

**Antecedents of job satisfaction and organizational commitment and the
mediating role of organizational subculture**

Working paper

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Antecedents of job satisfaction and organizational commitment and the mediating role of organizational subculture

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ABSTRACT

This study investigates the relationships between employees' commitment and its various antecedents, including employees' perceptions of organizational culture, subculture, leadership style, and job satisfaction. Structural equation analysis examined a proposed model in which organizational subculture mediated the influence of leadership style and organizational culture on commitment, and in which job satisfaction is an antecedent of commitment. Specifically the direction of the causal effect between job satisfaction and commitment, the role of subculture as a mediating variable, and the role of job satisfaction as a mediator of the influences on commitment of its other antecedents were examined. Comparisons with alternative models confirmed satisfaction as an antecedent of commitment and the role of subculture as a mediating variable. The results of this study contribute to the clarification of the causal relations of the antecedents of commitment, and highlight the important role of local leadership and subculture in determining employees' job satisfaction and commitment.

Key words: commitment, organizational culture, organizational subculture, leadership, job satisfaction

INTRODUCTION

Commitment has been a core variable of interest in management/organizational studies for quite some time with a plethora of studies seeking to explicate its causal antecedents (e.g. Bateman, & Strasser, 1984; Clugston, 2000; DeConinck, & Bachman, 1994; DeCotiis, & Summers, 1987; Dodd-McCue, & Wright, 1996; Iverson, & Roy, 1994; Michaels, 1994; Mottaz, 1988; Russ, & McNeilly, 1995; Taormina, 1999; Williams, & Hazer, 1986). Among the possible antecedents of commitment, organizational culture has received relatively low levels of empirical investigation. For example, in a comprehensive meta-analysis and review of the antecedents and correlates of commitment, organizational culture was not mentioned (Mathieu, & Zajac, 1990). Such an omission is surprising given the emphasis placed on culture in recent organizational writings (e.g. Alvesson, & Berg 1992; Ashkanasy, Wilderom, & Peterson, 2000; Brown, 1995; Cartwright, 1999; Parker, 2000; Sackman, 1992; Schneider, 1990; Trice, & Beyer, 1993). Studies of organizational culture in health-related organizations in particular are limited (exceptions include Enckell, 1998; Kratina, 1990; Mackensie, 1995; Scott et al, 2003a & 2003c). It has been widely argued that organizational culture exerts a considerable influence on organizational behavior, particularly in areas such as performance and commitment (Kotter, & Heskett, 1992; Deal, & Kennedy, 1982; Peters, & Waterman, 1982; van Vianen, 2000). There is also some evidence from the health sector that culture affects organizational performance and effectiveness (Davies, Nutley, & Mannion, 2000; Gerowitz, Lemieux-Charles, Heginbothan, & Johnson, 1996; Mannion, Davis, & Marshall, 2004; Scott, Davies, & Marshall, 2003a, 2003b, 2003c, 2001). There is also some research pointing to the importance of organizational culture for the successful implementation of change initiatives in public health organizations (Enckell, 1998; Huq, & Martin, 2000; Ingersoll, Kirsch, Merk, & Lightfoot, 2000; Vestal Vestal, Fralicx, & Spreier,

1997) and that, dynamically, such interventions may bring about a culture change (Gerowitz, 1998).

It is presumed that organizational culture influences employees' sense of engagement, identification and belonging. Such sentiments might reasonably be expected to impact on commitment. However, the lack of research attention given to the effect of organizational culture on commitment in previous studies highlights a significant research gap that requires further investigation.

There has been, however, a tendency to consider organizational culture monolithically and to discuss the culture of a total organizational entity. More recent writings have questioned such a unitarist view and suggested a differentiation view of culture (Martin, 1992). This is compatible with the idea of organizational subcultures, first discussed by Turner (1971), but elaborated more recently (e.g., Hofstede, 1998; Martin, 1992; Sackman, 1992). Subcultures form on the basis of people's varied identification with different subgroups based upon factors such as occupational or professional identifications, work location/proximity, functional locus, or demographic factors such as age, ethnicity or gender (Bloor, & Dawson, 1994; Hofstede, 1998; Martin, 1992). Subcultures impact the attitudes and behavior of their members and this may be independent of the main culture effects (Martin, 1992; Schneider, 1990). Although the influence of organizational subculture on commitment is virtually absent in the research literature, there is an increasing body of work which suggests that there are multiple foci for member commitment, including work groups, supervisors and occupational groups (Baruch, & Winkelmann-Gleed, 2002; Becker, Billings, Eveleth, & Gilbert, 1996; Gallagher, & McLean Parks, 2001). Furthermore, the relationships between organizational subculture and other antecedents of organizational commitment such as leadership style and job satisfaction are largely unexplored.

The purpose of this study is to further clarify the relationships between commitment and the constructs discussed above, particularly organizational subculture. The analysis presented utilizes data that was reported elsewhere (Lok & Crawford, 1999, 2001; Lok, Westwood and Crawford, 2005). These previous papers confirmed the importance of subcultures in influencing employees' level of job satisfaction and commitment. The present study has significantly extended previous findings in two ways. Firstly, structural equation modeling is used to examine a proposed model in which organizational subculture mediates the influence of leadership style and organizational culture on commitment and on job satisfaction. This model is tested against plausible alternatives. Secondly, the direction of the causal effect between job satisfaction and commitment is investigated by comparing the degree of fit of the relevant alternative causal models.

A PROPOSED MODEL AND HYPOTHESES

Figure 1 presents a summary diagram of our proposed causal model for the prediction of employees' commitment from its antecedents: organizational culture, organizational subculture, leadership style, and job satisfaction. The model specifies in particular the role of subculture as a mediator of the causal effect of leadership style and organizational culture on job satisfaction and commitment. It also suggests that job satisfaction is a causal antecedent of commitment and a partial mediator of the effects of the other antecedents on commitment. In this section, we present the basis of the proposed model, and develop hypotheses regarding specific causal paths between the variables specified in the model.

Insert Figure 1 here

Commitment

Given the long history of the investigation of commitment it is not surprising that it has been conceptualized and measured differently and remains a contested construct. One of the issues centers on the conceptualization of commitment in terms of the attitudinal-behavioral dichotomy, but it is measures based on the affective approach which have most frequently been validated and used in previous research (O'Reilly & Chatman, 1986; Price & Mueller, 1981; Steers 1977; Meyer & Allen, 1997). An influential conceptualization is that of Mowday and colleagues (e.g., Mowday, Steers & Porter, 1979; Mowday, Porter & Steer, 1982). Organizational commitment is defined in terms of member's identification and level of engagement with a particular organization. It reflects peoples' attitudes towards the organizations goals and values, a desire to stay with the organization, and a willingness to expend effort on its behalf. The latter has behavioral implications, but the conceptualization focuses more on how people think about their relationship to the employing organization and the formation of attitudes based on that.

