between priority of safety (PS) at the hospital environment and SB $r = .46$, $p < .001$, $n = 295$.

3.2 | Hypothesis testing

The first hypothesis of this study predicted a negative relationship between pressure for health service delivery and safety behaviour. Simple linear regression analysis was undertaken to examine the relationship between pressure for health service delivery and safety behaviour. The results from the analysis are shown in Table 3:

As shown in Table 3, there was a significant negative relationship between PHSD and SB ($\beta = -.310$, $p = .000$). 9.6% of the variation in safety behaviour was explained by pressure for health service delivery. This result implies that as health care workers perceive the pressure on health delivery to be high, they in turn work around safety procedures and practices to get the work done, thereby engaging in unsafe behaviours.

Having examined the relationship between pressure for health service delivery and employee's safety behaviour measured on a

composite scale, the study further examined the relationship between pressure for health service delivery and the safety behaviour of employees using the facets of the safety behaviour scale (i.e. safety compliance and safety participation). These were also tested using simple linear regression analysis to see how much pressure for health service delivery contributed to their outcomes. The result is shown in Table 4.

Table 4 shows a significant moderately negative relationship between pressure for health service delivery and safety compliance ($\beta = -.383$, $p = .000$). The table shows an R^2 value of .147 indicating that approximately 15% of the variation in safety behaviour specifically, employee safety compliance is explained by pressure for health service delivery.

The study further examined the relationship between pressure for health service delivery and employee safety participation by using a simple linear regression. The result is presented in Table 5.

Table 5 shows a significant negative relationship between pressure for health service delivery and safety participation ($\beta = -.218$, $p = .000$). The table further depicts an R^2 value of .047 depicting that approximately 5% of the variation in safety behaviour, specifically safety participation was explained by pressure for health service delivery. The results give an indication that as employees perceive an increase in pressure to deliver on health services, they tend to reduce their 'safety specific citizenship' behaviours with examples such as identifying and reporting hazards, making suggestions to improve safety and correcting colleagues who engage in unsafe acts.

TABLE 2 Pearson-product moment correlations matrix between the variables

	1	2	3	4	5	6
1. Safety behaviour	-					
2. Safety compliance	.867**	-				
3. Safety participation	.945**	.657**	-			
4. Pressure for health service delivery	-.310**	-.383**	-.218**	-		
5. Management commitment to safety	.313**	.240**	.317**	-.360**	-	
6. Priority of safety at hospital	.456**	.499**	.362**	-.214**	.393**	-

**Correlation is significant at the .01 level (1-tailed).

Source: Author's own

TABLE 3 Summary of simple linear regression for relationship between pressure for health service delivery and safety behaviour

Model		Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	(Constant)	3.021	.085	
	Pressure for health service delivery	-.157	.028	-.310**

**Correlation is significant at the .01 level (1-tailed).

^aDependent variable: safety behaviour.

^b $R^2 = .096$.

^c $p < .01$.

Source: Author's own.

Model		Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	(Constant)	3.177	.086	
	Pressure for health service delivery	-.202	.028	-.383**

^aDependent variable: safety compliance.

^b $R^2 = .147$.

^c $p < .01$.

Source: Author's own.

TABLE 4 Summary of simple linear regression for relationship between pressure for health service delivery and safety compliance

Model		Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	(Constant)	2.910	.099	
	Pressure for health service delivery (PHSD)	-.124	.033	-.218**

^aDependent variable: safety participation.

^b $R^2 = .047$.

^c $p < .01$.

Source: Author's own.

TABLE 5 Summary of simple linear regression for relationship between pressure for health service delivery and safety participation

Model		Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	(Constant)	1.954	.114	
	Management commitment to safety (MCS)	.202	.036	.313**

^aDependent variable: safety behaviour.

^b $R^2 = .098$.

^c $p < .01$.

Source: Author's own.

TABLE 6 Summary of simple linear regression for relationship between management commitment to safety and safety behaviour

The second hypothesis was to find the relationship between management commitment to safety on employee's safety behaviours which has been tested using the Pearson correlation matrix, as presented in Table 1, the study however went further with a simple linear regression to see how much management perceived commitment to safety accounted for the safety behaviour of health care workers. The results are shown in Table 6.

Table 6 shows a significant positive relationship between MCS and SB ($\beta = .313, p = .000$). The table further depicts that 9.8% of the variation in safety behaviour was explained by management commitment to safety. The results point out that as employees perceive management to be committed to safety they in turn engage in safe behaviours (compliance and participation) within their companies.

