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RESEARCH ARTICLE

THE STRESSORS AMONG AMBULANCE NURSES DURING EMERGENCY RESPONSESAT OIL & GAS INDUSTRIAL CITIESIN QATAR

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Abstract

The previous literatures and studies told us workers in Emergency Services such as Paramedics and Ambulance Nurses face high risk of stress. One of the reason is the stressors they encounter during Emergency Responses. The aim of this study is to investigate various stressors face by Ambulance Nurses during Emergency Responses in Industrial Cities of Oil and Gascompanies in Qatar. This study is Descriptive Explorative and Verificative with design of Cross Sectional. There are 125 Ambulance Nurses Employees in this Industrial Cities included in this project. The research were conducted between June-September 2019. An total 100 Ambulance Nurses responded to the study and were analyzed using Principal Component Analysis with Software SPSS Trial Version. The Result of PCA reanalyzed with Confirmatory Factor with Software of Amos 24.The result of PCA revealed there are 23 stressors encountered by Ambulance Nurses during Emergency Responses which contains of 3 dimensions such as Internal, External and Environment. The aforementioned result of PCA reanalyzed with Confirmatory Factor Analysis using Software Amos student version yielded CMIN/DF=1,521, GFI=0,821, RSMEA=0,073.

Conclusion: The finding suggest that Ambulance Nurses faced Multiple Job Stressors while responding Emergency Calls.The Instrument of The Sources Ambulance Nurses Stress during Emergency Responses to have adequate Validity and Reliability.

Introduction:-

Background:

Based on literatures and previous researchs, it is known that emergency services workers have a high risk of stress. One reason is the stressors they face when responding to emergency calls themselves.

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According to Szalma (2015), there are several stressors related to the tasks performed by an ambulance paramedics / nurses such as driving an "emergency" vehicle at high speed, providing rescue measures to patients with the latest technological equipment at the scene of an accident or disaster.

Other possible stressors that may be faced by paramedics / ambulance nurses are fear of threats to their own safety in the field, uncontrolled emotions when having to deliver bad news to patients' families and must operate complex medical devices that sometimes do not function properly (Beaton et al, 1993; Szalma, 2015).

Previous research on exposure to stressors faced by paramedics and firefighters in the field such as severe injuries suffered by themselves or coworkers, terrible accidents, providing assistance to seriously injured victims, as well as exposure to patients who are dying (Beaton , et al 1998; Szalma, 2015)..

The purpose of this study is to investigate all kinds of stressors ambulance nurses encountered during emergency responses and mapping them ineach factor which formed through employment of Principal Component and Confirmatory Factor Analysis in Oil and Gas Industrial Cities of Qatar.

Literature Review:-

Lazarus and Folkman (1984, 2015) provide the concept of psychological stress is the result of the interaction between the three elements of individual assessment of the threat situation under conditions of uncertainty. The three elements are: (a) Actions needed by the body as a reaction to stress, (b) The individual's perception of his ability to take the required actions (c) The severity felt based on the threat posed by the stressor.

Stressors are internal and external factors that can change individuals and result in stress phenomena (Emanualsen&Rosenlicht, 2001). Stress is the impact of stressors (stressors) and factors in an individual when reacting with their environment.

Mitchell, et al (1990) divided stressors into two categories which are first is Environmental Stressors and the second is Psychosocial Stressors / personalities. Including environmental stressors, among others; Noise, dust / dirt, overcrowded situations, extreme temperatures / weather, chaos, unfriendly weather conditions, people around the incident, driving a vehicle at high speed, cramped and cramped spaces, poor lighting, lack of psychological pressure, psychological stress when making a quick response (Priority One), decisions must be made quickly, etc.

While those included from Psychosocial Stressors include; Relationships in the family, Conflicts with coworkers, conflicts with company administratrives staff, lack of appreciation from the organization / supervisor, taking action on drunken / poisoned patients, the crowd of media / journalists in the field.Stressor personalities include the inability to say "no" to someone, the desire to be "liked" by everyone, feelings of guilt if not able to help people in need, worry about professional competence, the nature of seeing things from a negative perspective, sensitive to criticism, hoping too high on oneself, feeling guilty for not doing a good job or making mistakes in his patients.

