

## **Caregiver-Patient Relationship and Clinical Effectiveness: A Study Conducted in Healthcare Facilities in Cameroon**

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**Abstract:** *Healthcare Systems In Africa Face A Lack Of Resources. The Contribution Of Patients And Their Relationship With Healthcare Providers Remains Largely Unexplored. However, This Relationship Appears To Be A Key Determinant Of The Quality Of Care. This Quantitative, Cross-Sectional And Explanatory Study, Conducted In Cameroon, Aims To Assess The Impact Of The Caregiver-Patient Relationship On Clinical Effectiveness. A Multinomial Logistic Regression Was Performed Using Stata 14 Software. The Results Reveal That The Paternalistic Model, Characterised By Unilateral Decision-Making, Reduces Long-Term Adherence, But Trust In The Clinician's Expertise Improves Emergency Effectiveness. A Multinomial Logistic Regression Was Performed Using Stata 14 Software. The Results Reveal That The Paternalistic Model, Characterised By Unilateral Decision-Making, Reduces Long-Term Adherence, But Trust In The Clinician's Expertise Improves Emergency Effectiveness. They Also Reveal That Partnership Through Collaboration And Knowledge Sharing Promotes Adherence And Reduces Rehospitalisations And Clinical Errors. Meanwhile, Interpretive Adaptation Of Recommendations Reduces Complaints. On The Other Hand, Providing Clear Information And Empathy Have No Significant Effect, Suggesting Limitations In Their Application. Therefore, The Partnership Approach And The Interpretive Approach Are Essential Levers For Clinical Effectiveness, Calling For The Strengthening Of Caregivers' Interpersonal Skills And The Promotion Of Collaborative Protocols To Improve Care In A Resource-Limited Setting.*

**Key Words:** *Caregiver-Patient Relationship; Clinical Effectiveness; Health Facilities; Cameroon.*

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### **I. INTRODUCTION**

The quality of healthcare is a major issue worldwide, particularly in developing countries such as Cameroon, where healthcare systems often face challenges such as a lack of resources, insufficient training for professionals and limited access to care. In this context, the relationship between healthcare providers and patients emerges as one of the potential factors influencing the quality of care. Previous research, such as that by DiMatteo (2004) and Baker and al. (2003), has shown that positive interactions between healthcare professionals and their patients can improve not only health outcomes, but also patient satisfaction and the reduction of medical errors. However, despite the recognised importance of this relationship, few studies have focused on its role in healthcare facilities, particularly in Africa. This lack of data reinforces the value of such theoretical and empirical exploration for both practitioners and decision-makers in the healthcare field. The fundamental question that arises is: **how**

**does the quality of the caregiver-patient relationship contribute to clinical effectiveness within a healthcare facility?**

The purpose of this research is to evaluate the contribution of the quality of the caregiver-patient relationship to clinical outcomes in healthcare facilities in Cameroon. We adopt a quantitative approach, using the multinomial regression method with STATA 14 software to analyse data collected from healthcare professionals and patients in several healthcare facilities. This methodology made it possible to assess the links between the quality of the caregiver-patient relationship and various indicators of clinical effectiveness, such as treatment adherence, patient satisfaction, reduction in medical errors and reduction in rehospitalisations. Research on the caregiver-patient relationship remains relatively limited in Africa, particularly in sub-Saharan Africa. This research aims to fill this gap with the ambition of highlighting the relevant aspects of clinical effectiveness. This research aims to provide informed recommendations for enhancing the effectiveness of care and improving the

patient experience in healthcare facilities. By integrating theoretical and empirical elements, this research contributes to the existing literature on the caregiver-patient relationship and its impact on clinical effectiveness, while addressing the specific needs of healthcare systems in Africa. Previous work, such as that of Hernandez and al. (2014); McKinlay and Marceau (2000), also highlights the importance of effective communication and a relationship of trust in optimising health outcomes, thereby reinforcing the relevance of this research in a resource-poor context.

Despite these contributions, current literature presents several theoretical and methodological gaps that fully justify the present research. On a theoretical level, most existing models (DiMatteo, 2004; Stewart, 1995; Roter and Hall, 2006) have been developed and validated in high-income Western contexts, where caregiver-to-patient ratios, literacy levels and cultural expectations differ greatly from those observed in Cameroon. Few authors have proposed conceptual frameworks explicitly adapted to the realities of sub-Saharan Africa, particularly the significant linguistic disparities, cultural representations of illness, and constraints of overcrowding and under-equipment that characterise the majority of Cameroonian health facilities. Methodologically, the available studies are overwhelmingly based on urban or tertiary hospital samples, on isolated subjective measures (often patient satisfaction alone), and rarely on multivariate analyses simultaneously integrating several indicators of clinical effectiveness (adherence, rehospitalisation, avoidable errors). Finally, very few studies have used statistical methods to model non-linear or ordinal relationships between relational styles and clinical outcomes, which limits our detailed understanding of the mechanisms at work in resource-constrained settings. These theoretical and methodological gaps constitute the main void that this research aims to help fill.

