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Research Article

**KNOWLEDGE ATTITUDE AND PRACTICE OF THE HAND  
HYGIENE AMONG HEALTH CARE WORKERS CARING FOR  
CRITICALLY ILL NEONATES**<sup>1</sup> Bushra Bashir, <sup>2</sup> Faiza Waseem, <sup>3</sup> Hummara Kirn<sup>1</sup>Charge Nurse, Government Teaching Hospital Shahdara, Lahore, Pakistan, Email ID:  
bashirbushra208@gmail.com<sup>2</sup>Charge Nurse, Lahore General Hospital, Lahore, Pakistan, Email ID: makhan6131@gmail.com<sup>3</sup>Charge Nurse, Punjab Institute of Cardiology, Lahore, Pakistan, Email ID:  
humairakiran1122@gmail.com

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**Abstract:**

**Background:** Critically ill neonates are at the risk of developing wide range of complicated infections due to sub-optimal immunity. Hand hygiene has been proven to an effective barrier in preventing such life threatening conditions. Since an evident poor compliance was observed among the health care providers and there is a need of dynamic approaches to inculcate these trends in health practice to ameliorate the danger of nosocomial infections. **Objective:** To ascertain the health belief approach regarding implication of hand hygiene and its association with the wellbeing of critically ill neonates. **Material and methods:** This cross sectional study was conducted in Lahore General Hospital, Lahore Pakistan during March 2022 and July 2022 using convenient sampling method. A total of 120 healthcare workers including doctors, nurses and infection control nurses were approached out of which 100 were enrolled using a self-structured questionnaire after informed written consent. The data and response was recorded and analyzed using SPSS 21. Confidentiality and privacy was ensured at all levels. **Results:** More than two third (68%) of the respondents agreed that perceived difficulty to comply with the hand hygiene practices was the key barrier in retarding the advent of nosocomial infections in critically ill neonates. **Conclusion:** This study advocates the time tested fact regarding how the possible innate perception of difficulty in adopting the hand hygiene measures strongly governs the compliance.

**Keywords:** Hand Hygiene, Neonatal Care, infection Control

**Corresponding author:****Bushra Bashir,**

Charge Nurse, Government Teaching Hospital Shahdara,

Lahore, Pakistan,

Email ID: bashirbushra208@gmail.com

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**INTRODUCTION:**

Although the recent advances in the medical field have improved the outcome of the low-birth-weight infants. Continuous invasive monitoring and life-saving techniques have also led to potential risk of contracting hospital/associated infections. Efficient hand hygiene practices are supposed to be the safest and convenient means of preventing nosocomial infections but there has been data reported regarding its poor compliance.<sup>1,2</sup> with some studies revealed the percentage even below 50%.<sup>3-5</sup> Moreover, even aggressive and comprehensive efforts have resulted in only partial improvement in the compliance.<sup>6</sup>

Encouraging the culture and inculcating the attitude of hand hygiene practices is a dynamic process.<sup>2,7,8</sup> Compliance towards hand hygiene is governed by factors such as sex, workplace, job nature, stress and provision of hand hygiene materials.<sup>2</sup> Similarly the organizational policy and atmosphere in adopting the hand hygiene techniques also contribute to the compliance.<sup>9,10</sup> A distinct split in compliance has also been observed among healthcare providers working in the same institutions hinting that individual preferences, beliefs, psychosocial determinants cannot be overlooked in some circumstances.<sup>12,13</sup> the utilization of practical cognitive programs has resulted into a positive feedback in several hospital settings.<sup>14</sup> This study is based on the principles of planned behavior to evaluate cognitive determinants of hand hygiene approach and in the healthcare settings<sup>14-20</sup>. Our study is aimed to entail beliefs and perceptions associated with hand hygiene practices among nurses and devise strategies for its promotion.

**MATERIAL AND METHODS:**

This cross sectional study was conducted in the neonatology unit of Lahore General Hospital, Lahore Pakistan after formal approval from the ethical committee and concerned authorities during March

2022 and July 2022 using convenient sampling method. A total of 120 healthcare workers including doctors, nurses and infection control nurses were approached out of which 100 were enrolled using a self-structured questionnaire after informed written consent.

**Inclusion criteria:**

The subjects who were included in the study:

- I. Doctors, Staff nurses and infection control nurses who were interested to take part in the study.
- II. Doctors, Staff nurses and infection control nurses who were present at the time of study.
- III. Doctors, Staff nurses and infection control nurses who had an experience of more than one year.
- IV. Normal birth weight of neonate  $\geq 2.5$  kg.
- V. Gestational age between 38 to 42 weeks.
- VI. No major critical medical complication or anomalies threatening infant's condition.
- VII. Infant's hospitalization greater than 48 hours.

**Exclusion criteria:**

The subjects who are excluded from the study were:

- I. Doctors, Staff nurses and infection control nurses who will not interested.
- II. Doctors, Staff nurses and infection control nurses who will not present at that time.
- III. Doctors, Staff nurses and infection control nurses who experience is less than one year.
- IV. Birth weight of neonate  $< 2.5$ kg.
- V. Infants born before 37 weeks.
- VI. Any clinical situation which leads to infant's deaths or deterioration of infants conditions.
- VII. Infant's hospitalization less than 48 hours.

The data and response was recorded and analyzed using SPSS 21. Confidentiality and privacy was ensured at all levels.