Although Meyer and Allen (1991) have sought to broaden the perspective on organizational commitment through the componential model, it has been shown that the three components are distinct and have different antecedents (Dunham Grube, & Castanedal, 1994). Meyer and Allen (1997) still acknowledge, too, that commitment should be conceptualized as a psychological state concerned with how people feel about their organizational engagements. It has also been demonstrated that it is the affective characteristics which impact greatest on outcome variables such as absenteeism and turnover (Dunham et al., 1994; McFarlane-Shore & Wayne, 1993; Somers 1995). Thus, affective commitment remains the dominant measure in commitment studies (Mathieu & Zajac, 1990; Randall 1990). Mowday et al's (1982) conceptualization of commitment as member's identification, involvement and loyalty with respect to the organization is consistent with this attitudinal perspective. That

conceptualization and its measurement through the Organizational Commitment Questionnaire (OCQ) continues to be widely accepted (Benkhoff 1997; Brett, Cron & Slocum, 1995; Bridges & Harrison, 2003; Leong et al, 1996; Mowday 1999) and is adopted in this study.

Employee commitment is argued to be critical to contemporary organizational success (Pfeffer 1998). Affective commitment, in particular, has been associated with positive organizational outcomes such as improved retention, attendance, and citizen behaviors, self reports of performance, and objective measures of supervisor ratings of employees' performance as well as indicators of improved operational costs and sales (Meyer & Allen, 1997). Affective commitment is seen as most beneficial to organizations (Meyer & Allen, 1997).

Multiple and varied antecedents of commitment have been examined and can be classified as personal, job and organizational (Allen & Meyer, 1996; Mathieu & Zajac, 1990). Research shows that organizational characteristics are the least investigated and the most predictive antecedents of commitment are affective factors (Baker 1995). Research on organizational antecedents has focused mostly upon factors that serve to signal to employees that the organization is supportive, fair in its dealings and that they are valued (Meyer & Allen, 1997). This set of factors is often labeled as 'employee-focused' (Bridges & Harrison, 2003). Little attention has been paid to factors associated with the structure and culture of organizations, such as organizational sub-units or subcultures. There has also been no specification of from whence these 'employee-focused' characteristics emanate; it is assumed that they attach somehow globally to 'the organization'. It might be argued that supportiveness, fairness and value may be perceived by organization members to reside closer to the routine and intense engagements of employees with their sub-units and subcultures than in a global and often distant and abstract 'organization'.

The bulk of the work on commitment has indeed adopted a global conceptualization and focused on the organization itself. However, such research has generally returned weak commitment-performance relationships (Benkhoff 1997) and increasingly attention shifted to other points of identification such as professional groups, occupations or careers (Baruch & Winkelmann-Gleed 2002; Gallagher & McLean Parks 2001; Wallace 1995). It has also been shown that employees exhibit commitment to different organizational coalitions, such as departments, collective labor bodies, management and supervisors (Reichers 1985). We suggest that organizational subcultures are likely to offer another point of identification, involvement and loyalty among their members and thus to exhibit a relationship with affective commitment. Such relationships have not been explored in extant research.

In sum, affective commitment remains the dominant focus of research on organizational commitment and is shown to be most clearly associated with important organizational outcomes. Furthermore, organizational variables, rather than employee characteristics, are the antecedents that better predict affective commitment, and it is the ‘employee-focused’ organizational factors have been shown to have the greatest impact. However, in this research there has been a neglect of the potential impact of organizational subcultures on commitment, something this research seeks to rectify.

Organizational Culture and Subculture

A key objective of this study then is to investigate the relationship between organizational culture and subculture and their relations with commitment. Organizational culture has been a phenomenon of intense interest among practitioners and researchers since the early 1980s. It is also, however, a contested construct that has been variously conceptualized, defined and empirically pursued (Alvesson 1993; Ashkanasy et al. 2000; Martin & Frost 1999). There is broad agreement, however, that organizational culture provides the ‘social glue’ that gives organizations coherence, identity, and direction. It is

most frequently conceived of as a set of shared values and symbolic elements that provide a common meaning frame by which organizational members interpret and make sense of the organizational world they occupy and that this guides their thinking, feelings and behaviors (see Schein 1985).

Influential organizational culture writers such as Deal and Kennedy (1982) and Peters and Waterman (1982) suggest that it exerts considerable influence on commitment. The reasoning is that since organizational culture consists of a set of shared values across an organization, this would include values about the nature and quality of organization-member engagement and relationships and that member feelings and attitudes with regard to the employing organization, including commitment, would therefore be influenced by the culture. There has, however, been little empirical research affirming this and one of the few empirical studies to address the issue (Lahiry 1994) showed only a weak association between organizational culture and commitment. We suggest that this may be because 'organizational culture' is too abstract and amorphous and too distant from most peoples' mundane engagements with the day-to-day realities of their organizational lives. We expect aspects of the work context that are closer to these realities, such as the immediate leadership, work groups and sub-cultures, to have a more marked effect upon perceptions and sentiments associated with involvement, identification and loyalty, i.e. commitment.

There are a limited number of studies, which whilst not examining cultures and sub-cultures directly, have noted the presence of multiple foci for employee commitment, not just the organization itself (Becker et al. 1996). For example Swailes (2004) revealed both public and private sector accountants showing commitment to up to four foci including the supervisor and the work group. Vandenburghe, Bentein & Stinglhamber (2004) also examined differential commitment to supervisors, work groups and the organization over a series of studies, including a study of nurses, with mixed results. One study showed that

affective commitment to each was factorially distinct, whilst others showed organizational commitment mediating the effect of commitment to supervisor or work group on various dependent variables such as job performance. Another study in the health sector also theorized different foci of commitment including the organization, the work group and the occupational grouping (Baruch & Winkelmann-Gleed 2002). These studies suggest the potential value of examining subcultures as a focus for commitment.

Theoretically, conceiving of organizations as containing a single, homogenous culture and of organizational cultures globally and monolithically, has, as noted, increasingly been challenged and the notion of subcultures has been proposed (e.g., Hofstede 1998; Martin 1992; Sackman 1992). It is argued that, particularly in large, complex organizations, members are likely to have identifications with groups at a sub-organizational level, focused around a range of possible factors as noted earlier. Public sector health organizations are typically large, complex and pluralistic (Dawson 1999; Degeling 1998b) and there is evidence of the existence of organizational subcultures in such organizations (Degeling, Kennedy, Hill, Carnegie, & Holt 1998a,b and 2001; Lok & Crawford 1999). Conceptually, a subculture is a subset of a culture and thus is defined in a similar manner as consisting of the shared assumptions, values and practices of an identifiable group of people within an organization but *at a sub-organizational level*. In practice the relationship between an organization and its subcultures is likely to be complex. Although conceptually a subset, organizational subcultures need not in practice be isomorphic with the main culture. Subcultures may be extensions of the main culture and/or in alignment with it, but they may not; alternative and even antagonistic relations are feasible (Brown 1995; Martin 1992; Martin & Siehl 1983; Sackmann 1992). As Trice and Morand (1991:1) suggest, subcultures are:

“Distinct clusters of understandings, behaviours and cultural forms that identify groups of people in the organization. They differ noticeably from the common organizational culture in which they are embedded, either intensifying its understandings and practices or deviating from them.”