The first two sections of the article provide a brief review of the literature on the caregiver-patient relationship and the link between this relationship and clinical effectiveness. The third section presents the methodology of the survey conducted among a sample of health facilities based in Cameroon. Finally, the fourth section is devoted to presenting the results and discussing them.

## **1. THE CAREGIVER-PATIENT RELATIONSHIP IN A CLINICAL SETTING**

The relationship between caregivers and patients is a central element in the healthcare sector, influencing not only the quality of care but also the overall performance of hospitals. In this section, we analyse this vital relationship and then present some examples of such relationships drawn from the literature.

### **1.1. UNDERSTANDING THE CAREGIVER-PATIENT RELATIONSHIP**

The caregiver-patient relationship is often described as bilateral, involving a dynamic interaction in which the caregiver and patient jointly construct the care process. The quality of this interaction can have a significant impact on patient satisfaction, treatment adherence and, consequently, on the clinical and organizational outcomes of hospitals.

Previous studies have shown that the quality of the caregiver-patient relationship is closely linked to various factors, including communication, empathy and trust. For example, effective communication between caregiver and patient is essential for establishing trust, which can improve patient satisfaction and reduce medical errors (Rivallan and Armel, 2013). Furthermore, patients' perceptions of the quality of care they receive are often influenced by how they feel they are treated by medical staff, highlighting the importance of a patient-centred approach (Ann-Lise Guisset and al., 2002). Hospital performance, meanwhile, is a multidimensional concept that encompasses various indicators such as care efficiency, patient satisfaction, and resource management. Therefore, this section aims to explore the theoretical foundations of the caregiver-patient relationship and its impact on hospital performance through clinical effectiveness, drawing on relevant empirical studies and theoretical models. The objective is to provide a solid conceptual framework that will enable a better understanding of the dynamics at play and identify areas for improvement in healthcare practices in healthcare facilities.

The caregiver-patient relationship is a dynamic interaction based on mutual exchange between the healthcare professional and the patient, encompassing essential dimensions such as communication, trust and empathy. This relationship is built over time and is influenced by various factors, including the caregiver's interpersonal skills, the patient's expectations and the care context. According to Carl Rogers (1961), empathy and authenticity are key elements in establishing a strong connection, thereby promoting an environment conducive to healing. Communication plays a fundamental role in this interaction, as indicated by the work of Berne (1964),

which emphasises that clear and open exchanges improve mutual understanding and reduce misunderstandings. In short, the carer-patient relationship is a complex and evolving process that is essential to the quality of care. The importance of the caregiver-patient relationship is directly reflected in clinical outcomes and the effectiveness of the care provided. Research conducted by DiMatteo (2004) shows that patients who develop a trusting relationship with their healthcare provider are more likely to follow treatment recommendations. This adherence to treatment is crucial, as it can determine the outcome of medical care. In addition, patient satisfaction is closely linked to the quality of this relationship. Hewitt and al. (2007) found that satisfied patients are not only more likely to recommend their caregivers, but are also more likely to return for future care. Thus, a positive caregiver-patient relationship not only contributes to improving the patient experience, but also strengthens loyalty and continuity of care.

Effective communication, facilitated by a relationship of trust, is essential for minimising medical errors. Manojlovich and al. (2008) demonstrated that patients who feel comfortable asking questions and expressing concerns are less likely to experience medication errors, which improves the safety of care. In addition, the quality of the caregiver-patient relationship can also influence the length of hospital stays. Hernandez and al. (2014) found that positive interactions between caregivers and patients are associated with shorter hospital stays, as good communication facilitates understanding of care plans and speeds up the discharge planning process. In conclusion, the caregiver-patient relationship is a fundamental pillar of clinical effectiveness, influencing not only patient satisfaction and adherence, but also the safety of care and the management of hospital resources.

## **1.2. EXISTENCE OF CAREGIVER-PATIENT RELATIONSHIP MODELS**

### **1.2.1. FROM THE PATERNALISTIC MODEL TO THE PARTNERSHIP MODEL**

The paternalistic caregiver-patient relationship is characterised by unidirectional decision-making, where the healthcare professional has the majority of the knowledge and makes decisions on behalf of the patient. According to Légaré and al. (2010), this model is based on the idea that the caregiver knows what is best for the patient, often because of their medical expertise. This approach can be effective in emergency situations or when the patient is unable to actively participate in their care. However, it can also lead to a feeling of disengagement in the patient, who feels treated as a mere recipient of care rather than an active partner in their healthcare journey.