The study also further examined the relationship between priority of safety and safety behaviour as was hypothesized. The results are presented in Table 7.

Table 7 shows a significant positive relationship between priority of safety at hospital and safety behaviour ($\beta = .456, p = .000$). The

table further depicts that 20% of the variation in safety behaviour was explained by priority of safety at the hospital. This by extension of the argument implies that as the respondents perceive the priority of safety at the hospital to be high they tend to exhibit positive safety behaviours (safety compliance and safety behaviour).

TABLE 7 Summary of simple linear regression for relationship between priority of safety at hospital and safety behaviour

Model		Unstandardized coefficients		Standardized coefficients
		B	SE	Beta
1	(Constant)	1.988	.072	
	Priority of safety at hospital (PS)	.230	.026	.456**

^aDependent variable: safety behaviour.

^b $R^2 = .208$.

^c $p < .01$.

Source: Author's own.

4 | DISCUSSION

The results show that there is indeed a significant negative relationship between pressure for health service delivery and safety behaviour (H1). The results of the study imply that as employees perceive PHSD to be high their SB would fall. Meaning that health care workers in our current study lower their safety behaviours when they perceive that pressure for health service delivery is increasing. This finding is in agreement with that of Bosák et al. (2013) and Dickety, Collins, and Williamson (2002). The study results indicated a significant moderate negative relationship ($r = -.310, p < .01$). The findings simply showed that pressure for health service delivery accounted for 9.2% ($R^2 = .092$) of all the constituents that accounts for a safety behaviour outcome in the negative direction (Seo, 2005). This finding thus points to the idea that when nurses are under pressure to deliver health care to patients they are very likely to compromise their own safety precautions and follow safety procedures. This can have dire consequences on their own lives as indicated by the literature.

The negative relationship between pressure for health service delivery and safety behaviour could further be explained by borrowing from the social learning theory (Bandura, 1977). This theory states that people learn by cognitively processing observed actions and information (Holman et al., 2012). The workload might not necessarily be the precursor for unsafe behaviour, but unsafe behaviour can also be learnt consciously or unconsciously from how work mates in similar circumstances behave. This might result in disregard to following laid down safety procedures and practices (safety compliance) as well as inhibiting workers' voluntary acts of safety (safety participation). Hence the unsafe behaviour of workers in the midst of pressure to deliver health service should also consider the safety subculture that is subsumed in the safety climate of the day (Gadd & Collins, 2002).

From the results H1a was supported. This implied that as pressure for health service delivery increased, employees complied less with safety practices and procedures. This hypothesis was based on the assumption that if there is any relationship between safety behaviour and pressure for health service delivery, the same should be true for the subscales that make up the entire safety behaviour and the relationship at least should be in the same direction as well. This assumption was further backed by a study conducted by Brown, Willis, and Prussia (2000) whose findings revealed that workers felt that if they followed safety procedures they would not be able to meet production bonuses, or that they may risk losing their jobs. Workers acting out of a sense of job security are prone to neglect safety procedures and practices when they associate job output to job security. It can also be argued that in the heat of the moment when health care workers by the nature of their job engage in frantic efforts to save lives might compromise their own safety due to the emotional connotations tied to such engagements.

Hypothesis H1_b, which was also supported, implies that employees' voluntary acts that will inure to the safety at work is affected negatively when they perceive that there is pressure to produce. This finding is in consonance with Clarke and Cooper (2004). This

