



An Empirical Study on impact of role efficacy of nursing community on Organizational effectiveness using multiple regression analysis

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ABSTRACT

Like many other developing countries, India too has a serious human resource crisis in the healthcare sector. One concern of healthcare professionals today is the high turnover rate of hospital nursing staff. The nursing work force is aging. The question now commonly asked by the nursing profession worldwide is: Who will replace this work force? Although the number of employed nurses continues to decline, patient acuity and turnover in our healthcare system continues to increase. This increasing dilemma is further deepened by progressively falling annual recruitment of new nurses and has resulted in an alarming shortfall of nurses.

This paper discusses role efficacy and its relation to Organizational effectiveness of hospital nurses. It describes a role-efficacy model and analyzes nurses' perceptions of feedback from the job itself, nursing staff, nursing supervisors and nursing administrators.

The study is descriptive in type and quantitative and qualitative in nature. The research design entailed structured questionnaire with closed-ended questions administered to nurses from the 4 units of Apollo Hospital. The selection of nurses was the result of a random sampling process. In each unit 130 nurses were interviewed and the total sample size was of 520 nurses'. Results from these interactions with the nurses were backed-up with information from focus group discussions/interviews with senior nursing staff of the hospital. The field work material was coded and quantified and data was analyzed using SPSS software. The study shows that nursing employees overall are strongly guided by their professional conscience and similar aspects related to professional ethos.

Keywords: nurses, role efficacy, organizational effectiveness, human resource management and hospitals

The nurses' crisis has numerous dimensions. There are inadequate numbers of workers, poorly distributed with an unplanned brain drain (domestically and internationally). Role is the position one occupies in a social system, and is defined by the functions one performs in response to the expectations of the significant members of a social system, and one's own expectations from that position or office.

Role and office (or positions) are separate concepts, though two sides of the same coin. According to Katz and Kahn "Office is essentially a relational concept, defining each position in terms of its relationships to others and to the system as a whole." While office is a relational and power-related concept, role is an obligational concept.

A role is not defined without the expectations of the role senders, including the role occupant. The concept of role is vital for the integration of the individual with an organization. The organization has its own structure and goals. Similarly, the individual has his personality and needs (motivations). All these aspects interact with each other and to some extent get integrated into a role. Role is also a central concept in work motivation as it is only through this that the individual and organization interact with each other. The concept of role is vital for the integration of the individual with an organization. The organization has its own structure and goals. Similarly, the individual has his personality and needs (motivations). All these aspects interact with each other and to some extent get integrated into a role. Role is also a central concept in work motivation as it is only through this that the individual and organization interact with each other. An organization can be defined as a system of roles. However, a role itself is a system, from the individual's point of view, there are two role systems: the system of various roles that the individual carries and performs and the system of various roles of which s role

is a part. The first, we will call role space and the second, a role set.

Each individual occupies and plays several roles. A person can be a daughter, a mother, a salesperson, a member of a club, a member of a voluntary organization, and so on. All these roles constitute the role space of that person. At the centre of the role space is the self. As the concept of role is central to that of an organization, so also the concept of self is central to the several roles of a person. The term self refers to the interpretations the person makes about the referent I. It is a cognitive structure that evolves from past experience with other persons and objects. Self can be defined as the experience of an identity arising from a person's interaction with the external reality— things, persons and systems.

A person performs various roles that are centered on the self and are at varying distances from the self (and from each other). These relationships define the role space, which then is a dynamic interrelationship between the self and the various roles an individual occupies. Similarly, role set is a pattern of interrelationships between one role (called the focal role) among many others. In a role set map, the focal role is in the centre. The concept of role widens the meaning of work and the relationship of the worker with other significant persons in the system. The concept of job is more prescriptive in nature, while role includes more discretionary part of work. A job assumes the relationship of the worker with his supervisor whereas the role emphasizes his relationship with all those who have expectations from him (as he has from them). Recently, much emphasis has been given to the development of roles and making them more effective in an organization.

To sum up, the concept of role goes beyond the individual job holder, and indicates a need to involve other significant

persons in defining role requirements. The focus on roles can be useful in planning organizational effectiveness. Herzberg (1968) drew attention to the need for humanizing jobs and giving more dignity to them. The work redesigning movement highlighted the need for involving job holders in work-related decisions and giving them more autonomy in work-related matters.

Aspects of Role Efficacy: Role efficacy has several aspects. The more aspects there are, the higher is the efficacy. These aspects can be classified into three groups or dimensions. One dimension is role making (as opposed to role taking). The former is an active attitude towards defining and making one's role as one likes, whereas the latter is a passive attitude that mainly responds to others' expectations.

Dimension 1: Role Making

1. Self-role integration: Every person has strength, experience, technical training, special skills, and some unique contribution to make. When his role provides him with greater opportunity for using such special strength, his role efficacy is likely to be higher. This is called self-role integration. The self, or the person, and the role get integrated through the possibility of a person's use of his special strength in the role. On the other hand, if there is a distance between the self and the role, role efficacy is likely to be low.
2. Proactivity - A person who occupies a role responds to the various expectations that people in the organization have from that role. While this certainly gives him satisfaction, it also satisfies others in the organization. However, if he is also expected to take the initiative in starting some activity, the efficacy will be higher. Reactive behaviour (responding to the expectations of others) helps a person to be effective to some extent, but proactivity (taking the initiative rather than only responding to others' expectations) contributes much more to efficacy. If a person likes to take the initiative but has no opportunity to do so in his present role in the organization, his efficacy will be low.
3. Creativity - It is not only initiative that is important for efficacy. An opportunity to be creative and try new and unconventional ways of solving problems is equally important. If a person perceives that he has to perform only routine tasks, it becomes detrimental for high role efficacy. If he feels that the role does not allow any time or opportunity to be creative, efficacy is bound to be low.
4. Confrontation - In general, if people in an organization avoid problems or shift those on to others, their role efficacy will be low. The tendency to confront problems and find relevant solutions contributes to efficacy. When people facing interpersonal problems sit down, talk about them and search out solutions, their efficacy is likely to be higher compared to situations where they either deny having such problems or refer them to their higher officers.

