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Relationship between Structural Empowerment and Nurse and Patient-Reported Outcomes: The Mediating Role of Control over Nursing Practices

Öznur İspir Demir[1], Aytolan Yıldırım[2], Betül Sönmez[3], and Sergül Duygulu[4]

Abstract

Practices that strengthen nurse work environments and enable them to have control over nursing practices have gained importance in recent years as they increase nurses' retention and patient care quality. This study aimed to examine the relationships between structural empowerment and nurse and patient-reported outcomes and the mediating role of control over nursing practices in these relationships. This correlational and cross-sectional study was carried out from September 2018 to May 2019 at two public hospitals in Turkey. We recruited staff nurses ($n = 319$) working in the inpatient units of these hospitals and their patients ($n = 319$). Data were collected using self-report measures from staff nurses and patients. It was determined that structural empowerment and control over nursing practices had a positive relationship with job satisfaction and nursing care quality, as well as a negative relationship with intention to turnover; however, there was no relationship with patient-reported outcomes. Control over nursing practices partially mediated the relationship between structural empowerment and outcomes of job satisfaction and nursing care quality. This study indicates that promoting the structural empowerment of nurses and ensuring that they have control over practice will increase job satisfaction and quality of care. Nurse managers can increase nurses' job satisfaction and quality of care by creating supportive work environments and ensuring they have control over nursing practices.

Keywords

control over nursing practices, empowerment, nurses, turnover, outcome assessment, patient-reported outcome measures

According to the State of the World's Nursing Report, published by the World Health Organization (WHO),[1(p. 14)] the universal workforce of nurses constitutes 59% of all health professionals, making them the largest group in health care. However, the WHO[2] also states that more than 50% of the universal health workforce shortage consists of nurses and midwives, meaning that an additional nine million nurses and midwives will be required by 2030. Nurses have reported that the nurse shortage is an important problem for the quality of work life and patient care, and the time nurses can spend with patients. They have also stated that the current nurse shortage increases stress on nurses, which causes them to leave the profession for other jobs.[3] Nurse job satisfaction is a critical factor for health care organizations due to its relationships with nurse and patient outcomes, such as turnover intention[4] and patient care quality.[5] Therefore, this research was planned to determine nurse outcomes such as job satisfaction, intent to leave, and nurse-assessed quality of care; to determine patient-reported outcomes such as satisfaction with nursing care, trust in nurses, and experiences of adverse

[1]Department of Gerontology, Faculty of Health Sciences, Osmaniye Korkut Ata University, Osmaniye, Turkey
[2]Faculty of Health Sciences, Atlas University, Istanbul, Turkey
[3]Department of Nursing Management, Florence Nightingale Faculty of Nursing, Istanbul University-Cerrahpaşa, Istanbul, Turkey
[4]Department of Nursing Management, Faculty of Nursing, Hacettepe University, Ankara, Turkey

Corresponding Author:
Öznur İSPİR DEMİR, Department of Gerontology, Faculty of Health Sciences, Osmaniye Korkut Ata University, Karacaoglan Campus., Osmaniye, Turkey.
Email: oznurspr15@gmail.com

events; and to determine the effects of structural empowerment and control over nursing practices on both of these sets of outcomes.

Structural Empowerment and Nurse and Patient Outcomes

The framework of this study was based on the existing theory of structural empowerment developed by Kanter.[6] Structural empowerment, first described by Kanter in 1993, was defined as access to information, resources, support, and opportunities offered by work environments.[6] According to the theory, "access to information" refers to technical knowledge and information about the organization's goals and values; "access to resources" refers to the ability to obtain the financial means, time, and materials needed for work; "access to support" refers to receiving feedback and guidance from subordinates, colleagues, and superiors; and "access to opportunities" refers to opportunities for growth and advancement within the organization as well as the opportunity to increase knowledge and skills. The theory states that these four empowerment constructs can be accessed through formal and informal power. Formal power is related to creativity, flexibility, and autonomy in decision-making—in jobs that are central to the achievement of organizational goals—while informal power refers to having personal networks within the organization, such as relationships with colleagues and other coworkers.[6,7] This theory, providing a foundation for nursing research, is also a guide for nurse managers in creating high-quality nursing work environments that ensure positive outcomes for nurses and patients.[8] Previous studies found a positive relationship between structural empowerment and the nursing work environment subdimensions such as autonomy, control over nursing practices, physician-nurse collaboration, and organizational support,[9] job satisfaction,[5,9] job performance quality.[10,11] Choi and Kim[12] found that structural empowerment directly impacts professional governance, which addresses control over practices as a subdimension, and job satisfaction. On the other hand, there are negative relationships between structural empowerment, intention to leave the organization, and profession.[13] A study examining its relationship with patient outcomes found that an empowered work environment reduces patient falls through group processes such as team self-efficacy, communication and cooperation, workload sharing, and social support.[14] Additionally, nurses' perceived structural empowerment is also negatively associated with nurse-assessed adverse events.[15]