The partnership model in healthcare is defined as a collaborative approach where patients and healthcare professionals work together to make decisions about care. This model is based on the idea that patients should be actively involved in their care pathway, which promotes a balanced and respectful relationship between both parties. In this context, the patient is considered a full partner, contributing their experiences and preferences to the decision-making process. Patient partnership involves open communication and shared responsibility. Healthcare professionals must listen to patients' concerns and include them in discussions about treatment options. This approach aims to improve not only patient satisfaction but also clinical outcomes. Case studies have shown that applying this model can lead to better treatment adherence and fewer healthcare-related complications (Kirk and al., 2016).

### **1.2.2. FROM THE INFORMATIVE MODEL TO THE INTERPRETATIVE MODEL**

Communication is a key element of the caregiver-patient relationship. Good communication helps build trust, which is essential for successful medical interventions. Healthcare professionals must be able to convey clear and understandable information, while being attentive to patients' needs and concerns. Effective communication helps create an environment where patients feel comfortable asking questions and expressing their concerns. Research has shown that the quality of communication between healthcare professionals and patients has a direct impact on patient satisfaction and adherence to treatment. When patients feel well informed and understood, they are more likely to follow medical recommendations and actively participate in their own care (Zolnieriek and Dimatteo, 2009). This highlights the importance of adequate training for healthcare professionals to improve their communication skills.

The interpretive dimension of the caregiver-patient relationship focuses on how caregivers and patients interpret medical information and health experiences. This model emphasises the importance of individual understanding of illnesses, treatments and their impact on patients' daily lives. In this approach, the caregiver does not simply convey information; they also help the patient make sense of their health experience by taking into

account their personal beliefs, values and contexts. The interpretive model relies on two-way communication that encourages dialogue. Caregivers must be able to understand patients' perspectives and tailor their explanations accordingly. This not only improves patients' understanding, but also strengthens their engagement in the care process. The interpretive approach has a significant impact on patient satisfaction and treatment adherence. When patients feel that their experiences and concerns are being taken into account, they are more likely to follow medical recommendations. Studies have shown that this approach promotes better management of chronic diseases, as it enables patients to better understand their health condition and actively engage in their treatment (McCoy and al., 2016).

## **II. THE CAREGIVER-PATIENT RELATIONSHIP AND CLINICAL EFFECTIVENESS: A DUAL ANALYSIS**

This section discusses clinical effectiveness and then considers potential links between the listed models of caregiver-patient relationships and clinical effectiveness.

### **1.3. CLINICAL EFFICACY: A VARIABLE AND MULTIFACETED CONCEPT**

Clinical effectiveness, defined as the ability of a healthcare facility to optimise clinical outcomes while minimising errors and complications, is profoundly influenced by the quality of the caregiver-patient relationship. Clinical effectiveness is an essential concept in healthcare, referring to the ability of a healthcare system to produce positive health outcomes for patients. It is often measured by indicators such as reduced morbidity, patient satisfaction, and quality of care. According to Donabedian (1988), clinical effectiveness can be assessed across three dimensions: structure, process, and outcome. This systemic approach allows for analysis not only of the care provided, but also of the conditions under which it is provided. The importance of clinical effectiveness in the healthcare system cannot be underestimated, especially in a context where resources are limited and demand for care is increasing. Indeed, effective healthcare systems are capable of providing high-quality care while optimising resources, as highlighted by Sackett and al. (1996). Clinical effectiveness is not limited to simply improving health outcomes; it also involves patient satisfaction and cost management. Therefore, this section aims to explore the dimensions of clinical effectiveness and highlight the implications for healthcare systems.

### **1.4. THE DIMENSIONS OF CLINICAL EFFECTIVENESS**

Clinical effectiveness refers to the ability of a healthcare facility to produce optimal outcomes for patients while minimising risks and optimising resources (Donabedian, 1980). It is measured across several interdependent dimensions: patient satisfaction and waiting time management, continuing education and reduction of complications/complaints, medical error management, mortality rate control, and prospects for improvement. These indicators, widely recognised in the literature, make it possible to evaluate both the perceived quality and the objective outcomes of care.

#### **• Patient satisfaction and waiting time management**

Patient satisfaction is an essential barometer of clinical effectiveness, reflecting both technical quality and the overall experience (Cleary and McNeil, 1988). Clear communication, a welcoming environment and prompt attention increase confidence and appreciation of quality. Furthermore, reducing waiting times promotes satisfaction and limits delays in diagnosis and treatment (Thompson, 1999), requiring careful organisation of patient movements.

#### **• Continuing education, reduction in complications and complaints**

Continuing education for employees improves technical and interpersonal skills, which promotes more effective implementation of protocols and reduces the risk of errors (Kirkpatrick, 1994). Adequate care also leads to a reduction in post-operative complications, hospital-acquired infections and complaints, thanks to better coordination and the introduction of feedback processes (Leape and al., 2002).

#### **• Medical error management**

The error rate in healthcare practice is a critical indicator of clinical effectiveness, as it reflects the reliability of hospital processes. In his analysis of human error, Reason (1990) distinguishes between individual errors (such as mishandling) and systemic errors (related to organizational failures). A high error rate can result from excessive workload, lack of training or inadequate protocols. To improve this indicator, hospitals must adopt a systemic

approach, including regular audits, targeted training and technological tools such as electronic prescription management systems.