Dimension 2: Role Centering

5. Centrality - If a person feels that the role he occupies is central to the organization, his role efficacy is likely to be high. If people feel that their roles are peripheral i.e. not very important, their potential effectiveness will be low. In a large hospital, lowest level employees like ward boys and attendants had very high motivation when they joined, they would bring their friends and relatives from nearby villages to proudly show their place of work. However, within a few months they sat around gossiping in groups. They were rated as very low in effectiveness. An investigation of the problem showed that within a few months of their joining the hospital, their perception about the importance of their role changed; they felt that their role was not important at all.
6. Influence - A relative concept is that of influence or power. The more influence a person is able to exercise in his role, the higher its efficacy is likely to be. A gate-keeper in a hospital was trained to screen visitors outside visiting hours. He used his own discretion in admitting them and referred a case to nurses or doctors only for clarification

and guidance. Interviews with such employees in that hospital showed that they were very proud of their roles. One obvious factor underlying the higher motivation of the workers was the discretion given to the roles.

7. Personal growth - Another factor which contributes to role efficacy is the perception that the role provides the individual with an opportunity to grow and develop. There are several instances of people leaving one role and becoming very effective in another role, this happens primarily because they have greater opportunity to grow in the second role. If a person feels that he is stagnating in a role without any opportunity to grow, he is likely to have low role efficacy.

Dimension 3: Role Linking

1. Inter-role linkage - Linking one's role with others' in the organization increases efficacy. If there is a joint effort to understand problems, find solutions, etc, efficacy of the various roles involved is likely to be high. Of course, the presumption is that people know how to work effectively. Similarly, if a person is a member of a task group that set up for a specific purpose, his efficacy (other a person works without any linkage with other roles) reduces role efficacy.
2. Helping relationship - if person performing a particular role feels that he can get help from some source in the organization whenever the need arises, he is likely to have higher role efficacy. On the other hand, if there is a feeling that no help is forthcoming when asked for, or that the respondents are hostile, role efficacy will be low. A helping relationship is of two kinds- feeling free to ask for help and expecting that help would be available when it is needed, as well as willingness to give help and respond to the needs of others.
3. Superordination- A role may have linkages with systems, groups and entities beyond the organization. When a person performing a particular role feels that what he does is likely to be of value to larger group, his efficacy is likely to be high. The roles that give opportunities to role occupants to work for superordinates goals have the highest efficacy. Roles in which people feel that what they are doing is helpful to the organization, in which they work, have higher efficacy.

Organizational effectiveness

Organizational effectiveness is the concept of how effective an organization is in achieving the outcomes the organization intends to produce. The idea of organizational effectiveness is especially important for non-profit organizations as most people who donate money to non-profit organizations and charities are interested in knowing whether the organization is effective in accomplishing its goals. An organization's effectiveness is also dependent on its communicative competence and ethics. The relationship between these three is simultaneous. Ethics is a foundation found within organizational effectiveness. An organization must exemplify respect, honesty, integrity and equity to allow communicative competence with the participating members.

Organizational effectiveness is an abstract concept and is basically impossible to measure. Instead of measuring organizational effectiveness, the organization determines proxy measures which will be used to represent effectiveness. Proxy measures used may include such things as number of people served, types and sizes of population segments served, and the demand within those segments for the services the organization supplies.

The term Organizational Effectiveness is often used interchangeably with Organization Development, especially when used as the name of a department or a part of the Human Resources function within an organization. To be effective and achieve its goals, an organization must successfully respond to environmental factors. How can the effectiveness of an organization be measured? Various models of determining organizational effectiveness exist because organizations face different environments, they produce different products, their organizational members are made up of different kinds

of people, and the organizations are at different stages of development. Each model is most useful to an organization having a particular combination of these environmental and organizational attributes.

Two different underlying dimensions may be considered to develop models of organizational effectiveness. The first is the organization's internal versus external focus. The second dimension is the organization's emphasis on flexibility versus control. Flexibility allows faster change, whereas control allows a firmer grasp on current operations. When these two dimensions are drawn at right angles to each other, the first four models of organizational effectiveness can be plotted. They are the rational goal, open system, internal process, and human relations models.

According to the rational goal model of effectiveness, an organization is effective to the extent that it accomplishes its stated goals. For example, the formal goals of the Toronto Blue Jays are to win their division, the American League pennant, and the World Series.

With an open system model an organization is effective to the degree that it acquires inputs from its environment and has outputs accepted by its environment. The University of Alberta follows this model when it is concerned about the quality and number of students applying for admission and what jobs they receive on graduation.

The internal process model focuses on the effectiveness of the internal transformation process. When Hamilton's Stelco Inc. examines its steel-making methods to determine price and quality competitiveness, it is focusing on its internal processes.

The human relations model focuses on the development of the organization's personnel. Marlin Travel sends its agents on familiarization trips to expand their knowledge of specific hotels, cruises, and destinations.

The competing values model requires that an organization scrutinize the balance among the above four effectiveness models. In this model there are three sets of competing values. The first is the tension between internal versus external focus. The more the organization focuses on one, the less it can concentrate on the other. For example Apple Computer has focused externally on its customers and making computers that are intuitive and easy to use. The computer chip maker Intel has had a more internal focus on how to make faster and more powerful central processing units at a low price. The second set of values in competition is flexibility versus control. Flexibility allows quick response to changing conditions and values innovation.

A private hospital, for example, is concerned with how patients are treated and the success rate of surgeries (the rational goal model). It is also interested in how hospital procedures are performed (the internal process model) and with the skills and abilities of hospital staff (the human relations model). Finally, because it is a private hospital and must make a profit to survive, it needs to take into account how many and what kinds of patients are admitted (the open system model). The hospital must balance the three sets of competing values in order to be effective.

