



OCCUPATIONAL STRESS AMONG NURSES AT HOSPITALS IN DIGITAL ERA

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Abstract

Nursing is, by its very nature, a stressful occupation. The role of nursing is related with multiple and conflicting demands imposed by nurse supervisors and managers, and by medical and administrative staff. Such a situation appears to lead to work overload and possible to role conflict. This seriously impairs the provision of quality care and the efficacy of health services delivery. Employees in healthcare and hospitality sector work in 24/7 work schedule due to the demanding nature of the industry. Practical evidences have indicates that employee experiencing very high stress on account of work overload and long working hours taking a toll on their physical and mental well-being. The objectives of the study were to determine the impact of digital change on work related stress. A total of 120 nursing employees working at staff level in health care centers and hospitals in Guntur were surveyed. The data were analysed, findings were drawn and recommended the suitable recommendations based on the findings of the study.

Keywords: Occupation, Conflicting Demands, Physical Wellbeing, Digital Era, Work Overload.

Introduction

Many new technologies are becoming obtainable within nursing care, such as home dialysis equipment or new infusion pumps that change the nursing staff's daily routines. In addition, all kinds of technologies that carry distant care, such as telecare technology, have fallout for nursing practice. Another enlargement is the introduction of electronic information systems such as electronic patient records. Technologies are intended at increasing the quality of care, reducing healthcare costs or solving workforce problems. It is widely accepted that one of the main problems with the introduction of innovations in wide-ranging, such as technologies or clinical strategy, is that professionals do not automatically use them as intended by the developers. This means that a substantial proportion of patients/clients will not receive the intentional care in such a way that they benefit from these innovations. This article spotlights on the determinants of a successful introduction of new technology in nursing care.

Boon and Burden

While nurses acknowledge the advantages of using technology, they also say training is sometimes inadequate, IT systems occasionally force them to rethink how they do their jobs, and technological snafus can impede their work.

But without a doubt, the introduction of new technologies may bring considerable changes to nurses' day-to-day work. Consider the experience of Texas's Baylor Medical Centre at Waxahachie after touch-screen computers were installed in the emergency department. The system has helped improve efficiency and patient care in a number of ways, says Mike Behning, RN, the emergency department's day supervisor. With the system in place:

- Nurses don't have to find a doctor to get a patient's chart.
- Charts are easier to read, minimizing potential errors.
- Lab results are available in real time.
- Various departments communicate better.

Advances in medical technology and medication allow more care to take place in the outpatient setting, leaving staff in the hospital to care for a larger number of patients who may be facing serious health check issues. Because staff members on the front lines in hospitals interact with these critically ill or terminally ill patients every day, they are particularly vulnerable to stress, burnout and compassion fatigue. They also witness day in and day out many distressing situations in which people are vulnerable-family difficulties, car accidents, child abuse and even animal attacks. “Things like death, illness and physical and emotional pain are intensified when we see them in patients,” Schwanzl says. “We understand adults are going to experience illness and death, but it’s harder when you’re working with kids especially”. For the teams who work with patients, there’s a cumulative effect if they don’t deal with the issues they’re seeing every day.

Employees are regularly out in the open to stressors, sometimes on an hourly basis. If they don’t learn how to successfully cope, they could put aside or partition off their emotions this can lead to burnout. More than just having a bad day or week, burnout is a snowballing process typically marked by emotional fatigue and withdrawal associated with increased workload and stress on the job. Several factors can cause burnout, as well as a lack of social support, an inability to control one’s work schedule or assignments, a chaotic or monotonous job, work-life imbalance or working on an understaffed team.

Workplace stress is a world-wide concern and has been a subject of researchers, academicians, authorities and decision makers’ interest. It has obviously been considered to be causing poor performance, reduced employee morale, lack of autonomy, job insecurity and to greater extent the employee's wellbeing. Employees in healthcare and hospitality sector work in 24*7 work schedule due to the demanding nature of the industry. Empirical evidences have indicated that employee experience high stress on account of long working hours and work overload taking a toll on their mental and physical well-being. The purpose of this study was to investigate the impact of workplace stress on employee well-being among staff employees in the health care sector and hospitals