Control over Nursing Practices and Nurse and Patient Outcomes

According to Weston,[16(p. 91)] control over nursing practices was defined by Gerber et al. as "perceived freedom to evaluate and modify nursing practices, to make autonomous decisions related to a patient's care, and to influence the work environment and staffing at the unit level of analysis." Weston[17] explained the difference between control over nursing practices from autonomy stated in the nursing literature by emphasizing that organizational autonomy, one of the two dimensions of autonomy, refers to the concept of control over nursing practices. Control over nursing practices (organizational autonomy, control over rules) is the participation of nurses in decision-making processes related to rules, policies, practices, and structures at the organizational level. The second dimension, clinical autonomy, is the nurse's decision-making using their authority and independence within the existing professional, organizational, or unit-based rules in practices related to clinical patient care.[17] "Control within" describes the freedom and flexibility to work within existing structures and rules; however, "control over" refers to the ability to change the structure or rules that govern a situation. The person who has control over practices manages the rules governing a situation and is, therefore, more powerful than the person who has flexibility within the rules but cannot influence the rules themselves.[17] It is stated that control over nursing practices is one of the nurse-friendly hospital criteria.[18] A qualitative study performed in Italy found that nurses see empowerment as a condition for them to have control over their own practices.[19] In fact, another study has found positive relationships between nurses' perceived empowerment and control over nursing practices.[20] Control over nursing practices is positively associated with nurse-assessed care quality[21] and nurses' job satisfaction.[21,22]

Although several studies conducted in different countries have clearly demonstrated a relationship between structural empowerment and nurse outcomes (job satisfaction, intent to leave, etc.), the specific mediating role of control over nursing practices in this relationship has not been examined in previous studies. On the other hand, only a limited number of studies have found a direct relationship between structural empowerment and patient outcomes. Similarly, previous studies also found a relationship between control over nursing practices and nurse outcomes, but no study that examined the direct relationship with patient outcomes was identified.

Previous studies have been conducted with samples of only nurses or patients. Studies in which the evaluation of these two samples was addressed together are extremely limited. In this study, these two variables were examined together, assuming that empowered work environments support nurses having control over their practices. Additionally, it was assumed that control over nursing practices increases the effect of structural empowerment on both nurse and patient-reported outcomes. Furthermore, the original aspect of this research is that we will determine this relationship by the evaluation of both nurses and patients. This study will contribute to the literature and nurse managers' practices by providing a perspective on how empowerment affects nurse and patient-reported outcomes. The current study will provide useful evidence on the changes that nursing managers

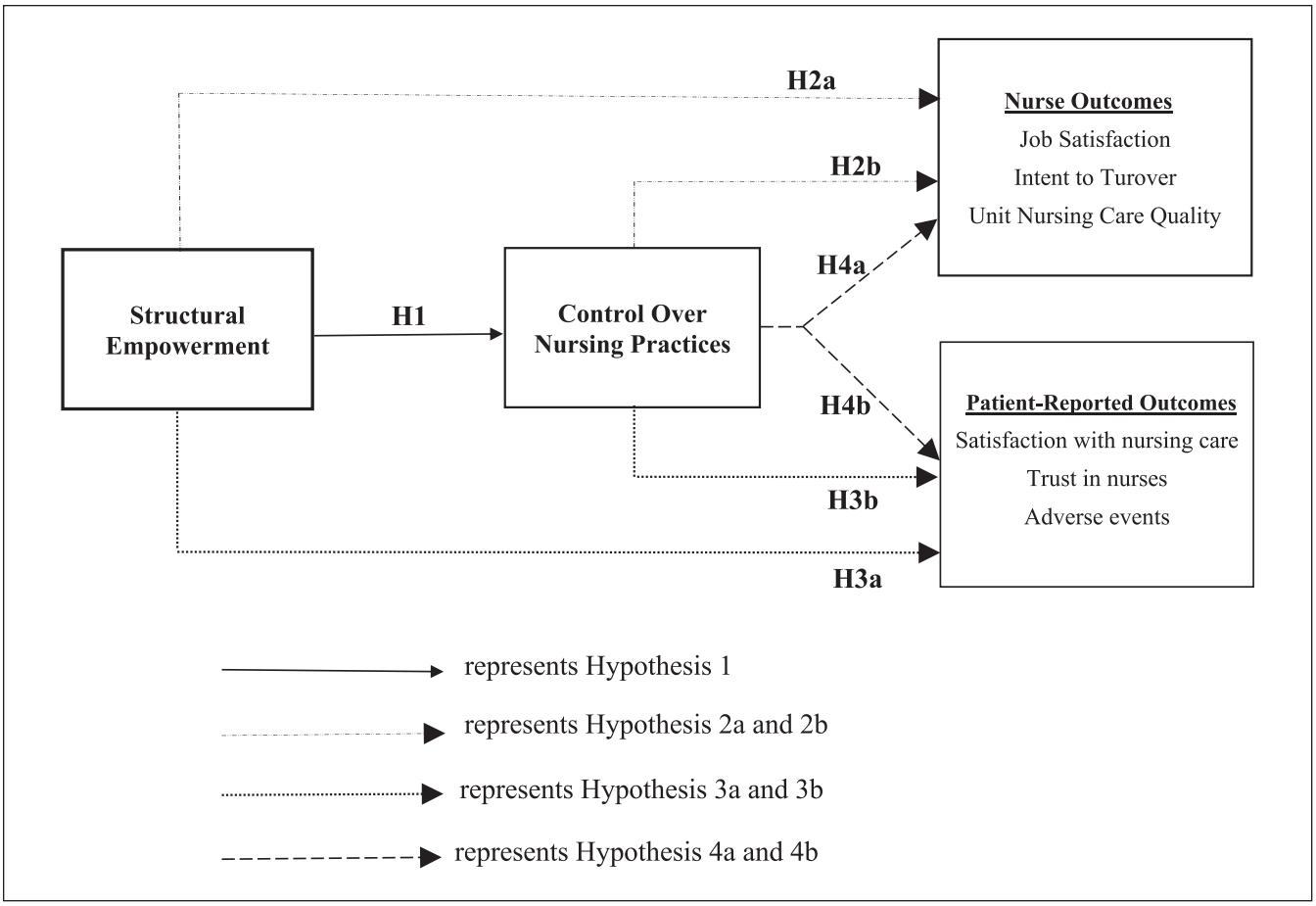

Figure 1. The Hypothesized Model.

should make to improve the working environment of nurses, significantly impacting direct organizational outcomes in hospitals.