With the strategic constituencies model an organization would aim to at least minimally satisfy the most important constituents (or stakeholders) in its environment. The owner of an A&W franchise must satisfy the customers and A&W head office management. Customers care about the quality and price of the food as well as the speed and friendliness of service. Head office cares about these issues along with financial reporting, product promotions, and the store's relationship with its community.

An organization seeking legitimacy survives by acting in a manner seen by other organizations as legitimate. An example would be producing a business plan and projected income

statement in order to obtain a bank loan.

The organization adopting the fault-driven model of effectiveness seeks to eliminate traces of ineffectiveness in its internal functioning. The National Aeronautics and Space Administration (NASA) in the United States is a good example. Its systems are designed with backups to be reliable even if some components fail.

Finally, the organization as a high performing system compares itself to other similar organizations. Effectiveness is seen as the degree to which that comparison is positive. One method used by high performers to make such comparisons is to examine industry rankings.

Review of Literature

A study on Role efficacy and Job Satisfaction of hospital nurses; explored the relationship between the role efficacy concept developed by Pareek (1987) and selected aspects of job satisfaction of hospital nurses. A total of 354 full-time nurses from six hospitals in south Florida participated in this pilot study. The survey instrument covered ten role efficacy components (self-role integration, proactivity, creativity, confrontation, centrality, influence, growth, inter-role linkage, helping and superordination) as well as the level of the nurse in the organizational hierarchy of the hospital and the nurse's perceived level of satisfaction with feedback from nursing supervisors, physicians, hospital administrators and the job itself.

Results indicated that there was a significant relationship at the .001 level between role efficacy and each of these variables. The researcher concluded that the role efficacy concept can be applied to hospital nurses which could increase job satisfaction and result in higher retention of hospital nurses. The study also includes recommendations for implementation of these findings.

Implications for future research include identification of relationships between role efficacy and other variables such as age, shift, and level of education, number of years in the nursing profession, length of time in present position and department of employment. Future research can also focus on effective communication and feedback channels in the hospital environment.

A study on Performance measurement and Organizational effectiveness -The aim of this paper was to bridge the gap between the organizational effectiveness (OE) models developed in the field of organizational theory and the performance measurement models presented within the management accounting literature. The specific evolution of these two complementary streams of research stemming from two different fields of research are reconciled and integrated by analyzing their convergences and divergences. As a response to theoretical and practical pressures, the evolution of OE models reflects a construct perspective, while the evolution of performance measurement models mirrors a process perspective. Performance measurement models have moved from a cybernetic view whereby performance measurement was based mainly on financial measures and considered as a component of the planning and control cycle to a holistic view based on multiple nonfinancial measures where performance measurement acts as an independent process included in a broader set of activities.

Purpose: To find whether the predictor role efficacy (RE) predicts dependent variable, Organizational effectiveness (OE)

Hypothesis Development:

Since the study was conducted to examine to determine the effect of the role efficacy (RE) and organizational effectiveness (OE) the following hypothesis were set:

Hypothesis A – regarding Organizational Effectiveness:

H1 = Role efficacy (RE) - Integration, Proactivity, Creativity, Confrontation, Centrality, Influence, Personal growth, Inter-role linkage, Helping relationship and Superordination) are

predictors of Organizational effectiveness (OE).

Hypothesis B – regarding Group Functioning:

H1 = Role efficacy (RE) - Integration, Proactivity, Creativity, Confrontation, Centrality, Influence, Personal growth, Inter-role linkage, Helping relationship and Superordination) are predictors of Group Functioning (GF).

Hypothesis C – regarding Job Satisfaction:

H1 = Role efficacy (RE) - Integration, Proactivity, Creativity, Confrontation, Centrality, Influence, Personal growth, Inter-role linkage, Helping relationship and Superordination) are predictors of Job Satisfaction (JS).

Hypothesis D – regarding Goal Integration:

H1 = Role efficacy (RE) - Integration, Proactivity, Creativity, Confrontation, Centrality, Influence, Personal growth, Inter-role linkage, Helping relationship and Superordination) are predictors of Goal Integration (GI).

Methodology of Research

Before prospective respondents agreed to participate in the study, the interviewer informed them about the overall subject of the questions: their experiences and views of certain HRM tools and needs around their work environment. The type of research adopted is Descriptive. Descriptive research is used to gather descriptive information nurses' classification etc. The research study is quantitative and qualitative in nature. Mathematical analysis is used to generalize suppositions. The type of questionnaire used is structured and formal. The types of questions used are straight-forward and limited probing in nature. Cross-sectional design was used to obtain primary data from 520 respondents from the target population in senior nurse and junior nurse from the 4 units of Apollo Hospitals Group. Statistical analysis involves hypotheses testing using backward multiple regression method. The research technique used is survey method involving person-administered surveys.

The target population for the 4 units of Apollo hospitals Group for 4 units; Delhi, Hyderabad, Pune and Kolkata is 2200 nurses. Sample consisted of 520 nurses' working with Apollo hospitals Group from units like Delhi, Hyderabad, Pune and Kolkata included employees from two hierarchical levels i.e. Senior and junior nurses working in organizations. The size of sample was determined using formula for sample for small population.

Total Sample (N- 520)			
Delhi (N – 130)	Hyderabad (N- 130)	Pune (N– 130)	Kolkata (N- 130)
Sr. Nurse (N- 65)	Sr. Nurse (N- 65)	Sr. Nurse (N- 65)	Sr. Nurse (N- 65)
Jr. Nurse (N-65)	Jr. Nurse (N-65)	Jr. Nurse (N-65)	Jr. Nurse (N-65)

The actual research question on the role efficacy and organizational effectiveness was not unveiled in order to avoid "socially desired behaviour" responses. The responses collected were coded and data was analyzed using predictive analysis technique.

