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ORGANIZATIONAL ARCHITECTURE AND FORMAL COMMUNICATION LINKS IN A BRAZILIAN FAMILY-OWNED HOSPITAL

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ABSTRACT

Introduction: Family-owned hospitals face increasing pressure for professionalization, decision-making efficiency and clearer communication flows. Fragmented organizational structures may increase relational complexity, impair role definition and weaken internal governance. **Objective:** To analyze the redesign of the organizational architecture of a Brazilian family-owned hospital, focusing on the reduction of formal communication links and the strengthening of institutional governance. **Methods:** This was an analytical organizational study based on an institutional restructuring experience in a private family-owned hospital. The pre-intervention organizational chart, SWOT matrix, institutional climate records and the proposed organizational redesign were analyzed. Formal communication complexity was estimated using the formula n(n-1)/2, where n represents the number of managerial or equivalent positions connected to the decision-making flow. **Results:** The initial structure included 23 managerial or equivalent positions, corresponding to 253 potential formal communication links. After the intervention, the organizational chart was redesigned into 5 managerial positions directly linked to the executive structure, reducing potential formal communication links to 10. This represented an absolute reduction of 243 links and a relative reduction of 96.0% in estimated formal complexity. **Conclusion:** Organizational architecture redesign may be useful to reduce formal communication complexity in family-owned hospitals. Leaner structures may support governance, decision-making agility and institutional alignment in healthcare organizations operating in competitive and complex environments.

Keywords: Hospital governance, Organizational communication, Hospital administration, Family business, Health management.

INTRODUCTION

Family-owned hospitals occupy a relevant position in the Brazilian healthcare system but face increasing pressures for professionalization, economic and financial sustainability, responsiveness, and governance.[1-4] In a sector characterized by increasing complexity of

care, competition among hospital groups, greater regulatory requirements, and pressure for efficiency, the way an organization is designed is no longer merely an administrative issue but becomes a strategic component of management.[5,6]

Organizational architecture refers to the way an institution structures its processes, hierarchical levels, roles, responsibilities, and formal communication flows.[7,8] In hospitals, this design influences the speed of decision-making, the clarity of focal points, coordination between clinical and administrative areas, and the ability to translate strategic guidelines into operational execution.

Excessively fragmented structures may increase communication complexity and lead to overlapping responsibilities, gray areas in decision-making, and greater dependence on informal alignment.[7-9] In contrast, leaner organizational designs tend to promote role clarity, reduced variability in decision-making, and greater institutional predictability.

In the field of team management, Hackman highlighted the importance of work design and team size for collective effectiveness.[10] A simple way to estimate the potential complexity of communication among members of a group is the formula $n(n-1)/2$, in which n represents the number of connected members or positions. Although it does not replace a qualitative assessment of actual communication flows, this metric makes it possible to visualize the geometric growth of potential interactions as the number of positions increases.[10]

This study analyzes an experience involving the redesign of the organizational architecture of a Brazilian family-owned hospital, focusing on the reduction of formal communication links, the repositioning of management levels, and the implications for internal governance.

METHODS

Study Design

An analytical organizational study was conducted, based on a pre- and post-intervention analysis of the restructuring of the organizational architecture of a Brazilian private family-owned hospital. The study used retrospective institutional data related to the organizational chart, SWOT matrix, organizational climate records, and internal management redesign documents.

Setting

The study was conducted in a private family-owned hospital located in the Central-West region of Brazil, providing tertiary care and characterized by a high-complexity profile. The institution operated in a context of increased competition in the healthcare sector, with the entry of national hospital groups, increased professionalization of management, and the need for greater agility in decision-making.

Data Sources

Institutional documents related to the pre-intervention organizational chart, the SWOT matrix developed with the management group, organizational climate survey records, and the organizational chart proposed after the redesign were analyzed. The analysis focused on the structural elements of the organizational architecture rather than on the measurement of individual professional performance.