Subcultures may form around organizational groups on the basis of a range of possible factors that constitute an organizational differentiation such as occupation, profession (Bloor & Dawson 1994), structural or functional location. In the contemporary health system context, for example, it is not uncommon for a subcultural differentiation to occur around different professional and occupational groups (Degeling et al. 2001, 1998a&b). Subcultures may also develop as a result of differential organizational practices and environmental and resource contingencies across large and complex organizations (Trice & Beyer 1993). It has been argued that public sector health organizations are typically large, complex and pluralistic (Dawson 1999; Degeling 1998b) and Degeling demonstrates the existence of organizational subcultures in such organizations (Degeling et al. 1998a&b, 2001).

More specifically, Prestholdt Lane & Mathews (1987) suggest that nurses tend to identify more closely with their localized area of work (pragmatically, the ward) rather than the hospital as a whole and that such identification is more strongly related to important behavioral outcomes such as turnover. Nurses, then, exhibit greater identification, loyalty and involvement with their wards than the hospital itself and this, following Mowday (1999), relates to commitment. Thus, it can be seen that the perception of nurses’ local working place and their fit with that environment should have a more direct effect on commitment than the hospital culture. Thus, nurses from a number of large hospitals formed our sample and organizational culture and subculture refer to the culture of their hospital and ward

respectively. The specific focus of this research is the commitment of nurses to their hospital ward as subculture.

However, initially we presume a relationship between organizational culture and subculture. If subcultures are a subset of organizational cultures we anticipate that the latter would help to shape the values of the former. We thus sought to operationalize cultural differences and to determine the relationship between different organizational cultures and their subcultures. Wallach (1983) had conceptualized and operationalized three dimensions of culture, namely (1) supportive, (2) innovative, and (3) bureaucratic hospital cultures. This model was adopted in this study to distinguish different organizational cultures and subcultures and the relationship between them. Thus, the first three research hypotheses are presented as follows:

- H₁:** Supportive hospital culture dimension has a positive effect on supportive ward subculture.
- H₂:** Innovative hospital culture dimension has a positive effect on innovative ward subculture.
- H₃:** Bureaucratic hospital culture dimension has a positive effect on bureaucratic ward subculture.

However, given that nurses identify more with their immediate work area than with the organization as a whole and that subcultures impact more on member attitudes and sentiments due to immediacy and intensity of engagement, we propose that organizational culture will only have indirect effects on nurses' job satisfaction and commitment via their corresponding subculture dimensions: (1) supportive, (2) innovative, and (3) bureaucratic ward cultures. That is, subcultures will mediate the effect of organizational cultures on commitment and job satisfaction. We present hypotheses related to these relationships shortly.

Leadership Style

There is evidence suggesting a relationship between leadership and organizational commitment (Agarwal et al. 1999; Mathieu & Zajac, 1990; McNeese-Smith 1999; Rai & Sinha 2000; Yousef 2000). Glisson (1989) suggests that leadership accounts for a significant amount of the variance in commitment, but in general the empirical evidence on the nature of the relationship is limited. In terms of a finer grained analysis it is argued that participative and inclusive leadership styles (Morrow 1993; Yousef 2000) or consideration-type styles (Blau 1985; Hampton, Dubinsky & Skinner 1986; Williams & Hazer 1986) are more positively associated with commitment than task-oriented or structuring styles. However, there is evidence that other factors mediate the relationship between leadership and commitment (Hampton et al. 1986). Specifically, some research shows the mediating effect of culture or climate (Offerman & Malamut 2002; Rai & Sinha 2000). Our model assumes that the effect of leadership on commitment is mediated by organization subculture.

Although conceptually a link between organizational culture and leadership style is proposed (Peters & Waterman 1982; Schein 1985; Smith & Peterson 1988; Tichy & Cohen 1997; Trice & Beyer 1993), the empirical evidence is scant. It is suggested that leaders shape organizational cultures (and subcultures) through providing direction and coherence, and maintaining values and behavioral patterns. We maintain that ward leaders have an impact in shaping the values, expectations and behavior patterns that pervade a ward culture through a more direct engagement with the subcultural group and an enhanced capacity to influence salient values and behavior patterns on a more ongoing and meaningful basis. We argue that a consistently enacted leadership style with respect to a specific subcultural group imbues that subculture with the values, priorities, expectations and behavior patterns pertinent to that style. In other words, the subculture will receive an imprint of the leadership style. To

examine these relationships we adopt Stogdill's (1963, 1974) conceptualization of leadership into the dimensions of 'task-oriented' and 'consideration'.

We then hypothesize that different leadership styles generate different subcultures and that a 'consideration' style, through focusing on establishing effective relationships, signaling support and allowing greater flexibility than a task-oriented style is more likely to cultivate supportive and innovative cultures. Conversely a negative relationship is expected between consideration leadership and bureaucratic ward subculture. Task-oriented style, on the other hand, is predicted to positively contribute to a bureaucratic ward culture because of the emphasis on task, task accomplishment and the rules, structures and procedures ensuring that happen. From the above discussion, the following four research hypotheses are derived:

- H₄:** Consideration leadership style has a positive effect on supportive ward subculture.
- H₅:** Consideration leadership style has a positive effect on innovative ward subculture.
- H₆:** Consideration leadership style has a negative effect on bureaucratic ward subculture.
- H₇:** Task-oriented leadership style has a positive effect on bureaucratic ward subculture.

Job Satisfaction

A number of researchers suggest that job satisfaction has a special significance for an understanding of the effects of various antecedent constructs on commitment. Previous studies investigating causal models of organizational commitment and turnover (Price & Mueller 1981; Taunton, Krampitz & Wood, 1989; Williams & Hazer 1986) have suggested that the effects of various antecedents on commitment are mediated through job satisfaction. For example, William and Hazer (1986), using structural equation modeling, concluded that a variety of variables (namely, age, pre-employment expectations, perceived job characteristics,

and the consideration dimension of leadership style) all influence commitment indirectly via their effects on job satisfaction. Similar results were obtained by Iverson and Roy (1994), Mathieu and Hamel (1989), and Michaels (1994). However, Price and Mueller (1981) disagree and conclude that only some, but not all, of the antecedents of commitment are mediated by job satisfaction; others, such as professionalism and kinship responsibility have a direct effect.

In line with the majority of the above studies, our proposed model (Figure 1) contains the assumption that job satisfaction is a causal antecedent of commitment. However, given the uncertainty of whether satisfaction is a total or partial mediator of the effects of other antecedents on commitment, we examine job satisfaction as a potential mediator of the effects of organizational subcultures as well as examining the direct effects of subcultures on commitment. This view is consistent with previous research (e.g. Price & Mueller 1981).

Brewer (1994) and Kratina (1990) concluded that bureaucratic practices often result in negative employee commitment while supportive work environments could result in greater commitment and involvement among employees. Health service organizations and hospitals have frequently been represented as 'traditional' and bureaucratic institutions (Clinton & Scheiwe 1995) and nursing is subject to the significant rule-bound and bureaucratic forces. We therefore specifically propose that supportive and innovative ward subcultures have a direct and positive effect on commitment whilst bureaucratic ward subculture has a direct negative effect. In a similar vein, we expect positive relationships between supportive and innovative ward subcultures and job satisfaction and a negative relationship between bureaucratic ward subculture and job satisfaction. Job satisfaction is predicted to have a positive effect on commitment as has been consistently shown in previous research on the determinants of commitment (e.g., Allen & Meyer 1996; Michaels 1994; Mottaz 1988; Williams & Anderson 1991).

