

Short Communication

Perceived Knowledge, Attitudinal Trend and Practice level of Nurses on Infection Prevention and Control: Synopsis from an on-going Study

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Abstract

Background: Infection Prevention and Control (IPC) remains a fundamental component of healthcare quality and patient safety in Bangladesh (BD). Healthcare-associated infections (HAIs) pose a significant threat to patient outcomes globally, particularly in resource-limited settings like BD. Nurses, as primary frontline caregivers, play a pivotal role in the success or failure of IPC measures and compliance.

Objective: This preliminary report evaluates the Knowledge, Attitude, and Practice (KAP) of Bangladeshi nurses to identify lacks and gaps in IPC activities and safety protocols in hospitals.

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Methods: This 6-month-long cross-sectional observational study is being conducted

among nurses across a few hospitals located in Dhaka city. Data were collected using a pre-structured, interviewer-administered questionnaire based on established hand hygiene/**IPC-guidelines**.

Results: From our ongoing study, we present here partially (1st 3 months data) for preliminary communication that yields certain professional development gaps, since 98% of participants reportedly never received any IPC training in the last 12 months. Interestingly, while 74% of respondents demonstrated "Good Knowledge" on ICP details, scoring 8–10 points, only 57.5% yielded a "Positive Attitude," but again 71% of them showed "Good Practice". However, we found that the primary barriers to effective practice since 81.5% identified it as due to a lack of supply chain, followed by ~17% being overloaded with heavy workloads &/or tiring-duty hours.

Conclusion: Though postgrad nurses possess good knowledge on IPC, a considerable gap exist in their attitudinal trend plausibly due to lack in institutional training on IPC. Our initial findings demand urgent attention to conducting periodic training on IPC to assist in organizing improved resource management to deliver better IPC-practice/ compliance. We recommend better-designed studies on countrywide IPC evaluation involving larger samples and broader coverage.

1. Background

Over the last few decades, several public health emergencies like: COVID-19, Monkeypox, Zika virus, H1N1-Influenza, etc. taught us lessons particularly for us-the poverty-prone marginalized communities-which WB categorized as low-mid-income-countries (**LMIC**). Further, detection & mitigation of global spread of novel infectious disease pandemics taught us lesson of acquiring core competencies in **global surveillance system**, where infection prevention and control (**IPC**) play the instrumental role, particularly for **LMICs**- like our Bangladesh that face natural disastrous/large disease outbreaks round-the-year.

Thus, **IPC** in connection with Global Action in Healthcare Network (**GAIHN**) was established to address threats of emerging infectious disease through rapid detection/response in healthcare settings including **HAI**, cumulatively, the Healthcare -associated Infections module-**GAIHN-HAI** being a critical & dynamic component to support **IPC improvement** and **health care systems**.

Healthcare-associated infections (**HAIs**) pose a significant threat to patient illness and impaired outcomes globally, particularly in resource-limited settings like Bangladesh.^{1,2} The **WHO** defined IPC as a practical, evidence-based approach to protecting patients & health workers¹ and nurses being the primary frontline caregivers playing a pivotal role towards the success/failure of **IPC** measures.³ However, maintaining high standards of **IPC** require constant vigilance, updated knowledge and supportive institutional environment.⁴

Among all others, **Bangladesh Healthcare System** faces unique challenges staying away from high patient loads in different levels of healthcare infrastructure.⁵ Despite existing national guidelines implementation of **IPC** at the bedside often reported to be remains inconsistent.

With this background we conducted this study towards assessing the status of perceived knowledge, attitudinal trend and practice level (**KAP**) of our nursing professionals to highlight essential needs, requirements and immediate plans towards standardizing a periodic and better IPC-training programs to ensure clinical practice aligned with global safety standards.⁶⁻⁷

2. Methodology

Research Design: Cross-sectionally designed Knowledge, Attitude, and Practice (**KAP**) survey.

Study Type : Descriptive type of observational study.

Study Duration: Though we planned **6** months to cover randomly selected 5 hospitals in/around Dhaka city, here, we are describing the IPC from only 1 hospital covered in 1st 3 months).

Target Population: Graduate nurses working in these hospitals/ Dept. in-and-around Dhaka city.

