Structural empowerment: enhancing the skills of nurses in a high-complexity hospital

Empoderamento estrutural: potencializando as competências dos enfermeiros de um hospital de alta complexidade Empoderamiento estructural: potenciar las competencias de los enfermeros en un hospital de alta complejidad

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ABSTRACT

Objective: to analyze the structural empowerment of nurses in a high-complexity hospital. **Methods:** a quantitative, analytical, cross-sectional study was carried out with 93 nurses, using a sociodemographic and occupational questionnaire and the Questionnaire of Conditions of Effectiveness at Work II. The data was collected between February and March 2023. The data was analyzed using descriptive statistics, the Kolgomorov-Smirnov test, the chi-square test, and Poisson regression. **Results:** the nurses had a moderate structural empowerment level, with a mean of 20.67 (p<0.000). The highest scoring component was opportunity (4.22 sd±0.80). No significant differences were found in the structural empowerment levels related to work units (p-Value 0.381), employment relationship (p-Value 0.352) and education level (p-Value 0.839). The Poisson regression model indicates that there can be either high or low empowerment levels depending on the sector. **Conclusion:** nurses showed moderate structural empowerment levels.

Descriptors: Nursing; Health Management; Health Facility Environment; Hospital Administration; Professional Competence; Empowerment.

RESUMO

Objetivo: analisar o empoderamento estrutural de enfermeiros em um hospital de alta complexidade. Métodos: estudo quantitativo, analítico e transversal, realizado com 93 enfermeiros, utilizando um questionário sociodemográfico e ocupacional e o Questionário de Condições de Eficácia no Trabalho II. Os dados foram coletados entre fevereiro e março de 2023. A análise dos dados deu-se por meio de estatística descritiva, teste de Kolgomorov-Smirnov, teste do qui-quadrado e regressão de Poisson. Resultados: os enfermeiros apresentaram nível moderado de empoderamento estrutural, com média de 20,67 (p<0,000). O componente mais pontuado foi a oportunidade (4,22 dp±0,80). Não foram encontradas diferenças significativas nos níveis de empoderamento estrutural relacionadas às unidades de trabalho (p-Valor 0,381), vínculo empregatício (p-Valor 0,352) e grau de instrução (p-Valor 0,839). O modelo de regressão de Poisson indica que tanto pode haver altos ou baixos níveis de empoderamento a depender do setor. Conclusão: os enfermeiros demonstraram possuir níveis moderados de empoderamento estrutural.

Descritores: Enfermagem; Gestão em Saúde; Ambiente de Instituições de Saúde; Administração Hospitalar; Competência Profissional; Empoderamento.

RESUMEN

Objetivo: analizar el empoderamiento estructural del enfermero en un hospital de alta complejidad. **Métodos**: estudio cuantitativo, analítico y transversal, realizado con 93 enfermeros, utilizando un cuestionario sociodemográfico y ocupacional y el Cuestionario de Condiciones de Efectividad en el Trabajo II. Los datos se recolectaron entre febrero y marzo de 2023. El análisis de los datos se realizó mediante estadística descriptiva, prueba de Kolgomorov-Smirnov, prueba de chi-cuadrado y regresión de Poisson. **Resultados**: los enfermeros presentaron un nivel moderado de empoderamiento estructural, la media fue de 20,67 (p<0,000). El componente con mayor puntaje fue oportunidad (4,22 DE±0,80). No se encontraron diferencias significativas en los niveles de empoderamiento estructural relacionados con las unidades de trabajo (valor p 0,381), la relación laboral (valor p 0,352) y el nivel de formación (valor p 0,839). El modelo de regresión de Poisson indica que pueden existir niveles altos o bajos de empoderamiento dependiendo del sector. **Conclusión**: los enfermeros demostraron niveles moderados de empoderamiento estructural.

Descriptores: Enfermería; Gestión en Salud; Ambiente de Instituciones de Salud; Administración Hospitalaria; Competencia Profesional; Empoderamiento.

INTRODUCTION

Empowerment in health institutions emerged from the organizational empowerment theory, which deals with power in organizations¹. In this concept, workers should be encouraged to seek positive changes within their context^{1,2}.

Structural empowerment relates to access to the enabling structures that allow for increased empowerment, represented by the ability to mobilize resources, and achieve goals through access to information, support and opportunity^{1,2}.

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The ability to mobilize resources is related to the institutions' support for material and physical resources. Access to information involves the necessary theoretical knowledge and understanding of organizational legislation. Support and opportunities arise through working conditions that allow workers to improve their skills and knowledge, as well as feedback and guidance from subordinates, peers and superiors ^{1,2}.