Method:-

This type of research is descriptive explorative and verificative with a cross-sectional approach. Descriptive means analyzing and presenting data systematically, so that it can be more easily understood and concluded while exploratory is a type of research that aims to find something new in the form of a specific phenomenon, fact or disease. Explorative descriptive research aims to describe the state of a phenomenon, in this study is not intended to test certain hypotheses but only describe what is the presence of a variable, symptom or state (Arikunto, 2010). While descriptive verification of the type of research to confirm existing theories based on empirical data.(Zamzam, 2012).

This study was conducted in the Oil and Gas Industrial Cities within Qatar, which is divided into three regions namely Dukhan, Ras Laffan and Mesaieed. This research population included respondents from all ambulance personnel who work throughout the Industrial Cities of Dukhan, Ras Laffan and Mesaieed, totaling 125 people. Of them 100 were responded the questionnaire through electronic/email.

The data from questionnaires were analysed using technic Principal Components and Confirmatory Factor to investigateand prove the consistency how many factors formed from various stressors faced by ambulance nurses during emergency response.

Result and Discussion:-

Setting:

The State of Qatar (in Arabic: **دولة قطر**, Daulah Qatar) is an emirate country in the Middle East located on a small peninsula in the Arabian Peninsula in West Asia.

Their only land border is Saudi Arabia in the south and the rest is bordered by the Persian Gulf.
It is also what separates Qatar from the island nation of Bahrain.

Qatar is a high-income country supported by its third largest natural gas and oil reserves in the world.
This country is included in the country with the highest per capita income in the world.

Qatar is classified as a country that has a very high human development index and is the best among other Arab countries.

Demographic of Respondents:

Based on Table 1 below, it can be seen that all respondents in this study are male, this is very understood because indeed all Emergency service workers are dominated by men, even 125 ambulance nurses who work in Industrial Area X are all male. Respondents' age was dominated by ≤ 42 years, namely 57% (57 people), while the age range ranged from 24 to 55 years. Based on work experience in an ambulance, it is known that the middle value of 17 years is almost equal, namely ≤ 17 years 51% with a range of work experience between 12-44 years. Based on their education level, some respondents have a nurse qualification plus EMT (Emergency Medical Technician), 69 people (69%) as basic education to work in an ambulance, while the Paramedic + Nurse qualification is occupied by 8% of the total 100 people, and with the qualification of Registered Nurse alone without additional qualifications to work in an ambulance was experienced by 23 respondents (23%)

Table 1:- Demographic of Respondents.

Demographic Category		**Percentage (%)**
Gender		
Male	**100**	**100**
Age		
≤ 42	**57**	**57**
>42	**43**	**43**
Educational Background		
Nurse	**23**	**23**
Nurse + EMT	**69**	**69**
Nurse + Paramedic	**8**	**8**
Years of Experience		
≤17	**51**	**51**
>17	**49**	**49**

Varimax Rotation Result:

Through the rotation of the variable distribution it becomes clear and real, the large loading factor is getting bigger in value and vice versa, compared to before the rotation.

Resulted in 3rotations of the matrix components,according to the number of factors obtained, namely the distribution of variables into factors by the rotation process.

From the results of table 2 below, it can be seen that after rotating there are three variables that have high correlation with the Varimax method with Kaiser Normalization.

Table 2:- Loading factor and factor components.

