



CBRN Awareness and Preparedness in Anesthesia Practice: Insights from a Multidomain Cross-Sectional Survey



Dr Ram Singh, Dr Prakash Gondode,, Dr Sakshi Duggal. Department of Anesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, AIIMS, New Delhi, India

INTRODUCTION/HYPOTHESIS

Chemical, Biological, Radiological, and Nuclear (CBRN) disasters pose major public-health threats. Anesthesiologists are frontline responders for airway, critical care, and resuscitation. Evidence on preparedness among Indian anesthesia professionals is limited. The objective of our study was to assess the current levels of knowledge, attitudes, practices (KAP), and institutional support regarding CBRN disaster preparedness among anesthesia professionals in India, and to identify predictors and barriers to effective readiness.

STUDY DESIGN/METHODS

A cross-sectional, web-based survey was conducted among 294 anesthesia professionals across India. Participation of Anesthesiologists were anonymous and voluntary, with digitally documented informed consent. The validated questionnaire assessed four domains: knowledge (11 items), attitude (6 items), practice (8 items), and institutional support (9 items). Descriptive statistics, multivariable linear regression, and non-parametric group comparisons were performed. Thematic analysis was applied to open-ended responses.

RESULTS

- Only 10.9% had CBRN training; 8.2% participated in drills.
- Training significantly improved knowledge (9.66 vs 7.51; $p<0.001$).
- Training & trauma-network affiliation predicted knowledge.
- No training effect on attitude, practice, institutional support.
- Major barriers: lack of training (224), inadequate PPE (183), absent SOPs (177).