In the hospital setting, the nursing team is the largest number of health professionals, including assistants, technicians and nurses³. In this context, nurses carry out care management activities, excelling in leadership skills, conflict management, staff sizing, forecasting and provision of material and human resources. These practices are considered relevant competencies for hospital management models that need empowered leaders^{4,5}.

In this context, structural empowerment contributes to the strengthening and development of nurses' skills, especially authentic leadership and increased organizational commitment^{6,7}. This approach is associated with positive results, such as greater motivation and job satisfaction, organizational citizenship behavior, resulting in excellent management and qualified care in the hospital environment^{8,10}.

However, despite the obvious importance of the subject, there is a lack of attention given to it in the field of nursing compared to other countries. It is therefore imperative to conduct new studies to fill this gap and incorporate the theoretical framework into nurses' practice, emphasizing their managerial and leadership perspectives¹¹.

In addition, despite the clear importance of the issue, there is a notable lack of specific attention to the subject in Brazilian nursing compared to other countries. This is especially evident in the lack of integration of structural empowerment and its components in contemporary hospital management¹¹. In this sense, it is imperative to undertake new research to fill this gap, seeking not only to address, but also to effectively implement the theoretical framework in the practice of nurses, emphasizing their managerial and leadership perspectives.

To this end, the question is: are nurses who perform their duties in a highly complex hospital structurally empowered? Thus, this study aims to analyze the structural empowerment of nurses working in a high-complexity hospital.

METHOD

This is a quantitative study with a cross-sectional analytical approach, guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)¹² tool.

The study was carried out in a high-complexity tertiary-level university hospital linked to a state university in southern Brazil. The institution serves 250 municipalities in the state and is a reference center for the Unified Health System (Sistema Único de Saúde, SUS), with 419 beds, serving more than 150,000 patients throughout the year.

The hospital stands out for its wide range of specialized medical services, including heart surgery, neurosurgery, oncology, and transplants, among others. This diversity allows it to deal with complex health conditions and highly serious cases, consolidating its position as a center of excellence. It also invests significantly in advanced technological resources and has a highly qualified multidisciplinary team of specialized professionals.

The study population consisted of nurses working in three sectors of the institution: the inpatient unit, the emergency room, and the intensive care unit. The selection of these sectors was strategically aimed at capturing the diversity and complexity inherent in the different areas where nurses work in the hospital environment.

The following inclusion criteria were taken into account: being in professional practice and having worked at the hospital for at least three months. Exclusion criteria included being on vacation or leave or holding senior management positions in the institution.

The criterion of length of service at the institution was chosen on the assumption that the length of service interferes with the workers' perception of the work environment, requiring them to spend a minimum amount of time adapting to the work unit and thus contribute more effectively to the research 13.





The total population was made up of 133 nurses, 44 of whom worked in inpatient units, 49 in intensive care units and 40 in emergency rooms. Considering a total population of 133 professional nurses, a sample calculation was carried out for frequency in a finite population, using as an assumption the prevalence of structural empowerment in a previous similar study⁶. Thus, for the 95% confidence interval using the following formula: $n = \frac{120 \text{ FF} \cdot \text{Np}(1-p)}{[(d2/221-\alpha/2*(N-1)+p*(1-p)], 93 \text{ nurses were needed.}}$

Due to the professionals' availability, a total of 99 nurses were invited to take part in the study and were approached individually at their place of work. A 15-day deadline was agreed for completing the instrument, after which it was considered lost. As a result, six refused to take part in the survey or did not return the questionnaire.

Data was collected from February to March 2023, using the instrument to assess the nurses' sociodemographic and occupational characteristics and the Conditions of Effectiveness at Work Questionnaire II (CET-II) to assess the structural empowerment of the research participants¹⁴. These questionnaires were given to the nurses, and they were expected to answer them or, if they preferred, the researchers returned to collect them on the stipulated date.

The questionnaire to assess sociodemographic and occupational characteristics was developed by the researchers themselves, with questions on the following: gender, age, professional category, length of training, work shift, employment relationships, time in the unit, work unit, weekly working hours.

The CET-II, translated and validated in Brazil, consists of 21 Likert-type questions with the following domains: opportunity, information, support, resources, formal and informal power. In addition to the global empowerment construct, with two items, which were not used in this study, given that the design of the study is structural empowerment, which has already been assessed in the previous domains ¹⁴.

The score for each question on the scale can range from 1 (not at all) to 5 (very much), in which the items for each of the components will be added together and the mean taken, in order to provide a score for each component. The final score with the sum of the components can vary from 6 to 30, with values between 6 and 13 meaning low empowerment levels, between 14 and 22 moderate empowerment levels and values between 23 and 30 high empowerment levels¹⁴.

