Healthcare workers' perception of their awareness, skills and attitudes towards clinical quality and patient safety in an acute care hospital in Singapore

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ABSTRACT

Objective: Healthcare institutions have taken efforts to communicate to their healthcare workers (HCWs) about the concepts and importance of clinical quality and patient safety (CQPS). However, implementing interventions to promote pro-CQPS behaviour without fully evaluating the factors that direct such behaviour may be costly and counter-productive. This study aimed to investigate HCWs' perception of their competence and attitudes towards CQPS. It also looked into their perceived behaviour pattern to unsafe practices and usefulness of the different avenues to improve CQPS behavior in the hospital.

Methods: A survey was conducted among doctors, nurses and allied health workers over two months in 2017. Paper surveys were distributed during departmental staff meetings. Participation was strictly voluntary, and responses were de-identified and kept confidential. Responses were measured using a five-point Likert scale. Data was analyzed using descriptive statistics.

Results: The participation rate was 90.2% (541/600). Of the respondents, 88.0% and 85.6% agreed that CQPS was important and relevant to their work respectively. However, when asked if they execute a series of pro-CQPS behaviour, results showed a knowledge-behaviour disconnect. Only 36.2% will intervene when they see unsafe practice and 27.2% see the importance of reporting near miss events.

Conclusions: While respondents are generally aware of the importance and relevance of CQPS, this is not reflected in their behaviour as they are unmotivated and show disinterest in practising pro-CQPS behaviour. Further studies are needed to address the factors associated with this knowledge-behaviour disconnect.

Key Words: Behaviour, Awareness, Clinical quality, Patient safety, Communication

1. INTRODUCTION

Since the publication of the Institute of Medicine (IOM)'s highly influential report, To Err is Human,[1] in 2000, achieving high standards in clinical quality and patient safety (CQPS) has been a key goal of healthcare organizations worldwide. The goal of CQPS is to minimize adverse events and eliminate preventable harm in healthcare.[2] Unfortunately, hospitals are still not absolute safe places of healing. The risk of adverse medical events and patient harm still exists.

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The extent and details of error rates associated with preventable adverse medical events in the hospitals of Singapore are not easily accessed. However, it was reported that there were approximately 281 serious reportable events reported to the Ministry of Health in 2017,[3] with 8 of such cases resulting in severe patient outcome. Many studies reported similar prevalence of adverse medical events,[4–7] proving that there is an international consensus that standards in CQPS have left much to be desired.

Safety culture is an aspect of patient safety that is expected to significantly contribute to improving CQPS.[1] In a 2009 report by WHO,[9] it was indicated that organizations need to change their culture to make it "easy to do the right thing, and hard to do the wrong thing" for patient care. Studies have shown that the knowledge, attitudes and pattern of behaviors of healthcare workers (HCWs) influence the overall organizational culture of safety.[10–12]

The purpose of this study is to investigate the current attitude of the HCWs working in the study hospital. This may shed light into guiding future efforts in improving CPQS attitude and behavior in the hospital.

2. STUDY

2.1 Methodology

The survey instrument was developed after studying the Agency for Health Care Research and Quality (AHRQ) surveys of patient safety culture.[13] AHRQ developed the patient safety culture survey after having reviewed existing literature and surveys, pertaining to patient safety, hospital medical errors, safety climate and cultures and conducted background interviews with experts in the field of patient safety and with hospital staff. The Joint Commision also provided input to the survey.[13] Survey questions were adapted and formulated in such a way that they would fit the context of the study hospital and categorized into five main domains. Domains included current awareness of CQPS concepts (e.g. "I know what to do when I see an unsafe practice"), attitudes towards CQPS (e.g. "I may not want to intervene when I see unsafe practices"), reaction towards CQPS communications and trainings (e.g. "I make time to attend CQPS events"), effectiveness of CQPS communications (e.g. "The information in the patient safety publications is relevant to me"), and other factors affecting the effectiveness of these efforts (e.g. "Senior management sees CQPS as a priority"). Details of the survey can be found in the supplementary attachement.