To avoid overlap with other studies derived from the same research program, organizational climate data were used only as contextual information to identify internal weaknesses in

communication and leadership. The main analysis of this manuscript focused on the formal design of the management structure and the estimation of formal communication links.

Organizational Intervention

The intervention consisted of redesigning the institutional organizational chart, with a reduction in the number of management positions or equivalent positions directly connected to the decision-making flow. The pre-intervention structure had 23 management positions or equivalent positions. After the restructuring, a new design was proposed with two intermediate executive levels and five management positions directly linked to the executive structure.

The objective of the intervention was to reduce fragmentation, strengthen formal focal points, improve the clarity of roles and responsibilities, and promote greater agility in the institutional decision-making process.

Estimation of Formal Communication Links

The potential formal complexity of communication was estimated using the formula $n(n-1)/2$, where n represents the number of management positions or equivalent positions directly related to the decision-making flow [10]. The formula was applied to the pre- and post-intervention scenarios to estimate the potential number of formal links among management positions.

The absolute change was calculated as the difference between the estimated number of links in the pre-intervention scenario and the post-intervention scenario. The relative reduction was calculated as the ratio between the absolute difference and the number of links in the initial scenario, multiplied by 100.

Ethical Aspects

The project that originated the institutional database used for the analysis was submitted to and approved by the institutional Research Ethics Committee under CAAE 62930122.5.0000.5075. The data used in this manuscript were treated in aggregate form, without individual identification of participants or disclosure of the institution's name in the body of the study.

RESULTS

Pre-Intervention Context

In the initial structure, the institutional organizational chart showed a high degree of management fragmentation, with 23 management positions or equivalent positions related to the decision-making flow. The combined analysis of the organizational chart, SWOT matrix, and institutional climate records indicated difficulties related to internal communication, role definition, integration between areas, and clarity of formal leadership references.[11,12]

Applying the $n(n-1)/2$ formula to the set of 23 management positions yielded an estimate of 253 potential formal communication links.[10] This result indicated high potential relational complexity, with a greater need for alignment among multiple decision-making points.

Organizational Redesign

After the situational analysis, a new organizational chart with a leaner structure was proposed, organized around five management positions directly linked to the executive

structure. The restructuring sought to concentrate responsibilities, reduce overlaps, and establish clearer focal points for institutional communication.

With five management positions or equivalent positions in the new design, the estimated number of potential formal links was reduced to 10. The absolute reduction was 243 potential links, corresponding to a relative reduction of 96.0% in estimated formal complexity.

Comparative Summary of the Pre- and Post-Intervention Scenarios

The comparison between the pre- and post-intervention scenarios is presented in Table 1. The sequence linking the organizational diagnosis, the proposed intervention, and the expected implications for governance is presented in Table 2.

Table 1. Comparison of Organizational Architecture and Formal Communication Links Before and After the Intervention.

Indicator	Pre-Intervention	Post-Intervention	Change
Number of management positions or equivalent positions	23	5	-18 positions
Potential formal communication links	253	10	-243 links
Relative reduction in estimated formal complexity	Reference	96.0%	Estimated reduction of 96.0%
Predominant organizational structure	Fragmented structure	Lean structure with focal points	Greater decision-making clarity

Source: Prepared by the authors based on institutional organizational redesign documents.

Table 2. Analytical Sequence of the Organizational Intervention.

Element Analyzed	Main Finding	Implication for Governance
Pre-intervention organizational chart	High number of management positions or equivalent positions	Increased formal communication complexity
SWOT matrix and institutional records	Weaknesses related to communication, leadership, and integration	Need for greater clarity of roles and focal points
Organizational chart redesign	Reduction to five management positions directly linked to the executive structure	Simplification of formal flows and greater decision-making agility
Estimated formal links	Reduction from 253 to 10 potential links	Lower potential relational complexity and greater institutional predictability

Source: Prepared by the authors.