Study Setting : The study was planned to conduct in randomly selected five hospitals: **here we present the data from Shaheed Suhrawardy Medical College & Hosp (SHsMCH)**, Sher-e-Bangla Nagar, Dhaka, only- **as a short communication**.

In this short communication we present preliminary findings to describe IPC status in **SHsMCH** only.

Sample Size: Of statistically calculated sample size of **269** participants (graduate nurses), we present here only **227** (84%) participants, in this short yet preliminary

communication (A detailed report would be disseminated soon as an original article)

Data collection tool: Data were collected administering a pre-structured, interviewer- administered questionnaire designed on the basis of established IPC guidelines.^{8,9} While most participants filled in survey questionnaire on their own, in few cases (~7%) our research assistants (Graduate nursing students).

Data Management: Visually double re-checked data were entered 'SPSS/Win, V. 25 complying with assurance/quality, and re-coded for anonymity were finally analyzed utilizing appropriate statistical methods, as required.

3. Result: Of statistically calculated sample size of total **269** graduate nurses planned to study, we present here data from **269** (84.4%) nurses obtained from **SHsMCH**, Sher-e-Bangla Nagar, Dhaka only for this short yet preliminary communication. A detailed report would be disseminated within 2-3 months.

3.1 Socio-demographic Profile of Responders (Nurses)

Socio-demographic profile of **227** responding nurses yielded a vast majority being **female** (90.3%) which is very natural, particularly in Bangladesh. Of all, 72.3% belonged to younger age groups (20-39 years; of them 35.7% to 20-29 years and ~37% to 30-39 years), while 63 (28%) nurses belonged to >40 years old.

Likewise, age-matched duration of nursing profession, revealed 52.4% had been serving for a little less than 5 years to 9.0 years (29.1% for <5 years, while 23.3% for 5.1 through 9 years). Similarly, 47.6% for served for >10 years (27.8% for 10-14 and 19.8% for 15+ years).

Thus, demographic curve indicates a workforce (mostly being females) being energetic early-career professionals having expertise in nursing (**Table-1**).

Table: 1 Socio-Demographic and Professional Profile of Participants (n=227)

Variable	Gender	Frequency	(%)
Gender	Male	22	9.7%
	Female	205	90.3%
Age Groups	20–29 Years	81	35.7%
	30–39 Years	83	36.6%
	>40 Years	63	27.8%
Professional Experience	<5 Years	66	29.1%
	5–9 Years	53	23.3%
	10–14 Years	63	27.8%
	>15 Years	45	19.8%
Total		227	100.0%

3.2 IPC Training Status

Findings of table 2 reveal an astounding picture yielding a

critical gap of **(98.2%** not receiving any IPC-training except meagre **1.8%**) which invariably hampers in professional duties and/or future expertise/development who did not receive any IPC training- indicating a significant lack in being up-to-date educational intervention or proper training (**Table-2**).

Table 2: IPC Training Received in the Last 12 Months

Training Status	Frequency (n)	Percentage (%)
Received Training	4	1.8%
No Training	223	98.2%

Data enquiring about the primary barrier hindering effectively practicing IPC yielded a huge systemic challenge that **81.5%** respondents informed on **lack of supplies** as the leading barrier, followed by **workload** of **16.7%**, but facts like **'forgetting'** were reported by only **1.3%** of all respondent nurses.

Table-3, below, highlights the principal findings showing an overwhelming lacking in resource-based issues rather than other input on behavioral aspects (**Table 3**).

Table 3: Perceived Barriers to the Practice of Infection Prevention and Control (IPC)

Barrier Category	Frequency	Percent (%)
Lack of supply	185	81.5
Workload	38	16.7
Often forgetting	3	1.3
Others	1	0.4
Total	227	100.0

3.3 Knowledge, Attitude, and Practice Scores

Evaluation of KAP (Knowledge, Attitude & Practice) on **IPC** among the nurses revealed that while technical knowledge remains high (good) among **74%** and moderate in **16%**, a **notable disparity** remained in their **attitudinal trend**, yielding only a bit more than half (**57.5%**) who had **"Positive Attitude"** including another **14.7%** being neutral, and as much as 27.8% yielded a **"Negative Attitude"** toward IPC protocols. (**Table 4**).