Digital Era - Challenges to Nurses and Nursing Profession

Nurses have been caring for the sick persons who had presented themselves to the care delivery centre and the contact had usually been terminated when the client has been discharged as cured and requiring no more care. The health services had been without variation, but the Nurses role had been limited to specific groups with emphasis on mothers and children for instance. With change in the world health order and emergence of new concepts of health, emphasis of health care delivery began to shift from hospital-based curative care services to preventive, primitive, and rehabilitative health services and the need to extend health services to benefit not only people located in urban and semi-urban areas but to all communities in our societies. Nurses are now being called upon to meet new demands on the health care delivery systems of individuals, families and groups within the group of people. It is also expected that Nurses work in collaboration with other members of the health team, including the traditional health care providers – birth attendants and herbalists, members of the community and other sectors in the society concerned with social-economic development in the community. According to Ehiemere (2009), in recent times the field of Nursing has felt the influences of major social, political, economic and technological changes occurring all over the globe popularly referred to as globalization. Ehiemere (2009) distinguished that the determinants of health, disease, and quality of life in today's world are tied to the globalization process. Nursing has responded to these changes by effecting reforms in delivery. For example, there are changes in the community oriented care with more emphasis on preventive care than hospital-based care (i.e it is more of “health” model than “disease” model). John (2009) said the following factors can make or mar service excellence: - Lack of equipment and materials to work with - Poor attitude of Nurses - Non-appreciation of Nurses by the public - Inadequate educational preparation of the Nurse - Lack of patronage of services in public hospitals by those in authority - Inadequate supervision of Nurse-trainees in the clinical areas. Ehiemere (2009) contended that up to date technology, advances in communication and information, changes in social consciousness and the reconsideration of the quality and type of health care have placed new and increased demands on the Nurse and Nursing profession. Therefore, Nurses and Nursing profession must confront issues of education, research and practice with commitment and focus in order to remain relevant

in our dynamic society where changes is the only constant thing. So the challenges of service excellence for Nurses and Nursing profession are as in the following:

Challenges in Nursing Research

Nursing research focuses increasingly on the promotion of excellence in nursing science. This will greatly help to explicate Nursing's contributions. The trends in Nursing research as identified by Polit and Beck (2006) are: Focus on Evidence-Based Practice (EBP) with emphasis on evidence based patient care. Multiple confirmatory strategies through deliberate replication of research studies with different clients, in different clinical settings and at different times to ensure that findings are adequate and consistent. There is increased intra disciplinary and interdisciplinary collaboration of Nurses which enable Nurse Researchers play more prominent roles in health care delivery. Nurse researchers market themselves and their researches so as to support Nursing research.

Challenges in Nursing Practice

The basic value of Nursing that has persisted over the years is service to the society (Ehiemere, 2009) and Nurses are/remain the entry point into the health care system. The progression from a novice to expert Nurse depends on the ability to learn from experience and to apply the knowledge when faced with a similar situation. Ang (2002) observed that although trial and error is one way of learning, this is impractical and unsafe in nursing practice. Mentoring by expert Nurses is the preferred mode of learning. Unfortunately, the number of expert Nurses is still small. Another challenge is good clinical Nurses when promoted to become managers they move further away from direct patient care. It is ironical that in a clinical profession like Nursing, there was no attempt to retain the good clinical Nurses in direct patient care. A career structure for Nurses to progress and remain in clinical practice is advisable. However, lack of equipment and material to work with and poor attitude of Nurses (John, 2007) affects health care delivery of the client whose expectations. This depicts great challenges to the Nurses which are not insurmountable.

Review Literature

Shefalee Pai Vernekar, Hemangini Shah (2018) in the article of “ A Study Of Work-Related Stress Among Nurses In A Tertiary Care Hospital In Goa” published by “International Journal of Community Medicine and Public Health” he discussed that nurses experience a considerable amount of stress at workplace due to various causes which has an impact on their work performance. We can take measures to decrease the workload by increasing the staff; reducing non nursing activities and proper planning of duty schedules are required. Focus should be laid on coping strategies of nurses. Younger nurses are at a greater risk of developing stress, especially in dealing with the death of a patient.

R.Sasikala, Dr.G.Ramu (2018) in their article of “Occupational Stress Among Nurses Of Tertiary Care Hospitals In Tiruvarur” published by “International Journal of Scientific Research and Management (IJSRM)” they suggested that occupational stress ought to be reduced by implementing suitable management and radical changes in service environment atmosphere. These results may benefit nurses to improve mental health as well as to cope with stress level that empower nurses to ensure quality patient care.

Tianan Yang, et.al (2017) in his article “Job Stress and Presenteeism among Chinese Healthcare Workers: The Mediating Effects of Affective Commitment published by “International Journal of Environmental Research” reveals that the healthcare workers are the key to improving healthcare quality, Chinese healthcare workers are exposed to high job stress, severe health problems, and long-term overwork. This has led to poor affective commitment and increased presenters, which has degraded the quality of health services and performance at hospitals.