DISCUSSION

This study describes an experience of redesigning the organizational architecture of a Brazilian family-owned hospital, demonstrating a substantial reduction in the estimated formal complexity of communication following the reorganization of the organizational

chart. The reduction from 253 to 10 potential formal communication links should not be interpreted as a direct measurement of all actual communication flows, but rather as a structural indicator of the simplification of the management design.[10]

The main finding is that organizational architecture can be used as a governance tool.[7-9] This result complements recent longitudinal evidence on the use of organizational maturity as a tool for quality governance in Brazilian hospitals.[13] By reducing the number of management points directly connected to the decision-making flow, the institution sought to create clearer formal references, reduce role overlap, and promote faster alignment among executive leadership, management positions, and operational areas.

In family-owned hospitals, the professionalization of management requires a balance between institutional tradition, established interpersonal relationships, and the need for formal structures capable of supporting growth.[1-4] Fragmentation of the organizational chart may represent either a historical legacy of incremental expansion or an attempt to accommodate departmental leadership. However, when not accompanied by clear responsibilities and formal coordination mechanisms, such fragmentation may hinder governance.

The application of the logic of formal communication links provides a simple and communicable representation for managers.[10] As the number of connected positions increases, the potential number of interactions increases nonlinearly. This phenomenon helps explain why apparently inclusive structures may become slow, noisy, or ineffective in contexts that require rapid responses.

The redesign of the organizational chart is also consistent with classical concepts of organizational structure.[7-9] Leaner models may promote coordination, accountability, and alignment, provided that they are accompanied by appropriate delegation, scope definition, structured communication, and monitoring of results. Simply reducing the number of positions, in isolation, does not guarantee improved governance; its value depends on the ability to translate the new design into decision-making routines, management forums, and clear agreement on responsibilities.

Another relevant point is that the intervention should not be viewed merely as administrative simplification. In healthcare organizations, communication between clinical and administrative areas influences response time, operational safety, patient experience, and institutional sustainability.[5,6,11,12,14-16] Therefore, redesigning organizational architecture may be an initial step toward strengthening clinical and administrative governance.

Practical Implications

The findings suggest that family-owned hospitals may benefit from periodic assessments of organizational architecture, especially when there are signs of communication noise, overlapping responsibilities, poor integration between departments, or slow decision-making.[1-4,7-10] The analysis of formal communication links can be incorporated as a simple tool to support organizational redesign.

For hospital managers, the practical contribution of this study lies in demonstrating that organizational charts are not merely graphical representations. They express choices regarding power, responsibility, communication, and governance. The clearer the formal design, the greater the capacity to align strategy and execution tends to be.[7-9,16]

Limitations

This study has limitations. It is an analysis of an institutional experience in a single hospital, which limits the generalizability of the findings. The estimation of formal communication links is a theoretical approximation and does not capture all informal flows within the organization. In addition, the study did not directly evaluate clinical, financial, or care-related outcomes associated with the intervention.

Another limitation is that organizational climate data were used only as diagnostic context, rather than as the primary outcome. Future studies may combine organizational architecture analysis, organizational social networks, performance indicators, and employee perceptions to more comprehensively evaluate the effects of structural interventions.[11,12,14-16]

CONCLUSION

The redesign of the organizational architecture of a Brazilian family-owned hospital was associated with a substantial reduction in the estimated formal complexity of communication, with a decrease from 253 to 10 potential links among management positions. The experience suggests that the analysis of organizational charts and formal links can support governance decisions, especially in family-owned healthcare institutions seeking professionalization, decision-making agility, and greater internal alignment.

Leaner organizational structures, when accompanied by clear roles and responsibilities, may promote communication, governance, and institutional competitiveness. Organizational architecture should be understood as a strategic hospital management tool, rather than merely as an administrative representation.

DECLARATIONS

Conflict of Interest: The authors declare that there are no conflicts of interest related to this manuscript.

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Data Availability: The aggregated data underlying the findings may be made available by the corresponding author upon reasonable request, subject to institutional confidentiality and research ethics requirements.

Author Contributions: The authors contributed to the conception of the study, analysis of institutional data, interpretation of the results, drafting, and critical revision of the manuscript.

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