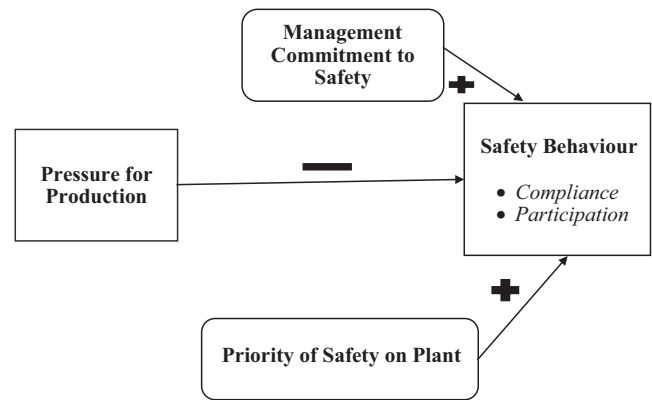


FIGURE 1 Health Service Pressure Proposed Framework After Analysis

finding also lays credence to the conservation of resource theory (CRT) by Hobfoll (1989), which postulate that generally human beings are more prone to conserving energy at liberty than expending it. Hence health care workers would be more reluctant to engage in a voluntary safety act such as reporting colleagues who fail to put on their PPEs, since this requires the use of personal resources (time and energy), especially when they have competing demands for their limited resources (time and energy). There can, however, be some reservations to this finding due to the assumption that context-wise the typical African acts in the best interest of the group. That is to say the African by his or her cultural context is prone to communal living. This might compel employees to go out of their way to lend a helping hand to fellow workers in whatever regard, not precluding safety care for fellow workers. Thus, the findings do not reflect the classical African culture of inclusiveness as reflected in the concept of safety participation.

Hypothesis H2, which was supported, implies that the more health care workers in the study perceived management to be committed to safety issues the more they put up good health and safety behaviours (Cheyne, Cox, Oliver, & Tomás, 1998; Griffin & Neal, 2000; McLain & Jarrell, 2007). Gershon et al. (2000) also found management commitment to safety to be one of three safety climate dimensions that were positively associated with nurses' compliance with universal precautions. In the construction sector Sawacha, Naoum, and Fong (1999) also found 'top' management's attitudes towards safety to be a significant factor in safety behaviour. This finding points to the idea that as management commit more resources in the form of playing their supervisory role as well as providing health and safety equipment and training on regular bases, it would compel nurses and other caregivers to take their safety to heart and vice versa.

Hypothesis H3's supported findings imply that as the priority of safety at the hospital is perceived to be higher, then the safety behaviour of participants also increased. This finding agrees with that of (Bosák et al., 2013) who established that a high priority of safety on plant is likely to stimulate employees to take superior responsibility for their personal safety and that of others (safety compliance and safety participation). This is indicative of the notion that as management

within the hospital place the safety of their personnel as a top priority it also informs the employees themselves of how they should conduct themselves with regards to safety. This can be best illustrated by the adage that when you go to Rome, you do as the Romans do.

Figure 1 shows the final framework for health service pressure after analysis. The above framework shows that there is a negative relationship between pressure for health service delivery and safety behaviour. The sub-dimensions of safety compliance and safety participation also showed the same negative relationship with pressure for health service delivery. Priority for safety at the hospital as well as management commitment to safety were positively related to safety behaviour and by implication to the sub-dimensions of safety behaviour.

5 | RECOMMENDATIONS

5.1 | Implications for nursing management and practice

In order to have a sustainable work force, management should make conscious efforts to exhibit an optimal level of commitment to safety as well as prioritizing safety. Management hence must show a great sense of urgency when matters of safety crop up. For instance, the provision of PPEs and regular trainings and seminars on occupational safety and health (OSH) issues should be dealt with at the utmost level of urgency and commitment. Management are thus advised to keep up-to-date with the new trends in OSH issues within the health industry. Bosák et al. (2013) argue that these acts would send strong signals to workers that management are walking the talk of safety. This would whip up the trust of nurses and hence elicit safety behaviours from workers.

5.2 | Implications for future research

Future studies could consider other variables such as safety leadership (Lu & Yang, 2010), preventive planning (Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2007) and supervisor management (Flin & Yule, 2004). This study is more of an advocative research drawing attention to the need to take the safety of health personnel seriously.

5.3 | Implications for national policies on OSH

The challenges of occupational safety and health (OSH) need to be tackled as a collaboration between state, society, organisations and the employees who are the major stakeholders. Their joint efforts aid in the promotion of occupational health and safety issues to which Ghana is no exception. Therefore, to see an implementation of sound occupational safety and health policy, there is a need for strong climatic and legal backing to enforce such essential ideas as health and safety issues. This calls for the immediate passing of the Occupational Health and Safety bill into law in Ghana and other countries that lack such a legislative instrument to facilitate sound regulation as far as occupational health and safety issues are concerned.

6 | LIMITATIONS OF THE STUDY

A major limitation to the study is that lumping together the various types of health workers (i.e. medical doctors, nurses and biological scientists) did not allow for observations of peculiarities in the various groups of health care workers with respect to the findings, if any. The cross-sectional approach used did not also allow for accessing the safety climate in the two hospitals, if that were done it could help to deepen the understanding on when pressure for health service is high depending on situations such as peak seasons of service delivery. This study is preliminary, hence there is the need for subsequent research to carry out more rigorous analysis to bring out more depth in the understanding of the phenomena under study such as the use of multiple regression analysis, hierarchical analysis.

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