Manifest Variable	Components		
	Factor 1	Factor 2	Factor 3
Worries about team competence when responding to massive civilian disaster	.848	.181	.248
Transporting patient in critical conditions (P1)	.831	.156	.341
Concern about making mistakes/error/adverse event to the patient	.212	.814	.296
Dealing patient with cardiac arrest	.170	.804	.328
Responding Emergency Call Priority One	.424	.330	.658
Bothered by not being able to predict or control events	.833	.326	.044
Working with substandar equipment/ equipment malfunction	.829	.150	.199
Concern about response time	.345	.307	.792
Exposure to Industrial Hazards (responding to Industrial area/plants)	.350	.341	.686
Dealing with dying patient	.169	.817	.135
Working with sub-standard co-worker on emergency incidents or situations	.766	.228	.210
Working with others Emergency Responders such as Civil Defences, Firefighters, Police during critical incidents	.685	.130	.477
Dealing with agitated/intoxicated/violent patient or bystander	.864	.184	.144
Concerns about inadequate skills	.125	.856	.170
Exposure to anxious or overly-demanding co-workers	.887	.181	.126
Dealing with patient with suspected of Infectious/communicable disease(such as MERS, EBOLA, SARS)	.853	.032	.162
Worries about personal competence in handling Mass Casualty Incident	.115	.869	.203
Apprehension related to driving or being a passenger in emergency vehicle	-0.24	.824	.273
Being dispatched at night/while napping/ fatigue	.221	.316	.776
Threats to your own personal safety	.220	.784	.273
Concerns about not knowing to operate particular equipment(s)	.191	.832	.047
Exposure to Dead on Arrival patients	.728	.041	.351
Responding with Unfavourable weather conditions (Foggy, sandstorm)	.395	.097	.735
Lack of control over nature and extent of victim's injuries	.124	.385	.370
Personality conflicts with co-workers or team members	.221	.316	.776
Responding to Emergency Call with traffict jam	.049	.401	.474

Goodness of fit index Result

Table 3 Goodness of Fit Index

Goodness of fit Index	Cut of value	Hasil	Kriteria
Probabilitas	≥0.05	0.1379	**Good**
CMIN/DF	≤ 2,0	1,521	**Good**
GFI	≥ 9,0	0,821	**Marginal**
AGFI	≥ 9,0	0,737	**Marginal**
TLI	≥ 9,5	0,949	**Marginal**
CFI	≥ 9,5	0,962	**Good**
RMSEA	≤ 0,80	0,073	**Good**

The results of the suitability test were obtained as shown in Table 3. The modeling results were quite good, therefore it can be concluded that the source of stress for nurses consists of 3 factors with each indicator proven to be precise and consistent so that this questionnaire can make a reference as a source of stress for ambulance nurses when

emergency call response in industrial areas.
In Figure 1 below, it is clear that the loading factor of each indicator on the latent variable of each.

From these results it can be concluded that all indicators are valid and have a value above the cut point (0.55).