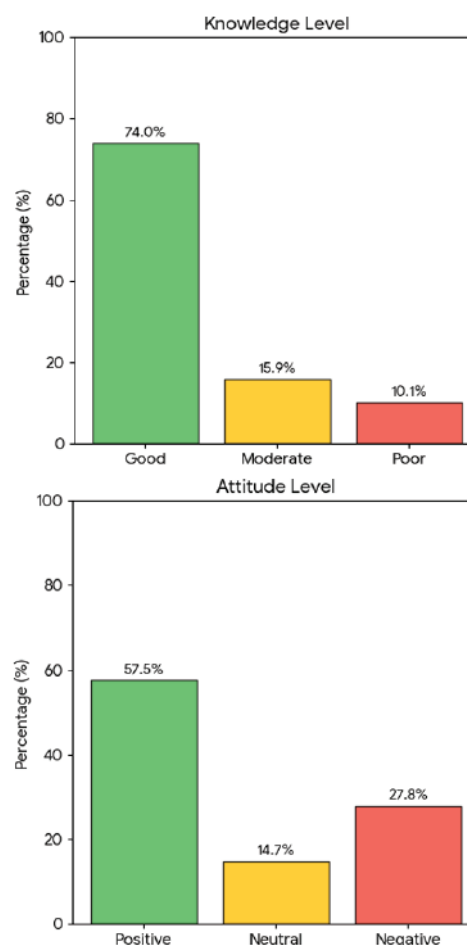
Table 4: Levels of KAP among the Nursing Professionals

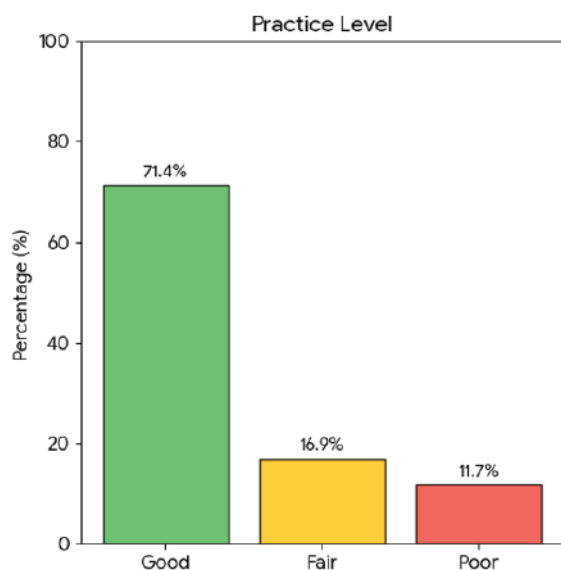
Category	Grading Scale	Frequency	Percentage
Known ge Score	Good Knowledge (8–10 points)	168	74.0%
	Moderate Know ledge (6–7 points)	36	15.9%
	Poor Knowledge	23	10.1%

Attitude Score	Positive Attitude (56–70 points)	131	57.5%
	Neutral Attitude (42–55 points)	33	14.7%
	Negative Attitude (<42 points)	63	27.8%
Practice Grading	Good Practice (60–75 points)	162	71.4%
	Fair Practice (45–59 points)	38	16.9%
	Poor Practice (< 45 points)	27	11.7%
Total		227	100%

Thus, the chart, below, demonstrates the KAP-level of respondents, clearly that the nurses did have component specific IPC details by ~60% on an overall scale for all knowledge, Attitude and Practice issues but the rest of all essentially needs to be trained a lot more.

Distribution of KAP Levels among nursing professionals (N=277)





Bar Chart-1 yielding distribution of KAP-levels among nursing professionals

4. Discussion

Looking at the preliminary findings of this KAP-survey, it definitely provides an overall scenario on IPC status and their safety culture only in one Bangladeshi hospital surveyed in Dhaka. However, a potential gap does exist in conducting & receiving training on IPCs, since 98% of nurses reportedly do not have any IPC-related education/training during the past 12 months. However, in medical sector, level of KAP doesn't remain static; rather it requires constant learning, training & practicing IPC through evidence-based learning, grooming and glooming to keep pace with ever evolving pathogens and repeated safety technologies.^{6, 10}

Though "Good Knowledge" as scored by 74% nurses seems quite promising, it is not sufficient for such a 'high-stakes environment' like in hospitals, particularly in Bangladesh. And as we know even a slight knowledge deficit in infection control activities, particularly with "never-knows/heard" like needle recapping can lead to catastrophic outbreaks or occupational injuries^{2, 8} leading to dangerous circumstances.

