Exploratory Factor Analysis: Conceptualization, Reliability and Validity of Job Performance

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***Abstract*—The study attempts to examine the psychometric properties of the job performance constructs by integrating the two subscales; task performance and contextual performance. Results from preliminary psychometric conclude that the nursing performance scale has good internal consistency and good criterion validity. A measure developed by Greenslade and Jimmieson was used as a reliable and valid tool in assessing nurses' job performance. The results of exploratory factor analysis confirmed that the measurement scale used in this study satisfactorily met the standards of validity and reliability analyses. Exploratory factor analysis confirmed five dimensions of task performance namely: technical care, non-job specific behavior, provision of information, provision of support and coordination of care. Meanwhile, three dimensions of Contextual Performance namely: job-task support, interpersonal support and organizational support; as the dimensions that measure Job Performance constructs.**

***Index Terms*—Job performance, task performance, contextual performance.**

I. Introduction

Job performance contributes to improve several aspects in employees such as behavior, attitudes and traits which help to increase the productivity of an organization. Employees' behavior can be transformed into performance from just a thought to action [1] Therefore, a complete view of performance can be achieved if the definition of job performance taken into account both behavior and outcomes. [2] defines job performance as "a kind of individual behavior for fulfilling the expectations, regulations of an organization and needs of his or her formal role when he or she is a member of the organization."

In general, some jobs require the job incumbent to make judgments on certain situations and give practical response accordingly. The effectiveness of the response made will then affect job performance. In addition, [3] categorize individual performance into two categories: task performance and contextual performance. Task performance includes behaviors that contribute to the core transformation and maintenance activities in an organization including delivering services and managing subordinates [4] Contextual performance refers to behaviors that contribute to the culture and climate of the organization in the context of transformation and maintenance activities carried out such as helping subordinates, adhering to rules and procedures and providing full support towards the organization [4].

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II. Job Performance in Nursing

Performance of nurses is regarded as an important part in the provision of quality care in the hospital setting. According to [5] patient safety is a serious issue that causes the increase in adverse events such as medication errors, pressure ulcers, and postoperative complications [6] adverse drug events, patient falls and injuries, nosocomial infections, and skin breakdown [7].

Consequently, workload is said to be one of the causes of adverse events. Quality and safety of care may affect due to nurses' workload which eventually impact job performance This is supported by [8] who claimed that high nursing workload poorly affect quality and safety of care. Additionally, due to an increase number of patients, many hospitals are facing with understaffing problem [8]. They suggest once performance obstacles are identified, the work system is to be redesigned in order to eliminate further consequences that can affect the effectiveness of the overall organization.

Failure in providing quality service to customers is the result of performance-based issues faced by the public service due to poor job performance [9]. Several factors contribute to the poor performance among government servants. Some of the factors highlighted in the literature are inappropriate performance indicators [10]-[13] challenges in fulfilling stakeholders' needs [14], employees' personal traits and behavior [15] top management failure in identifying performance gap [16]-[18] unclear organizational goals [17], [19] and unfair reward allocation [20], [22].

There are various scales introduced to gauge nursing's performance. The scales were dated as early as 1960s and 1970s. Of the various approaches in measuring competence, two commonly used scales are [23] and the Slater Nursing Competencies Rating scale [24]. Since then there is an expansion of the nursing roles taken place within the healthcare system in which it requires an updated measure. Furthermore, those scales mentioned earlier have certain limitations that may influence the final results. Therefore, since a larger sample of nurses from different regions are used, a measure developed by [25] has been chosen as a reliable and valid tool in assessing nurses' job performance. Another reason for choosing the measure is that no other measures, measure nurses' job performance separately for task performance and contextual performance [25].

III. Task Performance

The behaviors comprise of task performance in nursing

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are categorized as technical care, non-job specific behavior, provision of information, provision of support and coordination of care.

In order to assist the patients' speedy recovery, nurses may prepare a plan of care after consulting the family and the physician [25]. This helps nurses to evaluate the patient's progress as well as the care plan for its suitability on the patient. Technical care also may include assisting patients with daily activities, treatment and medication.

Next, non-job specific behavior. It incorporates those common tasks done by nurses but not stipulated in the scope of nursing practice. Among tasks identified fall into this category are administrative duties such as preparing reports for patient progress, rearranging medical cards; recognizing and meeting the allied health needs of patients such as accompanying patients while waiting for their family members upon discharge from hospital [25].