The data was organized and tabulated in an electronic spreadsheet using Microsoft Office Excel® 2016 software and analyzed using the Statistical Package for the Social Sciences® (SPSS), version 25.

The data was presented using descriptive statistics with tables of absolute frequency (n) and percentage (%) of categorical variables and measures of central tendency. The Kolgomorov-Smirnov test was applied for the statistical analysis, accepting the normality of the data. The CET-II score was compared with the prevalence of the previous study's mean⁶, adopting a 95% confidence interval considering a significance level of 5% (p<0.05). The chi-square hypothesis test was used for categorical variables. To assess the influence of work units on the outcome, Poisson regression and the Wald test were applied to assess the significance of the coefficients associated with each independent variable in the model, based on the strong theoretical-practical assumption that in some work units the nurses show more autonomy, inferring that this can be measured using the CET II scale.

The study is linked to the research entitled "Occupational risks that interfere with workers' health and coping strategies", approved by the Research Ethics Committee in compliance with the determinations of Resolution No. 466/2012 of the National Health Council. All the participants consented to take part in the study by signing an informed consent form.

RESULTS

Of the 99 nurses eligible to take part in this research, 93 were included in the study. The sociodemographic and occupational characteristics of the participants are shown in Table 1.





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Table 1: Sociodemographic and occupational characterization of nurses at a High Complexity Institution (n=93). Londrina, PR, Brazil, 2023.

Variables		n	f(%)	Mean(±SD*)
Gender	Female	83	89.2	
	Male	10	10.8	
Age (years old)				35.8(±10.34)
Professional Category	Rating	18	19.4	
	Lato sensu specialization	64	68.8	
	Stricto sensu specialization	11	11.8	
Time of training (years)				10.1(±8.18)
Work shift	Day	51	54.9	
	Night	42	45.2	
Employment contract	Public tender	11	11.8	
	Public call	82	88.2	
Time in the unit				2.5(±2.58)
Work unit	Inpatient unit	42	45.1	
	Intensive Care Unit	35	37.8	
	Emergency Care	16	17.2	
Has more than one link	Yes	26	28	
	No	67	72	
Weekly workload (hours)				51.5(±15.96)

Note: *Standard deviation.

Among the respondents, 89.2% (n=83) were female, with a mean age of 35 and a mean training period of approximately 10 years (SD±8.189), with 68.8% (n=64) being specialists.

The mean time working in the unit was 2.5 (± 2.58) years, 88.2% of the nurses had an employment relationship with the institution through a public call (n=82), 72.0% had no other employment relationship (n=67), with a mean weekly workload of 51.5 (± 15.964) hours. The complete results from the CET-II application are shown in Table 2.

Table 2: Mean and standard deviation according to domains, sum of CET-II means and p-value of the final structural empowerment score for nurses at a High Complexity Institution (n=93). Londrina, PR, Brazil, 2023.

Domains	Mean	SD*	CI 95%	p-value**
Opportunity		0.80	4.06 – 4.39	
Work is challenging	3.99	1.08		
Opportunity to gain new skills and knowledge	4.31	0.88		
Tasks that require all my skills and knowledge	4.35	0.89		
Information	3.17	0.96	2.97 – 3.37	
About the current condition of the hospital	3.34	1.08		
About the values of the hospital administration	3.08	1.11		
The objectives of hospital administration	3.11	1.13		
Support		0.92	2.89 - 3.28	
Specific comments on what you do well	2.98	1.12		
Specific comments on what you could improve	3.08	1.11		
Useful tips or problem-solving advice	3.20	1.00		
Resources		0.85	3.16 - 3.51	
Time available to carry out bureaucratic work	3.29	0.96		
Time available to fulfill job requirements	3.49	0.90		
Obtaining temporary assistance when needed	3.22	1.15		
Formal Power		0.92	2.93 – 3.31	
The rewards for innovation at work are:	2.47	1.17		
The flexibility in my work is:	3.62	1.12		
The visibility of my work activities within the institution is:	3.25	1.08		
Informal Power		0.78	3.58 - 3.90	
Participating with physicians in the patient care	3.70	1.08		
Being sought after by your peers to help solve problems	4.06	0.95		
Being approached by administrators to help with problems	3.45	1.11		
Seek ideas from professionals other than physicians (e.g. physiotherapists, occupational therapists, nutritionists)	3.45	1.11		
Final structural empowerment score		3.62	19.92 – 21.41	0.000

Note: *Standard deviation; **t test; p<0.05, compared to previous study; 95% CI: confidence interval.





