



The Level of Awareness and Compliance on Basic Infection Control Precaution among Nurses in the Philippines

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Introduction

Certain measures are made to guard and protect the body if ever the immune system is compromise or more over, shut down. Immuno-compromise individuals require certain preventive measures that would cease further harm of infectious microorganisms all throughout the body. These preventive techniques not only protect the patient but also give necessary protection for the health care provider.

Universal infection control precautions are used all over the world, in hospital setting and even in the community based setting. These precautions are habitually practiced by health care providers. Hand washing is commonly employed and promoted by the WHO. It is considered one of the most effective infection control measures. In hospital based setting, infection control play a very important role in the prevention of the spread of harmful microorganisms. Many nosocomial infections can be prevented using proper hand washing techniques, environmental controls and sterile techniques. Meticulous use of medical and surgical asepsis is necessary to prevent transport of potentially harmful organisms. (Kozier, 2004)

Techniques that include hand washing, gloving, wearing of mask, gowning, waste segregation and patient isolation are essentially taught to each health care provider to ensure clients protection and their own. As a health care provider we are responsible to know each precaution techniques. This will qualify our service in rendering protection and promotion of optimum function of the human body.

Definition of Variables/Operational definition

Awareness is defined as the quality of being aware: knowledge and understanding that something is happening or exists (*merriam-webster*). It is the knowledge that something exists, or understanding of a situation or subject at the present time based on information or experience (Cambridge *dictionary*)

Compliance is the act or process of complying to a desire, demand, proposal or regimen or to coercion. It is also a conformity in fulfilling official requirements (*merriam-webster*)

Infection prevention and control (IPC) is a practical, evidenced-based approach preventing patients and health workers from being harmed by avoidable infections. Effective IPC requires constant action at all levels of the health system, including policymakers, facility managers, and health care workers. IPC is unique in the field of patient safety and the quality of care, as it is universally relevant to every health care interaction. Defective IPC causes harm and can kill. Without effective IPC, it is impossible to achieve quality health care delivery.

Infection prevention and control effects all aspects of health care including hand hygiene, surgical site infections, injection safety, antimicrobial resistance and how hospital operate during and outside of emergencies.

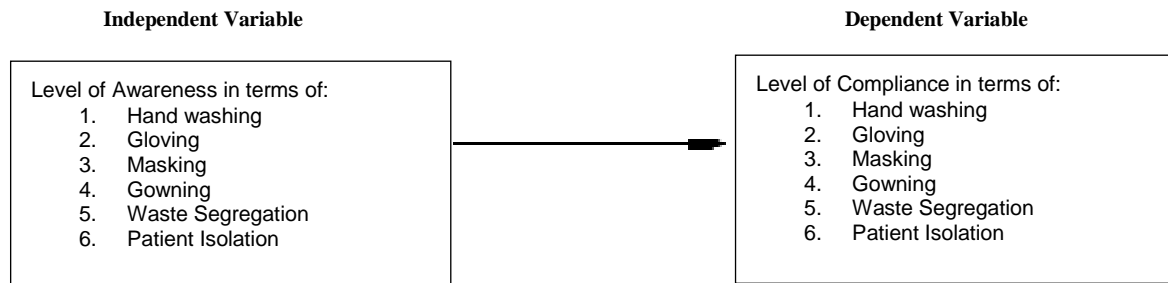
Theoretical Frame work

The study on the level of awareness and compliance of selected nurses in the Philippines on Universal Infection Control Precaution is based on the Self Care and Self-care Deficit theory developed by Dorothea Orem that includes three related concepts: self-care, self-care deficit, and nursing system. According to this theory, Self-care refers to the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health and well-being. Meanwhile self-care deficit, results when self-care agency is not adequate to meet the known self-care demand. Orem's self-care deficit theory not only when nursing is needed but also how people can be assisted through five methods of helping; acting or doing for, guiding, teaching, supporting and providing an environment that promotes the individual's ability to meet current and future well-being.

Modern nursing has (re) invented itself; however, it has retained numerous principles of Florence's environmental theory in its scientific bases. It also incorporated new technologies, to guarantee the execution of human and singular care to human beings, always guided by the science and art inherited from Florence Nightingale, prioritizing the comfort, the technique and the environment suitable for healing patients.

Nightingale's commitment to staying with patients in times of suffering is the very basis of patient-centered care, which becomes a very current and necessary principle for the full recovery of patients⁽⁵⁾. For this, individualized care to patients' needs needs to be implemented. Currently, such care, also called nursing interventions or activities, ended up being researched and polished. They were cataloged in the form of international classification of results and interventions, based on the standardized language of nursing diagnoses, structured from the real or potential problems of individuals, who need nursing assistance.