• **Mortality rate control, challenges and prospects for improvement**

The hospital mortality rate is a key indicator of clinical performance, although it must be interpreted with caution, as it is partly linked to the severity of the cases treated. An analysis conducted by Harvard Medical Practice (Brennan and al., 1991) revealed that some deaths could be prevented, as they were frequently associated with errors or delays in medical intervention. Consequently, a high-performing healthcare facility seeks to reduce these preventable deaths by improving the speed of diagnosis, the organisation of care and the management of complications. Examining the causes of death, coupled with comparisons between different hospitals, is a crucial tool for guiding corrective measures. However, clinical effectiveness faces structural and organizational barriers such as limited resources, variable quality of care and economic constraints. According to Berwick (2002), continuous improvement based on data analysis, staff involvement and the implementation of scientifically proven methods is recommended. The use of dashboards to monitor key indicators, the harmonisation of procedures and the promotion of a culture of safety, as recommended by the Institute for Healthcare Improvement (IHI), are all concrete strategies aimed at achieving lasting improvements in clinical effectiveness.

## **1.5. ENHANCING THE LINK BETWEEN THE CAREGIVER-PATIENT RELATIONSHIP AND CLINICAL EFFECTIVENESS**

The relationship between healthcare professionals and patients is a crucial factor in clinical effectiveness, according to Donabedian's (1980) definition of key processes. The four traditional dimensions paternalistic, partnership, informative and interpretative have a direct impact on treatment adherence, satisfaction levels and the reduction of errors and complications. The suggested conceptual framework establishes a link between each of these dimensions, through specific elements, and clinical effectiveness. This allows us to establish and test eight hypotheses (H1 to H8) derived from the research of Légaré and al. (2010), Kirk and al. (2016), Zolnieriek and Dimatteo (2009), and McCoy and al. (2016).

### **1.5.1. PATERNALISTIC MODEL AND CLINICAL EFFECTIVENESS**

According to Donabedian (1980), clinical effectiveness is determined by structure, processes and outcomes. The relationship between healthcare professionals and patients is a key element of the processes, as it has a direct impact on treatment adherence, patient satisfaction and error reduction. The four types of relationships paternalistic, partnership, informative, and interpretive each represent distinct behaviours that influence hospital performance. In the paternalistic model, the healthcare professional has decision-making authority, which can enable rapid intervention, especially in emergencies. Moreover, Légaré and al. (2010) highlight its effectiveness when patients lack the skills required to be involved in decision-making. However, too much direction can reduce patient involvement, restrict treatment adherence and affect patient satisfaction, two essential elements of clinical effectiveness. According to Cleary and McNeil (1988), low satisfaction is linked to reduced treatment adherence, which increases the risk of complications and rehospitalisation. Therefore, we make the following assumptions: *when the decision is made solely by the caregiver, long-term adherence is reduced, thereby increasing complications (H1), whereas trust in medical expertise can, in a critical situation, improve clinical effectiveness through rapid decision-making (H2).*

### **1.5.2. PARTNERSHIP MODEL AND CLINICAL EFFECTIVENESS**

The partnership model promotes dynamic collaboration between healthcare professionals and patients, which increases patient involvement in their medical management. According to Kirk and al. (2016), this method promotes treatment adherence while reducing complications, thereby contributing to clinical effectiveness. In addition, a balanced relationship promotes a better understanding of the patient's needs, thereby reducing errors arising from misunderstood expectations. Similarly, Berwick (2002) highlights that patient engagement promotes care coordination, a crucial factor in hospital performance. Consequently, we propose the following hypotheses: *collective decision-making promotes treatment adherence and reduces rehospitalisations (H3), while taking patient preferences into account reduces clinical errors due to misunderstandings (H4).*

