IMPACT OF WORK AND PHYSICAL ENVIRONMENT ON HOSPITAL NURSES COMMITMENT

Husnain Safdar Butt
Department of Management Sciences,
The Islamia University of Bahawalpur, Pakistan.

Faisal Khan
Faculty of Management and Human Resource Development,
Universiti Teknologi, Malaysia; (faisalkhanutm@yahoo.com).

Amran Bin Md. Rasli
Faculty of Management and Human Resource Development,
Universiti Teknologi, Malaysia.

Muhammad Jawad Iqbal (Corresponding Author)
Faculty of Management and Human Resource Development,
Universiti Teknologi, Malaysia; (jawadiqbal71@gmail.com).

Abstract
The study investigates the impact of work and physical environment on hospital nurses commitment. Using an adapted questionnaire as a research tool the author investigates the impact of work environment (supervisor support, communication openness and teamwork) and physical environment (quality of patient areas, safety and quality of work spaces) and observed that the variables have positive and strong correlation with hospital nurses commitment. This study can give insights to the executives and the facility designers to build and design the hospital facility in a way that it provides comfort, safety and quality in patient caring. Moreover hospital management can consider this study as an asset to manage and enhance their nursing staff commitment towards their job.

Key words: Hospital Work environment, Hospital Physical environment, Nurses commitment

INTRODUCTION
Nowadays, hospitals are on the verge of great competition, they are strictly challenged by external and internal environments and nurses are considered to be the largest group of professionals who play a vital role in determining the quality and cost of healthcare. There is an argument that they have the potential to answer the key problems in the healthcare (Tonges, Rothstein & Carter 1998). Nurses’ commitment towards job is of profound importance for administrators and managers in healthcare organizations due to the pivotal role they play in their organizational performance. Work environment of nurses has been elaborated as a preference for health care organization (Shields & Ward, 2001; Zurn et al., 2004; El-Jaradali et al., 2009).

Increasing the nurses work environment quality is critical in the context of global paucity of qualified nurses (Aiken et al. 2004). “A hospital can be a toxic work environment with unsafe working conditions, back injuries, long hours and mandatory overtime” (Bolch 2008). Present researchers have demonstrated that features of work environment such as supervisory support, communication openness and team work (Janakiraman, Parish & Berry 2011; Aryee, Budhwar & Chen 2002) and characteristics of hospital physical environment such as quality of patient areas, safety and quality of work spaces Janakiraman, Parish & Berry (2011) are positively associated with commitment. Nurses organizational satisfaction and commitment are adhered to influence hospital productivity and the performance, as research has generally illustrated that satisfied employees are more productive and commited to their jobs, where as non commited ones experience turnover and absenteeism (Al-Aameri 2000).

Staff nurses working duration such as long working hours in the hospital facility alongwith physical and emotional stress that accompanies acute-care nursing suggests a vital role for facility design in nurses work related attitude and perceptions. The author in this article
illuminates the influence of both work and physical environment on hospital nurses commitment. Drawing on the stimulus-organism-response (SOR) model in environmental psychology Donovan & Rossiter (1982) and social exchange theory Blau (1964), the author’s study objective is to evaluate the combined effects of both physical and work environment on hospital nurses commitment, for this the author conducted a study in the natural setting of the hospital to determine the impact of work and physical environment on hospital staff nurses commitment.

LITERATURE REVIEW
In an effort to comprehend the factors that have an impact over staff nurses commitment, researchers have considered many antecedents and the two antecedent groups that have impact over staff nurses commitment are work environment characteristics and physical environment features (Janakiraman, Parish & Berry 2011). Perceptions of work environment are main issues in many researches (Rousseau 1988). The work environment concept is applicable to both organizational and managerial features and the factors applied to individual workers. Behavior of employee is generally understood by the influence of working climate in the organization (Patterson, Warr & West 2004). Work environment with positive perceptions should produce favorable responses among employees. Social exchange theory identifies that when an organization gives value and support its employees than employees in return feel obligated and exchange pure, honest and true spirits and values with the organization (Blau 1964; Dawley, Andrews & Buckle 2008). As a result, employees who have perceptions of positive work environment such as treatment on equal and fair grounds and recognition of their contributions bring best and positive out of them. These feelings can result in increased commitment and performance (Aryee, Budhwar & Chen 2002).

Author of the study has included three variables of work environment: supervisor support, communication openness and teamwork. These variables are chosen because they are appropriate, widespread and are extensively used in the vast organizational behavior literature and are meant for hospital nursing context. Supervisor support is defined to the extent which supervisors help its employees to perform their work duties (Janakiraman, Parish & Berry 2011; Griffin, Patterson & West 2001). Communication openness determines the degree to which communication and information is encouraged between subordinates and supervisors (Janakiraman, Parish & Berry 2011; Kitchell 1995). Service quality can be improved if there is effective communication and collaboration among the employees (Butt & Murtaza 2011). Teamwork identifies groups of employees working together to complete job related tasks (Janakiraman, Parish & Berry 2011; Parker, S.K. & Wall 1998). Supervisor support and communication openness is positively associated with staff nurses commitment (Janakiraman, Parish & Berry 2011).