Conceptual Framework



Statistical Treatment of Data

The data will be interpreted and analyzed through the use of the following statistical tools:

Percentage and Frequency

This will be use to describe the profile of the respondents. The following formula was used:

$$P = f / N \times 100$$

Where: P = Percentage

f = Frequency

N = number of respondents

Methodology

A. Weighted Mean

The weighted mean was applied in the analysis of the respondents' responses related to their level of awareness and compliance on universal infection control precaution. This descriptive statistic pertains to the sum of the product of the frequency and the weight of a set of variables divided by the total number of frequencies.

The following scale interval was used in the analysis of the responses:

Numerical Rating	Verbal Interpretation	Scale Rating
1	Unaware/Non-Compliant	1.00 – 1.74
2	Moderately Aware/Moderately Compliant	1.75 – 2.49
3	Aware/Compliant	2.50 – 3.24
4	Highly Aware/Highly Compliant	3.25 – 4.00

B. Pearson's Coefficient of Correlation, r

Pearson's Coefficient of Correlation, r, a statistical measure that shows the degree of relationship between two variables was used in this study. Specifically, this statistic was applied to test whether there is a significant relationship between the level of awareness and compliance on universal infection control precaution.

In analyzing the correlation value, two things were considered. First, the sign was taken into account whether it is positive or negative, and secondly, the magnitude of relationship. For the sign, if x increases and y increase, or if x decreases and y decreases, then the correlation is regarded as positive, wherein a direct relationship exists. On the other hand, if the x increases and y decreases, or if x decreases and y increases, then the correlation is considered as negative or an inverse relationship exists.

In terms of the magnitude, the resultant conclusion was derived using the guide below:

r-value	Conclusion
± 1.00	Perfect positive/negative correlation
± 0.80 – 0.99	High correlation
± 0.40 – 0.79	Moderate correlation
± 0.10 – 0.39	Low correlation
<± 0.10	Negligible correlation
0	Zero correlation

To further test the significance of the correlation obtained from the results of the Pearson coefficient of correlation, the t-test was applied. The t-test formula is depicted as follows;

$$n - 2$$

$$t = r$$

$$1 - r^2$$

where:

t	-	computed t-value
r	-	Pearson's value
n	-	number of respondent

Results:

Table 1: Weighted Means' Summary of Level of Awareness of Nurses in the Philippines on Basic Infection Control Precaution

VARIABLES OF LEVEL OF AWARENESS	WEIGHTED MEAN	VERBAL INTERPRETATION
1. Hand Washing	3.27	Highly Aware
2. Donning Gloves	3.38	Highly Aware
1. Wearing the Face Mask/Respirators	3.43	Highly Aware
4. Gowning	3.45	Highly Aware
5. Waste Segregation	2.45	Moderately Aware
6. Patient Isolation	3.45	Highly Aware
AVERAGE WEIGHTED MEAN	3.24	Aware

Table 1 shows the summary of weighted means' in the level of awareness of nurse in the Philippines on basic infection control precaution. The Variables number 4 and #6 has the highest weighted mean of 3.45 which indicates the respondents have high level of awareness in the use of Gowns and Patient Isolation. Followed by variable number 3 that has a weighted mean of 3.43 of which accounts for the high level of awareness of the respondents in wearing a face mask and Variable number 2 with the weighted mean of 3.38 that also indicates that respondent are highly aware of the use of gloves in certain procedures. Variable number 1 that has a weighted mean of 3.27 shows respondents have high level of awareness in hand washing. Mean while the respondent had the lowest weighted mean of 2.45 on variable number 5 which shows that the respondent are moderately aware about waste segregation.

Over all the average weighted mean of the level of awareness of nurses in the Philippines on basic infection control precaution was 3.24 which concludes that the respondents are aware of the indicators in hand washing, donning of gloves, wearing of mask, wearing of gown, waste segregation and patient isolation. In support with the assessment of World Health Organization, the level of awareness of health care providers in Universal Infection Control Precaution, attributes to the usage of hand washing, gloving, usage of mask, gowning, waste segregation and patient isolation of health care representatives, as the major defense in terms of protecting their personal and patient's well being in harboring pathogenic infections.

Table 2: Weighted Means' Summary of Level of Compliance of Nurses in the Philippines on Basic Infection Control Precaution

VARIABLES OF LEVEL OF COMPLIANCE	WEIGHTED MEAN	VERBAL INTERPRETATION
1. Hand Washing	3.44	Highly Compliant
2. Donning Gloves	3.39	Highly Compliant
2. Wearing the Face Mask/Respirators	3.27	Highly Compliant
4. Gowning	3.26	Highly Compliant
5. Waste Segregation	2.71	Compliant
3. Patient Isolation	3.23	Compliant
AVERAGE WEIGHTED MEAN	3.22	Compliant

Table 2 shows the summary of the weighted means' on the level of compliance of the respondents on basic infection control precaution. Hand washing has the highest weighted mean of 3.44 which indicates that the respondent are highly complaint in practicing hand washing in terms of basic infection control precaution. Donning Gloves which have a weighted mean of 3.39, wearing of face mask has a weighted mean of 3.27 and Gowning with the weighted mean of 3.26 indicates that the respondents are highly compliant in using gloves, wearing of mask and using gown in practicing basic infection control precaution. In terms of patient isolation which has a weighted mean of 3.23 indicates that the respondents are compliant. Meanwhile, waste segregation has the lowest weighted mean of 2.71 that accounts for the respondent being compliant in practicing waste segregation on basic infection control precaution.