Third, provision of information that provides patients and their family members with the information and steps to follow when following any treatments is among the job a nurse. Informational support include educating the patient about his progress [25], as far as medication is concerned, what kind of progress will be experienced by the patient and what will they encounter during the process.

Fourth, provision of support which involves providing emotional support to patients and their family members about any concerns and [25] as well as providing necessary comfort to ease the situation.

Lastly, coordination of care in which nurses updating the patients' progress from time-to-time among nursing team [25]), so that everyone aware and ready for an immediate action to take, if needed. In addition, this ensures all team members take note of the patient's history in order to record the progress of patients' condition with the given treatment. It is noted that nurses who are satisfied with the interaction among nurse-nurse; nurse-physician seem to be committed to the organization. Positive interaction and team spirit increase the affection among employees and enhance the sense of belong to the organization.

IV. Contextual Performance

To date, there are limited studies on contextual performance have been carried out on government servants [26] despite strong recommendation by scholars on the need to study job behaviors among government servants [27] The roles of government servants as the backbone of the public sectors cannot be denied in which they are hoped to provide excellent service from time to time. It is believed that contextual performance as constructive behaviors since they are found to assist employees in completing their task performance for the sake of organizational effectiveness [28]

The first dimension of contextual performance is job-task support. At times nurses have to stay late to aid patients and/or their family members to make certain arrangements pertaining to their stay or discharge from the hospital.

The second dimension of contextual performance is Interpersonal Support. Research addressing the effectiveness of teamwork and collaboration among teams has been conducted to promote healthy work environment in healthcare setting. Descriptive studies on the characteristics of a team that influence patient, nurse and organizational outcomes have been carried such as nurse-physician collaboration, social support, conflict, communication and relationship dimensions, and personal and social support [29]. Reports of collaboration of nurses-physicians; attending physicians and resident physicians, and patient outcomes on patients transferred from the ICU into wards reveal evidence that nurse-reported collaboration was positively associated with patient outcomes. Likewise, reports on collaboration between nurses–resident/attending physicians' show negatively associated with patient outcomes. These results suggest that the differences in collaboration between both nurses and physicians influence decision-making. In addition [29] stated that the differences have impact on developing support by physicians in implementing interventions to increase collaboration between both professions [30].

In addition, teamwork has positive attributes towards psychological health and wellbeing of the employees. It is reported that such collaboration has lowered stress level and improve effectiveness and innovation among nurses [31].

The final dimension is known as Organizational support. The role of supportive management practices and perceived costs of seeking support on the performance of primary nurses results in enhanced performance that show positive correlation between supervisor support and nurses' performance [32]. It is evident that organizational support is responsible to improve the performance of primary nurses. In their study, [33] found that the job satisfaction differs in how individuals value their organizations in term of their readiness to invest their "full selves" when carrying out their responsibilities toward the organizations.

Nurses who perceive that their organization values and supports their contributions and well-being by providing assistance in doing their job effectively will be in less stress and more committed [34]. They will be more loyal to the organization as compared to those who feel that the organization does not appreciate what they have done. This is consistent with a study by [35] that showed high commitment among nurses whose organizations value their contributions and care for their well-being.

V. Methodology

A. Procedures

A total of 150 questionnaires were distributed to nurses at government hospitals with a return rate of 80 percent or 120 respondents. However, 22 cases were eliminated due to missing data and outliers. a total of 98 respondents were used for factor analysis purposes.

B. Instruments

The study, utilized the questionnaire developed by Greenslade and Jimmieson [36] to measure nurses' job performance in which 63-items assesses the taxonomy of integrated behaviors of nurses that reflect task performance and contextual performance. Out of 63-items, 36-items will ask questions pertaining to task performance behaviors in which nurses are required to rate how well their unit or ward functions in several activities. The ratings will be based on 7-point Likert scales, ranging from much below average (1)

to much above average (7). Examples of items such as: "explaining to patients what to expect when they leave the hospital," and "Administering medications and treatments." The coefficient for the items is 0.94 (Greenslade & Jimmieson [36]). Meanwhile 27-items examining contextual performance behaviors and require nurses to identify and rate how frequent the listed activities in their ward are completed. The same 7-point Likert scales will be used, ranging from not at all (1) to a great deal (7). Examples of items such as: "Consulting amongst each other each other when actions might affect other nurses in the unit," and "Complying with hospital rules, regulations and procedures, even when no one is watching." The coefficient for the items is 0.91 (Greenslade & Jimmieson, [36]).