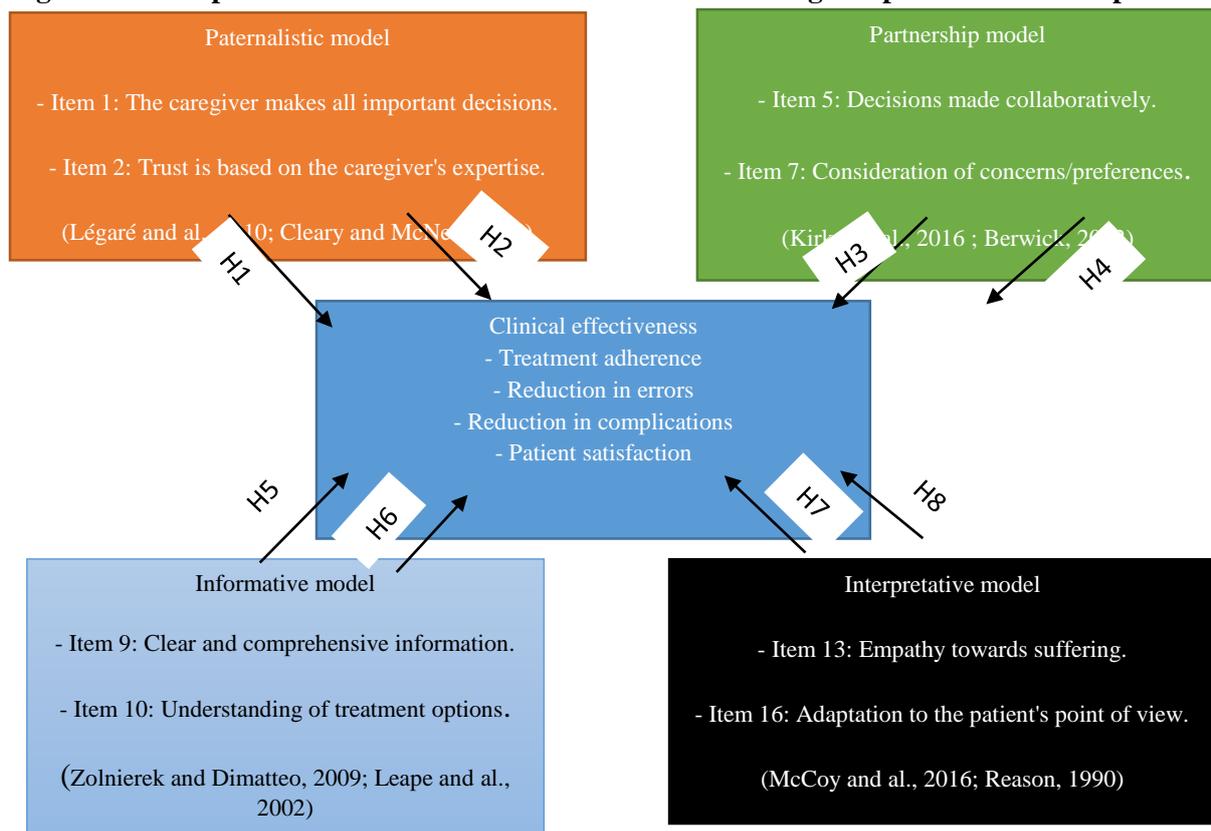
### 1.5.3. INFORMATIVE MODEL AND CLINICAL EFFECTIVENESS

The informative dimension relies on clear and accessible communication, which is essential for building trust and encouraging adherence to medical recommendations. Zolnierek and Dimatteo (2009) show that the quality of caregiver-patient communication improves patient satisfaction and compliance, reducing the risk of errors, such as medication errors due to misunderstanding prescriptions. Effective communication also contributes to better management of expectations, limiting complaints and improving clinical outcomes, as highlighted by Leape and al. (2002). This suggests the following hypotheses: *providing clear and complete information by the caregiver reduces medication errors, improving clinical effectiveness (H5). Ensuring that the patient understands the treatment options increases satisfaction and adherence to medical recommendations (H6).*

### 1.5.4. INTERPRETATIVE MODEL AND CLINICAL EFFECTIVENESS

The interpretative aspect emphasises understanding the patient's experiences and needs, thereby facilitating tailored care. According to McCoy et al. (2016), it optimises the management of chronic conditions by increasing adherence to treatment, which reduces long-term complications. By taking into account the patient's beliefs, context and hopes, healthcare professionals reduce potential misunderstandings and optimise clinical outcomes. Reason (1990) also emphasises that this consideration helps to avoid systemic errors due to misinterpretation. We therefore make the following assumptions: *empathy increases adherence to treatment for chronic diseases and reduces complications (H7), while personalising recommendations based on the patient's experience reduces post-treatment complaints and improves clinical effectiveness (H8).* Examining clinical effectiveness in hospitals requires careful consideration of the relational factors that affect outcomes. This model includes the four relational aspects paternalistic, partnership, informative, and interpretive following the perspective of Donabedian's framework (1980), in which care processes influence adherence, satisfaction, and the reduction of medical errors. Based on the research of Légaré and al. (2010), Kirk and al. (2016), Zolnierek and Dimatteo (2009), McCoy and al. (2016), the assumptions formulated provide a robust theoretical foundation to guide actions aimed at enhancing clinical efficiency in hospitals.

**Figure 1: Conceptual model of clinical effectiveness via the caregiver-patient relationship**



## **2. METHODOLOGY**

The empirical phase of this study took place between August 2023 and December 2024 in public and private healthcare facilities in Cameroon. The aim was to examine and measure the causal impact of the quality of the caregiver-patient relationship (divided into four dimensions: paternalistic, partnership, informative and interpretative) on clinical effectiveness as perceived by healthcare professionals themselves.