The study team had pilot-tested the survey with 15 HCWs, comprising of doctors, nurses and allied health professionals. Varied responses to the survey questions were received which validated the need to proceed with this study. Revisions were made to the forms based on feedback gathered before distributing to the study sample. This study was approved by the ethics committee in Singapore for waiver of consent.

The survey was conducted in a 700-bed acute adult tertiary hospital in Singapore from May 1, 2017 through June 30, 2017. The target population are staffs who are directly involved in providing patient care as they play a direct and determining role in setting the hospital's CQPS standards. As such, HCWs from all medical, nursing and allied health disciplines within the hospital were included in the survey. There was an estimate of a total of 4,000 HCWs (medical, nursing, allied health) in the study hospital.

The survey involved completing a written questionnaire. The questionaire and an explanatory note explaining the purpose of the survey were distributed during departmental staff meetings. Participation was strictly voluntary and responses were de-identified and kept confidential. Information which would allow identifying of individual respondents, i.e. name, employee number, personal identification number, was not requested in the survey.

Respondents were asked to provide their demographics and job type within the hospital, and to respond to questions in the survey. Responses were measured using a five-point Likert scale, where 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; and 5 = strongly agree. The final section of the questionnaire was open ended, as respondents were asked to write about their preferred mode of communication of knowledge on CQPS.

The primary outcome of this study is to investigate the current attitude of the HCWs working in the study hospital. The secondary outcomes are the HCW's perceived behavioural pattern to unsafe practices and the usefulness of the different avenues to improve CQPS behavior in the hospital.

2.2 Data analysis

Data collected was entered into a Microsoft Excel spreadsheet for analysis. Data was analysed using descriptive statistics. We reported proportions of the positive and negative responses of different HCWs' groups to the different domains of the survey.

For further analysis, SPSS version 24 was used. The five-point Likert scale was used. Strongly agree and agree are considered as a positive response i.e. Yes , strongly disagree and disagree are considered as negative response i.e. No, an incomplete response for that domain is considered as non response, and a neutral response is considered as such, these are consistent throughout all the domains. We reported the proportions of positive and negative responses amongst the HCWs group for the following three domains: (1) current

awareness of CQPS, (2) attitudes towards CQPS, (3) reaction to CQPS communication efforts.

3. RESULTS

3.1 Recruitment

There were 600 forms distributed in May 2017 to HCWs from medical, nursing and allied health disciplines, regardless of level of seniority and work experience. The study team consolidated responses over a two-month period which coincided with two, monthly compulsory departmental briefings, this would have enabled us to capture majority of the respondents. The participation rate for the study was 90.2% (541/600). There were 170 incomplete forms received. Table 1 shows the baseline features of the study population.

Table 1. Baseline characteristics of the study population (N = 541)

Variable	
Gender	**n (%)**
• Male	134 (24.8)
• Female	393 (72.6)
• Did not indicate gender	14 (2.6)
Ethnicity	**n (%)**
• Chinese	312 (57.7)
• Malay	39 (7.2)
• Indian	91 (16.8)
• Others	76 (14.0)
• Did not indicate ethnicity	23 (4.3)
Age Group	**Median Age (Interquartile range)**[*]
• Medical	35.5 (20)
• Nursing	25.5 (10)
• Allied Health	25.5 (10)
Area of Work	**n (%)**
• Medical	140 (25.9)
• Nursing	248 (45.8)
• Allied Health	139 (25.7)
• Did not indicate area of work	14 (2.6)
Length of service	**n (%)**
• < 1 year	57 (10.5)
• 1 to 5 years	280 (51.8)
• 6 to 10 years	89 (16.5)
• > 10 years	98 (18.1)
• Did not indicate length of service	17 (3.1)

Note. [*] 25%-75% percentile (Interquartile range)

3.2 Primary outcome

Table 2 shows the primary outcome of the study: The respondents' current attitudes towards CQPS.