Purpose

We propose the following hypotheses (see Figure 1):

H_1: Structural empowerment is significantly associated with control over nursing practices.
H_2: (a) Structural empowerment and (b) control over nursing practices are significantly associated with nurse outcomes (job satisfaction, intention to turnover, nurse-assessed care quality).
H_3: (a) Structural empowerment and (b) control over nursing practices significantly are associated with patient-reported outcomes (patient satisfaction with nursing care, trust in nurses, patient-reported adverse events).
H_4: Control over nursing practices mediates between structural empowerment and (a) nurse outcomes (job satisfaction, intention to turnover, and nurse-assessed care quality), and (b) patient-reported outcomes (patient satisfaction with nursing care, trust in nurses, and patient-reported adverse events).

Methods

Design, Sample, and Setting

This was a cross-sectional, correlational study. This study's population consisted of staff nurses working in and patients receiving care from adult medical and surgical inpatient units (50 units) of a public university hospital and a training and research hospital, which have 750-bed capacities and provide tertiary health care services in Istanbul, Turkey. Power analysis was performed using G*Power (v3.1.9) to determine the sample size of the study.[23] The minimum necessary sample size was determined to be 258 participants to obtain $\alpha = 0.05$ and 90% power according to the level of correlation between the two variables ($r = 0.2$). It was planned to include all nurses with at least 1 month of work experience in the hospitals' medical or surgical inpatient units. In order to perform correlation analyses in the nurse and patient samples of the study, the sample groups should be equal in number.

Therefore, the number of nurses in the units was planned to be equal to the number of patients. The study inclusion criteria for the patients are as follows: being hospitalized for at least three nights, having literacy in Turkish, and agreeing to participate. First, data were gathered from nurses who agreed to participate in the study in inpatient units. Afterward, data were collected from patients (until the number of patients reached the number of nurses enrolled) who were hospitalized in that units and met the inclusion criteria using the convenience sampling method. The sample consisted of 319 nurses (response rate: 92.7%) and 319 patients from 26 medical (total: 181 nurses; response rate: 92.3%) and 24 surgical units (total: 163 nurses; response rate: 93.3%).

Data Collection

Data were gathered from September 2018 to May 2019. After each participant was informed about the purpose of the research, written consent was obtained. The data collection forms were delivered to the staff nurses and their patients in closed envelopes. After they filled out the forms anonymously, they were given to the researcher in closed envelopes.

Measures. In this study, six data tools were used to obtain data from staff nurses; and four data tools were used to obtain data from inpatients.

Nurses' measures. *Demographics*: The Nurse Information Form asked nine questions about the nurses' age, gender, education level, professional experience, work experience at their hospital, work experience in their unit, weekly work hours, having a unit-specific certification, number of nurses, and beds per unit.

Conditions for work effectiveness: The Conditions for Work Effectiveness Questionnaire-II (CWEO-II) was developed by Laschinger et al. in 2001. It has the following six dimensions: (1) access to opportunity, (2) access to information, (3) access to support, (4) access to resources, (5) formal power, and (6) informal power. The CWEO-II includes a total of 21 items, including two items for general empowerment. It uses Likert-type responses, ranging between "1 = strongly disagree" and "5 = strongly agree."[7] The scores of the six subscales are then summed to create the total empowerment score with a score range of 6-30. Cronbach's α coefficients of the questionnaire were 0.89 for the original version of the questionnaire,[7] 0.90 for the Turkish version,[24] and 0.92 for this study.

Control over nursing practices: The Control Over Nursing Practice Scale was developed by Gerber et al. in 1990 to determine perceived control over nursing practices. It has 23 items in a single factor. It is a 7-point Likert-type scale, and is scored from "1 = no control" to "7 = full control." Cronbach's α coefficients of the scale ranged from 0.90 to 0.96 for the original version of the scale.[16] The Turkish adaptation of the group-level version of the scale was done by Ispir and Duygulu,[25] who found Cronbach's α coefficient of 0.94. In this study, which used the group-level version, Cronbach's α coefficient was 0.95.

Job satisfaction: The Job Satisfaction Global Item is a single question, developed by Aiken et al.,[26] that has been used in other studies to ask nurses to measure their job satisfaction: "How satisfied are you with your job?" It uses a 4-point Likert-type scale with responses ranging from "1 = very dissatisfied" to "4 = very satisfied." [26] It is used to measure nurses' job satisfaction, and single-item general job satisfaction measurements produce valid and reliable results.[27] The language equivalence and content validity index of its Turkish version was acceptable (0.80). The reliability of the question was found to be good (*intraclass correlation coefficient* = 0.84).[28]

Intention to turnover: The Michigan Organizational Assessment Questionnaire (MOAQ) is a three-item scale developed by Cammann et al. The MOAQ is a 7-point Likert-type scale, and it is scored from "1 = not at all likely" to "7 = extremely likely." A higher score indicates that staff nurses are more likely to leave their current organization and are more likely to seek another job in the coming year.[29(pp. 71-138)] The Turkish version of the subscale was found to meet the criteria for language equivalence and content validity index (1.00). Cronbach's α coefficient of the scale was 0.89.[28]