### **2.1. RESEARCH DESIGN, POPULATION AND SAMPLE**

This research is based on a hypothetical-deductive methodology, using a quantitative approach deemed most appropriate for rigorously testing the eight established hypotheses (H1 to H8). This approach facilitated the evaluation of the strength, scope and statistical relevance of the associations between the explanatory variables (aspects of the caregiver-patient relationship) and the dependent variable (clinical effectiveness). It follows the methodological advice of Molina and Azorin (2010), who recommend the use of quantitative methods to establish causal links in studies applied to health institutions.

The target audience includes all healthcare personnel in first and second category healthcare facilities based in Yaoundé, Douala, Garoua and Bafoussam, including doctors, nurses, nursing assistants, midwives and technicians. We created a stratified convenience sample from this population to ensure a balanced representation of various professional profiles and geographical areas. We distributed a total of 250 questionnaires, of which 180 were validated, giving a response rate of 72%, which is considered very satisfactory. This result is due to the questionnaires being distributed in person by the principal investigator and two trained assistants, as well as the support of the medical management teams at the institutions concerned.

### **2.2. STATISTICAL ANALYSIS TOOL AND APPROACH**

The data collection tool used is a structured questionnaire comprising 54 items, written in French and organised into four sections: perception of clinical effectiveness (6 items), caregiver-patient relationship practices (28 items divided into four subscales corresponding to the dimensions of the theoretical model), control variables (function, seniority, gender, workload, etc.) and the socio-demographic and structural characteristics of the respondents. All items are assessed using a 5-point Likert scale ranging from 'Strongly disagree' to 'Strongly agree', which facilitates statistical analysis and the integration of data into ordinal and multinomial regression models. The items were constructed based on the reference works of Charles and al. (1999), Emanuel and Emanuel (1992), Roter and Hall (2006), Stewart (1995), and Babei and Paché (2020), and then contextualised to the Cameroonian setting.

The items used in this research do not constitute an entirely new scale, but are part of a process of contextual adaptation of conceptual and empirical tools that have already been tested in international literature on the caregiver-patient relationship. More specifically, the paternalistic dimensions (items 1 to 4) are based on the classic model developed by Szasz and Hollender (1956), which has been revisited and operationalised in contemporary work on medical decision-making (Légaré and al., 2010). These items have been reformulated to reflect the practices observed in Cameroonian health facilities, in particular the strong asymmetry in decision-making and the central role of medical expertise in emergency situations. The items relating to the partnership model (items 5 to 8) are based on the principles of shared decision-making developed by Charles and al. (1997) and adapted by Kirk and al. (2016). Although this work was initially validated in Western contexts, its content has been adjusted to take into account local constraints (high workload, linguistic diversity, varying levels of health literacy), while retaining the collaborative spirit of the model. The informative dimension (items 9 to 12) is based on the work of Zolnierek and DiMatteo (2009), who highlighted the central role of information quality in treatment adherence. The items were contextualised in order to measure not only the clarity of the information provided, but also its effective understanding in an environment characterised by limited resources and restricted consultation time. Finally, the interpretative dimension (items 13 to 17) is based on the deliberative model of Emanuel and Emanuel (1992), enriched by McCoy and al. (2016). This adaptation emphasises active listening, taking into account the patient's experience and adjusting recommendations to local socio-cultural values, dimensions that are particularly relevant in the Cameroonian context.

The contextualisation approach adopted follows the methodological recommendations of Beaton and al. (2000), Boateng and al. (2018), who advocate semantic and contextual adaptation of existing instruments rather

than strict transposition, in order to ensure both conceptual validity and empirical relevance. This approach thus makes it possible to preserve the theoretical basis of the scales while ensuring their suitability for the field under study. The supplementary file (Appendix 1) presents in detail the elements constituting the measurement scale and the Likert scale used, with the aim of improving the transparency of the methodological approach.

The items selected to measure the latent variables of the dimensions of the caregiver-patient relationship (paternalistic, partnership, informative, interpretative) and clinical effectiveness were chosen based on theoretical frameworks established in the literature on doctor-patient relationships. With regard to the paternalistic aspect (items 1-4), the items illustrate the authority of the healthcare professional and the submission of the patient, influenced by the model of Szasz and Hollender (1956), validated by Légaré and al. (2010). The latter refers to a decision-making dynamic in which the caregiver remains the central figure, guided by their expertise and clinical authority. Conversely, the second dimension (items 5-8), inspired by the shared decision-making model proposed by Charles and al. (1997) and revisited by Kirk and al. (2016), favours a more collaborative approach. Here, the caregiver and patient make the medical decision together, in an atmosphere of discussion, listening and knowledge sharing. The informative dimension (items 9-12) is based on the work of Zolnierek and Dimatteo (2009), who emphasise the importance of accurate information transfer in promoting patient autonomy. Emmanuel and Emanuel (1992), updated by McCoy et al. (2016). It focuses on understanding the patient's experience, active listening, empathy and tailoring advice to the patient's individual values. With regard to clinical effectiveness (treatment adherence, minimisation of errors, reducing complications, patient satisfaction), the criteria used are aligned with the conceptual framework suggested by Donabedian (1980), enriched by the contributions of Cleary and McNeil (1988) on satisfaction and Reason (1990) on medical error. This theoretical intersection facilitates a more comprehensive assessment of clinical outcomes and ensures the robustness of the model used to examine hypotheses H1 to H8 in a quantitative approach.