Dr. Nasreen Khan (2017) in his article “Workplace Stress and Employee Wellbeing: Case of Health Care Staff in UAE” published by “European Scientific Journal” he declares that workplace stress is not the only predictor employee wellbeing; other factors such as changes in the organization, job insecurity, non-work related stress etc. may also affect employee well-being. Flexible work schedules are important for employees to have a work life balance. In order

to minimize it the individual as well as the organizational responsibility. Assistance and support from supervisors, coworkers help minimize workplace stress.

Research Gap

There is no previous studies have made in work place stress at hospital in the digital age. Therefore, the researcher focuses on to study the work place stress at hospitals in the digital age.

Objectives of the Study

- To examine the impact of digital change on nursing employee stress.
- To suggest the measures based on findings to cope-up stress.

Research Methodology

To fulfill the aforesaid objectives the data are collected from two sources i.e., primary and secondary sources. The secondary data are collected from various journals, periodicals, magazines, books and unpublished documents etc. The primary data are collected directly from the sample respondents with pre - designed questionnaire after a pilot study.

Research Design and Sampling

The respondents selected for this study are the nursing employees of select hospitals in Guntur. The participants were selected by using convenience sampling method. Total 120 nursing employees were selected from select hospitals in Guntur.

DATA ANALYSIS AND RESULTS

The first paper of output data screening is the assumption testing and sampling adequacy. Second part follows with hypothesis testing. The table-1 is an abridged version of Correlation matrix. The top values of this table contain the Person correlation coefficient between all pairs of the factors where as the bottom value contains the single-tailed significance of these coefficients.

Table 1: Correlation Matrix

Correlation Matrix^a								
	1	2	3	4	5	6	7	8
	Correlation							
Excessive Work Load	1.000	.727	.682	.542	.617	.558	.660	.546
More Employee Satisfaction	.727	1.000	.541	.474	.512	.416	.483	.497
More Technology Advancement	.682	.541	1.000	.475	.447	.312	.413	.371
Lack of Confidence	.542	.474	.475	1.000	.339	.202	.397	.508
Lack of Education	.617	.512	.447	.339	1.000	.718	.719	.700
Lack of Awareness	.558	.416	.312	.202	.718	1.000	.827	.622
Lack of Knowledge	.660	.483	.413	.397	.719	.827	1.000	.717
Lack of Practice	.546	.497	.371	.508	.700	.622	.717	1.000
Sig. (1-tailed)								
Excessive Work Load		.000	.000	.000	.000	.000	.000	.000
More Employee Satisfaction	.000		.000	.000	.000	.000	.000	.000
More Technology Advancement	.000	.000		.000	.000	.002	.000	.000
Lack of Confidence	.000	.000	.000		.001	.036	.000	.000
Lack of Education	.000	.000	.000	.001		.000	.000	.000
Lack of Awareness	.000	.000	.002	.036	.000		.000	.000
Lack of Knowledge	.000	.000	.000	.000	.000	.000		.000
Lack of Practice	.000	.000	.000	.000	.000	.000	.000	
a. Determinant = .004								

The researcher first scanned the significant values and looked for any variable for which the majority of values are greater than 0.05. Then scanned the correlation coefficients themselves and looked for any value greater than 0.09. If anyone is found more than 0.09 then there is a problem of singularity in the data and thus those variables have to be removed. But here all the top values are below 0.09 only, so there is significant correlation between each and every pair.

Second part of correlation values shown that there is a significant correlation between the variables, because majority of the values are below 0.05. The determinant of the matrix must be greater than 0.00001. Here it shows the determinant value is 0.04. So multi-co linearity (according to changes in one dimension other dimensions are also changing i.e., eligible for comparisons) is not a problem for this data. To sum up, all the factor correlate fairly well and none of the correlation co-efficient are particularly large therefore no need to eliminate any dimension at this stage. After declaring these aspects, the researcher made KMO and Bartlett's test.

KMO (Kaiser-Meyer - Olkin) and Bartlett's Test:

The KMO statistics varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is longer than the relative the sum of correlations, indicating diffusion in the patterns of correlations (if so the factor analysis is likely to be inappropriate). A value close to 1 indicates the patterns of correlations are relatively compact, so the factor analysis should yield distinct and reliable factors. The following table 2 shows the results of the KMO and Bartlett's test.