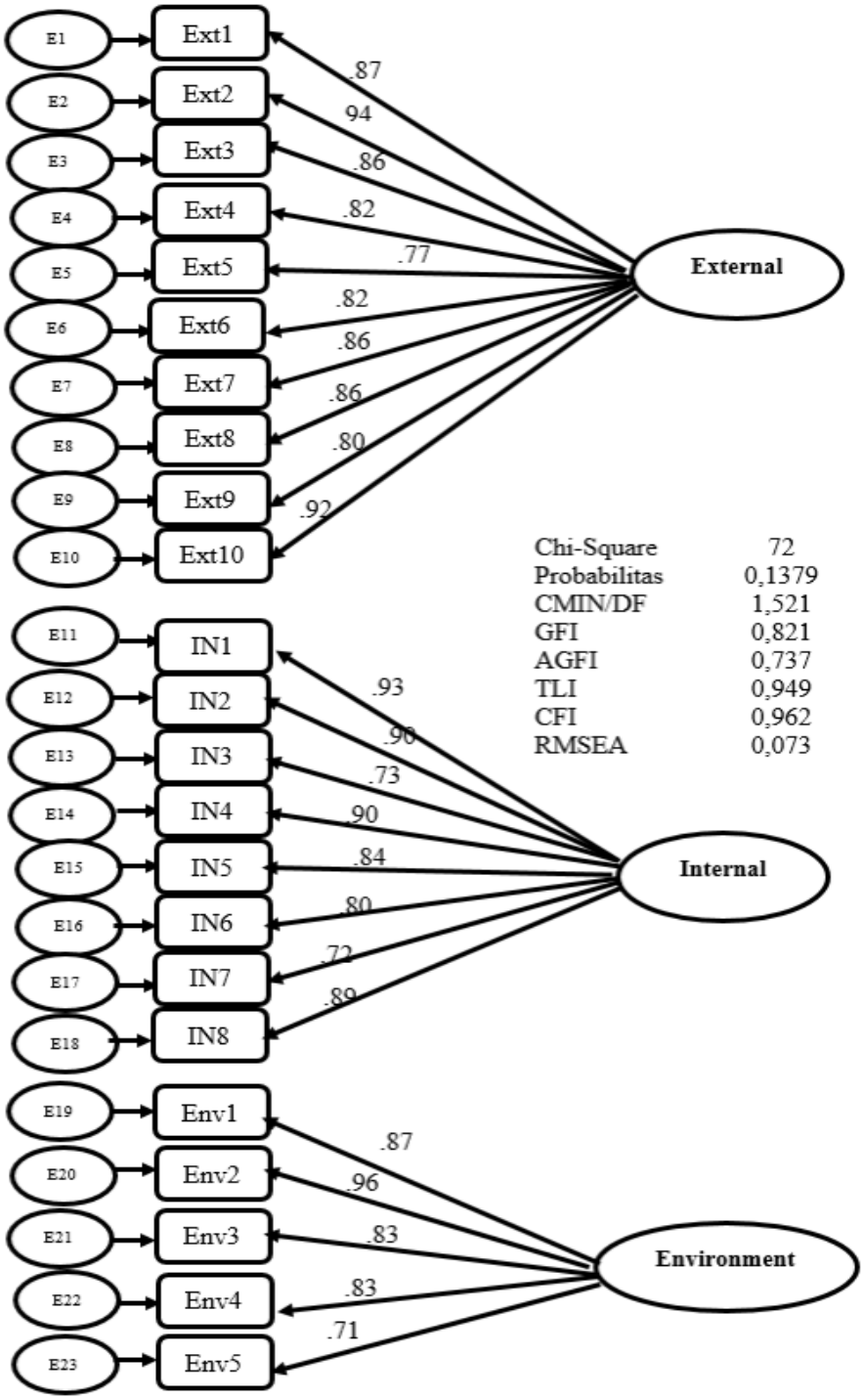

Figure 1:- Confirmatory Factor Analysis Ambulance Nurse Stressors During Response.

Conclusion:-

Based on the results and discussion mentioned in the previous chapter, it can be concluded thatAfter processing the data, it is known that there were twenty-six sources of ambulance nurse stress that were encountered during the

response, from the twenty-six reduction was carried out with the Main Component Analysis technique with the help of SPSS 22 software, to twenty-three stressors.Sources of stress for ambulance nurses encountered when the response is divided into three factors, namely Internal, External and Environmental Factors. Internal factors such as anxiety will make fatal mistakes to patients, face patients with heart failure, face patients who are facing death, worries about their own skills, anxiety facing disasters, facing threats to their own safety. While the second source of stress is External Factors such as anxiety about the ability of the team in dealing with disasters, bringing critical patients, working with tools that do not work well, working with colleagues who are less skilled, dealing with patients or families of patients who are difficult to control, work with partners who experience high anxiety. The third factor is the environment such as responding to "Priority One", worrying about response time, being exposed to industrial hazards, responding at night and responding to unfavorable weather.

Based on the Confirmatory Factor Analysis test with Amos 24 software, it was found that the factors above fit in accordance with the model with CMIN / DF parameter values = 1.521, GFI = 0.821, RSMEA = 0.073. From the test of convergent and discriminant validity as well as the reliability value get a valid value so that it can be concluded that the three factors namely internal, external and environment precisely and consistently have a strong relationship with each indicator and are able to explain the source of ambulance nurses stress encountered during the Emergency response

Suggestion:-

The results of this study accurately and consistently were able to map the factors that are the source of stress for ambulance nurses during the response, however other research is needed to strengthen external validity.The nurses' stress factors are accurately and consistently able to explain the relationship with the indicators, although the use of this questionnaire needs to be with caution. The source of nurses' stress is the initial research that investigates the various types of stressors that nurses face when responding, for the next step another research is needed that investigates the factors underlying the emergence of stressors and their handling steps.

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