With the average weighted mean of 3.22 conclude that the respondents are compliant on practicing basic infection control precaution. In support with the assessment of World Health Organization, the level of compliance of health care providers in Universal Infection Control Precaution, attributes to the effectiveness in utilizing hand washing, gloving, usage of mask, gowning, waste segregation and patient isolation of health care representatives, as the major defense in terms of protecting their personal and patient's well being in harboring pathogenic infection.

Table 3: Test of Relationship between The Level of Awareness and The Level of Compliance of Nurses in the Philippines on Basic Infection Control Precaution

VARIABLES	r- value	t-value		Decision	Interpre- tation
		Computed	Tabular		
1.Hand Washing Awareness and Compliance	0.92	35.75	1.96	Reject null hypothe- sis	There is a significant relationship A high correlation exists
2. Donning Gloves Awareness and Compliance	0.97	60.77			
3. Wearing the Face Mask/ Respirators Awareness and Compliance	0.95	46.34			
4.Gowning Awareness and Compliance	0.88	28.22			
5.Waste Segregation Awareness and Compliance	0.98	75.01			
6. Patient Isolation Awareness and Compliance	0.88	28.22			
Overall Awareness Level and Compliance Level	0.91	82.18			

Table 3 shows the summary results of the test of significant relationship using Pearson's Coefficient of Correlation. The statistical findings indicated that there is a high positive relationship between the level of awareness and the level of compliance of nurses in the Philippines on universal infection control precaution. This high positive relationship is clearly evidenced in the correlation values.

The test of significant relationship between the level of awareness and the level of compliance in terms of hand washing revealed a computed r-value of 0.92. This r-value meant that a high correlation exists between the abovementioned variables. This statistical result indicated that the higher the level of awareness of nurses in the Philippines on basic infection control precaution related to hand washing, the higher the intensity of compliance to hand washing.

Similar results were also noted in the tests of relationship between the level of awareness and the level of compliance of nurses in the Philippines on basic infection control precaution in terms of donning gloves, wearing the face mask/respirators, gowning, waste segregation and patient isolation. Computed r-values were found to be 0.97 for donning gloves, 0.95 for wearing the face mask/respirators, 0.98 for waste segregation and 0.88 for patient isolation. Therefore, the null hypothesis that there is no significant relationship between the level of awareness and the level of compliance of nurses in the Philippines on basic infection control precaution is rejected.

Overall, there is a high significant relationship between the level of awareness and the level of compliance of nurses in the Philippines on basic infection control precaution. Thus, it could be concluded that the higher the level of awareness of nurses in the Philippines on basic infection control precaution, the stronger would be their consequent compliance.

Summary of findings

The findings of the study were concisely presented herein. They were arranged according to the statements of the problems:

1. Level of Awareness on Basic Infection Control Precaution

In general, the use of Gowns and Patient Isolation has the highest weighted mean which indicates that the respondents are highly aware on Basic Infection Control Precaution in terms of Gowning and Patient Isolation specifically the use of gown during procedures and patient care activities when in contact of clothing/exposed skin and that isolation is used for clients with infectious disease to prevent the spread of microorganism. Meanwhile, waste segregation has the lowest weighted mean which signify that the respondents are moderately aware of Basic Infection Control Precaution in terms of waste segregation particularly in discarding all non-infectious and non-biodegradable materials in black containers.

2. Level of Compliance on Basic Infection Control Precaution

On the whole, Hand washing has the highest weighted mean which indicates that the respondents are highly compliant on Basic Infection Control Precaution in terms of hand washing, distinctively in practicing hand washing after handling contaminated or potentially contaminated object such as

after handling bed pans or using the toilet and hand washing after hands have been in contact with any body substance such as wound, exudates, urine, stool, blood, etc. Meanwhile, waste segregation has the lowest weighted mean that accounts for the respondent being compliant on Basic Infection Control Precaution in terms of practicing waste segregation, in particular with discarding all non-infectious and non-biodegradable materials in black containers.