First-hand information is collected using structured questionnaire and scaling techniques administered to nurses from the 4 units of Apollo Hospital. Probabilistic sampling was used to pick-up nurses for interview sessions. In each unit 130 nurses were selected and the total size of the sample was of 520 nurses'. Information collected from the subjects was supported by information from focus group discussions/interviews with senior nursing staff of the hospital. Beneficent

Measures

a) The study used "Role Efficacy: Nursing Role Efficacy Scale (A)" suggested by Udai Pareek (1968a, 1968b) measured on a 5-point interval scale with 1 being 'you do not agree with

it' and 5 being 'you strongly agree with it'. Further the questionnaire took consideration of following factors: (i) Integration (ii) Proactivity (iii) Creativity (iv) Confrontation (v) Centrality (vi) Influence (vii) Personal growth (viii) Inter- role linkage (ix) Helping relationship and (x) Superordination. The Cronbach alpha for a group of 26 was found to be 0.68. The nursing role efficacy had a positive correlation of 0.68.

b)"Organization Effectiveness Scale" by Taylor and Bower(1972) identified and was used specifically for nurses' working in hospitals. The questions varied from strongly agree to strongly disagree over a 5-point scale. Further the questionnaire took consideration of the following factors: (i) Group functioning (ii) Job Satisfaction and (iii) Goal Integration. Questionnaire is the part of the survey of Organization which originally included various dimensions like Organization of work, communication flow, emphasis on human resources decision making practices, Influence and Control , Coordination, Job Challenge, Job Clarity, peer support, Supervisory Support, peer team building group functioning, Job satisfaction and Goal Integration. The questionnaire contained 30 items related to Role efficacy and 14 related to Organizational effectiveness.

Predictive analysis for Organizational effectiveness:

Backward multiple regression method was used to determine the predictive relationship between Organizational effectiveness (dependent variable) and independent variables viz: Proactivity, creativity, integration, helping relationship. Results are displayed in Table 1, 2 and 3.

Table 1: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.435	.189	.183	.621

Dependent Variable: OE

Predictors: (Constant), Proactivity, creativity, integration, helping relationship

Interpretation:

The correlation coefficient (R) is equal to .435, which indicates the moderate relationship between the predictors and the outcome i.e. organizational effectiveness. The coefficient of determination (R2) is 0.189 , which implies that about 19% of variation in OE is explained by Proactivity, creativity, integration and helping relationship. The inclusion of the remaining 6 variables does not increase the R2 significantly (20%).

Table 2:

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.266	4	11.566	29.972	.000
Residual	198.740	515	.386		
Total	245.006	519			

Dependent Variable: OE (Organizational Effectiveness)

Predictors: (Constant), Proactivity, creativity, integration, helping relationship

Interpretation:

This part of output reports analysis of variance (ANOVA). The F test determines the overall significance of the regression model. The Ho in ANOVA states that the straight line does not fit the data. In the current example the P value is 0.000 which is less than the level of significance (α = 0.05) thus the Ho is rejected, suggesting a significant ANOVA test.

Table 3:

Coefficients ^a							
Model B	Unstandardized Coefficients		Standardized Coefficients	T	Sig. Tolerance	Collinearity Statistics	
	Std. Error	Beta				VIF	
(Constant)	2.847	.108		26.265	.000		
Integration	.109	.039	.127	2.780	.006	.758	1.319
Proactivity	-.105	.035	-.124	-2.956	.003	.891	1.122
Creativity	.171	.039	.200	4.411	.000	.769	1.301
helping relationship	.202	.034	.263	5.889	.000	.792	1.262

a. Dependent Variable: OE

Interpretation:

The multicollinearity is not the problem because the VIF (Variance Inflation Factor) is less than 10 and the tolerance value is more than 0.1 for all the 4 predictors (creativity, Proactivity, integration and helping relationship). The t statistics test, tests the null hypothesis that the coefficient value for all the predictors is equal to zero. In the current example the t- test for all the predictors is significant because the p-value for all the predictors is less than level of significance 0.05. Thus the regression model suggesting relationship between outcome and predictors can be stated as follows:

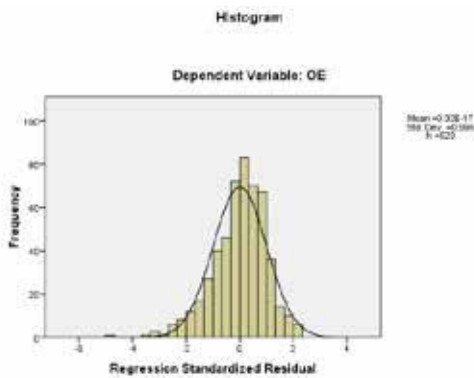
$$OE \text{ (Organizational Effectiveness)} = 2.847 + 0.189(\text{integration}) - 0.105(\text{Proactivity}) + 0.171(\text{creativity}) + 0.202(\text{helping relationship})$$

Proactivity, creativity and helping relationship positively affects OE, however integration has negative relationship.

Histograms and P-P plot regression standardized residual

The histogram and probability plots are used to test the normality of the residuals.

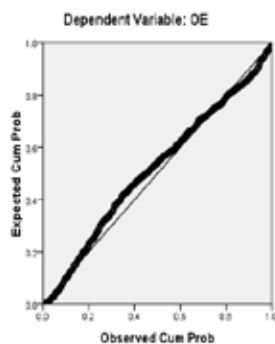
Figure: 1



The figure: 1 where dependent variable is OE (Organization effectiveness) shown in histogram. The histogram looks like a normal distribution, a bell curve.