Stated in a formal fashion, we propose the following seven research hypotheses:

- H₈:** Supportive ward subculture has a positive effect on job satisfaction.
- H₉:** Innovative ward subculture has a positive effect on job satisfaction.
- H₁₀:** Bureaucratic ward subculture has a negative effect on job satisfaction.
- H₁₁:** Job satisfaction has a positive effect on commitment.
- H₁₂:** Supportive ward subculture has a direct and positive effect on commitment.
- H₁₃:** Innovative ward subculture has a direct and positive effect on commitment.
- H₁₄:** Bureaucratic ward subculture has a direct and negative effect on commitment.

Figure 2 displays our conceptual model in terms of the above fourteen research hypotheses.

Insert Figure 2 here

In addition to the testing of the above fourteen hypotheses, structural equation modeling will be used to examine the overall fit of this model to the data, and revisions made that would increase the model fit. Also, through the comparison with various alternative models, a number of elements of the model will be examined. The first of these is the direction of causation between job satisfaction and commitment. Although a majority of writers have adopted job satisfaction as an antecedent of commitment (e.g., Williams & Hazer 1986; Price & Mueller 1981) there are others who have questioned this assumption (Vandenberg & Lance 1992). In their review of the antecedents and consequences of commitment, Mathieu and Zajac (1990) concluded that the direction of causation was undecided, and opted for the neutral description of satisfaction as being a correlate of commitment. In the present paper, alternative models will be examined in which commitment is a causal antecedent of

satisfaction (Alternative model 1) and where there is simultaneous causation in both directions (Alternative model 2).

Another element to be examined is the mediating role of subculture as postulated in our proposed model. Thus our model will be compared with an alternative model (Alternative model 3) in which the subculture variables do not have this role, but are exogenous variables, along with the organizational culture and leadership style variables.

The third issue to be examined is the role of job satisfaction as a mediator of the influences on commitment of the other antecedents. As noted, a number of writers (William & Hazer 1986; Iverson & Roy 1994; Mathieu & Hamel 1989; Michaels 1994) have suggested models in which the effects of various antecedents on commitment are totally mediated by their effect on job satisfaction. Thus, our proposed model, in which satisfaction is a partial mediator, will be compared with an alternative model (Alternative model 4) in which effects of commitment are totally mediated by their effect on job satisfaction.

METHOD

Sample and Data Collection

A questionnaire survey was used to collect the data for testing the model and research hypotheses. A pilot study to evaluate the suitability of the questionnaire was carried out (n = 32 nurses from different organizational contexts) and analysis indicated that no significant change was necessary. The sample for the main study consisted of nurses drawn from seven large hospitalsⁱ located in the Sydney metropolitan region. A variety of hospitals (general, private and psychiatric) were used to reflect the range of hospital environments and nursing staff practices in these hospitals.ⁱⁱ A sample of wards in each hospital were identified and included in the design. Because our research objectives included examining the relationship

between leadership style and ward subculture, only wards in which the nurse unit manager had held that position for over twelve months were used in an attempt to ensure that the wards sampled were likely to have a more stable ward subculture and leadership style. A total of 61 wards satisfied this criterion. A random sample of 26 wards was taken which resulted in eleven general hospital wards, seven private hospital wards, and eight psychiatric hospital wards being selected for the final sample. All nursing staff in the selected wards were invited to participate in the survey. Questionnaires were sent out to the selected wards and a collection box was provided in each ward for their returns; questionnaires were collected after five days. Reminders and follow-up questionnaires were deployed with additional returns collected after another five days. A total of 258 returns were obtained from the 398 questionnaires distributed seven of which were incomplete and discarded leaving a total of 251 questionnaires available for analysis, representing a response rate of 63%.

Measures

Hospital and Ward Culture Dimensions. Wallach's (1983) Organizational Culture Index describes organizational culture in terms of three distinct dimensions: (1) Bureaucratic, (2) Innovative, and (3) Supportive. Each of the three hospital culture dimensions was measured using six items on a four-point rating scale, ranging from zero being “does not describe my hospital” to four being “describes my hospital most of the time”. Each of the three ward subculture dimensions were measured in a similar manner, using six items on a four-point scale, ranging from zero being “does not describe my ward” to four being “describes my ward most of the time”. To minimize the potential problem of cross-contamination in answering these questions, the two-versions of the Organizational Culture Index were presented in separate locations within the questionnaire.

Leadership Style Dimensions. Stogdill (1974) developed the Leader Behavior Description Questionnaire to measure two leadership style dimensions: (1) Consideration Leadership and (2) Task-oriented Leadership. Consideration leadership was measured in this study by seventeen items and task-oriented leadership by six items, all adapted from Stogdill (1974). All items were measured on a five-point rating scale, ranging from one being “not at all” to five being “a great deal”.

Job Satisfaction and Commitment. The eight-item abbreviated version of Mueller and McClosky's (1990) Job Satisfaction Survey (JSS) was used to measure job satisfaction on a five-point rating scale, ranging from one being “very dissatisfied” to five being “very satisfied”. A standard ten-item abbreviated version of Mowday et al's (1979) Organizational Commitment Questionnaire was used to measure nurses' commitment to their wards on a seven-point Likert-type rating scale, ranging from one being “strongly disagree” to seven being “strongly agree”.

RESULTS

Results of the Measurement Model

Exploratory factor analysis and reliability analysis were initially used to assess the psychometric properties of the above measures. An inspection of Cronbach's alpha values (see Table 1) reveals that they range from 0.746 to 0.961, indicating satisfactory reliability of the measures. Furthermore, each of the constructs was subjected separately to an exploratory factor analysis based on principal components extraction method. In each case, Horn's (1965) parallel procedure suggests that only the first factor should be retained, thus providing preliminary support for the unidimensionality of the measures used in this study.

Following standard psychometric scale assessment procedures (Anderson & Gerbing 1988), we then conducted confirmatory factor. Given the large number of constructs and measurement items employed in this study, we followed the recommended practice (e.g., Bagozzi, Yi & Phillips 1991; Bentler & Chou 1987) of basing our confirmatory factor analyses on groupings of related sets of measures: (1) measures of hospital culture dimensions, (2) measures of ward subculture dimensions, (3) measures of leadership dimensions, and (4) measures of job satisfaction and commitment. The adequacy of the measurement models is evaluated on the criteria of overall fit with the data, convergent validity, and discriminant validity. The overall fit of the four measurement models is within acceptable levels. Although the chi-square statistics were statistically significant, this is not unusual with large sample sizes (Bagozzi, Yi & Phillips 1991). The Tucker-Lewis (1973) index (TLI), and comparative-fit index (CFI, Bentler, 1990) all exceeded the recommended cut-off value of 0.90. The values of the root mean square error of approximation (RMSEA) were either close to or below the value of 0.08 recommended by Browne and Cudeck (1993), and the normed chi-square values (χ^2/df) were all less than 3. Taken together, the results suggest that the hypothesized measurement models fit reasonably well with the data.