VI. Results

The EFA results are shown in Table II. Based on the sample of 98 respondents, the 41 items loaded onto eight

TABLE I: Psychometric Properties of the Eight Dimensions of Job Performance Inventory

CODE	KEY VARIABLE	L LOADINGS	MEAN	STD.DV
JP_TI1	Explaining to patients what to expect when they leave the hospital.	0.776	5.830	0.798
JP_TI2	Providing instructions for care at home.	0.749	5.968	0.754
JP_TI3	Explaining to families what to do if the patient's problems or symptoms continue, get worse, or return.	0.549	6.085	0.713
JP_TI4	Explaining to patients when they can resume to normal activities, such as going to work or driving a car.	0.528	5.936	0.773
JP_TI5	Providing appropriate information to families about nursing procedures performed.	0.634	5.947	0.724
JP_TI6	Communicating to patients the purpose of nursing procedures.	0.756	6.064	0.669
JP_TI7	Informing patients of the possible side-effects of nursing procedures.	0.863	5.947	0.753
JP_TCC1	Explaining to nurses in the unit the nature of the patient's condition.	0.754	5.872	0.870
JP_TCC2	Reporting the critical elements of patients' situations when turning over work shifts.	0.846	6.213	0.731
JP_TCC3	Ensuring all members of the nursing unit are familiar with the patient's recent medical history.	0.902	6.128	0.691
JP_TCC4	Informing nurses in the unit about changes in a patient's treatment.	0.837	6.085	0.785
JP_TCC5	Informing all nurses in the unit about patient's tests and their results.	0.710	5.947	0.795
JP_TSS1	Showing care and concern to patient's family.	0.753	5.734	1.018
JP_TSS2	Listening to patient's family's concerns.	0.821	5.649	1.095
JP_TSS3	Taking time to meet patient's family's emotional needs.	0.813	5.394	1.193
JP_TSS4	Listening to patient's concerns.	0.737	5.596	1.030
JP_TSS5	Taking time to meet the emotional needs of patients.	0.625	5.415	0.955
JP_TSS6	Showing care and concern to patients.	0.529	5.723	0.909
JP_TTC1	Taking patient observations (e.g. blood pressure, pulse, temperature).	0.637	6.096	0.856
JP_TTC2	Assisting patients with activities of daily living (e.g. showering, toileting and feeding).	0.733	5.766	0.999
JP_TTC3	Developing a plan of nursing care for patients.	0.658	5.915	0.958
JP_TTC4	Administering medications and treatments.	0.535	6.021	0.939
JP_TTC5	Evaluating the effectiveness of nursing care.	0.735	5.989	0.810
JP_CIS1	Raising morale of other nurses in the unit.	0.811	5.691	0.939
JP_CIS2	Helping nurses in the unit to resolve work problems.	0.848	5.809	0.846
JP_CIS3	Consulting amongst each other when actions might affect other nurses in the unit.	0.782	5.862	0.756
JP_CIS4	Taking time to meet unit nurses' emotional needs.	0.779	5.574	1.011
JP_CIS5	Volunteering to share special knowledge or expertise with other nurses in the unit.	0.786	5.840	0.846
JP_CIS6	Helping nurses in the unit to catch up on their work.	0.719	5.777	0.857
JP_CJTS1	Making special arrangements for a patient's family.	0.588	5.096	1.228
JP_CJTS2	Staying late to help patient's family.	0.892	4.638	1.677
JP_CJTS3	Taking extra time to respond to patient's family's needs.	0.914	4.606	1.567
JP_CJTS4	Making special arrangements for the patient.	0.764	5.106	1.042
JP_CJTS5	Staying late to help patients.	0.803	4.989	1.403
JP_CJTS6	Taking extra time to respond to a patient's needs.	0.792	5.053	1.315
JP_CC1	Complying with hospital rules, regulations and procedures, even when no one is watching.	0.548	5.660	1.132
JP_CC2	Representing the hospital favorably to individuals outside the hospital.	0.371	5.511	0.981
JP_CC3	Making sure that materials and equipment are not wasted.	0.570	5.755	0.876
JP_CVD1	Volunteering to participate on committees within the hospital that are not compulsory.	0.674	5.053	1.071
JP_CVD2	Attending and participating in meetings regarding the hospital.	0.731	5.202	1.197
JP_CVD3	Making innovative suggestions to improve the overall quality of the department.	0.857	5.319	0.964

factors with the factor loadings are greater than 0.600. Pallant reported that KMO value should be 0.6 above and the Barletts' Test of Sphericity valued should be significant (0.5 or smaller). Kaiser's normalization for this data set was .801, and the Bartletts' test is significant (p=0.000) which indicates a satisfactory sample factor analysis is appropriate. An eigenvalue of 1.0 was set as the minimum criterion for identifying a factor and used as a cutoff value for extraction.