Figure: 2

Normal P-P Plot of Regression Standardized Residual

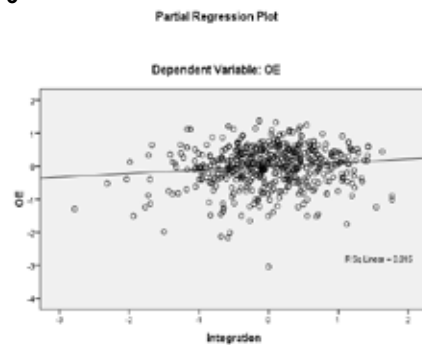


The normal probability curve in Figure: 2, also shows probability of residuals. The straight line in this plot represents the

normal distribution and the point represents the residuals. For this example, the graph is pretty normal, most scores lie on the line.

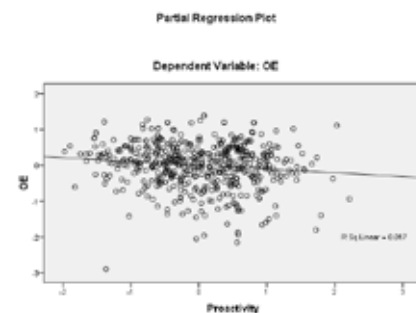
Partial Regression Plot

Figure: 3



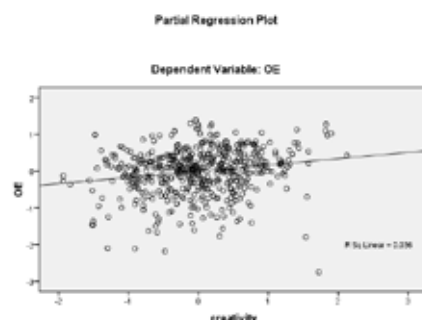
For Integration, the scatter plot shows a positive relationship to OE (Organization effectiveness). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 4



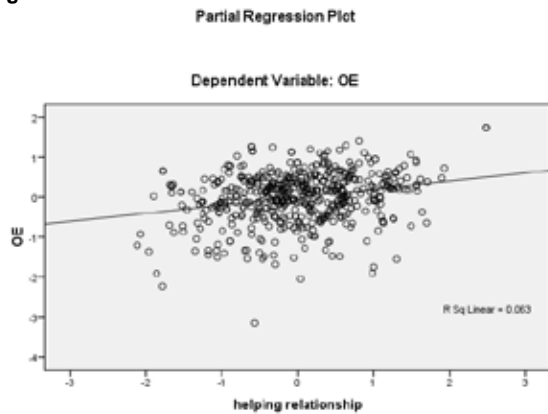
For Proactivity, the scatter plot shows a negative relationship to OE (Organization effectiveness). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 5



For Creativity, the scatter plot shows a positive relationship to OE (Organization effectiveness). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure : 6



For helping relationship, the scatter plot shows a positive relationship to OE (Organization effectiveness). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Predictive analysis for Group Functioning:

Backward multiple regression method was used to determine the predictive relationship between Group Functioning (dependent variable) and independent variables viz: creativity, personal growth, helping relationship. Results are displayed in Table 1, 2 and 3.

Table 1: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.335	.112	.107	.676

Dependent Variable: GF (group Functioning)
Predictors: (Constant), creativity, personal growth, helping relationship

Interpretation:

The correlation coefficient (R) is equal to .335, which indicates the moderate relationship between the predictors and the outcome i.e. organizational effectiveness. The coefficient of determination

(R²) is 0.112 , which implies that about 11% of variation in Group functioning is explained by Creativity, personal growth and helping relationship. The inclusion of the remaining 7 variables does not increase the R² significantly (13%).

Table 2:

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	29.77	3	9.925	21.694	.000
Residual	236.069	516	.457		
Total	265.844	519			

Dependent Variable: GF (Group Functioning)

Predictors: (Constant), creativity, personal growth, helping relationship

Interpretation:

This part of output reports analysis of variance (ANOVA). The F test determines the overall significance of the regression model. The Ho in ANOVA states that the straight line does not fit the data. In the current example the P value is 0.000 which is less than the level of significance (α = 0.05) thus the Ho is rejected, suggesting a significant ANOVA test.

Table :3

Model B	Unstandardized Coefficients ^a		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Std. Error	Beta				VIF	
(Constant)	3.024	.120		25.165	.000		
creativity	.133	.040	.149	3.283	.001	.836	1.197
personal growth	.077	.041	.084	1.856	.064	.830	1.204
helping relationship	.161	.038	.200	4.255	.000	.776	1.288

a. Dependent Variable: Group Functioning

Interpretation:

The multicollinearity is not the problem because the VIF (Variance Inflation Factor) is less than 10 and the tolerance value is more than 0.1 for all the 3 predictors (creativity, personal growth and helping relationship). The t statistics test, tests the null hypothesis that the coefficient value for all the predictors is equal to zero. In the current example the t- test for all the predictors is significant because the p-value for all the predictors is less than level of significance 0.05. Thus the model for making prediction can be written as follows:

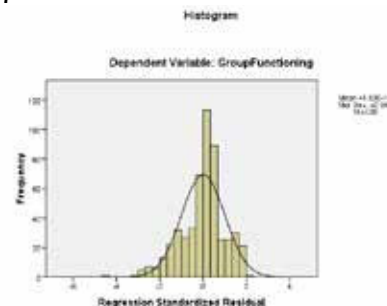
$$GF \text{ (Group Functioning)} = 3.024 + 0.133(\text{creativity}) + 0.077(\text{personal growth}) + 0.161(\text{helping relationship})$$

Creativity, personal growth and helping relationship all positively affect Group Functioning.

Histograms and P-P plot regression standardized residual

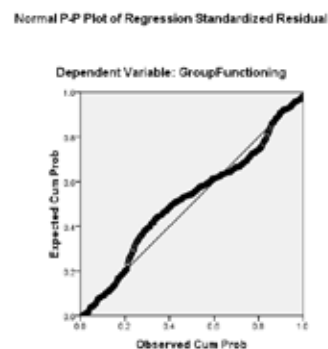
The histogram and probability plots are used to test the normality of the residuals.

