

Resilience of healthcare professionals involved in anesthesia practice: A cross-sectional questionnaire based pilot study

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Abstract

Background and Aims: Resilience of healthcare professionals involved in Anesthesia practice is relatively a new area of research. Improvement of resilience is important for the sustainability of the healthcare workforce. The aim of this study was to evaluate resilience of the health care providers towards intra-operative emergency situation and intensive care unit.

Material and Methods: In this cross-sectional pilot study, healthcare providers working involved in anesthesia practice responded to a questionnaire consisting of 20 questions related to their regular work profile. Answers were graded as- “Yes”, “Not often” and “No”. Scores of “Three”, “Two” and “One” were assigned to these responses and total score was calculated. Frequency and percentage of each response were compared based on place of work and roles. Scores were compared based on the designation.

Results: Out of 103 healthcare workers 56 (54.4%) were from government or charity hospital. Thirty-one (30.1%) were Junior Residents. Comparison of responses based on the role/designation, significant differences were observed for questions- I reach to operation theatre well before the proposed time for the case (0.02994), I personally check operation theatre preparation (p = 0.01966), I check for the consent form every time (p = 0.02018), I can recognize different electrocardiogram (ECG) patterns (p = 0.00231) and I always try to learn from everything (p = 0.01989). Based on the place of work of study participants, there was a significant difference (p = 0.002095) for question, i.e., “I personally check operation theatre preparation.”

Conclusion: The study results suggested good resilience of healthcare professionals involved in anesthesia and intensive care. Some pointers towards burnout are seen among study population. Early interventions may be useful to improve resilience and reduce risk of burnout.

Keywords: Anesthesia, healthcare professionals, intensive care, operation theatre, patient safety, resilience

Introduction

Patient safety is always the most important priority in healthcare system. All efforts are taken by the healthcare professionals, their teams and organizations for patient safety. Research for understanding factors involved in patient safety is always on-going. Several factors including patient-related factors,

resources related factors and healthcare provider-related factors play a role in overall patient safety. Broadly these are either people or system-related factors.^[1]

Resilience, a human factor plays an important role in patient safety. Resilience has been defined in different ways.^[2] It suggests monitoring, adaptation and actions of people, teams

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and institutions towards failures in high-risk situations.^[3] In other words, resilience is nothing but positive adaptability for good outcomes in the presence of favorable as well as adverse situations.^[1] Others have defined resilience as ability to bounce back or successfully coping during adverse conditions.^[4]

Occupation can be an important cause of stress. Chronic stress can have adverse implications on overall health and performance of the person.^[5] Many work-related factors can lead to burnout in healthcare professionals and ability to overcome them i.e., resilience is essential.^[6] There is an inverse relationship between burnout and resilience.^[5] Burnout can result in impaired resilience capacity. All this can affect professional performance of healthcare professionals in patient management. It is essential to plan interventions to improve resilience of healthcare professionals against burnout.^[5] Understanding the practices of healthcare professionals can provide insights into the cause of burnout and planning for improvement of resilience. This in turn may help in further improvement of patient care and safety.^[1] Improvement of resilience is also important for the sustainability of the healthcare workforce.^[7] Asian research related to burnout and resilience in healthcare is limited.^[8]

Anesthesia is one of the demanding professions in healthcare involved in high-risk patient management. Preoccupation with safety and a goal of zero harm are two key characteristics of people involved in anesthesia care.^[9] Schnittker¹ R¹ Work-related stress can result in burnout in Anesthesiologists. Research on resilience of healthcare practitioners involved in management of high-risk patients is limited. The objective of this study was to evaluate resilience of the healthcare provider involved in anesthesia-related care and intensive care.