The impact of physical environment on people has been researched mainly in marketing and organizational behavior. Most of the research in healthcare determine the relationship between hospital design and patient outcomes (Hamilton 2003). There is less work on the design of the facility and its effects on staff nurses (Ulrich et al. 2004). However the research that does exist, shows that there is a positive association between healthcare environment and staff health, safety, effectiveness, satisfaction and commitment (Parish, Berry & Lam 2008; Ulrich et al. 2004). Research in environmental psychology considered the influence of physical environment on social interactions (Barker 1968; Bennett & Bennett 1970), cognition (Rapport 1982), emotion (Mehrabian & Russell 1974; Russell & Pratt 1980), physiology (Oborn 1987; Riley & Cochran 1984). Environment can be influential on the behavior of its users (Rapport 1982; Russell & Ward 1982).
Author’s study focuses on three aspects of physical environment which are of great importance to nurses and these three elements include: quality of patient areas, safety and quality of work areas. Quality of patient areas determine the ease and privacy provided to patients and the families (Janakiraman, Parish & Berry 2011). Quality designing of patient and family area which provides comfort to them also results in the enhancement of staff nurses commitment because it is rather easier for nurses to look after patients and families more readily and closely as they spend a considerable time with them (Janakiraman, Parish & Berry 2011). Safety refers to the extent at which hazards for staff and patients related to facility design (Janakiraman, Parish & Berry 2011). Safety also has influence over hospital nurses commitment, by 2001 American Nurses Association Study, in which 88 percent of nurses indicated that safety influence their decision to relinquish nursing (Tienman 2001). Facility design can play an important role in making the nursing job safer. Quality of work spaces identifies the easy availability of the needed equipment like supplies, parking, meeting and workstation with the characteristics needed for the job (Janakiraman, Parish & Berry 2011). Wineman (1982) determines the environmental factors such as space design and ambient conditions are crucial to employee commitment. Design elements have a significant effect on nurses commitment (Janakiraman, Parish & Berry 2011). Well planned and designed work spaces help in providing error less care of seriously ill patients and maintain good rapport with anxious families and patients, moreover accurate and timely supplies of equipment and coping effectively with various documentation processes depict the reality of hospital nurses (Hendrich, Fay & Sorrells 2002).

Commitment is one of those organizational concepts which has been researched a great deal. It is important for organizational performance and effectiveness. “The relative strength of an individual’s identification with and involvement in a particular organization” (Mowday & Steers 1979). Since the Hawthorne studies commitment and job satisfaction to employees both have received a plethora of attention from academicians and practitioners, this is largely due to their significant effect over organizational and individual behaviors (Al-Aameri 2000). Moreover employee behavior and attitude towards commitment depicts and inclines the solidarity and unity between the employees and management (Tonges, Rothstein & Carter 1998). Commitment was found to have significant results on productivity, staff turnover and satisfaction. There is a positive correlation between nurses retention in an organization (Kirsch 1990). Organizational commitment is negatively associated with staff turnover (Abbott, White & Charles 2005; Meyer et al. 2002). Commitment depicts relationships which are of great importance which deserve strong efforts to maintain it (Morgan & Hunt 1994).

**Table: 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment</td>
<td>Commitment depicts relationships which are of great importance</td>
</tr>
</tbody>
</table>

**Physical Environment**

- Quality of patient areas
- Safety
- Quality of Work spaces

**Work Environment**

- Supervisor support
- Communication
- Teamwork

**Figure 1:** Proposed Model (Adapted from Janakiraman, Parish & Berry, 2011)
(Dependent variable) whizh deserve strong efforts to maintain it (Morgan & Hunt 1994)

(Independent Variables)

**Work Environment Variables**

| Supervisor support | Supervisor support is defined to the extent which supervisors help its employees to perform their work duties (Janakiraman, Parish & Berry 2011; Griffin, Patterson & West 2001). |
| Communication openness | Communication openness determines the degree to which communication and information is encouraged between subordinates and supervisors (Janakiraman, Parish & Berry 2011; Kitchell 1995). |
| Teamwork | Teamwork identifies groups of employees working together to complete job related tasks (Janakiraman, Parish & Berry 2011; Parker, S.K. & Wall 1998). |

**Physical Environment Variables**

| Quality of patient area | Quality of patient areas determine the ease and privacy provied to patients and the families (Janakiraman, Parish & Berry 2011) |
| Safety | Safety refers to the extent at which hazards for staff and patients related to facility design (Janakiraman, Parish & Berry 2011) |
| Quality of work spaces | Quality of work spaces identifies the easy availability of the neede equipment like supplies , parking, meeting and workstation with the characteristics needed for the job (Janakiraman, Parish & Berry 2011) |

**Hypothesis for the current study**

H1: There is a positive relationship between supervisor support and nurses staff commitment.