Quality of care: The Nurse-Assessed Quality of Care Scale was developed by Aiken et al.[26] It has four items, but only its first item "In general, how would you describe the quality of nursing care delivered to patients on your unit?" which asks nurses to evaluate the quality of care in their unit, was used in this study. This item is scored on a 4-point Likert-type scale: "1 = poor" to "4 = excellent." The Turkish version of the scale was found to meet the criteria for language equivalence and had a content validity index of 0.95.[28]

Patients' measures. *Demographics*: The Patient Information Form asked questions about the patient's demographic characteristics (age, gender, marital status, education level, income level, and occupation) and health status (duration of hospitalization, previous hospitalizations, diagnosis, and caregiver status).

Satisfaction with nursing care: The Newcastle Satisfaction with Nursing Scale was developed by Thomas et al.[30] and adapted to Turkish by Akin and Erdogan.[31] The scale consists of 19 items. This is a 5-point Likert-type scale, scored from "1 = not at all satisfied" to "5 = completely satisfied."[30] The Cronbach's α coefficients for the scale were 0.96 for the original version,[30] 0.96 for the Turkish version,[31] and 0.97 for this study.

Trust in nurses: The Trust in Nurses Scale was developed by Radwin and Cabral[32] and adapted to Turkish by Cinar Yucel and Ay.[33] It is a 6-point Likert-type scale with five items that are scored from "1 = never" to "6 = always." The

Cronbach's α coefficients of the scale were 0.77 for the original version[32] and 0.95 for the Turkish version.[33] In this study, the psychometric analysis was repeated substituting "disease" for "cancer" in the last item "How often do your nurses provide accurate information about your cancer?" so that the scale could be used with patients in all the inpatient units. In this study, the fit indices were found as follows: $x^2/df = 3$, RMSEA = 0.09, NFI = 0.98, NNFI = 0.96, CFI = 0.98, IFI = 0.98, RFI = 0.98, GFI = 0.96. The Cronbach's α coefficient of the scale was 0.89.

Patient-reported adverse events: The patients' adverse event experiences were evaluated using the question, "Did you experience any of the following problems during your hospitalization?" from the MISSCARE Survey-Patient, which was developed by Kalisch et al.[34] and adapted to Turkish by Sönmez et al.[35] The patients reported whether they had experienced pressure ulcers/skin breakdown, oral mucositis, falls, and intravenous infiltration during their hospitalization using the responses: yes, no, or unsure. In the MISSCARE Survey-Patient, the validity of this question when taken out of the scale was determined using the content validity index, which was 0.88 in the original survey[34] and 1.00 in the Turkish version.[35]

Data Analysis

The study data were analyzed using The Number Cruncher Statistical System (NCSS) 2007 (Kaysville, Utah, USA). NCSS software was used for statistical data analysis (descriptive, correlational, regression analysis, comparing means, time series and cluster analysis, meta-analysis, etc.) and graphics. Descriptive findings were analyzed using descriptive statistical methods (frequency, percentage, mean, standard deviation, medians, minimum, and maximum). The nurses' variables were evaluated at the individual level (319 nurses) when they were evaluated among themselves, and at the unit level (50 units) when the variables of the patients were added. Spearman's correlation analyses were conducted to examine the relationships between structural empowerment, control over nursing practices, and nurse and patient-reported outcomes. The Mann–Whitney *U* test was used to compare the non-normally distributed structural empowerment scores with those who experienced adverse events, and the independent two-sample *t*-test was used to compare the normally distributed control over nursing practice scores. The effect of independent variables on the dependent variable was analyzed by linear regression. Structural empowerment and control over nursing practices were determined as independent variables, and control over nursing practices, nurse-reported outcomes (job satisfaction, intention to turnover, and unit nursing care quality), and patient-reported outcomes (satisfaction with nursing care, trust in nurses, and adverse event experiences) as dependent variables. To determine the significance of the mediating role, structural equation modeling was done using the bootstrapping method (with 2,000 samples at a 95% confidence level). The threshold for statistical significance was $\alpha = 0.05$.

Ethical Considerations

Ethical approval of the study was obtained from Istanbul University, the Ethics Committee of Social and Human Sciences Research (Date: 02.04.2018, Decision No: 35980450-663.05), and written permissions were obtained from the institutions where this study was carried out. Permission has been received from the copyright holders to use instruments employed in the research. The nurses and patients were informed about the purpose of the study by the researchers and their written informed voluntary consent was obtained. After all the participants were informed about the purpose of the research, written consent was obtained from them.

Results

The Nurses' and Patients' Characteristics and Work-Related Data

The staff nurses' mean age was 31.5 years, 84.6% of them were female, and 68.3% had bachelor's degrees. Their median professional experience was 7.5 years (1 month-39 years), their median work experience at the hospital was 5.5 years (1 month-33 years), and their median work experience in their units was 3 years (1 month-32 years). Of the nurses, 52.7% work more than 40 hours a week. The mean number of nurses per unit was 6.9 ($SD = 1.59$), and the mean number of beds per unit was 22.3 ($SD = 8.6$). Of the nurses, 9.1% had a certification related to their units (for example, cardiovascular surgery intensive care nursing, chemotherapy/oncology nursing).