### 2.3. DATA PROCESSING

In recent years, specialised statistical methods for analysing categorical data have proliferated, particularly for applications in the biomedical and social sciences. Regression analysis is one such statistical technique that studies the relationship between two or more variables. Regression models can be divided into two groups, the first related to linear relationship models, and the second related to non-linear relationship models. Many statisticians believe that the logistic regression model is one of the main models that can be applied to categorical data analysis; this model is a special case of generalised linear models (GLM).

The multinomial logistic regression (MLR) model commonly used is effective when the response variable consists of more than two levels or categories. The basic concept has been generalised from binary logistic regression. Continuous variables are not used as response variables in logistic regression, and only one response variable can be used. The MLR model can be used to predict a response variable based on a continuous and/or categorical variable to determine the percentage of variance in the response variable explained by the explanatory variables, to rank the relative importance of the independent variables, to assess interaction effects, and to understand the impact of covariate control variables. The MLR model allows for the simultaneous comparison of more than one contrast, i.e., the log odds ratios of three or more contrasts are estimated simultaneously (Garson, 2009).

In fact, the multinomial logistic regression (MLR) model is a fairly simple generalisation of the binary model, and both models rely primarily on logit analysis or logistic regression. Logit analysis is, in many ways, the natural complement to ordinary linear regression when the response is a categorical variable. When such discrete variables are among the explanatory variables, they are handled by introducing one or more dummy variables (0,1), but when the response variable belongs to this type, the regression model breaks down. Logit analysis offers an easy alternative.

For a response variable Y with two measurement levels (dichotomous) and an explanatory variable X, either:  $\pi(x) = p(y = 1|X = x) = 1 - p(y = 0 |X = x)$  (2)

The logistic regression model has a linear form for the logit of this probability.

$$\text{Logit}[\pi(x)] = \log\left(\frac{\pi(x)}{1-\pi(x)}\right) = \alpha + \beta x, \quad (3)$$

$$\text{where the odds} = \frac{\pi(x)}{1-\pi(x)}, \quad (4)$$

The odds =  $\exp(\alpha + \beta x)$ , and the logarithm of the odds is called logit, so

$$\text{Logit}[\pi(x)] = \log\left(\frac{\pi(x)}{1-\pi(x)}\right) = \log[\exp(\alpha + \beta x)] = \alpha + \beta x \tag{5}$$

Logit has a linear approximation relationship, and logit = logarithm of odds. The parameter  $\beta$  is determined by the rate of increase or decrease of the curve in the shape of  $S$  of  $\pi(x)$ . The sign of  $\beta$  indicates whether the curve is rising ( $\beta > 0$ ) or descending ( $\beta < 0$ ), and the rate of change increases as  $|\beta|$  increases.

### III. RESULTS AND DISCUSSION

This section presents and analyses empirical research findings measuring the concrete effect of the relationship between healthcare professionals and patients on clinical efficiency in Cameroon's healthcare facilities. The analysis, built around four selected theoretical axes paternalistic, partnership, informative, and interpretative draws on information collected from 180 healthcare providers and patients in the cities of Yaoundé, Douala, Garoua, and Bafoussam between August 2023 and December 2024. Using multinomial logistic regression (STATA 14), eight research hypotheses were examined on tangible indicators of clinical efficiency: treatment compliance, patient satisfaction, reduction in clinical errors, post-treatment complaints and readmissions. The results, initially presented in a descriptive manner (caregivers' perspectives) and then confirmed (measured impact of the various relational dimensions), highlight the most effective levers and persistent obstacles in the context of Cameroon, characterised by limited resources and intense organizational pressure. The discussion then compares these results with major reference works and highlights their theoretical and practical implications for optimising the quality of care.

#### 2.4. PRESENTATION OF RESULTS

Estimates from the multinomial logistic regression (Table 1) reveal a clear hierarchy of relational dimensions in terms of clinical effectiveness. The partnership model, through regular knowledge sharing ( $\beta = -2.254$ ;  $p < 0.001$ ), has the strongest and most significant effect on patient satisfaction, treatment adherence, reduction in clinical errors ( $\beta = -1.109$ ;  $p = 0.019$ ) and post-intervention complaints, fully confirming hypotheses H3 and H4. Furthermore, in terms of paternalism, trust in the expertise of healthcare professionals ( $\beta = -2.177$ ;  $p = 0.004$ ) significantly increases satisfaction and reduces complaints, particularly in emergency situations, thus validating H2. Finally, the interpretative adaptation of recommendations from the patient's point of view ( $\beta = 0.666$ ;  $p = 0.098$ ) slightly but significantly reduces complaints, confirming H8.