H2: There is a positive relationship between communication openness and nurses staff commitment

H3: There is a positive relationship between teamwork and nurses staff commitment

H4: There is a positive relationship between quality of patient areas and nurses staff commitment

H5: There is a positive relationship between safety and nurses staff commitment.

H6: There is a positive relationship between quality of work spaces and nurses staff commitment

**RESEARCH METHODOLOGY**

**Data Collection**

The data was collected from a public hospital. The author’s decision not to reveal respondents identity, because promising anonymity is mandatory for both data accuracy and they would feel confident in answering sensitive questions like supervisor support which is related to work environment. A total sample of 120 nurses was taken.
Table: 2 KMO and Bartlett's Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .836 |

The KMO value of .836 in Table 2 suggests that the sample is adequate and proficient in order to continue the test.

RESEARCH INSTRUMENT

The questionnaire is adapted from (Janakiraman, Parish & Berry 2011). All constructs are measured on a five point likert scale. All the instructions were clarified and the items were redefined after a pilot survey in order to comprehend the items clearly. It contained 24 items of six sub variables of work and physical environment respectively and five items regarding dependent variable commitment.

STATISTICAL ANALYSIS AND RESULTS

The author of the study used Correlation and Regression Analysis to test its hypothesis. The cronbach alpha is very significant as it goes well beyond 0.70 which is considered to be the standard value.

Table 3 Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.940</td>
<td>29</td>
</tr>
</tbody>
</table>

The cronbach alpha’s value is very significant which is .940 in Table 2 and it shows that the reliability of the items asked in questionnaire is very consistent and can measure the desired constructs effectively.

Table 4: Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>Supervisor Support</th>
<th>Communication</th>
<th>Team Work</th>
<th>Quality of Patient Areas</th>
<th>Safety</th>
<th>Quality of Work Spaces</th>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.589**</td>
<td>.565**</td>
<td>.414**</td>
<td>.755**</td>
<td>.775**</td>
<td>.641**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Communication Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.589**</td>
<td>.709**</td>
<td>.511**</td>
<td>.761**</td>
<td>.828**</td>
<td>.665**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
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<tr>
<td>N</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>
Table 4 suggests the strong correlation among all the independent variables with the dependent variable commitment as the standard value should be greater than 0.5 to show the strong correlation relationship. All values in the table are well above the standard value so it depicts the correlation of commitment is strong with the dependent variable.

**.Correlation is significant at the 0.01 level (2-tailed)

<table>
<thead>
<tr>
<th>Team Work</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Patient Areas</td>
<td>.565**</td>
<td>.709**</td>
<td>1</td>
</tr>
<tr>
<td>Quality of Work Spaces</td>
<td>.414**</td>
<td>.511**</td>
<td>1</td>
</tr>
<tr>
<td>Safety</td>
<td>.755**</td>
<td>.761**</td>
<td>1</td>
</tr>
<tr>
<td>Commitment</td>
<td>.641**</td>
<td>.665**</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5: Correlations

<table>
<thead>
<tr>
<th>Work Environment</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment</td>
<td>.897**</td>
<td>.000</td>
<td>120</td>
</tr>
<tr>
<td>Commitment</td>
<td>.817**</td>
<td>.000</td>
<td>120</td>
</tr>
</tbody>
</table>

**.Correlation is significant at the 0.01 level (2-tailed)
Table 5 indicates strong correlation among Work and Physical environment respectively with the dependent variable commitment. As the values for work environment is .817 and for physical environment is .880 suggests strong correlation relationship with commitment.

Table 6 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.882</td>
<td>.779</td>
<td>.775</td>
<td>.27962</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Physical Environment, Work Environment

b. Dependent Variable: Commitment

Table 6 indicates the R, R square and Standard error, the value of R is .882 which determines the strength of Work and physical environment with the dependent variable commitment. The direction of the value is positive it shows a strong relationship where as R square shows that the proportion of variation in the dependent variable explained by the regression model. Here the value of R square is .779 and it indicates that dependent variable commitment is being affected by both the independent variables work and physical environment at the rate of .779 which is significant.

Graph 1

The graph 1 also indicates the correlation between the observed and predicted values of the dependent variable which is quite significant.