Figure : 7



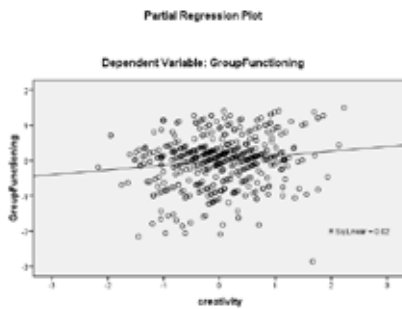
The figure: 7 where dependent variable is GF (Group Functioning) shown in histogram. The histogram looks like a normal distribution, a bell curve.

Figure : 8



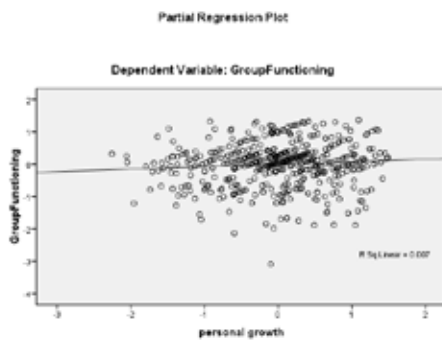
The normal probability curve in Figure: 8, also shows probability of residuals. The straight line in this plot represents the normal distribution and the point represents the residuals. For this example, the graph is pretty normal, most scores lie on the line.

Partial Regression Plot
Figure: 9



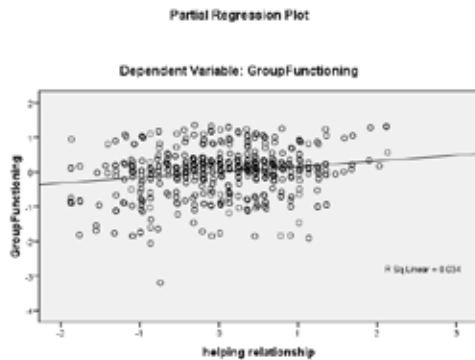
For Creativity, the scatter plot shows a positive relationship to GF (Group Functioning). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 10



For Personal growth, the scatter plot shows a positive relationship to GF (Group Functioning). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 11



For helping relationship, the scatter plot shows a positive relationship to GF (Group Functioning). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Predictive analysis for Job Satisfaction:

Backward multiple regression method was used to determine the predictive relationship between Job Satisfaction (dependent variable) and independent variables viz: helping relationship, creativity, personal growth, confrontation, Proactivity. Results are displayed in Table 1, 2 and 3.

Table 1:
Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.394	.156	.147	.783

R	R Square	Adjusted R Square	Std. Error of the Estimate
.394	.156	.147	.783

Dependent Variable: JS (Job Satisfaction)
Predictors: (Constant), helping relationship, creativity, personal growth, confrontation, Proactivity

Interpretation:

The correlation coefficient (R) is equal to .394, which indicates the moderate relationship between the predictors and the outcome i.e. organizational effectiveness. The coefficient of determination

(R²) is 0.156, which implies that about 16 % of variation in Job Satisfaction is explained by helping relationship, creativity, personal growth, confrontation and Proactivity. The inclusion of the remaining 5 variables does not increase the R² significantly (10 %).

Table 2:

ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	57.971	5	11.594	18.932	.000
Residual	314.781	514	.612		
Total	372.752	519			

Dependent Variable: JS(Job Satisfaction)

Predictors: (Constant), helping relationship, creativity, personal growth, confrontation, Proactivity

Interpretation:

This part of output reports analysis of variance (ANOVA). The F test determines the overall significance of the regression model. The Ho in ANOVA states that the straight line does not fit the data. In the current example the P value is 0.000 which is less than the level of significance (α = 0.05) thus the Ho is rejected, suggesting a significant ANOVA test.

Table: 3

Model	Coefficients ^a							
	Unstandardized Coefficients		Standardized Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
1	(Constant)	3.024	.120		25.165	.000		
	creativity	.133	.040	.149	3.283	.001	.830	1.197
	personal growth	.077	.041	.084	1.856	.064	.830	1.204
	helping relationship	.161	.038	.295	4.255	.000	.770	1.288

Interpretation:

The multicollinearity is not the problem because the VIF (Variance Inflation Factor) is less than 10 and the tolerance value is more than 0.1 for all the 5 predictors (helping relationship, creativity, personal growth, confrontation and Proactivity). The t statistics test, tests the null hypothesis that the coefficient value for all the predictors is equal to zero. In the current example the t- test for all the predictors is significant because the P value for all the predictors is less than level of significance 0.05. Thus the model for making prediction can be written as follows:

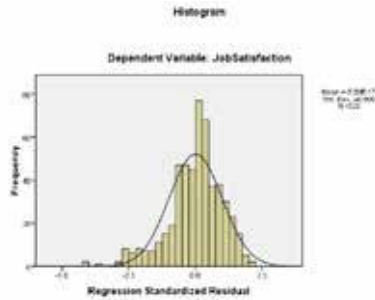
$$JS(\text{Job Satisfaction}) = 2.893 + 0.227(\text{helping relationship}) + 0.204(\text{creativity}) + 0.140(\text{personal growth}) - 0.093(\text{confrontation}) - 0.091(\text{Proactivity})$$

It can be concluded that helping relationship, creativity and personal growth positively affects job satisfaction where as confrontation and proactivity has an indirect effect.

Histograms and P-P plot regression standardized residual

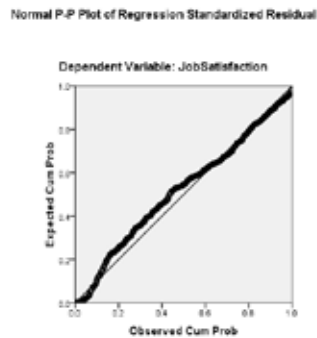
The histogram and probability plots are used to test the normality of the residuals.