Table 2: KMO and BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.854
Bartlett's Test of Sphericity	Approx. Chi-Square	422.369
	Df	28
	Sig.	.000

The above table -2 reveals that KMO value i.e. .854 is neither nearer to 0 nor close to 1. So we can say that the range of being is good. Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix. For factor analysis, we need some relationships among variables and if the correlation matrix is an identity matrix then all correlation coefficients would be zero. Therefore, we want this test to be significant (i.e. have a significant values less than 0.05). Significant chi-square test tells that the correlation matrix is not an

identity matrix. For this data, Bartlett’s test is highly significant ($p < 0.001$), therefore, the factor analysis is appropriate.

Table 3: Anti-Image Correlation

	1	2	3	4	5	6	7	8
Excessive Work Load	.841 ^a	-.462	-.410	-.206	-.104	-.077	-.241	.126
More Employee Satisfaction	-.462	.885 ^a	-.063	-.079	-.065	-.016	.104	-.132
More Technology Advancement	-.410	-.063	.876 ^a	-.153	-.131	.082	.016	.063
Lack Of Confidence	-.206	-.079	-.153	.818 ^a	.098	.271	-.122	-.349
Lack Of Education	-.104	-.065	-.131	.098	.908 ^a	-.286	-.063	-.349
Lack Of Awareness	-.077	-.016	.082	.271	-.286	.806 ^a	-.601	-.052
Lack Of Knowledge	-.241	.104	.016	-.122	-.063	-.601	.837 ^a	-.283
Lack Of Practice	.126	-.132	.063	-.349	-.349	-.052	-.283	.865 ^a
a. Measures of Sampling Adequacy(MSA)								

Table 3 shows KMO, Bartlett’s test of sphericity and anti image correlation matrix. As Kaiser (1974) recommends a bare minimum of .5 and that values between .5 and .7 are mediocre, values between .7 and .8 are good, values between .8 and .9 are great and the values above .9 are superb (Hutcheson and Sufroniun, 1999). The KMO values for individual variables are produced on the diagonal of the anti image correlation matrix. After scanning it is found for all variables the values are above the bare minimum of 0.5. Thus, all the variables can be considered for further analysis.

Communalities

Initial communalities are estimates of the variance in each variable accounted for, by all components or factors. Extraction communalities are estimates of the variance in each variable accounted for the factors (or components) in the factor solution. Following table 4 gives the details of communalities of stress.

The above table-4 shows the communalities of extraction. Principal component analysis works on the initial assumption that all variances are common, therefore in the initial the communalities all are 1. The communalities in the column labeled extraction reflect the common variance in the data structure. Excessive work load is associated with 80.7 % of variance recorded is common or shared variance. Another way to look at these communalities is in terms of the proportion of variance explained by the underlying factors.

Table 4: Communalities

	Initial	Extraction
Excessive Work Load	1.000	.807
More Employee Satisfaction	1.000	.667
More Technology Advancement	1.000	.686
Lack Of Confidence	1.000	.625
Lack Of Education	1.000	.773
Lack Of Awareness	1.000	.862
Lack Of Knowledge	1.000	.853
Lack Of Practice	1.000	.696
Extraction Method: Principal Component Analysis.		

To know about the exact level of variance among variables is initially assumed all communalities are 1. Then found that the differentiated values for each variables. Here More Employee Satisfaction with 66.7%, More Technology Advancement 68.6%, Lack of Confidence 62.5%, Lack of Education 77.3%, Lack of Awareness 86.2%, Lack of Knowledge 85.3 %, Lack of Practice 69.6% . These indicate the variance in structure. It will show in detail in the following table-5.

TABLE 5: Total Variance Explained

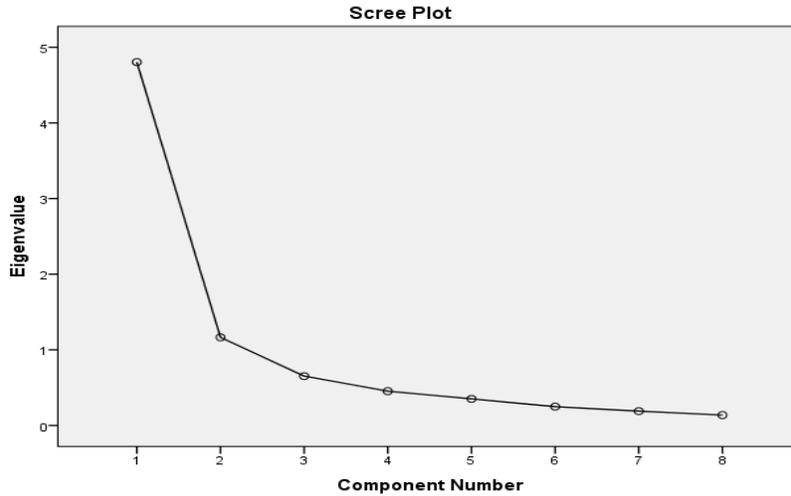
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.805	60.056	60.056	4.805	60.056	60.056	3.248	40.604	40.604
2	1.165	14.562	74.618	1.165	14.562	74.618	2.721	34.014	74.618
3	.652	8.156	82.774						
4	.453	5.662	88.437						
5	.352	4.397	92.833						
6	.248	3.101	95.935						
7	.189	2.359	98.294						
8	.136	1.706	100.000						

Extraction Method: Principal Component Analysis.