So, this partly survey cross-sectionally yielding a significant portion of participants having gross misconceptions about basic safety protocols of IPC- a deficit or lack of recent training, remains a big issue. When "Practice" is concerned with high-level score (71.4%) it actually exceeds the "Positive Attitude" level (57.5%) that aligns very closely with having a "Good Knowledge" (74.0%). It definitely suggests while nurses are technically proficient and actively implementing safety measures, there is a significant attitudinal gap, possibly because the fact of 98.2% have not received any IPC training over the last 12 months.

Despite high performance levels on IPC, institutional barriers remain a critical concern, since 81.5% of respondents identified lack of IPC- associated required supplies in hospitals and that ~17% had to face heavy workloads which remains a primary obstacle to optimal care. Practice must remain stronger; attitude and resource management be refined through targeted hands-on workshops and to ensure improved supply chains in the hospitals.^{6, 9, 10}

However, as informed to start this crucial topic of IPC that this study is just the initial part of our whole study project the ongoing effort may be able to map these prevailing deficiencies in more detail. Our upcoming detailed report may yield in-depth findings to be utilized in larger sample size and instituting more qualitative interviews to understand why these gaps still persist and how more strict institutional policies can be reformed in Bangladesh.

5. Conclusion

Initial findings of this short report though indicates that nurses in Bangladesh possess a fair level of IPC knowledge but lack in necessary training to be achieved to increase their practices with more potentials, we expect that our upcoming detailed report will make some issues clearer. However, we propose and request for the urgent need from Directorate General of Health Services (DGHS) to equip individual hospital administrations to implement mandatory, periodic IPC training programs in every large hospital in Bangladesh. We plan to publish a better and comprehensive in-depth investigation report towards providing a roadmap for these essential interventions in IPC issues in Bangladesh, shortly.

6. References

1. World Health Organization. Guidelines on core components of infection prevention and control programs at the national and acute health care facility level. Geneva: WHO; 2016.
2. Allegranzi B, Zahran B, Pittet D. Infection prevention and control: a global priority. *J Hosp Infect.* 2017;95(3):230-232.
3. Harun MGD, Sumon SA, Anwar MMU, Mohona TM, Rahman A, Abdullah SAHM, et al. Infection Prevention and Control Knowledge, Attitudes, and Practices of Healthcare Workers in Tertiary Care Hospitals in Bangladesh During COVID-19: A Multicenter Cross-sectional Survey.
4. Storr J, Twyman A, Zingg W, et al. Core components for infection prevention and control programs: a WHO evidence-based record. *Antimicrob Resist Infect Control.* 2017;6:6.
5. National Guidelines on Infection Prevention and Control. Directorate General of Health Services (DGHS), Bangladesh; 2020.

6. Pitombo MB, Cookson B. The importance of education and training in infection control. *J Hosp Infect.* 2012;82(4):217-219.
7. Islam MS, Utama SSS, Al-Amin SA. Infection control practices among nurses in a tertiary care hospital in Bangladesh. *Int J Nurs Sci.* 2019;6(2):160-165.
8. Siegel JD, Rhinehart E, Jackson M, et al. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. *Am J Infect Control.* 2007;35(10 Suppl 2): S65-164.
9. Kilpatrick C, Tartari E, Gayet-Ageron A, et al. Global hand hygiene compliance: 2010–2019 and the impact of the WHO Hand Hygiene Strategy. *Lancet Infect Dis.* 2020;20(8):912-921.
10. Hessels A, Paliwal M, Weaver SH, et al. Impact of patient safety culture on infection prevention outcomes. *Am J Infect Control.* 2019;47(10):1257-1261.