**RESULTS:****Table.1 Assessment of individual cognitive factors related to hand hygiene**

Sr.	Statement	Agree (n)	% age
1	Do you perform hand hygiene before/after Attending the neonates?	68	68
2	Do you consider it useful to perform hand hygiene Before/after attending the neonates?	78	78
3	Is it difficult to comply with hand hygiene Before/after attending the neonates?	86	86
4	Do you think your senior would approve if you did not Practice hand hygiene before and after attending the neonates?	52	52
5	Do your colleagues perform hand hygiene before/ After attending the neonates?	72	72
6	Do you think majority of the nosocomial infections Are due to bacterial contamination of hands?	64	64
7	Do you feel that you can improve your compliance With hand hygiene?"	88	88

88% agreed that they can improve their compliance towards hand hygiene. 86% thought it is difficult to maintain hand hygiene while attending neonates. 78% found it useful. 72% stated that their fellow colleagues performed hand hygiene too on their place of work. 68% of the subjects agreed that they performed hand hygiene before and after attending the neonates. Whereas only 52% feared their seniors that they won't approve their act if they failed to perform hand sanitization while attending neonatal patients.

**Table.2 Reported barriers to appropriate hand hygiene among healthcare workers at Lahore General Hospital**

Serial#	Statement	Agree (n)	Percentage (%)
1	My hand's skin is sensitive/damaged	42	42
2	I prefer using gloves	56	56
3	I forget to perform hand hygiene	72	72
4	I don't find sufficient time to perform hand hygiene because of the neonatal workload	68	68
5	The wash basin is too far to perform hand hygiene	64	64
6	We don't have adequate supply of hand sanitizers	56	56
7	Hand hygiene interferes with the our daily practice of patient care	42	42
8	Alcohol based hand sanitizers are toxic to the skin and not suitable to handle food	60	60

72% of the respondents stated that they forget to perform hand hygiene while on workplace. 68% reported that they don't find ample time to perform hand sanitization due to increased neonatal patient load. 64% agreed that the wash basin was too far to perform hand wash. 60% found that it is unsafe to use alcohol-based hand rub because of its toxic skin irritant nature and it mixes up with the food they eat with bare hands. 56% each of the subjects preferred using the gloves over hand cleansing and also reported that they don't have an adequate supply of hand sanitizers. Whereas 42% enlisted that their hand skin was already sensitive or damaged to further continue alcohol or chemical based hand rubs and it interferes with their daily practice of patient care respectively.

**DISCUSSION:**

In this study, the perception of an approval from a senior toward hand hygiene practice and the perception of control over hand hygiene behavior were independently linked with intention to perform hand hygiene for example teenagers opt smoking due to their peer preferences (social norms) than due to parental pressure (subjective norms).<sup>17</sup> The theory of planned behavior model was used to assess the behavior of nurses working in the ICU settings of the hospital.<sup>20</sup>

Our finding that healthcare workers intention is overwhelmed by the perception and adoption of their fellow colleagues is consistent with other studies.<sup>24-26</sup> Seto et al.<sup>24</sup> demonstrated that transmission of information by influencers was more effective for implementing a new guideline on urinary catheter care than the previous strategies. The significance of the role model has been documented previously<sup>25</sup> and used in the successful promotions of campaigns pertaining to hand hygiene in the ICUs of hospital.<sup>10, 27-29</sup>

Conversely, the physicians independently influenced the compliance of their subordinates rather than being an active role model.<sup>26</sup> These studies suggest that more authoritative power confers the role model to execute to the their own compliance in a better way.

Levin<sup>30</sup> examined the theories of reasoned action and planned behavior models as determinants of glove use by healthcare workers. Compliance with hand hygiene requires minimal objective conditions to be attained, such as provision of alcohol based hand sanitizers.<sup>9, 28, 31-34</sup>

Another key point to ensure compliance with hand hygiene is to avoid under recruitment and overcrowding.<sup>35</sup> These conditions are settled by the institutional policies and strongly impact the healthcare worker's work experiences.

Hand hygiene practice is a reflex action which later on takes the form of a habit and influence the behavior of an individual.<sup>37</sup> In the study by O'Boyle et al.<sup>20</sup> the cognitive factors enlisted by the theory of planned behavior framework predicted the inclination to adhere with hand hygiene, way,<sup>14</sup> as was done in our study. Third, whether our findings can be generalized to other groups of healthcare workers remains to be tested, considering that infrastructure, past experience, and social and institutional backgrounds influence behavior.

Neonatal medicine has witnessed pragmatic advancements in the recent past along with the evidence based data blooming in the field of infection control. Stress has been laid over to impart the education related to infection control<sup>38, 39</sup>. There is a dire need to integrate knowledge from behavioral sciences into infection control strategies<sup>1, 40</sup> to mitigate infection control among critically ill neonates. Further research is warranted to establish the significance of person specific cognitive factors for hand hygiene behavior and to help devise successful promotion plan of action.

**CONCLUSION AND RECOMMENDATION:**

This study advocates the time tested fact regarding how the possible innate perception of difficulty in adopting the hand hygiene measures strongly governs the compliance.

Even though the majority of the healthcare workers possessed sound knowledge and favorable attitude, more than two third of them had poor practice towards hospital acquired infection prevention. Therefore health workers should strictly follow hospital acquired infection prevention guidelines. Ensuring sustainable supplies like personal protective equipment, water supply and hand washing facilities at patient care site is vital to correct the poor practice of infection control.

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