Original Research

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Analysis of Factors Adherence to Safe Injection Practice Procedures among Nurses Healthcare Center Qatar

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Article Info	Abstract
	Injection practices was common medical procedure done by nurses according doctor's prescription. In nursing process, injection practice is part of nursing intervention, but injection practices was risky for the health care workers. Needle stick injury was happened to the nurses, 18% due disposal of the needle, and 15% while draw the blood for laboratory study. Adherence to the work procedure influence by few behavior factors. Aim of research of the research were to finding out of the factors influence of adherence to safe injection practice among the nurses at healthcare center X Qatar. Type of the research was observational analytic quantities of the analytic description, using cross sectional approach. 9 variable latent with 56 variable indicator. Size of sample were 114 nurses. Data analytic with using PLS-SEM. T-statistic value on variable culture 2.94; environment 1.99; work procedure 3.81 and supervisory 3.10. T-statistic of Individual characteristic, work facility, attitude, and knowledge bellow 1.96. R^2 variable adherence were showed 96.05% with Q^2 87.07%. Culture, environment, work procedure and supervisory influenced of the adherence safe injection practice among the nurses. (96.05%) variable independent influence of the adherence safe injection practice among the nurses, within 87.07% showed good predicted.

INTRODUCTION

Injection practices was common medical procedure done by nurses according doctor's prescription. Doenges M.E., Moorhouse M.F., Murr A.C., (2014) stated in nursing process, injection practice is part of nursing intervention, but injection practices was risky for the health care workers. Mandal J., (2013) reported needle stick injury was happened to the nurses, 18% due disposal of the needle, and 15% while draw the blood for laboratory study. Gholami, et

al., (2013) result studied at Iran, 32% health care worker had experience with the needle stick injury, 45% experience more than twice. 9.7% needle stick injury had reported to the supervisor, with odd ratio 2.4 within shift duty. If the incident of needle stick injury not reportable, will be miss to be investigation and monitoring and also the hepatitis B and HIV exposed from the needle could not be follow up. Some reasons why the incident of needle stick injury not reported due to work fatigue and high workload among nurses.

Amira C.O., and Awobusuyi J.O., (2014) reported at Nigeria, incident needle stick injury 24.5%/years. Causes of the needle stick I injury due recapping of the needle (45%), while disposed of the needle (30%), and while inserted the intravenous infusion (27.5%). Needle stick injury reported to the superior (37%). Study reported by Kaphle, et al.,(2014) at the Nepal, 30.5% nurses had training of safe injection practice, had vaccination anti Hepatitis B (76,8%), awareness to the needle stick injury (57,7%), had experience needle stick injury (71,8%), needle stick injury (55,1%), while recapping the needle (94,1%). Conclusion from there studied needle stick injury incident due of lack of awareness, lack of skill on the safe injection practice.

Study reported done by Holla, et al., (2014) incident rate needle stick injury at India 71.9% (n 136), correlated to the long hour duty. Long hour duty can be caused of the fatigue, fatigue had rick of the needle stick injury. Reported by Jahangiri, et al., (2016) needle stick injury in Iran, (76%) to the nurses, while dealing with the needle before the injection procedure (85.5%), recapping the needle (41.4%), and not reported (46,7%), significant due long hours duty and shift work. Reported by Gyawali, et al., (2016) at Nepal 75.6% nurse's rural hospital, 39.2% nurses city hospital had developed with the sign and symptom of hepatitis. 13.3% nurses at city hospital had hepatitis B positive, 37.3% nurses from rural hospital had hepatitis B positive. 33.3% rural nurses, 21.6% nurses for the city hospital had needle stick injury.

DC (2013), predicted health care worker has no hepatitis B vaccination, exposed by hepatitis B 6%-30%, hepatitis C 1.8% and exposed by HIV 0.3%. Papadakis M., and McPhee, SJ., (2015), stated that Hepatitis B is infectious disease at the liver by the virus of hepatitis type B. Dafaalla M.D., et al., (2016) reported that Sudani nurses, 2.3% not wearing hand glove while injection procedure, 95.9% believed inf had needle stick injury will hepatitis infected, 99% believed needle stick injury high risk HIV infected, 83% nurse feeling worry exposed by HIV and hepatitis if had needle stick injury, 77.8% hand wash when had needle stick injury, 36.5% stated sharp box not enough stock, 31.8% believe needle stick can be prevented. Bijani, et al., (2017) reported the impact the safe injection practice training for nurses, incident needle stick injury reduced from 15% became 10% with significant (P=0,002).   Conclusion these study, safe injection practice training can be prevent of incident of needle stick injury among the nurses.

According Strank, J., (2013) adherence to the work procedure influence by behavior factors, component the behavior included: 1. attitude; 2. motivation; 3. perception; 4. memory of procedure; 5. individual characteristics; and 6. social background. Based on the theory of Lawrence Green cite by Dafaalla, et al., (2016), and DiClemente, et al., (2013), behavior influence by 3 factors: 1. Predisposition factor such as attitude, skill, culture, believe and individual characteristics; 2. Enabling factor such as facility, and work environment; 3. Reinforcing factor such as rule and supervisory from the management, and written procedure have to in place.

Injection procedure is high risk become needle stick injury. When needle stick injury is happen, may infectious disease transmitted or exposed to the nurses. Nursing safe injection practice been implementation, but the incident of needle stick injury still happening. Lack of knowledge, negative attitude and unsafe behavior may influence to adherence to the safe injection practice. According the theory of infection prevention and control and also data empiric needle stick injury, what is contributing factors influence to adherence safe injection practice among nurses in Healthcare facility Qatar?