Material and Methods

This questionnaire-based cross-sectional pilot study was conducted amongst the practicing Anesthesiologists, post-graduate students of Anesthesia and other healthcare professionals involved in anesthesia-related care and intensive care. The pre-validated questionnaire [Table 1] consisting of 20 questions related to practice and attitude of healthcare provider was sent via email or Google form or direct contact. Answers to all questions were graded into three responses- "Yes", "Not often" and "No". Scores of "Three", "Two" and "One" were assigned to these responses respectively. Considering 20 questions total score could range from 20 to 60. Score above 45 was considered as "Good resilience", whereas total score between 30-45 was considered as "Average resilience" and below 30 as "Poor resilience". Frequency and percentage of each response were calculated

Table 1: Distribution of study participants based on the place of work

Place of work	n (%)
Government/Charity hospital	56 (54.4%)
Corporate hospital	17 (16.5%)
Freelancer	16 (15.5%)
Private Medical College/Teaching Institute	06 (5.8%)
Others	08 (7.8%)

and compared between groups based on their place of work and designations/roles. Scores calculated were also compared based on the designation of the participant. The study was approved by the institutional ethics committee and conducted from May 2019 to September 2019.

Statistical analysis

Collected data were coded, tabulated and graded according to the score based on questionnaire. Data were analyzed for entire study population and comparison based on the role and place of work. Statistical analysis was performed using Chi-square test or Fisher Exact test. Scores were compared using unpaired *t* test. The *P* value less than 0.05 was considered as statistically significant.

Results

A total of 103 healthcare workers participated in the study, of whom 56 (54.4%) were from Government or Charity hospitals, whereas 17 (16.5%) were from Corporate hospitals. A total of 16 (15.5%) participants were working as Freelancers [Table 1].

A total of 31 (30.1%) participants were Junior Residents and 17 (16.5%) were Senior Residents working in the hospitals. Frequency and percentages of Assistant Professor, Associate Professor and Professor were 21 (20.4%), 08 (7.8%) and 26 (25.2%) respectively [Table 2].

Total scores of all questions based on designations of study participants are shown in Table 2. There was no significant difference in the scores between Junior Resident and Senior Resident ($P = 0.8386$), Junior Resident versus Assistant Professor ($P = 0.4966$), Junior Resident versus Associate Professor ($P = 0.4765$), Junior Resident versus Professor ($P = 0.8595$), Senior Resident versus Assistant Professor ($P = 0.4668$), Senior Resident versus Associate Professor ($P = 0.4403$), Senior Resident versus Professor ($P = 0.7409$), Assistant Professor versus Associate Professor ($p = 0.8804$), Assistant Professor versus Professor ($P = 0.6761$) and Associate Professor versus Professor ($P = 0.6184$).

Table 3 shows responses to the questions by healthcare professionals and comparison of responses based on their place of work and role in the work profile.

Comparison of responses based on the role/designation, significant differences were observed for five questions; I reach to operation theatre well before the proposed time for the case ($P = 0.02994$), I personally check operation theatre preparation ($P = 0.01966$), I check for the consent form every time ($P = 0.02018$), I can recognize different electrocardiogram (ECG) patterns ($P = 0.00231$) and I always try to learn from everything ($P = 0.01989$). Frequency and percentages of responses to these questions based on the role/designation of participants are shown in Table 4.

Based on the place of work of study participants, there was a significant difference ($P = 0.002095$) for question, i.e., "I personally check operation theatre preparation." A total

of 91 participants answered "Yes". Out of them frequency and percentages of Junior Residents, Senior Residents, Assistant Professor, Associate Professor and Professor who answered "Yes" to this questions were 30 (33.0%), 16 (17.6%), 14 (15.4%), 07 (7.7%) and 24 (26.4%) whereas corresponding number and percentages of participants responding as "No" were 01 (8.3%), 01 (8.3%), 07 (58.3%), 01 (8.3%) and 02 (16.7%) respectively. For other questions there was no significant difference [Table 3].

Discussion

Healthcare professionals are one of the most important stakeholders in patient safety. Building resilience in healthcare is considered important factor in improving patient safety.^[10] Therefore understanding resilience and implementing the strategies for its improvement in healthcare is necessary.^[11]

In this study, we evaluated resilience of healthcare professionals involved in anesthesia-related care and intensive care. The study population was dominated by the professionals working in Government or Charity hospitals. Healthcare professionals from Corporate hospitals and Freelancers were second and third most common categories in our study population. The study population was fairly well distributed in different roles with Junior Residents topping the category followed by Professors, Assistant Professors, Senior Residents and Associate Professors.