The total CET-II mean, which corresponds to the sum of the means for each structural empowerment domain, was 20.67 (\pm 3.620). Thus, a moderate structural empowerment level was observed among the nurses taking part in the study (p<0.000). In relation to the empowerment components, the opportunity domain was the most prevalent (4.22 \pm 0.80), followed by informal power (3.47 \pm 0.78), resources (3.33 \pm 0.85), information (3.17 \pm 0.96), formal power (3.12 \pm 0.92) and support (3.09 \pm 0.92).

The structural empowerment levels were associated with the chi-square test according to the hospital sectors that took part in the study (p=0.381), the professionals' level of education (p-value 0.839), and the employment relationship they had with the institution (p=0.352). The results indicate that there is no statistically significant association between the structural empowerment levels and these variables, i.e. regardless of the work unit, educational level or employment relationship, a similar pattern of moderate levels of structural empowerment was observed, as represented in Figure 1.

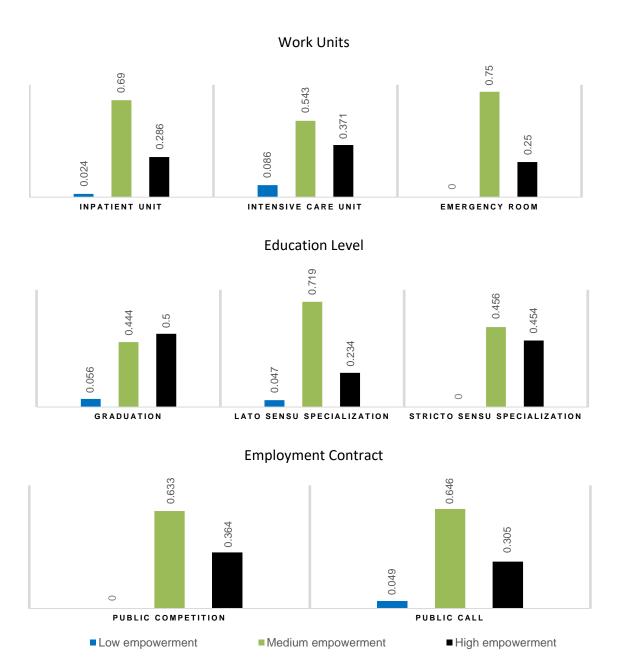


Figure 1: Structural empowerment levels according to work sectors, education level and employment relationship of nurses at a High Complexity Institution. Londrina, PR, Brazil, 2023.



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Based on the results of the Wald test for logistic regression, a significant association was shown between the empowerment levels and the nurse's sector of work. Both for participants with a high and low empowerment level, the Wald values indicated a statistically significant relationship (p<0.05).

The group with a high empowerment level had a coefficient of -1.169 and an Exp(B) value of 0.311, with a 95% confidence interval of between 0.137 and 0.704. Similarly, the group with a low empowerment level had a coefficient of -0.957 and an Exp(B) value of 0.384, with a 95% confidence interval between 0.171 and 0.864.

The risk presented by the prevalence ratio is announced by Exp(B) in the model that analyzes the hospital units with the structural empowerment level, the Poisson Regression model adjusted by the hospital work unit indicates that there can be either high or low empowerment levels depending on the sector, which are: inpatient units, intensive care units and emergency rooms. In other words, approximately 70.0% risk of having high or low empowerment levels.

DISCUSSION

The study found that nurses have a medium structural empowerment level, showing improvements in competence, autonomy, confidence, and professional well-being. These gains not only positively affect each individual professional, but also have an impact on healthcare organizations, promoting efficiency and alignment with organizational goals. It is therefore essential that employees exposed to low or medium structural empowerment levels are identified as a priority by organizations and managers. Interventions focused on raising structural empowerment, while maintaining high levels, have the potential to significantly improve well-being and performance 15,16.

Structural empowerment is related to the variables length of training and work experience, since nurses at the start of their careers often face challenges and stressful situations, thus influencing their perception of the work environment^{17,18}. It can be seen that after having been trained for some time and having already faced many situations without noticing any changes, nurses become content with the situation and no longer look for changes in their working practices.

It is essential to recognize that several factors are related to nurses' training and can influence their structural empowerment levels. This includes the educational training institution, the clinical work environment in the first job and training courses during graduation^{19,20}. These factors should be considered when developing strategies to promote nurse empowerment.