METHODS

Type of the research were used the quantitative observational analytics, within cross sectional approach. Venue of the research were the Healthcare Center Qatar, since March 1st up to September 1st 2019. Number of population of the nurses were there working at the Ras laffan City 91 nurses, Messahed City 35 nurses, dan Dukhan City 26 nurses within total 152 nurses, only 114 nurses were an acceptable to participated as responder in this research.

Questionnaire as the instrument to collecting data regarding of the characteristic individual, knowledge, attitude, culture, facility, supervisory, work environment, work procedure and adherence safe injection practice. Respondent will choose the answer following a Likert scale: 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree.

Instrument validity a proof following convergent and discriminant of validity. Cut off the validity used were the loading factor value above 0.5 and the discriminant validity used were the *average variance extracted* (AVE) value above 0.5. (J. F. Hair, G.T.M. Hult, C.M. Ringle, M. Sarstedt, 2017). *Cronbach Alpha* used for the check the reliability of the construct. Good reliability of the construct must above the 0.7 (N.K Avkiran, C.M. Ringle 2018).

Analysis these data, we using the technic of Partial Least Square - Structural Equation Model (PLS-SEM). Steps of technic PLS-SEM following steps bellows:

1. First steps: Designing the Model of Structural (*inner model*).
2. Second steps: Designing the model of measurement (*outer model*).
3. Third steps: Construct the path *diagram.*
4. Fourth steps: Converse of the path diagram to the equation model: *Outer model* as the *outer relation or the measurement model* and the *Inner model,* as the relation between the variable latent or structural model.
5. Fifth steps: Do estimation of the parameter.
6. Six step: *Goodness of Fit analysis.*
7. Seven step: Hypothesis test

RESULTS AND DISCUSSION

Research had been completely at Healthcare Center Qatar supporting oil and gas operation. Research conducted since May 1st 2019 up to September 1st with number of responder were 114 nurses. Purpose of this research were to find out of factors influence adherence safe injection practice among nurses at Healthcare Qatar. Safe injection practice procedure been implemented in this healthcare to make sure all nurses, patient and community safe from the needle hazard. Safe injection practice procedure will guide the nurses to do prevention and control of exposure from the cross infection and prevention of needle stick injury among nurses and minimize abuse of needle by community.

Table 1 showed, most of the responder is male (83.3%). It is typical nurses hired by company were the male. Male nurses easy going to response any emergency at the site plant or inside industrial area. Healthcare in industrial area had the ambulance unit, an also sometime the occupational nurse will visit to the workplace to make sure the workplace were healthy condition.

Table 1 showed the level education of responder, majority were graduated from bachelor degree (52,6%). 43% still hold diploma level. According new policy from State of Qatar, minimal qualification for healthcare worker must be graduated from bachelor level. Bachelor level had ability to make decision with professionalism.

Table 1
Distribution frequency Sex Responder (n114)

Indicators	f	%
Sex		
Female	19	17
Male	95	83
Education		
Diploma	49	43,0
Bachelor degree	60	52,6
Master degree	5	4,4

Table 2 showed, age level of the responder, variation from 44.9 years old up to 60 years. Age above 30 years old had long enough exposed by work experience as the professionalism. The average of work experience were 21.3 year as nurses, 63% above 21 year experience. Minimal experience as nurse in this healthcare facility are 2 years.

Table 2
Distribution frequency Age level of Responder (n114)

Indicators	Mean (SD)	Min-Max
Age level	44.99 (4.831)	31-60
Work experience	21.28 (4.898)	9-31

Validity and reliability result

Result of study showed the result of the validity testes mostly above 70%, only the individual characteristics showed AVE value 0.51 but the Cronbach's Alpha showed 61.56%. According some researcher mention if AVE between 0.4 up to 0.7, make sure the validity test above 50% will consider accepted.

Significant level result

Table 6 showed the significant test showed if value t-statistic above 1.96 with alpha 0.5 we can conclusion this on significant level. From table no 6 we can see the variable work culture, supervisory, environment and work procedure showed the t-statistic above 1.96, we conclude these variables were significant influence to the adherence safe injection practice. T-statistic individual

characteristic, knowledge, attitude and work facility were not significant (bellow 1.96).

Determinant Level

Work procedure contributed positive to adherence safe injection practice 57.04% (R2 05704, T-value 3.81), safety culture contributed positive to adherence safe injection practice 44,88% (R2 0,4488 T-value 2.95), supervisory contributed to adherence safe injection practice 26,09% (R2 0,2609 T-value 3.10), work environment contributed negative to adherence safe injection factor 24,56% (R2 0,2456 T-value 1.99). Characteristic individual, knowledge, attitude and facility not significant contributed (t-value < 1.96).

R2 variable adherence were showed 96.05% with Q2 87.07%. 96.05% variable of culture, environment, supervisory, and work procedure were influenced of the adherence safe injection practice among the nurses within predictive relative 87.07%.

CONCLUSION

Conclusion of this research had been proof, those variable work culture, supervisory, environment and work procedure showed the t-statistic above 1.96 we conclude these variables were significant influence to the adherence safe injection practice. Variable individual characteristic, knowledge, attitude and work facility were not significant influence to adherence of safe injection practice.

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CONFLICTS OF INTEREST

Neither of the authors have any conflicts of interests that would bias the findings presented here.

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