Regarding the convergent validity for our measures, the exploratory factor analyses indicated each item loaded highly on its hypothesized factor. No high cross-loadings were observed. Second, the factor loadings from the confirmatory factor were all highly significant ($p < 0.01$). These results suggest that the measures appear to have adequate convergent validity. To assess discriminant validity, we used a procedure recommended by Bagozzi, Yi and Phillips (1991). A chi-square difference test was used to test compare the original measurement models with alternative models in which pairs of constructs were combined. In all cases it was found that the changes in chi-square were highly significant ($p < 0.01$), thus providing evidence for the discriminant validity of the measures.

Table 1 shows the basic statistics and correlations amongst the main measures used in the study. For a statistical test of the hypotheses we now test the proposed model using structural equation analysis of the covariance matrix. As recommended by Anderson and Gerbing (1988), the “two-step method” was used. The measurement error for each of the composite measures was set at $(1 - \alpha) * s^2$, where alpha is the Cronbach alpha reliability estimate for the measure and s^2 is its variance. The exogenous constructs were allowed to correlate and the structural errors for the three ward subculture dimensions were also allowed to correlate with one another to account for common method variance.

The results indicate partial support for our hypothesized structural model. All except four of the 14 hypothesized paths are significant at the 0.01 level. The four path coefficients, corresponding to hypotheses H6, H9, H10 and H12, were not significant ($p\text{-value} > 0.05$). Contrary to our expectations, there appears to be no significant relationship between consideration leadership of ward managers and bureaucratic ward subculture. Of the three ward subcultures, only supportive subculture is found to have a significant effect on job satisfaction. Job satisfaction appears to fully mediate the relationship between supportive ward subculture and commitment. In other words, unlike innovative and bureaucratic ward subcultures, supportive ward subculture does not seem to have a direct effect on commitment.

However, the overall fit of this model is not very good (Chi-square = 92.918, $df = 18$, $p\text{-value} = 0.000$; TLI = 0.791; CFI = 0.916; RMSEA = 0.129). Therefore, it was decided to explore a possible revision of the original that would produce a better fit to the data.

Examinations of the modification indices suggest that the data support the addition of the following three paths: (1) consideration leadership → job satisfaction, (2) task-oriented leadership → innovative ward culture, and (3) innovative hospital culture → job satisfaction. In other words, our data suggest that a ward manager’s consideration leadership has not only a significant indirect effect on nurses’ job satisfaction via supportive ward subculture, but

also a significant direct effect on job satisfaction. Innovative hospital culture has not only a significant indirect effect on commitment via innovative ward subculture, but also possesses another significant indirect effect on commitment via job satisfaction. It appears that task-oriented leadership style influences not only bureaucratic ward subculture, but innovative ward subculture as well. By adding the above three new paths and dropping the four non-significant paths corresponding to hypotheses 6, 9 10 and 12, we get a revised structural model that provides a much better fit for our data.

Table 2 presents the structural equation modeling results for our revised model and as shown, the overall fit is excellent and represents significant improvement over the initial model (Chi-square = 24.474, df = 19, p-value = 0.179; TLI = 0.986; CFI = 0.994; RMSEA = 0.034). Twelve of the 13 paths in the revised model are significant at the 0.01 level and the remaining path (task-oriented leadership → innovative ward) is significant at the 0.05 level. Furthermore, the model explains a substantial amount of the variance for each of the five endogenous constructs, as the squared multiple correlations (SMCs) reveal: (1) SMC for supportive ward = 0.456, (2) SMC for innovative ward = 0.449, (3) SMC for bureaucratic ward = 0.510, (4) SMC for job satisfaction = 0.627, and (5) SMC for commitment = 0.618.

Insert Table 2 here

Testing Alternative Models

As stated earlier in the paper, in addition to testing the fourteen hypotheses, a number of elements of the proposed model shown in Figure 1 will be tested by the comparison of the level of fit of the above model with a number of alternative models. The various measures used to evaluate the level of fit for the initial (but slightly revised) and alternative models, are shown in Table 3.

Because our revised model and the four alternative models are not nested, no single fit statistic exists that allows us to compare the models. Instead, we must compare their fit on a number of criteria: (1) overall model fit as measured by statistics such as TLI and CFI, (2) percentage of significant paths, (3) ability to explain the variance in the endogenous constructs as measured by SMC, and (4) parsimony of the model as measured by the parsimonious normed fit index (PNFI) and Akaike information criterion (AIC) (Bollen and Stine 1992). In addition, Bollen and Stine (1992) introduced another fit statistic to compare models based on their proposed bootstrapping procedures. The null hypothesis for their test is that the model fits the data, so a p-value larger than the significant level (say 5%) indicates good model fit. Table 6 presents the p-values for Bollen and Stine's test and the other fit statistics for each of the five models.

Insert Table 3 here

Alternative Model 1: The only difference between this model and our revised structural model lies in the direction of the path between job satisfaction and commitment. Here, the direction of the path is from commitment to satisfaction, rather than the more commonly assumed path from satisfaction to commitment. As shown in Table 3, the overall fit of the first alternative model (Chi-square = 37.616, df = 19, p-value = 0.007; TLI = 0.951; CFI = 0.979; RMSEA = 0.063) is significantly worse than that of the revised model (Chi-square = 24.474, df = 19, p-value = 0.179; TLI = 0.986; CFI = 0.994; RMSEA = 0.034). Bollen and Stine's (1992) bootstrapping test for this alternative model is significant (p-value < 0.05), indicating again that this model does not fit the data well. Therefore, we can reject this alternative model in favor of our revised model.

Alternative Model 2: In this model relationship between job satisfaction and commitment in this model is assumed to be reciprocal in nature. The reason for comparing our revised model with this non-recursive model is the same as for the first alternative model, namely, to shed more light on the nature of the relationship between job satisfaction and commitment. In the second alternative model, the overall fit (Chi-square = 24.370, df = 18, p-value = 0.143; TLI = 0.982; CFI = 0.993; RMSEA = 0.038) is close to that of the revised model (Chi-square = 24.474, df = 19, p-value = 0.179; TLI = 0.986; CFI = 0.994; RMSEA = 0.034). Note that this second alternative model is a non-recursive model. The existence of feedback loops in a non-recursive model can cause the system to become unstable. If the infinite sequence of linear dependencies results in well-defined relationships among the constructs in the model, the model is said to be stable (Jöreskog & Sörbom 1993). To measure the stability of the model, a stability index (Bentler & Freeman, 1983) is used. A model is said to be stable if its stability index falls within the range of (-1, +1). The stability index for this alternative model is 0.013, suggesting that the non-recursive model is stable. However, an examination of the path coefficients reveals that the path from job satisfaction to commitment is significant ($\beta = 0.374$, $t = 3.767$) and path from commitment to job satisfaction is insignificant ($\beta = -0.035$, $t = -0.303$). Since the path coefficient from job satisfaction to commitment is consistent with that in our revised model ($\beta = 0.355$, $t = 4.699$) and the reverse path is not significant, we reject this alternative model in favor of our revised model.