In this way, other professional training is highlighted, such as *lato sensu* and *stricto sensu* specialization. *Lato senso* specialization is one of the most prevalent types of training among nurses²¹, as are the findings of this study. This type of training favors the improvement of knowledge and practical skills, allowing professionals to offer specialized, high-quality care to patients, as well as favoring the appreciation and autonomy of professionals, which places them at a medium empowerment level^{21,22}.

The national and international context shows that nurses are only partially able to become structurally empowered^{6,23,24}.

The highest scoring component in this study was opportunity, corroborating research carried out in the Brazilian context^{6,23}, followed by informal power, resources, information, formal power, and support. As a result, nurses emphasize the presence of opportunities for learning, work appreciation and professional development within the institution^{6,25}.

Studies in the literature, together with the research findings, show that nurses who have access to adequate resources and equipment to carry out their duties, together with comprehensive knowledge of the field, tend to experience a higher empowerment level in the workplace^{26,27}.

In relation to support in the workplace, it's important to note that this includes helping to solve professional challenges and offering opportunities for development in the workplace. In this scenario, nurses are also the target of performance evaluations and directives from their colleagues, subordinates, and superiors. The more feedback and guidance provided by leaders and superiors, the more likely it is that professionals will experience high levels of job satisfaction^{6,26,27}.

The structural empowerment of nurses is complex to assess and can be influenced by both individual characteristics and the work environment. This understanding is essential in order to develop effective strategies to improve this empowerment²⁸, but it has been perceived that empowerment involves questions of knowledge,



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which is why nurses need to train themselves through specializations, master's degrees and doctorates. Being a researcher favors knowledge and the ease of evaluating published scientific evidence that can be implemented in clinical practice, thus favoring the work process of these professionals and consequently empowerment.

Recognizing the importance of structural empowerment for hospital management, with an emphasis on nursing-related processes, is essential since there is evidence that it has an impact on occupational health, clinical practice, and job satisfaction, requiring managers to raise awareness about staff access to structural empowerment^{10,29,30}.

Managers who work in a hospital environment with high structural empowerment levels recognize that the continuous training of nurses is a key element in strengthening structural empowerment, which includes the implementation of support systems, mechanisms for recognizing the work of professionals and improving working conditions^{10,29,30}.

By investing in developing nurses' skills and improving the working environment, managers can not only strengthen the structural empowerment of these professionals, but also improve the quality of patient care and the overall satisfaction of the nursing team, thus contributing to the success of the hospital and the well-being of all those involved in the healthcare process 10,29,30.

Study limitations

This study, although rigorously conducted on the basis of the STROBE guidelines, recognizes a limitation inherent in its cross-sectional approach. The one-off nature of the observations, while valuable for capturing an overview and analysis of nurses' empowerment, does not allow for the exploration of changes over time. It is suggested that future research could consider including longitudinal approaches to further deepen the understanding of the temporal evolution of these practices, providing a more comprehensive and contextualized view.

Despite this, the results obtained in this study can make a significant contribution to hospital management, since the study provides important insights for nursing management, highlighting structural empowerment as one of the factors that can interfere with occupational health, clinical practice, and job satisfaction. Furthermore, the need for managers to raise awareness in order to promote a more empowering and accessible work environment for nurses, by promoting and developing nurses' competencies, is emphasized. In this way, this study not only sheds light on the current situation of nurses' structural empowerment, but also suggests practical ways to improve management and the quality of the working environment.

CONCLUSION

Based on the study, it was possible to analyze the structural empowerment levels of nurses at a high-complexity hospital, showing that they have a moderate empowerment level, highlighting their skills and competencies in the process of managing work units and patient care.

It was also found that nurses' structural empowerment can be influenced by various factors, including the structures that institutions and their managers provide to optimize and improve the work process, contributing to other process indicators, quality, occupational health, and organizational commitment.

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Authors contributions

Conceptualization, L.P.L. and R.P.F.; methodology, L.P.L., R.P.F., J.R.D. and A.F.R.; validation, L.P.L., R.P.F., J.R.D. and A.F.R.; formal analysis, L.P.L., R.P.F., J.R.D. and A.F.R.; investigation, L.P.L. and J.R.D.; resources, L.P.L., R.P.F., J.R.D. and A.F.R.; data curation, L.P.L., R.P.F., J.R.D. and A.F.R.; manuscript writing, L.P.L., R.P.F. and A.F.R.; writing – review and editing, L.P.L., R.P.F., J.R.D, A.F.R., H.F.L.L. and V.D.B.S.; visualization, L.P.L., R.P.F., J.R.D, A.F.R., H.F.L.L. and V.D.B.S.; supervision, L.P.L. and R.P.F.; project administration, L.P.L., R.P.F. and J.R.D. All authors read and agreed with the published version of the manuscript.