The results of the analysis indicated the present of only the expected eight factors (a scree plot confirmed this number of factors) shows the items loaded on each construct. The eight factors explained 79.84 percent of the variance, the factor loadings were all greater than 0.600 and the cross loadings were minimal.

TABLE II: RELIABILITY OF SCALE

CODE	KEY VARIABLE	MSA	CRONBACH ALPHA
JP_TI1	Explaining to patients what to expect when they leave the hospital.	0.833	0.899
JP_TI2	Providing instructions for care at home.		
JP_TI3	Explaining to families what to do if the patient's problems or symptoms continue, get worse, or return.		
JP_TI4	Explaining to patients when they can resume to normal activities, such as going to work or driving a car.		
JP_TI5	Providing appropriate information to families about nursing procedures performed.		
JP_TI6	Communicating to patients the purpose of nursing procedures.		
JP_TI7	Informing patients of the possible side-effects of nursing procedures.		
JP_TCC1	Explaining to nurses in the unit the nature of the patient's condition.	0.838	0.878
JP_TCC2	Reporting the critical elements of patients' situations when turning over work shifts.		
JP_TCC3	Ensuring all members of the nursing unit are familiar with the patient's recent medical history.		
JP_TCC4	Informing nurses in the unit about changes in a patient's treatment.		
JP_TCC5	Informing all nurses in the unit about patient's tests and their results.		
JP_TSS1	Showing care and concern to patient's family.	0.836	0.916
JP_TSS2	Listening to patient's family's concerns.		
JP_TSS3	Taking time to meet patient's family's emotional needs.		
JP_TSS4	Listening to patient's concerns.		
JP_TSS5	Taking time to meet the emotional needs of patients.		
JP_TSS6	Showing care and concern to patients.		
JP_TTC1	Taking patient observations (e.g. blood pressure, pulse, temperature).	0.740	0.890
JP_TTC2	Assisting patients with activities of daily living (e.g. showering, toileting and feeding).		
JP_TTC3	Developing a plan of nursing care for patients.		
JP_TTC4	Administering medications and treatments.		
JP_TTC5	Evaluating the effectiveness of nursing care.		
JP_CIS1	Raising morale of other nurses in the unit.	0.848	0.936
JP_CIS2	Helping nurses in the unit to resolve work problems.		
JP_CIS3	Consulting amongst each other when actions might affect other nurses in the unit.		
JP_CIS4	Taking time to meet unit nurses' emotional needs.		
JP_CIS5	Volunteering to share special knowledge or expertise with other nurses in the unit.		
JP_CIS6	Helping nurses in the unit to catch up on their work.		
JP_CJTS1	Making special arrangements for a patient's family.	0.785	0.938
JP_CJTS2	Staying late to help patient's family.		
JP_CJTS3	Taking extra time to respond to patient's family's needs.		
JP_CJTS4	Making special arrangements for the patient.		
JP_CJTS5	Staying late to help patients.		
JP_CJTS6	Taking extra time to respond to a patient's needs.		
JP_CC1	Complying with hospital rules, regulations and procedures, even when no one is watching.	0.655	0.652
JP_CC2	Representing the hospital favorably to individuals outside the hospital.		
JP_CC3	Making sure that materials and equipment are not wasted.		
JP_CVD1	Volunteering to participate on committees within the hospital that are not compulsory.	0.699	0.831
JP_CVD2	Attending and participating in meetings regarding the hospital.		
JP_CVD3	Making innovative suggestions to improve the overall quality of the department.		

VII. Conclusion

The result of the findings proved the construct validity of nurses' job performance. In addition, the instrument used in this study can be used to measure job performance of nurses in Malaysia. This study has given a significant contribution in terms of construct development of a more comprehensive job performance measure. Based on the psychometric properties of the instrument, it is found that both constructs are equal and exceed the measurement levels. The instrument is therefore, may be used by researchers to measure nurses' job performance since all the items measure the construct accordingly.

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