Table 2: Resilience score of study participants based on their designation/role

Designation	Total score Mean (SD)
Junior Resident	54.45 (2.03)
Senior Resident	54.59 (2.29)
Lecturer/Assistant Professor	54.09 (1.70)
Associate Professor	54.00 (1.41)
Professor	54.35 (2.38)

Table 3: Responses to questions by the healthcare professionals

Question	Yes	No	Not often	P (Comparison based on place of work)	P (Comparison based on role)
I reach to Operation Theatre (OT) well before the proposed time for the case	85 (82.5%)	18 (17.5%)	-	0.2036	0.02994
I personally check OT preparation	91 (88.3%)	12 (11.7%)	-	0.002095	0.01966
Have thorough knowledge about the cases, when I enter the OT	95 (92.2%)	8 (7.8%)	-	0.8951	0.5441
I prepare/discuss plan of action of each case	77 (74.8%)	26 (25.2%)	-	0.6432	0.7931
I personally counsel and explain the procedure to the patient and/or relative (s)	77 (74.8%)	3 (2.9%)	23 (22.3%)	0.0945	0.2295
I check for the consent form every time	83 (80.6%)	2 (1.9%)	18 (17.5%)	0.9368	0.02018
I am enthusiastic about the cases and proactive	89 (86.4%)	12 (11.7%)	2 (1.9%)	0.6162	0.4202
I can switch to other OT, if required	71 (68.9%)	9 (8.7%)	23 (22.3%)	0.332	0.1297
I like doing difficult cases	82 (79.6%)	1 (0.97%)	20 (19.4%)	0.2422	0.3884
I am calm and prepared for adverse situation intra-operative	87 (84.5%)	1 (0.97%)	15 (14.6%)	0.8062	0.7325
I recognise and act instantly to the adverse situation	98 (95.1%)	-	5 (4.9%)	0.7754	0.2718
I can recognize different electrocardiogram (ECG) patterns	73 (70.9%)	2 (1.9%)	28 (27.2%)	0.522	0.00231
I have thorough knowledge about basic life support	99 (96.1%)	4 (3.9%)	-	0.6984	0.296
I can use defibrillator when required	93 (90.3%)	4 (3.9%)	6 (5.8%)	0.9181	0.3205
I will be proactive to help others in "call for help" situation	103 (100%)	-	-	-	-
I feel tired and reluctant to do cases by end of the office time	39 (37.9%)	22 (21.4%)	42 (40.7%)	0.06961	0.4654
I always handover case to others and try to get relieved early	3 (2.9%)	64 (62.1%)	36 (35%)	0.1306	0.1847
I feel bored with the same routine everyday	20 (19.4%)	42 (40.7%)	41 (39.8%)	0.1515	0.1868
I always try to learn from everything	95 (92.2%)	-	8 (7.8%)	0.1419	0.01989
I am not happy with my career	14 (13.6%)	75 (72.8%)	14 (13.6%)	0.3859	0.4778

Table 4: Distribution of responses to five selected questions based on the role/designation of study participants

Designation	I reach to OT well before the proposed time for the case		I personally check OT preparation		I check for the consent form every time		I can recognize different ECG patterns		I always try to learn from everything	
	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	Not often n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)
Junior Resident	30 (35.29%)	01 (5.6%)	30 (33.0%)	01 (8.3%)	25 (30.1%)	06 (33.3%)	15 (18.1%)	00	28 (29.5%)	03 (35.7%)
Senior Resident	15 (17.65%)	02 (11.1%)	16 (17.6%)	01 (8.3%)	13 (15.7%)	04 (22.2%)	13 (15.7%)	00	13 (13.7%)	04 (50%)
Lecturer/Assistant Professor	14 (16.47%)	07 (38.9%)	14 (15.4%)	07 (58.3%)	19 (22.9%)	01 (5.6%)	15 (18.1%)	01 (50%)	21 (22.1%)	00
Associate Professor	06 (7.06%)	02 (11.1%)	07 (7.7%)	01 (8.3%)	03 (3.6%)	04 (22.2%)	06 (7.2%)	00	7 (7.4%)	01 (12.5%)
Professor	20 (23.53%)	06 (33.3%)	24 (26.4%)	02 (16.7%)	23 (27.7%)	03 (16.7%)	24 (28.9%)	01 (50%)	26 (27.4%)	00