The patients' mean age was 55.3 years, 53.2% of them were male, and 82.3% were married. Of them, 65% had completed primary school, 36% were housewives, and 85% had middle incomes. Of them, 29.1% had been hospitalized for cancer treatment. The median duration of hospitalization was 7 days (min-max: 2-72 days). Of the patients, 68.5% stated that they had not formerly stayed in a hospital, and 81.1% had a caregiver with them.

Descriptive and correlation results. The staff nurses' reported a moderate mean structural empowerment score was ($M = 18.02$, $SD = 4.17$, $Median = 18.08$), and their mean control over nursing practices score was also at a medium level ($M = 108.72$, $SD = 26.53$, $Median = 113$). Of the nurses, 63.6% were satisfied with their jobs ($M = 2.62$, $SD = 0.83$, Median = 3), and 54.8% considered the nursing care quality in their units as good or excellent ($M = 2.50$, $SD = 0.81$, $Median = 3$). Their mean turnover intention score was slightly below the medium level ($M = 3.16$, $SD = 1.84$, $Median = 3$) (Table 1).

Table 1. Structural Empowerment, Control over Nursing Practices, and Nurse Outcomes ($N = 319$).

Variables	1	2	3	4	5
Structural empowerment	-				
Control over nursing practices	0.557*	-			
Job satisfaction	0.485*	0.405*	-		
Perceived quality of care on unit	0.422*	0.350*	0.290*	-	
Intention to turnover	−0.296*	−0.210*	−0.543*	−0.179*	-
Mean	18.02	108.72	2.62	2.50	3.16
SD	4.17	26.53	0.83	0.81	1.84
Median	18.08	113.00	3.00	3	3
Min-max	6-30	23-161	1.00-4 .00	1.00-4.00	1-7
Score range	6-30	23-161	1-4	1-4	1-7

Abbreviation: *SD*, standard deviation.
Note. Significance level *$p < .01$.

Table 2. Structural Empowerment, Control over Nursing Practices, and Patient outcomes ($N^* = 50$).

Variables	1	2	3	4
Structural empowerment	-			
Control over nursing practices	0.617**	-		
Satisfaction with nursing	−0.039	0.274	-	
Trust in nurses	−0.022	0.180	0.826**	-
Mean	18.13	109.76	90.07	27.05
SD	2.11	12.97	6.21	2.11
Median	17.75	112.20	89.98	27.25
Min-max	15.01-22.82	72.00-139.60	72.93-99.47	20.50-30.00
Score range	6-30	23-161	20-100	5-30

Abbreviation: *SD*, standard deviation; CONP, control over nursing practices.
Note. Significance level **$p < .001$; * = number of units.

The patients' mean nursing care satisfaction score was very high ($M = 90.07$, $SD = 6.21$, $Median = 89.98$), and their mean trust in nurses score was very high ($M = 27.05$, $SD = 2.11$, $Median = 27.25$) (Table 2). Of the patients, 64% had not experienced adverse events during their hospitalization, and those who did most frequently experienced intravenous infiltration (24.9%).

Table 1 shows the relationships between structural empowerment, control over nursing practices, and nurse outcomes. A positive correlation was found between structural empowerment and control over nursing practices ($r = 0.557$, $p < .01$; Table 1). H_1 was confirmed. There was also a positive correlation between structural empowerment and job satisfaction and nurse-assessed care quality (respectively, $r = 0.485$, $r = 0.422$, $p < .01$), whereas a negative correlation was found between structural empowerment and turnover intention ($r = -0.296$; $p < .01$; Table 1). H_{2a} was confirmed. There was a positive correlation between control over nursing practices, job satisfaction, and nurse-assessed care quality (respectively, $r = 0.405$, $r = 0.350$; $p < .01$), whereas a statistically negative significant correlation was found between control over nursing practices and turnover intention ($r = -0.210$; $p < .01$; Table 1). Therefore, H_{2b} was confirmed.

When analyzing at the unit level, there was no statistically significant relationship between structural empowerment, control over nursing practices, and patient-reported outcomes (satisfaction with nursing care and trust in nurses; $p > .05$; Table 2). No significant differences were found between the nurses' structural empowerment, control over nursing practices, and scores of patients who experienced adverse events and those who did not ($p = .376$, $p = .283$; $p > .05$, respectively). Therefore, H_{3a} and H_{3b} were rejected.

Results on the direct effect. Hypotheses related to the determination of the statistical effect of structural empowerment and control over nursing practices on job satisfaction, turnover intention, and nurse-assessed care quality were tested. Structural empowerment was found to have a statistically significant positive effect on control over nursing practices ($p < .01$). H_1 was reconfirmed in the regression analysis. In addition, structural empowerment was also found to have a

Table 3. Direct Effect of Structural Empowerment and Control over Nursing Practices on Nurse Outcomes ($N = 319$).