More than 80% of the respondents felt that CQPS was important and agreed that CQPS was relevant to their work. However, more nurses and allied health professionals stated that they may not want to intervene when they see unsafe practices, and that they do not think reporting near misses is important.

3.3 Secondary outcomes

Tables 3-4 show the secondary outcomes of the study.

3.3.1 *Current awareness of CQPS*

Table 3 shows the results of the respondents' current awareness of CQPS.

Over 50% of the respondents rated themselves as having sufficient knowledge on CQPS concepts and believed that they have better knowledge of CQPS as compared to a year ago. Notably, less doctors and allied health professionals rated these two questions positively as compared to the nurses.

Only 31.1% felt that they have received sufficient training in CQPS, and similarly with a smaller percentage from doctors and allied health professionals.

3.3.2 *Usefulness of CQPS communication efforts*

Table 4 shows the results of the usefulness of CQPS communication efforts to improve CQPS behavior in the hospital.

Only 355 (65.6%) of the respondents reported that their departments make time to communicate CQPS information. Only approximately 50.0% of the respondents reported that their department's patient safety representatives actively communicate CQPS information and are familiar with related information.

Out of all the respondents, 285 (52.7%) indicated that reading CQPS publications is of low priority to them. Notably, only 39 (27.9%) doctors read every issue of the patient safety publications. Only 299 (55.3%) of the respondents expressed interest in attending CQPS related events. Medical (58/140, 41.4%) and allied health (59/139, 42.4%) groups showed less interest in such events, as compared to nursing group (176/248, 71.0%).

4. DISCUSSION

Our study shows that HCWs are aware and know of the importance of CQPS, however there is a knowledge behavior disconnect. The awareness is not translated into actual practice.

HCWs are generally reluctant to get actively involved in CQPS and such indifference has been a global and long-standing issue.[14–19] It is an ongoing challenge for healthcare institutions to overcome this lack of engagement. The results of this study showed that despite multiple communication fronts and efforts, response seemed lukewarm in the appraisal of the extent to which these initiatives had engaged them with CQPS.

Table 2. Questions determining respondents' attitudes towards CQPS (N = 541)

Denominator		N = 541	N = 140	N = 248	N = 139	N = 14
Question	Response	n (%)	Medical (%)	Nursing (%)	Allied (%)	Dept not specified (%)
I feel CQPS is important.	Yes	476 (88.0)	117 (83.6)	221 (89.1)	124 (89.2)	14 (100.0)
	No	59 (10.9)	22 (15.7)	22 (8.9)	15 (10.8)	-
	Non Response	6 (1.1)	1 (0.7)	5 (2.0)	-	-
	Neutral	-	-	-	-	-
CQPS is relevant to my work.	Yes	463 (85.6)	119 (85.0)	215 (86.7)	118 (84.9)	11 (78.6)
	No	57 (10.5)	14 (10.0)	23 (9.3)	18 (12.9)	2 (14.3)
	Non Response	21 (3.9)	7 (5.0)	10 (4.0)	3 (2.2)	1 (7.1)
	Neutral	-	-	-	-	-
I am motivated to apply what I have learnt about CQPS at my work.	Yes	405 (74.9)	99 (70.7)	197 (79.4)	102 (73.4)	7 (50.0)
	No	125 (23.1)	37 (26.5)	46 (18.6)	35 (25.2)	7 (50.0)
	Non Response	6 (1.1)	1 (0.7)	3 (1.2)	2 (1.4)	-
	Neutral	5 (0.9)	3 (2.1)	2 (0.8)	-	-
I may not want to intervene when I see unsafe practices.	Yes	196 (36.2)	34 (24.3)	107 (43.1)	50 (36.0)	5 (35.7)
	No	337 (62.3)	104 (74.3)	135 (54.4)	89 (64.0)	9 (64.3)
	Non Response	8 (1.5)	2 (1.4)	6 (2.4)	-	-
	Neutral	-	-	-		
I do not think reporting near misses is important.	Yes	147 (27.2)	28 (20.0)	76 (30.6)	39 (28.1)	4 (28.6)
	No	385 (71.2)	110 (78.6)	166 (66.9)	99 (71.2)	10 (71.4)
	Non Response	9 (1.7)	2 (1.4)	6 (2.4)	1 (0.7)	-
	Neutral	-	-	-	-	-
I see incident reporting positively.	Yes	401 (74.1)	106 (75.7)	191 (77.0)	94 (67.6)	10 (71.4)
	No	125 (23.1)	33 (23.6)	48 (19.4)	42 (30.2)	2 (14.3)
	Non Response	7 (1.3)	1 (0.7)	5 (2.0)	1 (0.7)	-
	Neutral	8 (1.8)	-	4 (1.6)	2 (1.4)	2 (14.3)