Spearman Correlation Matrix of KAP Domain Scores and Demographic Variables

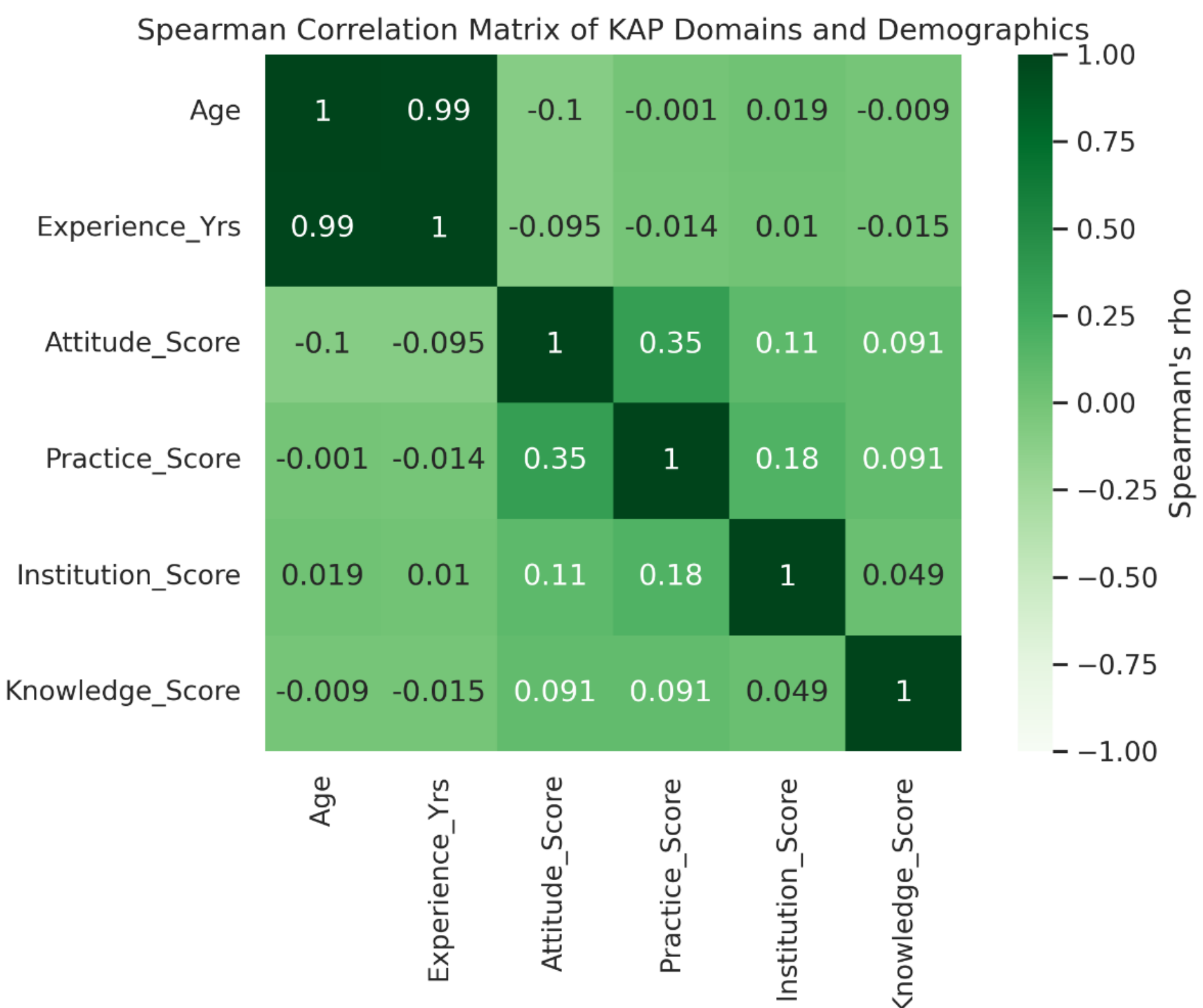
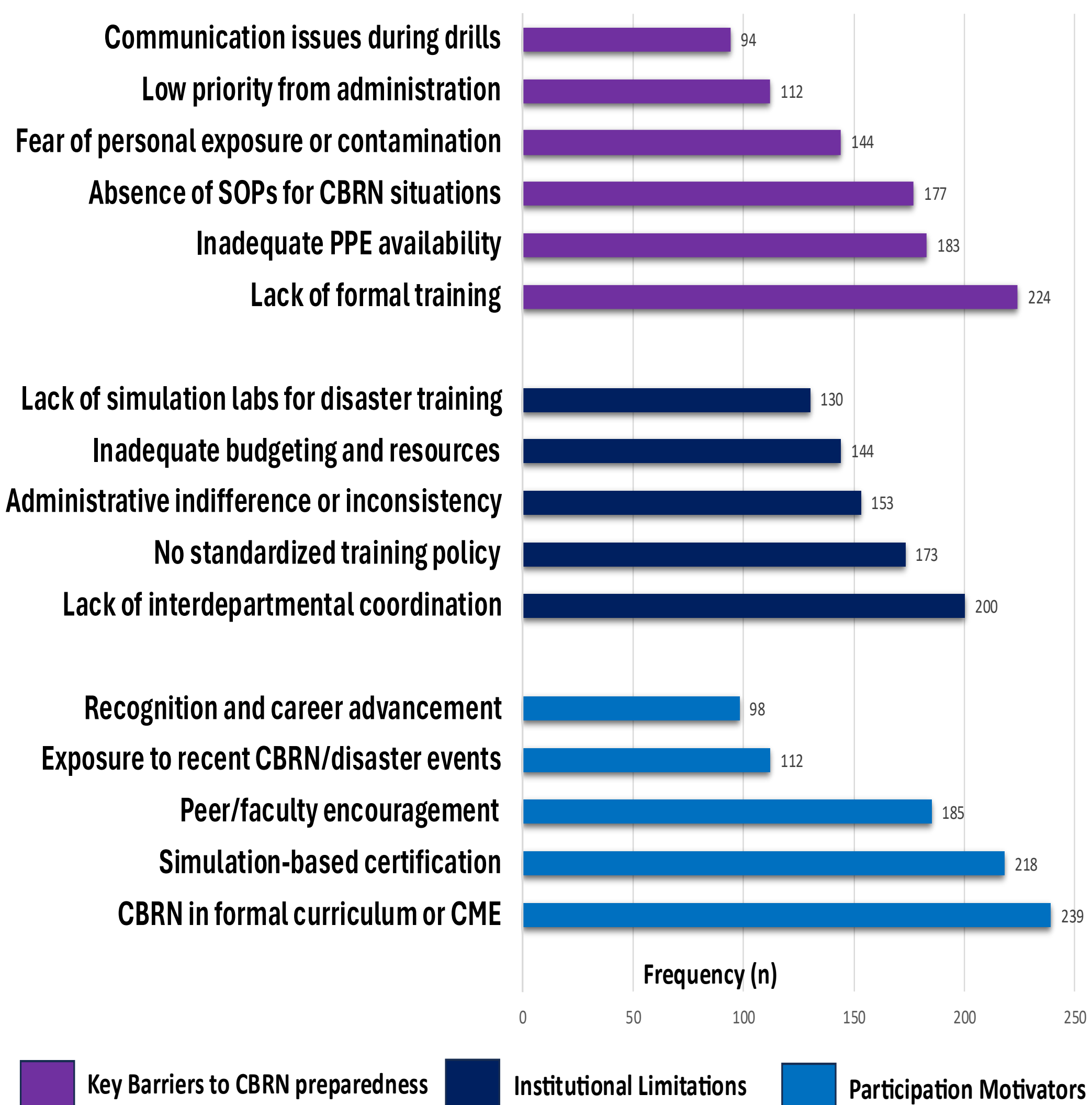


Figure 2: Barriers, Motivators, and Institutional Limitations.



DISCUSSION

CBRN preparedness among Indian anaesthesiologists remains suboptimal. Our study highlights not only a deficit in CBRN knowledge but also an urgent call for institutional accountability, curricular reform, and psychological readiness. Cognitive gains from training are evident, but broader institutional and behavioural readiness requires systemic reforms, stakeholder engagement, and simulation-integrated curricula.

CONCLUSION

Preparedness remains suboptimal. Cognitive gains occur with training but institutional & behavioural readiness lag behind. Mandatory simulation-integrated curricula and structured policies are urgently required.

LIMITATIONS

- Cross-sectional design limits causal inference.
- Self-reported preparedness may differ from real-world capability.
- Online, voluntary survey may underrepresent anaesthesiologists from non-teaching or peripheral centres.

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