Figure: 12



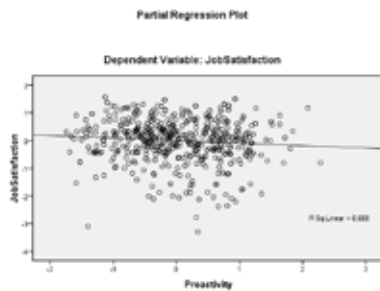
The figure: 12 where dependent variable is JS (Job Satisfaction) shown in histogram. The histogram looks like a normal distribution, a bell curve.

Figure: 13



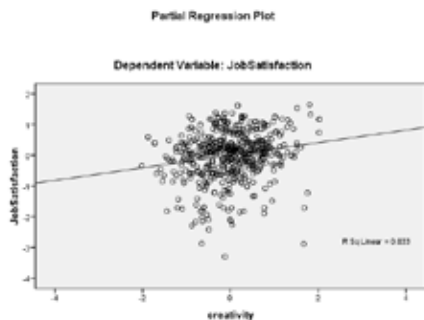
The normal probability curve in Figure: 13, also shows probability of residuals. The straight line in this plot represents the normal distribution and the point represents the residuals. For this example, the graph is pretty normal, most scores lie on the line.

Partial Regression Plot
Figure: 14



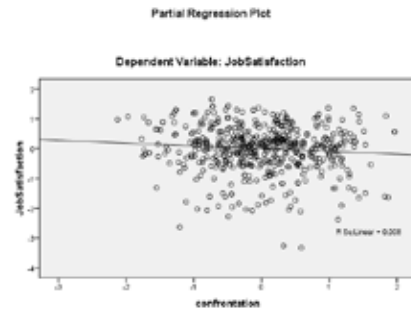
For Proactivity, the scatter plot shows a negative relationship to JS (Job Satisfaction). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 15



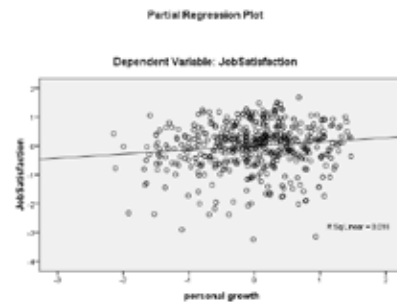
For Creativity, the scatter plot shows a positive relationship to JS (Job Satisfaction). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 16



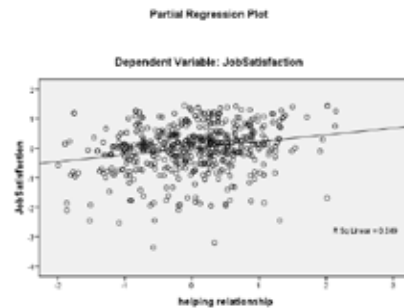
For confrontation, the scatter plot shows a negative relationship to JS (Job Satisfaction). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 17



For personal growth, the scatter plot shows a positive relationship to JS (Job Satisfaction). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 18



For helping relationship, the scatter plot shows a positive relationship to JS (Job Satisfaction). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Predictive analysis for Job Satisfaction:

Backward multiple regression method was used to determine the predictive relationship between Goal Integration (dependent variable) and independent variables viz: Proactivity, confrontation, creativity, integration, helping relationship. Results are displayed in Table 1, 2 and 3.

Table 1: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.373	.139	.131	.867

Dependent Variable: GI (Goal Integration)

Predictors: (Constant), Proactivity, confrontation, creativity, integration, helping relationship

Interpretation:

The correlation coefficient (R) is equal to .373, which indicates the moderate relationship between the predictors and the outcome i.e. organizational effectiveness. The coefficient

of determination (R2) is .139, which implies that about 14 % of variation in Goal Integration is explained by Proactivity, confrontation, creativity, integration and helping relationship. The inclusion of the remaining 5 variables does not increase the R2 significantly (14 %).

Table 2:

Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	Std. Error	Beta				VIF	
(Constant)	3.037	.158		19.205	.000		
Integration	.150	.055	.129	2.740	.006	.757	1.321
Proactivity	-.122	.051	-.107	-2.407	.016	.853	1.173
6 Creativity	.199	.055	.172	3.598	.000	.733	1.365
Confrontation	-.127	.049	-.116	-2.571	.010	.828	1.208
helping relationship	.240	.048	.231	4.986	.000	.783	1.276

a. Dependent Variable: Goal Integration

Interpretation:

The multicollinearity is not the problem because the VIF (Variance Inflation Factor) is less than 10 and the tolerance value is more than 0.1 for all the 5 predictors (Integration, Proactivity, creativity, confrontation and helping relationship). The t statistics test, tests the null hypothesis that the coefficient value for all the predictors is equal to zero. In the current example the t- test for all the predictors is significant because the p-value for all the predictors is less than level of significance 0.05.

Thus the model for making predictors can be written as follows:

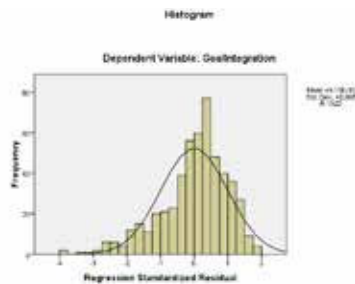
$$GI \text{ (Goal Integration)} = 3.037 + 0.150(\text{integration}) - 0.122(\text{Proactivity}) + 0.199(\text{creativity}) - 0.127(\text{confrontation}) + 0.240(\text{helping relationship})$$

Integration, creativity and helping relationship positively affect goal integration, whereas proactivity and confrontation has a negative effect.

Histograms and P-P plot regression standardized residual

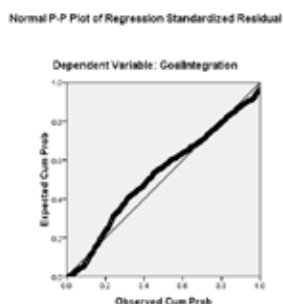
The histogram and probability plots are used to test the normality of the residuals.