Dependent Variables	Independent Variables	β	*p*	Confidence Interval of 95% for ß	Lower-Upper Limit	Model
CONPs	Constant	-	<.001*	0.861	0.506, 1.216	$R^2 = 0.311$
	Structural empowerment	0.557	<.001*	3.549	2.965, 4.132	$F = 142.949$ $p < .001$
Job satisfaction	Constant	-	<.001*	0.861	0.506, 1.216	$R^2 = 0.239$
	Structural empowerment	0.489	<.001*	0.097	0.078, 0.117	$F = 99.792$ $p < .001$
Intent to turnover	Constant	-	<.001*	5.488	4.623, 6.353	$R^2 = 0.085$
	Structural empowerment	−0.291	<.001*	−0.129	−0.176, −0.082	$F = 29.425$ $p < .001$
Perceived quality of care on unit	Constant	-	<.001*	0.99	0.631, 1.349	$R^2 = 0.185$
	Structural empowerment	0.413	<.001*	0.084	0.064, 0.103	$F = 72.128$ $p < .001$
Job satisfaction	Constant	-	<.001*	1.238	0.884, 1.592	$R^2 = 0.164$
	CONPs	0.405	<.001*	0.013	0.010, 0.016	$F = 62.346$ $p < 0.001$
Intent to turnover	Constant	-	<.001*	4.659	3.817, 5.502	$R^2 = 0.039$
	CONPs	−0.198	<.001*	−0.014	−0.021, −0.006	$F = 12.908$ $p < .001$
Perceived quality of care on unit	Constant	-	<.001*	1.307	0.954, 1.660	$R^2 = 0.129$
	CONPs	0.359	<.001*	0.011	0.008, 0.014	$F = 46.870$ $p < .001$

Abbreviations: CONPs, control over nursing practices; β, standardized beta.
Note. Significance level *$p < 0.01$. Modification indices (group number 1 - default model).

Table 4. Regression Models of the Mediating Effect of Control over Nursing Practices ($N = 319$).

Dependent Variables	Independent Variables	β	*p*	Confidence Interval of 95% for ß	Lower-Upper Limit	Model
Job satisfaction	Constant	-	.003*	0.591	0.206, 0.976	$R^2 = 0.265$
	Structural empowerment	0.382	<.001*	0.076	0.053, 0.099	$F = 56.950$
	CONPs	0.192	.001*	0.006	0.002, 0.010	$p < .001$
Intent to turnover	Constant	-	<.001*	5.648	4.696, 6.600	$R^2 = 0.087$
	Structural empowerment	−0.263	<.001*	−0.116	−0.173, −0.060	$F = 15.009$
	CONPs	−0.051	.429	−0.004	−0.012, −0.005	$p < .001$
Perceived quality of care on unit	Constant	-	<.001*	0.754	0.363, 1.145	$R^2 = 0.206$
	Structural empowerment	0.334	<.001*	0.065	0.042, 0.088	$F = 40.959$
	CONPs	0.172	.005*	0.005	0.002, 0.009	$p < 0.001$

Abbreviations: CONPs, control over nursing practices; β, standardized beta.
Note. Significance level *$p < .01$. Modification indices (group number 1 - default model).

significant positive effect on job satisfaction and nurse-assessed care quality, while there was a negative effect on intent to leave ($p < .01$). H_{2a} was reconfirmed. Control over nursing practices was found to have a statistically significant positive effect on job satisfaction and nurse-assessed care quality, while there was a negative effect on intent to leave ($p < .01$). Therefore, H_{2b} was reconfirmed (Table 3).

Mediation analyses. A linear regression analysis was conducted to examine the mediating role of control over nursing practices in the effect of structural empowerment on job satisfaction, intention to turnover, and nurse-assessed care quality, which are among the nurse outcome variables with significant effects. Structural empowerment and control over nursing practices were added to the regression models as independent variables (Table 4). All three models were statistically significant, and structural empowerment and control over nursing practices accounted for 26.5% of job satisfaction, 8.7% of turnover intention, and 20.6% of nurse-assessed care quality. While the effect of control over nursing practices on job satisfaction and nurse-assessed care quality was statistically significant, structural empowerment also retained its significance, suggesting a partial mediating role for control over nursing practices. Although the effect of