Note. CQPS: Clinical Quality and Patient Safety. The five-point Likert scale: Strongly agree and agree are considered as a positive response i.e. Yes and negative responses are considered a negative response i.e. No, an incomplete response for that domain is considered as non response and a neutral response is considered as such.

Almost half of the respondents in the medical and allied health groups assessed themselves to have insufficient knowledge on CQPS concepts and did not think that their level of knowledge improved over the past one year. However, when offered with CQPS events and communication material targeted to engage them and increase their knowledge, respondents seemed to show limited interest, particularly the medical group.

The results also found a knowledge-behaviour disconnect. While respondents may agree that CQPS is important and see the relevance of CQPS to their work, it was not reflected in their behaviour. For instance, speaking up is an important behavior which promotes CQPS as it highlights gaps and contributes to improvement. "Frontline staff, such as nurses, is well positioned to observe early signs of unsafe conditions in care delivery and bring them to the attention of the organi-

zation."[20] However, a large number from the nurses group stated that they may not want to intervene when they witness unsafe practices. This study echoed several studies which pointed out the challenge nurses face when trying to speak up, quoting moral distress to intervene due to power dynamic and worries of increasing discord with other HCWs as they may sometimes be unsure if they possess authority over other professionals "Hesitance in speaking up or failure to indicate or correct errors can be caused by disproportionate authority gradients, excessive professional courtesy".[20] A Patient Safety Survey by Agency for Healthcare Research and Quality (AHRQ) indicated that 47% of respondents said that it feels like unsafe event reports are held against them".[21]

Having a robust reporting system is a crucial step in building a positive CQPS culture within a hospital. "Effective patient safety events reporting, is a mainstay of efforts to detect patient safety events and quality problems."[22] Yet, respondents from all groups deemed reporting near misses to

be unimportant, leaving this reporting culture much to be desired. A study by The Institute for Safe Medication Practices has similarly reported that 40% percent of clinicians either keep quiet or remain passive after witnessing an improper patient care event.[23]

From this study, it was found that the level of influence and involvement from the patient safety representatives as well as supervisors in promoting pro-CQPS actions appeared to be low for the medical group. More than half of the respondents in medical group rated their supervisors as uncommitted. Using this result of the study, the organization could explore the possibility of improving the active involvement of patient safety representatives in promoting pro-CQPS attitudes and actions. The Institue of Health Improvement states that assigning a designated safety champion in every department demonstrates the organization's commitment to safety and encourages the staff to share information and ask questions.[24]

Table 3. Questions determining respondents' awareness of CQPS (N = 541)

