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Mindfulness in high-reliability health care: a glance into Bali international medical centre

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Abstract. Medical errors are pervasive in healthcare systems globally, and they pose significant consequences in the form of first and second victims. Second victims are healthcare professionals directly affected by a medical error, who are frequently overlooked, shamed, and vilified. Mindfulness can ameliorate second victim syndrome, however reducing the amount of medical errors would be preferable in addressing this iceberg phenomenon. WHO mentioned that the prevalence of medical error far outweighs those of Highly Reliable Organisations, which operate in high hazard conditions without meaningful errors in extended periods of time. Collective mindfulness lies in the heart of HRO tenets, which can foster a highly reliable healthcare with lower incidence of medical errors and subsequently, second victims. We explored the use of mindfulness in cultivating HRO principles by conducting a bottom-up mindfulness survey targeting the staff and top-down seminars targeting the managers. Harvard Business Review online mindfulness quiz and OECD leaders' questionnaire were used to yield tangible (patient safety booklet and visible floor signs) and intangible results (high-level of mindfulness among staff, good level of precaution among leaders, and lack of blaming culture which leads to second victims). Further actions include scaling up more rigorous mindfulness training for the entire hospital staff.

1. Introduction

As early as 1999, healthcare-associated harms have been a source of concern in public health literatures. Berwick & Leape [1] gathered significant attention in an article published in British Medical Journal when they opted to compare the error statistics in health care industry to those of the aviation system. This point resonated throughout time and was echoed by World Health Organisation's envoy for patient safety, Liam Donaldson [2]. The curious phenomenon of negligible error rate in aviation industry which operates in daily high-stakes situation was analysed by Weick, Sutcliffe, and Obstfeld [3] to tease out 5 key tenets that underline these Highly Reliable Organisations (HRO). Several authors subsequently observed the potential to apply these tenets to develop a series of stages that comprise a framework for a highly reliable healthcare [4]. Leadership is an integral component in this framework. Without a sound commitment from the board of directors to achieve zero patient harm, management would have difficulty in enacting the key tenets of HROs [4]. An example would be the overly common response for board of directors to assign blame and punish staff in the emergence of an error in medical setting [1]. This approach has clearly been ineffective, counterproductive, and hurtful, [1] which prompted the

emergence of the term "second victims" in medical errors [5]. It was estimated that the prevalence of second victims, defined as "health providers who are involved in an unanticipated adverse patient event", ranges from 10.4% to 43.3% [6]. These health workers can experience distress, trauma, anger, guilt, and fear of repercussions. A TRUST approach (treatment that is just, respect, understanding and compassion, supportive care, transparency and opportunity to contribute) can be implemented to prompt leaders to provide adequate support towards second victims in medical errors [7]. This approach has helped Bali International Medical Centre (BIMC) to win a second place in a national Patient Safety award in 2017.

Currently, there is a distinct lack of literature exploring the link between mindfulness and the management of second victims, despite the obvious parallels of the concept. The 2017 Residents Wellness Consensus Summit in the United States presented three modules on second victims, positive psychology, and mindfulness since these topics are seen to be beneficial for the residents' wellbeing; indicating a unified underlying concept beneath it all [8]. Research also suggests that mindfulness can reduce stress at work [9], which may be beneficial in second victim syndromes. Of course, these concepts are again ineffective unless mindfulness is applied throughout the organisation starting from the leaders. That is where the key tenets of HRO comes into play.

Several exploratory studies have mentioned the role of mindfulness in reducing error rate in medicine [10-12]. Weick, Sutcliffe, & Obstfeld [3] observed that there are 5 key tenets that give aviation industry its remarkable reliability: preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and underspecification of structures. These principles essentially give birth to a culture of collective mindfulness that permeates throughout the organisation, from leaders to staff; rendering them the capability to discover errors earlier and manage unexpected events more efficiently. Thus, the study was designed to create awareness of mindfulness and potential errors throughout the organisation by conducting a two-pronged intervention: a bottom-up approach aimed at the staff, and a top-down approach aimed at the leaders of BIMC hospital.