Alternative Model 3: In this model, ward subculture dimensions in this model do not serve as mediators as they do in our revised model. In other words, the three ward subculture dimensions are treated as exogenous constructs, just like the three hospital culture dimensions and the two leadership style dimensions. In this rival model, the eight exogenous

constructs are allowed to correlate with one another and all indirect effects on job satisfaction and commitment shown in the revised model become direct effects. The specification of this rival model is similar to the non-mediated model used by Morgan and Hunt (1994) to test their hypothesized mediating model of trust and commitment. In the third alternative model, the overall fit (Chi-square = 3.464, df = 6, p-value = 0.749; TLI = 1.000; CFI = 1.000; RMSEA = 0.000) is slightly better than that of the revised model (Chi-square = 24.474, df = 19, p-value = 0.179; TLI = 0.986; CFI = 0.994; RMSEA = 0.034). However, only 5 of 11 (45.5%) of its hypothesized paths are statistically significant at the 0.05 level, with 4 of the 11 (36.4%) significant at the 0.01 level. In contrast, all of the 13 structural paths in our revised model are significant at the 0.05 level, including 12 of the 13 (92.3%) significant at the 0.01 level. Importantly, all of the five significant paths in this alternative model are also significant paths in our revised model. Moreover, this model achieves only little additional explanatory power. SMC for job satisfaction remains the same at 0.627 and that for commitment rises only slightly from 0.618 to 0.619. Furthermore, this alternative model (PNFI = 0.133, AIC = 101.464) is far less parsimonious than our revised model (PNFI = 0.411, AIC = 96.474). In sum, although the alternative model offers a slightly better unadjusted model fit (1.4% improvement in TLI and 0.6% improvement in CFI), it entails a substantial sacrifice in parsimony (a 67.6% drop in PNFI from 0.411 to 0.133). Thus, when corrected for parsimony, our revised model fits the data far better than this alternative.

Alternative Model 4: In our original (revised) model, job satisfaction partly mediates the effects of hospital cultures, ward subcultures, and leadership styles on organizational commitment. A number of researchers have proposed causal models of commitment in which the effects of various antecedent variables on commitment are fully mediated via their effects on job satisfaction (e.g., Williams & Hazer 1986). Thus, it is worthwhile to compare our partially mediated model with a fully mediated model. The difference between the two

models lies in the nature of the effects of innovative ward and bureaucratic ward subcultures on organizational commitment. The direct effects (represented by H13 and H14 in Figure 2) in our revised model become indirect effects via job satisfaction in this alternative model.

As shown in Table 3, the overall fit of the last alternative model (Chi-square = 71.802, $df = 19$, p -value = 0.000; TLI = 0.860; CFI = 0.941; RMSEA = 0.105) is considerably worse than that of the revised model (Chi-square = 24.474, $df = 19$, p -value = 0.179; TLI = 0.986; CFI = 0.994; RMSEA = 0.034). In the rival model, neither of the two new paths (innovative ward \rightarrow job satisfaction and bureaucratic ward \rightarrow job satisfaction) is statistically significant at the 0.05 level. Similar to our revised model, all the remaining paths are significant at the 0.05 level. In addition, this rival model accounts for significantly less variance in commitment as evidenced by the drop of SMC from 0.618 to 0.483. With regard to model parsimony, the rival model (PNFI = 0.390, AIC = 143.802) is also less parsimonious than our revised model (PNFI = 0.411, AIC = 96.474). These results lend further support to our revised mediated model in which job satisfaction serves as a partial mediator between antecedent constructs and organizational commitment.

In sum, relative to all of the four alternative models tested above, our original revised partially mediated model has been found to better represent the effects of hospital culture, ward subculture, and leadership style on organizational commitment. The next section will discuss the implications of the research findings and avenues for further research.

DISCUSSION AND CONCLUSIONS

This research represents one of only a few empirical studies of the relationships between organizational commitment and its antecedent constructs using a structural equation modeling approach. We examined the influences of organizational culture, subculture,

leadership style, and job satisfaction on organizational commitment. One of the main findings in this study was that subculture had a greater influence on commitment than organizational culture. Among the three ward subculture dimensions, innovative ward subculture was found to have the largest direct effect on commitment (standardized estimate of total effect size = $\beta = 0.574$, see also Table 5) while bureaucratic ward subculture had a significant negative direct effect on commitment ($\beta = -0.184$). Supportive ward subculture had a small but positive indirect effect on commitment via job satisfaction ($\beta = 0.086$). In contrast, of the three hospital culture dimensions, none had any direct effect on commitment, and only innovative hospital culture had an indirect effect on commitment (β for innovative hospital = 0.289, β for supportive hospital = 0.093, and β for bureaucratic hospital = -0.099).

This is an important finding offering a substantial contribution to theory development with respect to organizational commitment. Previous research has suggested that organizational culture and subculture could have differential effects on individuals in the work place (Brown 1995; Krausz et al. 1995; Martin 1992; Trice & Beyer 1993). However, few empirical studies have so far been conducted to test these ideas. Our results reinforce the view of Prestholdt and colleagues (1987) who argue that nurses tend to identify more closely with their ward subculture than the culture of the hospital as a whole. This could have significant implications in managing human resources in organizations, as it suggests that greater attention and resources should be given to the cultivation of subcultures as well as the general organizational culture. Commitment, and possibly other work-related attitudes, are impacted more by things occurring in the immediate context of the organizational subcultures and a monolithic organization-wide approach may not be the most viable strategy. The findings are also important for the management of change since different subcultures may interpret and react differently to change initiatives. Our results also explain the weak association found by Lahiry (1994) between organizational culture and commitment, as the

effects of organizational culture are shown to be indirect through their influence on subcultures and job satisfaction.

Another important finding of this study was that innovative ward subculture had the strongest positive effect on commitment ($\beta = 0.574$), while a bureaucratic ward subculture had a negative effect on commitment ($\beta = -0.184$). This finding is consistent with previous research, which suggested that a bureaucratic environment often resulted in a lower level of employee commitment (Brewer 1994; Kratina 1990; Wallach 1983) and performance (Krausz et al. 1995; Trice & Beyer 1993). These results provide empirical evidence supporting the view that factors such as hierarchical decision-making, autocratic working environment, and the lack of employee empowerment induce negative employee commitment in the work place (Brewer 1994; Brewer & Lok 1995; Mueller & McClosky 1990). Note that a supportive ward subculture, although positively correlated with commitment ($r = 0.510$ as shown in Table 3), did not have a significantly large independent effect on commitment after having controlled for the other independent variables in the study ($\beta = 0.086$). However, this does not mean that supportive ward subculture is not an important construct. As shown in Table 5, it had a significant direct effect on job satisfaction ($\beta = 0.241$), which in turn had a significant direct effect on commitment ($\beta = 0.355$).

The results of this study also confirm earlier findings on the relationship between leadership style and commitment (Bateman & Strasser 1984; DeCotiis & Summers 1987). As expected, a consideration leadership style ($\beta = 0.472$) was found to have a greater influence than a task-oriented leadership style ($\beta = 0.022$) on commitment. As can be seen from Table 5, consideration leadership style differs from task-oriented leadership style not only in effect size, but also in the way in which it influences commitment. Except for innovative ward subculture, their mediating constructs are different. Consideration leadership style relies on supportive ward subculture and job satisfaction while task-oriented leadership influences

commitment via bureaucratic ward subculture. Our results also confirm the positive relationship ($\beta = 0.355$) between job satisfaction and commitment found in previous research (Allen & Meyer 1996; Lok & Crawford 1999; Michaels 1994; Williams & Anderson 1991; Vandenberg & Lance 1992).