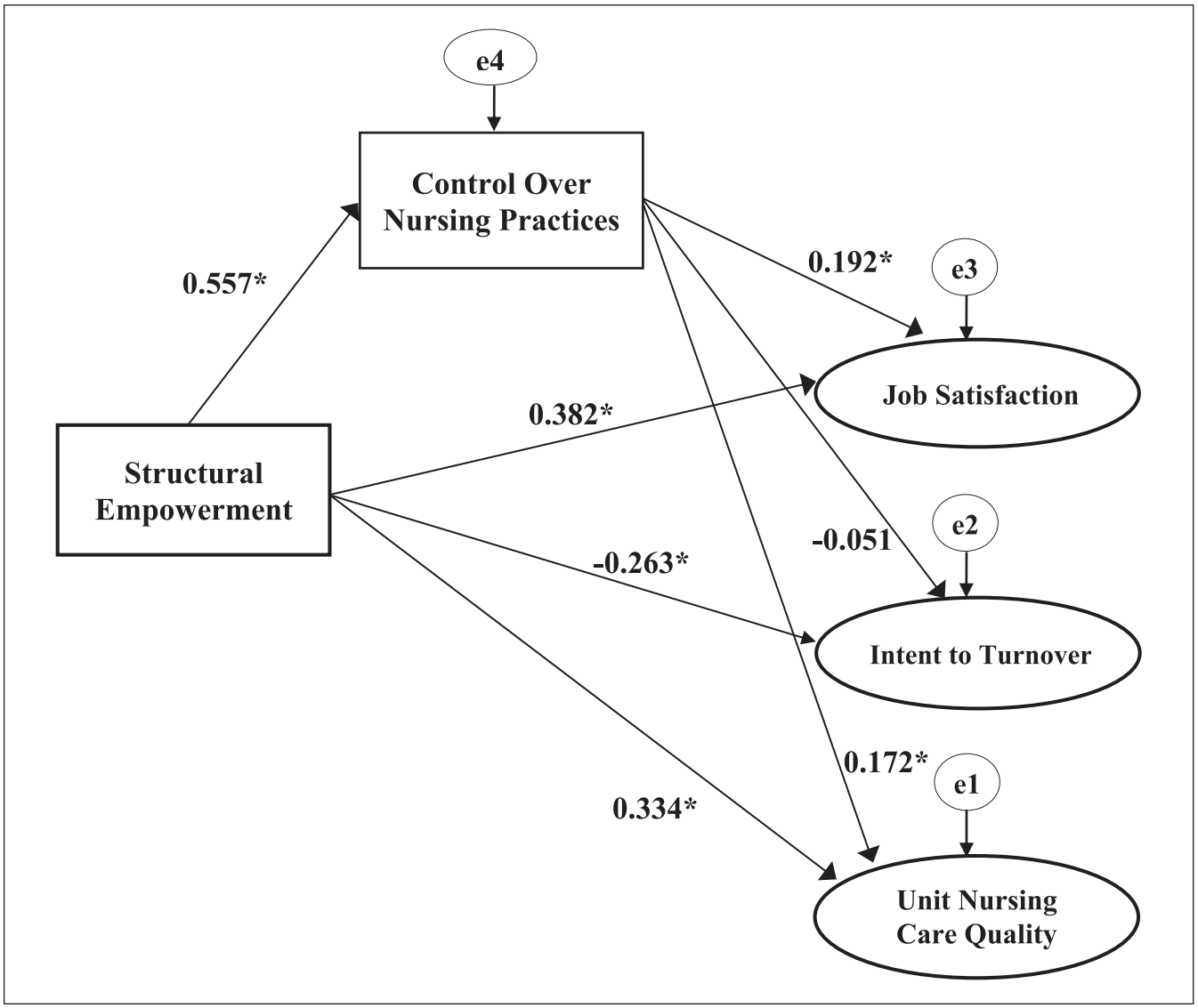

Figure 2. The Final Model.
Note. *= $p < .01$.

structural empowerment on intention to turnover was significant, the effect of control over nursing practices on turnover intention was not statistically significant ($p = .429$). Therefore, control over nursing practices had no mediating role in intention to turnover. The structural equation modeling done using the bootstrapping method determined that the indirect effect of control over nursing practices in the relationship between structural empowerment with job satisfaction and nurse-assessed care quality was statistically significant (job satisfaction: $p = .001$, $p < .01$; nurse-assessed unit care quality: $p = .005$, $p < .01$). This effect was not statistically significant for intention to turnover ($p = .429$, $p > .05$). The results of the final model are presented in Table 4 and Figure 2. These results confirmed H_{4a1} and H_{4a3}, but H_{4a2} was rejected. Since there was no statistically significant relationship between structural empowerment, control over nursing practices, and patient-reported outcomes, a mediating role analysis was not performed for them. Therefore, H_{4b1}, H_{4b2}, and H_{4b3} were also rejected.

Discussion

This study aimed to investigate the relationship between structural empowerment and nurse and patient-reported outcomes and the mediating role of control over nursing practices in these relationships. This study's results indicate that structural empowerment has a positive significant relationship with control over nursing practices. This result suggests that, for a sample of nurses in Turkey, there is a relationship between structural empowerment and control over nursing practices, as several other studies have also shown in other settings.[9,20]

A statistically significant, positive relationship was found between structural empowerment, control over nursing practices, and nurses' job satisfaction and nurse-assessed unit care quality, whereas a statistically significant negative relationship was determined between structural empowerment and intention to turnover. Additionally, structural empowerment and control over nursing practices were found to have a positive significant effect on job satisfaction and nurse-assessed care quality, while there was a negative effect on intent to leave. Several studies have also reported positive relationships between structural empowerment,[5,9,36] control over nursing practices,[21] and job satisfaction. Moreover, some studies have shown structural empowerment[14] and control over nursing practices[21] are also positively correlated with nurse-assessed care quality. Some recent studies have found negative relationships between nurses' perceived structural empowerment and turnover intention.[13,37] In the literature, there are hardly ever studies of the relationship between control over nursing practices and turnover intention. However, Han et al.[38] found that nurses who planned to give up their current jobs had significantly less work autonomy and colleague support than those who intended to stay in their jobs. As this study's results suggest, institutional practices that empower nurses' work environment structurally, appreciate their professional contributions, and allow them to participate in organizational decisions improve both nurses' job satisfaction and unit quality care and reduce their turnover intention.

No significant relationship was found between structural empowerment, control over nursing practices, and patient-reported outcomes (patient satisfaction with nursing care and trust in nurses). The present study also found no statistically significant difference between nurses' structural empowerment and control over nursing practices scores if their patients experienced adverse events or not. In contrast, Copanitsanou et al.[36] determined in their systematic review that nurse work environments affect patient satisfaction. Satisfaction and trust are both subjective and difficult concepts to measure. According to Anufriyeva et al.,[39] a satisfaction measurement may represent personal expectations rather than care quality; it is difficult to figure out the real reason for satisfaction or dissatisfaction. In studies conducted in Turkey, patients' satisfaction levels with nursing care were high.[40,41] This mostly differs with the patients' educational levels and is mostly explained by the fact that patients with a lower level of education (similar to the sample of this study) have lower expectations.[40,42] Patients' satisfaction with nursing care and trust in nurses were very high, which may have contributed to the lack of a relationship between these two variables and structural empowerment and control over nursing practices. These results can be reexamined using different samples. It is recommended that in future studies, variables related to patient outcomes, such as adverse events, should be evaluated using objective measurements (such as clinical records).