2. Findings

Initial situational analysis of BIMC revealed a rather unusual workplace climate, in which seniority and physician-nurse hierarchy were replaced with familiar camaraderie. This condition led the authors to explore the use of mindfulness as a double-acting concept for medical errors. Mindfulness can reduce the number of medical errors due to the implementation of 5 key tenets of HRO; it can also aid in the management of second victim syndrome if an error does occur. By holding several conversations with inpatient ward and emergency room (ER) nurses, a common theme immediately surfaced: the working condition in the hospital was much too chaotic to allow for a proper data collection using the traditional five-facet mindfulness questionnaire [13]. Thus, an alternative digital option to ascertain the staff's mindfulness level was utilised during this placement [14].

Harvard Business Review issued an interactive online quiz that presented the concept of mindfulness in layman's term, making it easier to digest for BIMC staff. The quiz consisted of 20 online questions which would be instantly calculated and presented in a quadrant form (Figure 1), displaying the average worldwide score (in red) and the staff's score (in blue). The dissemination of this online quiz was conducted using convenience sampling, by approaching different personnel during the placement and holding a casual conversation with the goal of obtaining their consent to take the quiz. The advantages of this method were the ease of use in a busy clinical setting, the instantaneous analysis of mindfulness level, and an attractive design and branding to instill curiosity regarding mindfulness concept among BIMC staff.

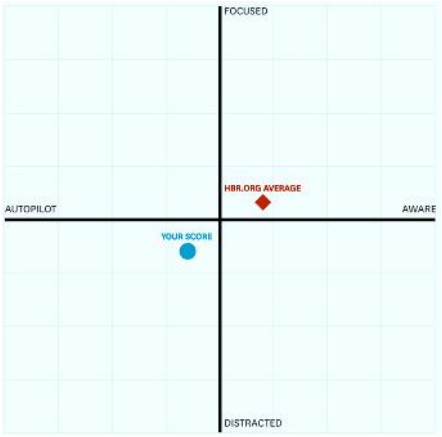

Figure 1. Harvard Business Review's mindfulness quiz result. Quadrant 2 (HBR.org average score) signifies good mindfulness level, while Quadrant 3 (staff score) signifies a lack of mindfulness. (Adapted from Carter, Hougaard, & Stembridge, 2017)

Following a major explosion at a BP oil rig in Texas, Organisation for Economic Co-operation and Development (OECD) published a list of leadership self-check questionnaire designed to prompt leaders to be more mindful of the potential source of errors in their field [15]. This questionnaire was also used to determine the potential errors in BIMC Hospital, and the result of this questionnaire was presented in the second leadership seminar.

This study yielded two overall result groups: tangible and intangible. The tangible results were created by BIMC Hospital's staff following the compilation of qualitative interviews with BIMC leaders. They were also influenced by the external event happening simultaneously during the study period, which was the Mount Agung eruption. Despite the lack of major earthquakes affecting BIMC Hospital, several tremors were noticeable by the patients and staff, indicating the need for a clear evacuation plan. Thus, the tangible results revolved around ensuring patients have adequate safety briefing upon admission, as well as a visible floor signs on every stairs. BIMC already possessed a book detailing its evacuation plan, however this book was never read by patients due to its lengthy and exclusive leather-bound format. The following booklet (Figure 2) was reformatted to resemble an airplane passengers' safety card to ensure ease of access, with National Health Service's patient safety briefing video as a guideline [16].

Figure 2. Patient Safety booklet resembling airplane's passenger safety card. (Adapted from Health Service Journal, 2014)