A cross-sectional study from a tertiary care center in Kerala reported high prevalence of burnout among interns and junior residents.^[12] Our study did not include interns. Similarly, a systematic review and meta-analysis of 15 studies have highlighted high prevalence of burnout among Indian healthcare professionals.^[13] A study from a tertiary care center in India reported high level of stress and of burnout among residents of anesthesia and surgical specialities.^[14] Another large cross-sectional study from the United States reported high prevalence of burnout and other psychiatry related problems among residents of anesthesia.^[15]

Based on the responses, we observed overall good resilience among healthcare professionals involved anesthesia-related care and intensive care. However, there were some pointers related to burnout. For example, 37.9% participants reported tiredness and reluctance to work by the end of office time. Similar observation was seen for the question related to switching to other operation theatre, if required.

There was no significant difference in the resilience score among study participants based on their designations. Focus on the goal of zero harm or “first do no harm (*primum non nocere*)” in anesthesia care^[9] may be the reason for this high resilience in our study population. Studies determining resilience in other healthcare workers are necessary.

In our study, for few individual aspects, i.e., reaching to the operation theatre before the proposed time, personally checking preparation of operation theatre, checking consent of patient every time, recognizing different ECG patterns and learning from everything, there was difference among healthcare professionals based on their roles. Percentage of Junior Residents who responded “yes” to these questions was more than others. Based on the place of work of study participants, there was a significant difference only for “I personally check operation theatre preparation.” For this question also, percentage of Junior Residents answering “Yes” was more than others.

This shows some scope for improvement of resilience in study population. Risk management tools are used by the health systems for improvement of patient safety.^[16] Emotional resilience, i.e., preventing and bouncing back from work-related burnout is essential for healthcare workers.^[17] Resilience in healthcare professionals depends on personal trait, social factors and workplace-related factors.^[18] Some of the personal factors include optimism, flexibility, adapting to situation and taking self-initiatives, whereas workplace-related challenges include work pressure, time pressure and difficult patients.^[19] Overall, resilience is a dynamic process involving positive attitude and effective strategies.^[20]

Stress reduction with meditation and yoga along with improvement of work–life balance are some of the useful strategies for overcoming burnout.^[5] Other methods include workshops, small group discussion, cognitive-behavioral training and mentoring.^[2] Healthcare practitioners should practise these methods to maintain positive mindset.

In the currently on-going pandemic of coronavirus disease (COVID-19), importance of maintaining mental health and resilience in healthcare workers is also highlighted.^[13] Results of our study provide important insights about the current practices of healthcare providers involved in anesthesia-related care and intensive care. Overall observations from our study suggest good resilience among study participants. However, it is likely that those with less resilience are likely to suffer from early burnout. Considering this, it is important to identify the early signs of decreasing resilience and increased risk of burnout and intervene at the earliest to avoid adverse implications on patient care. In this regards, hospital management can play a very crucial role to keep working atmosphere healthy.

Our study has some limitations. Small number of study participants, cross-sectional study design and subjective responses preclude generalization of the findings. Larger studies are required to confirm our observations.

Conclusion

The study results suggested good resilience of healthcare professionals involved in anesthesia and intensive care. However, some pointers towards burnout are observed among study population. Early interventions may be useful to improve resilience and reduce risk of burnout among the healthcare professionals involved in anesthesia practice and intensive care. Coordinated efforts between healthcare professionals, colleagues and hospital management are essential to improve resilience.

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Conflicts of interest

There are no conflicts of interest.

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