The above table 5 reveals that Eigen values associated with each factor represent the variance explained by that particular linear component. It also displays the Eigen values in terms of the percentage of variance explain. So factor 1 explains 60.056, factor 2 explains 14.562. It shows clearly that these two factors explains relatively large amount of total variance 74.618. It should be clear that amount of variance where as subsequent factors explain only small amounts of variance. There are two factors all with Eigen values greater than 1. Eigen values associated with these factors are again displayed and the percentages of variance explained in the columns are labeled extraction sums of squared loadings.

From the above table 5 we can say only first two factors in work place stress are highly changeable aspect in the organization and the remaining were of not that much. Because it only exceeds Eigen values more than 1. Below scree plot graph -1 presents the variant levels of work place stress.

Graph -1 shows variant levels of Work Place Stress



The scree plot-1 graphs the Eigen value against the factor number. These values are in the first column of the table 5. From the third factor the line is almost flat, this resemble that each successive factor is accounting for smaller and smaller amount of the total variance. Following table-6 brings the details of pattern matrix work place stress.

Table - 6: Rotated Component Matrix

	Component	
	1	2
Lack of Awareness	.922	
Lack of Knowledge	.872	
Lack of Education	.817	
Lack of Practice	.744	
More Technology Advancement		.806
Lack of Confidence		.779
Excessive Work Load		.753
More Employee Satisfaction		.738
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

On the basis of Varimax with Kaiser Analysis two factors emerged. These two factors constituted all those variables that have factor loadings greater than or least equal to 0.5. Thus these factors are conceptualized as “Work place Stress”. The identified factors with the associated variable and factor loadings are given above. So all the dimensions are combined together to get the work place stress.

The final part of the factor analysis output is a correlation matrix between the factors. This matrix contains the correlation coefficients between the factors. From table 6 it is understood that all factors are interrelated with each other to some degree. The fact that these correlations exists tells that constructs measured can be interrelated. If the constructs are independent then the component correlation matrix should have been identity matrix. Therefore, from this final matrix it appears that the independence of the factors cannot be assumed.

Table - 7: Component Transformation Matrix

Component	1	2
1	.757	.654
2	-.654	.757
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		

FINDINGS

1. Employees perceive that eight practices found significant in the work place stress.
2. Among all the variables, lack of awareness among the employees found highly significant with .922.
3. The second significant variable among the factor is lack of knowledge which found moderately significant with .872.
4. Among all the variables employee satisfaction found less significant with .738.

SUGGESTIONS

1. As per the findings it is understood that less educated and fresher employees have little or no knowledge technological changes. Therefore they have to conduct training programs so as to enhance the knowledge of the employees on technological advancement.
2. It is also found that employees have less awareness on positive outcomes of technological changes, so hospitals have to organize awareness programs and training programs to expertise the employees on new equipment or updated existing equipment.
3. It is also found that employee's communication that takes place during handovers (i.e. shift changes) is very important for ensuring patient safety therefore it increases the stress levels. So effective communication is required in handling patients to reduce it.
4. It is also found that with incorporation of updated technology and sufficient training on that updated technology will boost employee morale as well as confidence which will decrease the stress of the employee.

CONCLUSION

Nurses experience a considerable amount of stress at workplace due to various causes which has an impact on their work performance. Out of all, death of a patient and the excessive workload are major contributors of stress. Emotional training of nurses in dealing with patients is required. Stress reduction activities such as yoga and meditation should be practiced. The research study has been analyzed to assess the factors for work place stress of the employees working at hospitals. It has been identified that majority of the employees in hospitals are experiencing excessive work load and that creating work-related stress with long shifts, working beyond their stipulated work hours, technological transformations, lack of awareness, lack of training, extra work from home etc. had taken a toll on their family life are experiencing the work place stress in the present digital era.

FURTHER SCOPE OF THE STUDY

This research study provides future researchers will work on demographical factors influence on work place stress in hospitals in the digital age.

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