In common with much of the previous research literature on commitment, the proposed model contains the assumption that job satisfaction is one of its causal antecedents. However, as noted, this has not been universally accepted. The proposed model was therefore compared with alternative models in which the direction of causation between satisfaction and commitment was varied. A comparison of the various models suggested that the original model, with the direction of causation being from satisfaction to commitment, has the better fit to the data.

One of the main aspects of our proposed causal model was the role of subculture as a mediator of the effects of leadership style and organizational culture on job satisfaction and commitment. This model was tested against another in which subculture did not have such a mediating role. Although the absolute levels of fit to the data were comparable for the two models, the proposed model fared somewhat better when taking model parsimony into account (i.e. using the parsimonious fit indices). It still makes sense to propose subculture as a mediating factor, but more research is needed to clarify this.

A number of writers have suggested models of commitment in which the causal effects of a range of antecedent variables on commitment were mediated either totally or partially via their effects on job satisfaction. For example, in the model described by Williams and Hazer (1986), the influences of the antecedent variables were assumed to be totally mediated via the effects of job satisfaction. However, Price and Mueller (1981) concluded that these influences were only partially mediated via job satisfaction, with some of the antecedents having significant direct effects on commitment. The results obtained from this study were

more similar to those obtained by Price and Mueller (1981) in that a significant proportion of the effects of the antecedents of commitment (namely, innovative ward and bureaucratic ward subcultures) operate directly on commitment, rather than indirectly via their effects on job satisfaction.

Certain limitations of this study provide opportunities for further research. First, the results of this study may not be transferable outside the national context. Various cultural dimensions in different nations may affect organizational commitment differently (Hofstede et al. 1990; Vandenberghe 1999). For example, the negative effect of a bureaucratic culture on commitment may not be present in high power distance countries. Second, the present study was carried out in a hospital environment where nurses tend to spend relatively long periods in one ward. In organizations where employees are more mobile within the organization, there may not be time to form a well-defined subculture that can have significant impact on commitment. Furthermore, it was assumed that a ward would constitute a subculture, subsequent research might want to empirically determine that rather than assume it. The literature also suggests that subcultures can form around a number of possible dimensions, future research might look at other types of subcultures formed around, for example, professions or occupations. Finally, this study employed a cross-sectional design. In any model in which causal relationship is suggested, longitudinal studies provide for stronger inferences. Thus, the model developed and tested in this study could benefit from being tested in a longitudinal design.

Figure 1: Conceptual Framework Specifying Antecedents of Organizational Commitment