3. Discussion

During the 3 weeks of data collection, 11 participants consented to taking the online mindfulness quiz, 3 of whom were recruited confidentially during a night shift by one of the participants Since convenience sampling was chosen, the respondents were mostly nurses (7 out of 11), while 4 respondents were selected from the kitchen department, administrative staff, and managerial staff. Four respondents

showed heightened interest in mindfulness concept; with 2 sources having prior mindfulness experience related to their religions, one source relating the challenges of less multitasking in busy clinical setting, and one source relating the presence of mindfulness to several mental issues. Out of 11 respondents, only 1 showed unfavourable result (quadrant 3), while the majority of samples reflected good mindfulness level (quadrant 2). Good mindfulness level in these individuals might result from their prior experience in daily prayers; since mindfulness originated from eastern rituals [17], this explanation might not be far-fetched from reality. However, this result suffered from the self-filling nature of the quiz, which rendered it susceptible to information bias. Convenience sampling method is also a source of selection bias in this study, since the participants were more likely to have a heightened interest towards mindfulness. A more rigorous mindfulness assessment involving all elements of BIMC staff can give a better insight on their mindfulness levels, and subsequently, the training suitable for this hospital to achieve collective mindfulness necessary for the principles of HRO to emerge.

For the leadership seminars, 10 department managers attended both seminars and filled out the OECD leaders self-check questionnaire. BIMC Hospital's leaders had mixed reception in filling out the OECD leaders self-check questionnaire, reflected by the immediate response rate for some leaders and the need for proactive reminders for the rest. This might be explained by the increased workload due to upcoming accreditation. Several missing data as well as conflicting results between related questions might be explained by the leaders' unfamiliarity with the questionnaire that would indicate the necessity for more thorough instructions. The Hospital Director seemed to be the most attuned to BIMC's risk in the form of fire safety, earthquake, and litigation concern, citing Severity Assessment Code 1-2 (highly concerned) as the level of risk. He also noted that building structure was unsafe, however since the building was not owned by BIMC, any major renovation plans would require a lengthy bureaucratic process with the boards of Siloam group and the actual owner of the land. Thus, renovating the building was out of the list of options to address his concerns.

An interview with the staff in charge of fire safety in ward 2 confirmed the unsafe nature of the building structure, especially shown by a crack in the wall of Ward 2A ever since an earthquake in 2012. This conversation spurred an idea for a better evacuation plan using visible floor signs at every stairs and a patient safety booklet (Figure 2), especially in light of the Mount Agung eruption in Bali.

Another interesting finding in the OECD leader's self-check questionnaire was that 7/10 participants admitted to seeking out bad news as well as good news in their respective departments, proving that BIMC has already implemented HRO's tenet of "preoccupation with failure". A situational analysis interview with Inpatient Director revealed his desire to reward employees who complied with the Early Warning Score system, a novel concept mandated by Siloam Group. However, BIMC leaders still has a way to go since 2/10 participants identified as being "very confident" with the safety systems in their organisation. This level of confidence would warrant less system checks and could lull leaders into thinking that accidents are unlikely to happen.

The last major finding from the questionnaire was that 9/10 respondents reported that they would not blame an individual in the event of an accident/incident. This, coupled with the TRUST approach they had implemented, indicated that BIMC leaders were aware of the existence of second victims in their organisation and instead of blaming the individuals involved, they would endeavour to find gaps in the system that allowed the error to occur in the first place.

4. Conclusion

Bali International Medical Centre is a hospital situated in a region well-known for its mindful practices, and yet, this concept is quite novel to the healthcare society in Bali. Applying mindfulness can aid in reducing the high prevalence of medical error by culminating 5 key tenets of a Highly Reliable Organisation. In the event of inevitable error, mindfulness can also act as an emotional first aid for second victims, coupled with the TRUST approach which helped BIMC won national acclaim in a Patient Safety Award. Thus, this study was designed to assess mindfulness level of BIMC staff as well as prompt BIMC leaders to be more mindful of the potential errors in their workplace.

The study yielded tangible and intangible results. Intangible results included baseline level of mindfulness among staff (Quadrant 2, mindful) and several concerns uttered by the leaders. A follow-up interview revealed practical solutions that can improve BIMC's reliability by emulating an airplane passenger safety card and NHS' patient safety briefing video. Further research is necessary to implement meaningful mindfulness training in BIMC Hospital, however early assessment suggested that this concept was well-received by BIMC staff and leaders. The placement ended on a successful note, signifying that a new era of highly reliable healthcare in Bali is no longer a far-fetched reality.

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