3. Significant relationship of the level of awareness and compliance on Basic Infection Control Precaution

Test of relationship between the Level of Awareness and the Level of Compliance of Nurses in the Philippines on Basic Infection Control Precaution shows the summary results of the test of significant relationship using Pearson's Coefficient of Correlation. The statistical findings indicated that there is a

Conclusion

- 1.) Nurses in the Philippines are highly aware of Basic Infection Control Precaution in terms of hand washing, donning gloves, wearing of face mask, use of gown and patient isolation in controlling the spread of infection.
- 2.) Nurses in the Philippines are highly compliant on Basic Infection Control Precaution in term of using hand washing, donning of gloves, wearing of face mask and use of gowns in controlling the spread of infection.
3. Overall, there is a high significant relationship between the level of awareness and the level of compliance of nurses in the Philippines on Basic infection control precaution. Thus, it could be concluded that the higher the level of awareness of nurses in the Philippines on basic

Recommendations

After a thorough study, the following recommendations were drawn;

1. Promote the level of awareness in proper waste segregation in discarding infectious waste in proper waste containers to prevent the spread of infection.
2. Conduct programs that will exhibit the health hazards and consequences of improper waste segregation. And to ensure the compliance, there should be a monitoring team to check the proper segregation.
3. Conduct health teachings that gives precautions designed for the care of all patients in hospitals regardless of their diagnosis. Give emphasis on patient isolation and the prevention of transmission of infection through airborne, droplet, and direct contact to impede the spread of infection.

References

A. Books

Alan P. Agins, Ph.D., "Teacher's Drug Reference:

A Guide to Medical Conditions and Drugs Commonly Used to Treat School age children

Stephen Vogel, M.D., and David Manhoff, "Emergency Medical

Treatment: A Handbook of What to Do in an Emergency to Keep a Child (or Adult) Alive Until Help Arrives"

Murray, P., Kobayashi, G., Pfaller, M., & Rosenthal, K. (1994).

"Medical Microbiology" 2nd edition, Mosby-Year Book, Inc.

Kemp, R.J. & Bankaitis, A.E., (2000) "Infection Control for Audiologists"

Hosford-Dunn, R. Roeser and M. Valente (Ed

"Audiology Diagnosis, Treatment, and Practice Management" Vol. III (pp. 257-279). Thieme Publishing Group, New York, New York.

Bankaitis, A.U. & Kemp, R.J. (2002). "Hearing aid related infection control".

"Strategies for Selecting and Verifying Hearing Aid Fittings", 2nd Edition (pp. 369–383). Theme Publishing Group, New York,

B. Journals

Garner JS, Simmons BP. Guideline for isolation precautions in hospitals. *Infection Control*. 1983 Jul–Aug;4(4 Suppl):245–325. [[PubMed](#)]

Hammond JS, Eckes JM, Gomez GA, Cunningham DN. (1990)

"HIV, trauma, and infection control: Universal precautions are universally ignored".

Henry K, Campbell S, Collier P, Williams CO., "Compliance with universal

precautions and needle handling and disposal practices among emergency department staff at two community hospitals”

Am J, (1994) “Infection Control”

Kris Miller Lishner and Margaret [Auld](#) Bruya,.

“Creating a Healthy Camp Community: A Nurse's Role”

Bankaitis, (2002) “What's growing on your patients' hearing aids?

A study gives you an idea”, The Hearing Journal, 55(6): pp. 48–54.

Kemp, R.J. & Bankaitis, A.E., (2000), “Infection Control for Audiologist”.

Dunn, R. Roeser, and M. Valente (Eds).

“Handbook of Audiology: Practice Management” (pp. 257–272). Theme Publishing, New York

Breathnach, A.S., Jenkins, D.R., & Pedler, S.J., (1992)

“Stethoscopes as possible vectors of infection by staphylococci”,

BritishMedicalJournal,305:

Kemp, R.J., Roeser, R.J., Pearson, D.W., & Ballachandra, B.B. (1996).

“Infection Control for the Professions of Audiology and Speech Language Pathology”

Iles Publications Rutala, W.A., (1990) “APIC guideline for selection and use of disinfectants”, American Journal of Infection Control 17:52, 99–117

C. Internet Sources

Centers for Disease Control and Prevention (2002).

“Guideline for hand hygiene in healthcare settings” <http://www.cdc.gov/handhygiene>

www.mb.com.ph

Schountz, T. & Bankaitis, A.E., (1998)

“Basic anatomy and physiology of the immune system. Seminars in Hearing”,19(2): p. 131–142.

Centers for Disease Control and Prevention, (1987)

“University precautions for prevention and transmission of HIV and other blood borne infections”

<http://www.cdc.gov/ncidod/hip/Blood/UNIVERSA.HTM> FDA

<http://www.fda.gov/opacom/hpview.html>.

WHO Headquarters

<http://www.who.int>

South-East Asia Regional Office

<http://www.whosea.org>

Western Pacific Regional Office

<http://wpro.who.int>