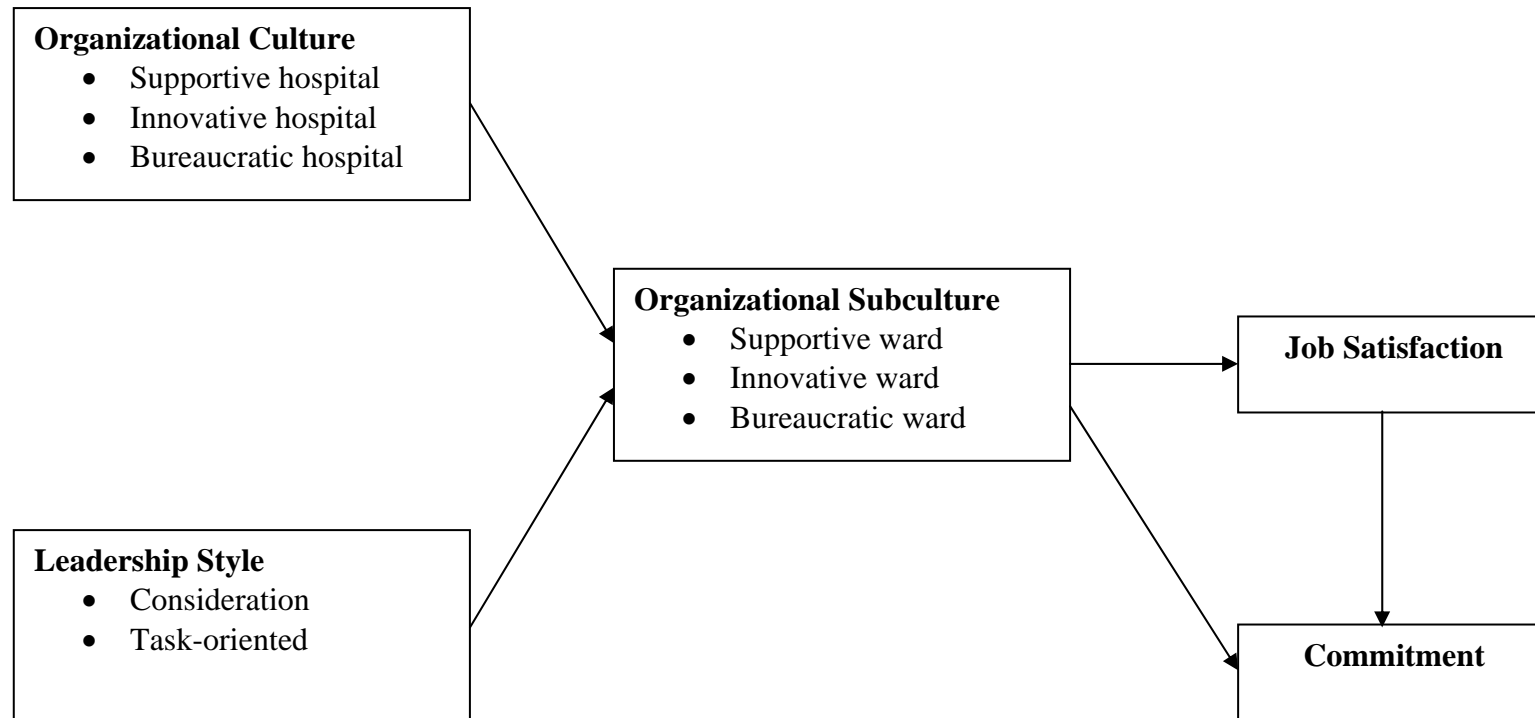


Figure 2: Conceptual Model of Organizational Commitment and Research Hypotheses

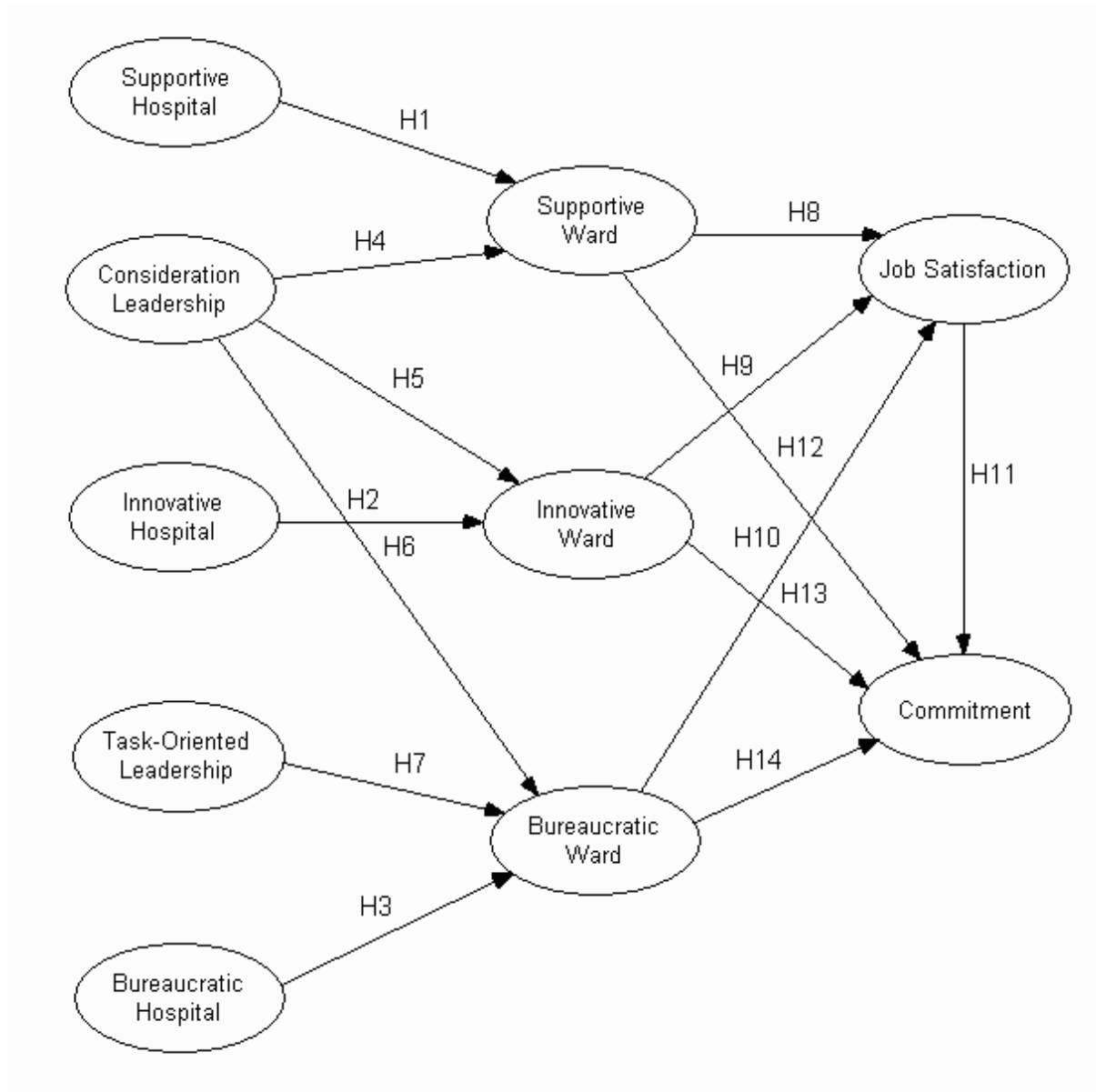


Table 1: Means, Standard Deviations, and Intercorrelations of Constructs (n = 251)

Constructs	Mean	S.D.	01	02	03	04	05	06	07	08	09	10
01. Commitment	5.054	1.139	(0.861)									
02. Job satisfaction	3.334	0.763	0.535	(0.818)								
03. Consideration leadership	3.460	0.997	0.489	0.640	(0.961)							
04. Task-oriented leadership	3.227	0.785	0.168	0.175	0.240	(0.752)						
05. Supportive ward	1.940	0.654	0.510	0.516	0.517	0.101	(0.835)					
06. Innovative ward	1.768	0.598	0.587	0.451	0.485	0.215	0.635	(0.789)				
07. Bureaucratic ward	2.049	0.528	0.092	0.216	0.213	0.365	0.230	0.296	(0.746)			
08. Supportive hospital	1.479	0.669	0.231	0.320	0.171	-0.012	0.363	0.182	0.192	(0.848)		
09. Innovative hospital	1.660	0.626	0.310	0.335	0.191	0.055	0.284	0.376	0.204	0.616	(0.807)	
10. Bureaucratic hospital	2.196	0.522	0.114	0.151	0.109	0.172	0.079	0.199	0.469	0.292	0.459	(0.752)

Notes: Cronbach alpha reliability coefficients are shown in parentheses on the diagonal. Correlations greater than 0.124 are significant at the 0.05 level and correlations greater than 0.162 are significant at the 0.01 level.

Table 2: Estimates for the Structural Paths of the Revised Model

Structural Path	Standardized Estimate	t-value	p-value
H ₁ Supportive hospital to supportive ward	0.386	6.719	0.000
H ₂ Innovative hospital to innovative ward	0.373	6.139	0.000
H ₃ Bureaucratic hospital to bureaucratic ward	0.537	7.361	0.000
H ₄ Consideration leadership to supportive ward	0.486	8.486	0.000
H ₅ Consideration leadership to innovative ward	0.417	6.628	0.000
H ₇ Task-oriented leadership to bureaucratic ward	0.362	4.930	0.000
H ₈ Supportive ward to job satisfaction	0.241	3.305	0.001
H ₁₁ Job satisfaction to commitment	0.355	4.699	0.000
H ₁₃ Innovative ward to commitment	0.574	6.948	0.000
H ₁₄ Bureaucratic ward to commitment	-0.184	-2.842	0.004
N ₁ Consideration leadership to job satisfaction	0.538	8.418	0.000
N ₂ Task-oriented leadership to innovative ward	0.154	2.545	0.011
N ₃ Innovative hospital to job satisfaction	0.212	3.495	0.000
Model Goodness-of-Fit Statistics			
Chi-square (degrees of freedom)	24.474 (19), p-value = 0.179		
Tucker-Lewis Index (TLI)	0.986		
Comparative-Fit Index (CFI)	0.994		
Root Mean Square Error of Approximation (RMSEA)	0.034		
Akaike Information Criterion (AIC)	96.474		
Parsimonious Normed Fit Index (PNFI)	0.411		

Note: N₁, N₂, & N₃ represent the three new structural paths in the revised model.

Table 3: Summary of Testing Alternative Models

Measurement Model	Chi-square	df	p-value	TLI	CFI	RMSEA	AIC	PNFI	BSP
(1) Revised Structural Model	24.474	19	0.179	0.986	0.994	0.034	96.474	0.411	0.158
(2) Alternative Model 1	37.616	19	0.007	0.951	0.979	0.063	109.616	0.405	0.010
(3) Alternative Model 2	24.370	18	0.143	0.982	0.993	0.038	98.370	0.390	0.125
(4) Alternative Model 3	3.464	6	0.749	1.000	1.000	0.000	101.464	0.133	0.760
(5) Alternative Model 4	71.802	19	0.000	0.860	0.941	0.105	143.802	0.390	0.001

Notes: df = Degrees of freedom; TLI = Tucker-Lewis Index; CFI = Comparative-Fit Index; RMSEA = Root Mean Square Error of Approximation; AIC = Akaike Information Criterion, PNFI = Parsimonious Normed Fit Index, and BSP = Bollen and Stine Bootstrapping Test P-Value

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ⁱ 'Large' was defined as those hospitals with 200 or more beds.

ⁱⁱ Permission to conduct the survey was obtained from the various ethics committees in these hospitals.