Denominator		N = 541	N = 140	N = 248	N = 139	N = 14
Question	Response	n (%)	Medical (%)	Nursing (%)	Allied (%)	Dept not specified (%)
I have sufficient knowledge on CQPS concepts.	Yes	313 (57.9)	68 (48.6)	167 (67.3)	71 (51.1)	7 (50.0)
	No	205 (37.9)	63 (45)	69 (27.8)	66 (47.5)	7 (50.0)
	Non Response	8 (1.5)	3 (2.1)	4 (1.6)	1 (0.7)	-
	Neutral	15 (2.8)	6 (4.3)	8 (3.2)	1 (0.7)	
I know what to do when I see an unsafe practice.	Yes	453 (83.7)	110 (78.6)	224 (90.3)	111 (79.9)	8 (57.1)
	No	86 (15.9)	30 (21.4)	23 (9.3)	27 (19.4)	6 (42.9)
	Non Response	2 (0.4)	0 (0.0)	1 (0.4)	1 (0.7)	-
	Neutral	-	-	-	-	-
I have better knowledge about CQPS now as compared to a year ago.	Yes	293 (54.2)	64 (45.7)	155 (62.5)	69 (49.6)	5 (35.7)
	No	240 (44.4)	74 (52.9)	90 (36.3)	67 (48.2)	9 (64.3)
	Non Response	5 (0.9)	1 (0.7)	3 (1.2)	1 (0.7)	-
	Neutral	3 (0.6)	1 (0.7)	-	2 (1.4)	
I received sufficient training in CQPS.	Yes	168 (31.1)	39 (27.9)	102 (41.1)	25 (18.0)	2 (14.3)
	No	369 (68.2)	100 (71.4)	144 (58.1)	113 (81.3)	12 (85.7)
	Non Response	4 (0.7)	1 (0.7)	2 (0.8)	1 (0.7)	-
	Neutral	-	-	-	-	-

Note. CQPS: Clinical Quality and Patient Safety. The five-point Likert scale: Strongly agree and agree are considered as a positive response i.e. Yes and negative responses are considered a negative response i.e. No, an incomplete response for that domain is considered as non response and a neutral response is considered as such.

Table 4. Questions determining the respondents' reaction to CQPS communication efforts