RESULTS

First of all if we consider the variables individually and inquire the correlation of independent variables (supervisor support, communication openness, teamwork, quality of patient areas, safety and quality of work spaces) with the dependent variable which is commitment, we can extract that the correlation of commitment is significantly strong and positive with each of the independent variable as demonstrated in table 4. Therefore the author finds support for the hypothesis from H1 to H6 and the entire hypothesis are accepted.

If we inquire the correlation of two main independent variables work and physical environment, we come to know that the supervisor support and communication openness of work environment are positively correlated with commitment as our results match Janakiraman, Parish & Berry (2011) in which the author demonstrated both the said variables positively correlated but the teamwork variable did not significantly correlated to commitment. However in Pakistan much importance is given to teamwork as it is required to
accomplish hospital tasks, so in this study context teamwork is also strongly and positively correlated with commitment and work environment as a whole, has significant relationship with commitment as demonstrated in table 5.

Physical environment variables in table 5 (quality of patient areas, safety and quality of work spaces) also have positive relationships with commitment and these results also match and also match the results of (Janakiraman, Parish & Berry 2011).

If we talk about the regression results in table 6 and graph 1 the findings also indicate that the two independent variables of work and physical environment have also strong impact over the dependent variable commitment and they are in the expected direction and there is enough support for the variables (Janakiraman, Parish & Berry 2011). The values of R and R square are significant.

Table 7

<table>
<thead>
<tr>
<th>Summary of hypothesis tested</th>
<th>Empirical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work Environment Variables</strong></td>
<td></td>
</tr>
<tr>
<td>There is a positive relationship between supervisor support and nurses staff commitment</td>
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</tr>
<tr>
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<td>Significant</td>
</tr>
<tr>
<td><strong>Physical Environment Variables</strong></td>
<td></td>
</tr>
<tr>
<td>There is a positive relationship between quality of patient areas and nurses staff commitment</td>
<td>Significant</td>
</tr>
<tr>
<td>There is a positive relationship between safety and nurses staff commitment</td>
<td>Significant</td>
</tr>
<tr>
<td>There is a positive relationship between quality of work spaces and nurses staff commitment</td>
<td>Significant</td>
</tr>
</tbody>
</table>

DISCUSSION AND CONCLUSION

Present literature in health care focuses on facility design and its impact on patients. Research in marketing concerns impact on customers at the same topic. Most of the work is done in healthcare by taking the work environment variable but less work is present by taking both the work and physical environment variables. The author of the study has hoped to contribute to the existing literature and specially in the Pakistani hospital context as it will give insights and signals to the facility designers and the managers in the healthcare to make comfortable and private hospitals manage staff nurses effectively and efficiently in order to enhance their commitment. In healthcare nurse retention is an issue of importance when nurses perform emotionally and physically demanding tasks and often working long hours. The hactic and demanding nature of nurses task led the author to believe that both the environments have strong impact over staff nurses commitment. This study confirmed that the both environments, work environment (supervisor support, communication openness and teamwork) and physical environment (quality of patient areas, safety and quality of work spaces) have significant relationship with nurses’ commitment.
The finding that safety has an impact over commitment provides support to an American Nurses Association Study in 2001, in which 88% of nurses identified that health and safety concerns has an impact over their decision making (Tienman 2001). Role of facilities design is also of profound importance in making nurses job safer. One nursing association executive stated “If you want to solve the nursing shortage, build safer hospitals” (Gelinas 2006). Quality of spaces designed for patients and their families have also great influence over nurses’ commitment. Nurses were inquired regarding comfort and privacy of patient areas and this effect a great deal to their commitment. Physical features having the ingredients of comfort and privacy can be useful for both the patients and the people who give care. It benefits nurses in a way that they spend a considerable time in these spaces and it is easier to serve patients and families. The author asked nurses about others features of workspace like supplies and identified that these design elements have significant impact over nurses commitment. It helps in accomplishing tasks effectively and efficiently by providing error free services to patients and families. Hendrich, Fay & Sorrells (2002) says supplies, medications and coping with various documentations reality of an hospital nurse. To design nurse work spaces with their requirements in mind is critical and important.

Work environment variables have a significant influence over staff nurses commitment as expected. If we follow social exchange theory, nurses have positive association between supervisor support, communication openness and teamwork with commitment. The data supports and signals the executives that the future renovations and expansions of hospitals should be made while keeping in mind the staff and patient needs. According to Berry & Parish (2008) the building quality says the concern of the mangement towaeds their staff.

LIMITATIONS AND FUTURE RESEARCH
There are many confines of this study which are to be addressed. This study only focuses on relatively one hospital elected from particular geographic vicinity of Bahawalpur City. So the generalization of the finding may not work. Although it is not expected that findings would be significantly different, it would be meaningful to expand this research throughout to improve the generalizability of results. Future research may be done to determine the stress level of nurses along with job satisfaction by using work and physical environment variables. Moreover other studies should also consider other work environment features like organizational support and organizational justice.

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