Figure: 19



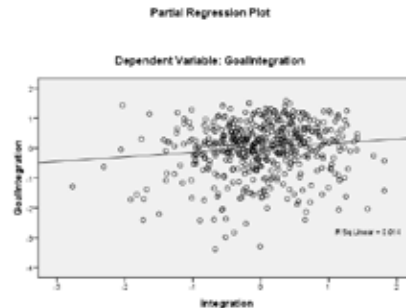
The figure: 19 where dependent variable is GI (Goal Integration) shown in histogram. The histogram looks like a normal distribution, a bell curve.

Figure: 20



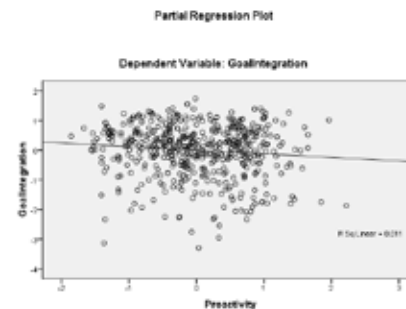
The normal probability curve in Figure: 20, also shows probability of residuals. The straight line in this plot represents the normal distribution and the point represents the residuals. For this example, the graph is pretty normal, most scores lie on the line.

Partial Regression Plot
Figure: 21



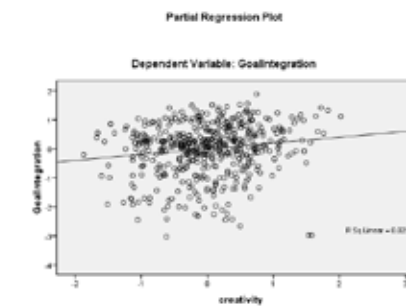
For Integration, the scatter plot shows a positive relationship to GI (Goal Integration). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 22



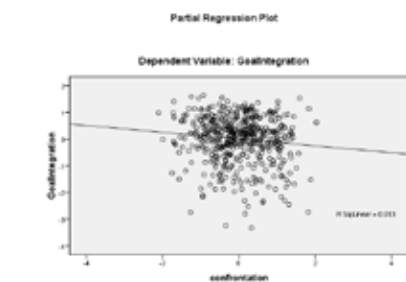
For Proactivity, the scatter plot shows a negative relationship to GI (Goal Integration). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 23



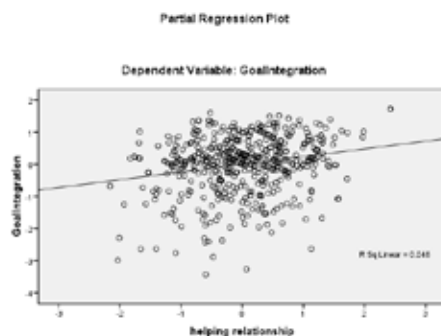
For creativity, the scatter plot shows a negative relationship to GI (Goal Integration). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 24



For Confrontation, the scatter plot shows a negative relationship to GI (Goal Integration). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Figure: 25



For helping relationship, the scatter plot shows a positive relationship to GI (Goal Integration). The clouds of dots are evenly spaced out around the line, suggesting homoscedasticity.

Results and Conclusion:

Data were collected from 520 nursing employees altogether, there were 130 employees equally drawn from the four units of Apollo Hospital, which included Delhi, Hyderabad, Pune and Kolkata. From each of these four units sixty five (senior and junior nurses) were selected for this study. Hypothesis A: as per the backward multiple-regression H0 has been rejected and H1 has been accepted which means that the components of Role Efficacy (RE) are the predictors of Organizational Effectiveness (OE). The components like integration, creativity, helping relationships and proactivity of Role Efficacy are the strong predictors of OE as compared to balance 6 components of role efficacy.

Hypothesis B: further to backward multiple regression was used to assess the impact of components of role efficacy on group functioning. H0 is rejected and H1 is accepted which indicates that the components like creativity, personal growth and helping relationship are strong predictors of group functioning compared to rest 7 components of role efficacy.

Hypothesis C: H0 is rejected and H1 is accepted as the components like helping relationship, creativity, personal growth, confrontation and proactivity are strong predictors of job satisfaction as compared to remaining 5 components of role efficacy.

Hypothesis D: H0 is rejected and H1 is accepted depicting proactivity, confrontation, creativity, integration, helping relationship are strong predictors of goal integration as compared to remaining 5 components of role efficacy.

The nurses are strongly guided by their professional conscience and similar aspects related to professional ethos overall, relating to the "will-do" component of motivation. Many nurses appear to be de-motivated and frustrated precisely because they are unable to satisfy their professional conscience and impeded in pursuing their vocation due to lack of means and supplies and due to inadequate or inappropriately applied HR tools. These appeared to negatively affect the "can-do" component of motivation. Due to the extent of the problems at hand, they also affect the "will-do" component of motivation.

The conclusion is quite interesting. It was observed that the components of role efficacy like creativity and helping relationship played a dominating role over components of overall organizational effectiveness. Whereas, the components of role efficacy when individually observed with the components of organization effectiveness i.e. group functioning, job satisfaction and goal integration, then the components like proactivity, integration, and personal growth played a major role. The efforts to strengthen nurse motivation must protect, promote and build upon the professional ethos of nurses. This entails appreciating their professionalism and addressing nurses' professional goals such as recognition, career development and further qualification. It must be the aim of HR to develop the work environment so that nurses are enabled to meet personal and organizational goals. This requires strengthening nurses' self-efficacy by offering training and supervision, but also by ensuring the availability of essential means, materials and supplies as well as equipment and the provision of adequate working conditions that enable them to carry out their work appropriately and effectively.

Implications for future research include identification of relationships between role efficacy and other variables such as age, shift, and level of education, number of years in the nursing profession, length of time in present position and department of employment. Future research can also focus on effective communication and feedback channels in the hospital environment.

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