In previous studies, the variables examined as patient outcomes in this study were investigated only in patient samples or in nurse samples (one of the two). In this study, the evaluations of staff nurses and patients receiving care from them were matched and their correlations were examined. Since the patients in the study sample decided whether or not to participate in this study, the sample selected may not have represented the entire population (individual bias). Therefore, this may have led to the failure to obtain significant results and the rejection of H_{3a} and H_{3b}. Purdy et al.,[14] the only known/accessed study similar to this study where two samples were examined together, found that there was no relationship between structural empowerment, patient satisfaction, and patient falls. However, it was determined that empowered work environments were associated with lower fall rates through group processes.

This study determined that control over nursing practices had a partial mediating role in the effect of structural empowerment on job satisfaction and nurse-assessed care quality. In their systematic review and meta-analysis study, Fragkos et al.[43] reported that structural empowerment is associated with job satisfaction and organizational commitment, suggesting that structural empowerment is a determinant of job satisfaction. One systematic review study of the factors that affect nurses' job satisfaction determined that authority and freedom and the physical working environment were the two factors that affect nurses' job satisfaction most.[44] Also, Liu and Aungsuroch[45] found that nursing work environments affect unit care quality. In addition, professional governance, a subdimension of control over nursing practice, was found to have a mediator role in the relationship between structural empowerment and job satisfaction.[12] However, there are no studies of the mediating role of control over nursing practices in the relationship between nurses' perceived structural empowerment, job satisfaction, and nurse-assessed unit care quality. This finding shows that having control over nursing practices will increase the effect of structural empowerment on positive nurse outcomes.

Although this study was carried out using a specific methodology, it has some limitations. First, since the cross-sectional study design does not permit establishing a cause-effect relationship, longitudinal studies are needed to explain the cause-effect relationships between variables. Second, since the scales applied in this research include self-reporting by nurses and patients, there may be individual bias. Third, since the convenience sampling method was used in the sample of patients and the study is limited to the data (self-selection bias) obtained only from those (especially patients) who decided to participate, the study findings cannot be generalized. In addition, as the study was conducted in public tertiary hospitals, the organizational structure and functioning of these hospitals may have affected its results.

Future studies should repeat this study with larger samples and at hospitals with different organizational structures such as private and city hospitals. Comparative studies of

hospitals with different organizational structures would be useful for a better understanding of the variables that affect nurse- and patient-reported outcomes. The structures of nurses' work environments in hospitals should be determined using objective parameters such as the number of nurses and nurse-patient ratios. In addition, further studies are needed to reveal the factors that affect patients' trust in nurses, care satisfaction, and adverse event experiences.

Conclusion

This study revealed a significant relationship between structural empowerment and control over nursing practices and nurse outcomes. Moreover, unlike previous studies, this study found that control over nursing practices played a partial mediating role in the relationship between structural empowerment and nurse outcomes (job satisfaction and nurse-rated quality of unit care). However, there was no significant relationship between structural empowerment and control over nursing practices, and patient-reported outcomes. This study demonstrated the importance of empowering nurses' work environments, giving them more control over nursing practices, and appreciating their professional contributions. These practices improve unit care quality. Nurses' control over their practices and participation in organizational decisions can increase their job satisfaction and decrease their intention to leave.

Also, this study's results indicate the importance of structural empowerment practices, such as supporting nurses' personal and professional development: providing them with access to necessary information, opportunities, support, and resources; allowing them to have more control over nursing practices; appreciating their professional contributions; making them have more positive feelings about their jobs; and improving unit care quality. Nurses should also be supported with adequate supplies and equipment so that they can give the best care. Additionally, nurse managers should encourage nurses to use evidence-based nursing practices to improve patient care quality. Nurses should be able to use their expertise to plan and evaluate patient care, and they should be supported to make independent decisions. Since nurses constitute an important human resource for healthcare institutions, they should be represented in meetings, committees, and councils where decisions about nursing and patient care are made. For this to occur, work environments with participatory management should be created.

Author's Note

This research was carried out as part of a doctoral thesis at Istanbul University-Cerrahpasa. It was presented both orally and as a poster presentation at the 15th ENDA (European Nurse Directors Association) Nursing Congress held in Iceland on 14-17 September 2022. The author is currently working at the Faculty of Health Sciences, Osmaniye Korkut Ata University.

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Author Contributions

Öznur İSPİR DEMİR: Study conception and design, data collection, data analysis, and interpretation, writing-original draft, writing-review, and editing.
Aytolan YILDIRIM: Study conception and design, data analysis, and interpretation, writing-original draft, writing-review, and editing.
Betül SÖNMEZ: Study design, data analysis, writing-review, and editing.
Sergül DUYGULU: Study design, writing-review, and editing.
All authors read and approved the final manuscript.

Declaration of Conflicting Interests

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Ethics Statement

The protocol for the research project was approved by a suitably constituted research ethics committee of the institution within which the work was undertaken and include the title of the committee (Istanbul University, the Ethics Committee of Social and Human Sciences Research (Date: 02.04.2018, Decision No: 35980450-663.05). Since this study was not of the experimental design type, a clinical trial number was not obtained. The permission has been received from the copyright holder to use instruments employed in the research and this is also recorded in the manuscript. STROBE Statement—Research Reporting Checklist has been attached. All participants gave informed consent for the research, and their anonymity was preserved. The research conforms to the provisions of the Declaration of Helsinki.

ORCID iD

Öznur İSPİR DEMİR https://orcid.org/0000-0002-5491-951X

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