Denominator		N = 541	N = 140	N = 248	N = 139	N = 14
Question	Response	n (%)	Medical (%)	Nursing (%)	Allied Health (%)	Dept not specified (%)
My department makes time to communicate CQPS information.	Yes	355 (65.6)	81 (57.9)	171 (69.0)	97 (70.0)	6 (42.9)
	No	181 (33.5)	57 (40.7)	75 (30.2)	41 (29.5)	8 (57.1)
	Non Response	5 (0.9)	2 (1.4)	2 (0.8)	1 (0.7)	-
	Neutral	-	-	-	-	-
My department's patient safety representative is familiar with CQPS related information.	Yes	272 (50.3)	57 (40.7)	153 (61.7)	57 (41.0)	5 (35.7)
	No	253 (46.8)	78 (55.7)	85 (34.3)	81 (58.3)	9 (64.3)
	Non Response	9 (1.7)	4 (2.9)	4 (1.6)	1 (0.7)	-
	Neutral	7 (1.3)	1 (0.7)	6 (2.4)	-	-
My department's patient safety representative actively shares CQPS communications.	Yes	299 (55.3)	56 (40.0)	168 (67.7)	70 (50.4)	5 (35.7)
	No	230 (42.5)	81 (57.9)	74 (29.8)	66 (47.5)	9 (64.3)
	Non Response	12 (2.2)	3 (2.1)	6 (2.4)	3 (2.2)	-
	Neutral	-	-	-	-	-
I read almost every issue of the patient safety publications.	Yes	287 (53.0)	39 (27.9)	171 (69.0)	69 (50.0)	8 (57.1)
	No	250 (46.2)	100 (71.4)	75 (30.2)	70 (50.4)	5 (35.7)
	Non Response	4 (0.7)	1 (0.7)	2 (0.8)	-	1 (7.1)
	Neutral	-	-	-	-	-
I read almost every memo sent by the senior management.	Yes	346 (64.0)	70 (50.0)	185 (74.6)	85 (61.2)	6 (42.9)
	No	187 (34.6)	66 (47.1)	59 (23.8)	54 (38.8)	8 (57.1)
	Non Response	8 (1.5)	4 (2.9)	4 (1.6)	-	-
	Neutral	-	-	-	-	-
I do not look for CQPS information on the Intranet.	Yes	372 (68.8)	116 (82.9)	138 (55.6)	106 (76.3)	12 (85.7)
	No	163 (30.1)	22 (15.7)	106 (42.7)	33 (23.7)	2 (14.3)
	Non Response	6 (1.1)	2 (1.4)	4 (1.6)	-	-
	Neutral	-	-	-	-	-
I am interested to attend CQPS events.	Yes	299 (55.3)	58 (41.4)	176 (71.0)	59 (42.4)	6 (42.9)
	No	218 (40.3)	72 (51.4)	64 (25.8)	74 (53.2)	8 (57.1)
	Non Response	10 (1.8)	4 (2.9)	5 (2.0)	1 (0.7)	-
	Neutral	14 (2.6)	6 (4.3)	3 (1.2)	5 (3.6)	
I make time to attend CQPS events.	Yes	203 (37.5)	33 (23.6)	133 (53.6)	32 (23.0)	5 (35.7)
	No	330 (61.0)	105 (75.0)	110 (44.4)	106 (76.3)	9 (64.3)
	Non Response	8 (1.5)	2 (1.4)	5 (2.0)	1 (0.7)	-
	Neutral	-	-	-	-	
Reading CQPS communications is of low priority to me.	Yes	285 (52.7)	82 (58.6)	124 (50.0)	71 (51.1)	8 (57.1)
	No	246 (45.5)	56 (40.0)	120 (48.4)	64 (46.0)	6 (42.9)
	Non Response	6 (1.1)	2 (1.4)	3 (1.2)	1 (0.7)	-
	Neutral	4 (0.7)	-	1 (0.4)	3 (2.2)	-
My supervisor is committed to CQPS.	Yes	298 (55.1)	60 (42.9)	148 (60.0)	85 (61.2)	5 (35.7)
	No	212 (39.2)	73 (52.1)	84 (33.9)	46 (33.1)	9 (64.3)
	Non Response	10 (1.1)	5 (3.6)	4 (1.6)	1 (0.7)	-
	Neutral	21 (3.9)	2 (1.4)	12 (4.8)	7 (5)	

Note. CQPS: Clinical Quality and Patient Safety. The five-point Likert scale: Strongly agree and agree are considered as a positive response i.e. Yes and negative responses are considered a negative response i.e. No, an incomplete response for that domain is considered as non response and a neutral response is considered as such.

This study shows that the HCWs are neither motivated nor engaged to put CQPS into actual practice. This is worrisome and moving forwards, there is an urgent need for the institution to deep dive into factors contributing to this disengagement. The potential of direct observations on the ground and qualitative interviews with HCWs will allow us to gain better insight into the root causes of this knowledge-behaviour disconnect. With a better understanding of the root causes, focused measures can then be undertaken to resolve issues contributing to this knowledge-behaviour disconnect.

5. CONCLUSION

Our study re-inforces that HCWs across all groups, i.e. medical, nursing and allied health have reported awareness that CQPS is important. However, our study shows that this awareness has not translated into actual practice.

We can then direct our efforts to find reasons for this disconnect and strategise advances to translate this awareness to actual practice of patient safety.

Limitations

The results of this study should be interpreted in the light of several limitations. This was a single-institution experience, and results may not be generalisable to other hospitals. Results were based entirely on the HCWs' attitude expressed during the survey and did not include any observed changes in behaviour. The use of self-administered quesitonaires may also allow respondents to over- or under- report attitudes and practice. Selection bias ought to be taken into account, as the participation of the survey was entirely voluntary and we were unable to explore characteristics of non-participants, and we excluded staff who were absent from their departmental meetings. We did not perform a subset analysis based on difference of seniority, analysis of the data was based on their scope of work. We also did not determine the reasons behind the knowledge behavior disconnect, we will look into this in our future study.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflicts of interest.

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