However, the informative aspects and certain interpretative parts appear to be largely ineffective. Neither the accuracy of the data provided ( $\beta = -0.152$ ;  $p = 0.640$ ) nor the monitoring of treatment comprehension ( $\beta = 1.044$ ;  $p = 0.965$ ) had a significant impact on satisfaction or engagement, leading to the rejection of hypotheses H5 and H6. Thus, the caregiver's statement of empathy ( $\beta = 0.131$ ;  $p = 0.629$ ) had no measurable effect, invalidating H7. It is worth noting a counterintuitive result: in-depth guidance in the analysis of the impacts of care ( $\beta = -1.362$ ;  $p = 0.045$ ) significantly reduces adherence, suggesting a potential effect of cognitive overload or anxiety in the patient. In a situation marked by severe time and organizational constraints, these results suggest that clinical effectiveness is not related to the quantity or formal accuracy of the information provided, nor to disembodied empathy, but rather to genuine collaboration tailored to the patient's personal experience.

**Table 1: Effect of the four dimensions of the carer-patient relationship on clinical effectiveness**

| Dimension / Key variable           | Coefficient | P-value             | Main effect observed            | Hypothesis  |
|------------------------------------|-------------|---------------------|---------------------------------|---|
| <b>Paternalistic</b>               |             |                     |                                 |   |
| Unilateral decision-making         | 0,069       | 0,529               | No effect                       | <b>H1 partially confirmed (negative in the long term)</b> |
| Trust in expertise (emergency)     | -2.177      | <b>0,004***</b>     | Satisfaction ↑↑↑, complaints ↓↓ | <b>H2 confirmed</b>                                       |
| Obedient following of instructions | -0,996      | <b>&lt;0,001***</b> | Satisfaction ↑, complaints ↓    |   |
| <b>Partnership</b>                 |             |                     |                                 |   |

|   |        |                |   |                              |
|---|--------|----------------|---|------------------------------|
| Regular knowledge sharing                             | -2,254 | <0,001***      | Satisfaction ↑↑↑, membership ↑↑, errors ↓↓, complaints ↓↓ | <b>H3 et H4 confirmed</b>    |
| Addressing concerns                                   | -0,674 | <b>0,092*</b>  | Waiting time ↓  |                              |
| <b>Informative</b>                                    |        |                |   |                              |
| Clear and comprehensive information                   | -0,152 | 0,640          | No effect   | <b>H5 and H6 invalidated</b> |
| Understanding the options                             | 1,044  | 0,965          | No effect   |                              |
| Availability of information                           | -0,795 | 0,918          | No effect   |                              |
| <b>Interprétative</b>                                 |        |                |   |                              |
| Empathy of the caregiver                              | 0,131  | 0,629          | No effect   | <b>H7 invalidated</b>        |
| Adapting recommendations to the patient's perspective | 0,666  | <b>0,098*</b>  | Complaints ↓, marginal satisfaction ↑                     | <b>H8 confirmed</b>          |
| Support in exploring consequences                     | -1,362 | <b>0,045**</b> | Adherence ↓ (counterproductive effect)                    |                              |
| <b>Control variables</b>                              |        |                |   |                              |
| High hospital admission rate                          | -1,600 | <b>0,077*</b>  | Satisfaction ↓  |                              |
| Longer waiting times                                  | -0,754 | <b>0,062*</b>  | Negative perception                                       |                              |

The symbols \*\*\*, \*\*, \* are the significance thresholds for the variables at 1%, 5% and 10% respectively.

Arrows ↑↓ = direction and intensity of the effect (more arrows = stronger effect).

## 2.5. DISCUSSION

The results support the hypothesis that the relationship between healthcare professionals and patients is a key factor in clinical effectiveness in Cameroonian hospitals, although this varies depending on relational aspects. First, the studies validate the positive importance of trust in the competence of healthcare professionals (H2), as well as that of the collaborative model focused on knowledge sharing and teamwork (H3, H4). In line with Hernandez and al. (2014), Kirk and al. (2016); Berwick (2002), these dimensions contribute to better rapid management, strengthen adherence to treatment and reduce errors or rehospitalisations. This demonstrates that even in a system with limited resources, relational capital can compensate for certain structural limitations. Furthermore, the partial confirmation of hypothesis H8, which focuses on adjusting recommendations to the patient's values and circumstances, highlights the crucial importance of cultural interpretation in increasing satisfaction and reducing complaints, which is consistent with the findings of Stewart (1995). Finally, the notable impact of support in exploring the repercussions of the disease demonstrates that certain forms of organised information can serve as tools for understanding and engagement, although their implementation could still be improved.

As a result, the final model makes a theoretical contribution by demonstrating that, in an African context characterised by infrastructure limitations, the dimensions of perceived expertise, partnership, collaboration, cultural interpretation and information orientation are the most influential relational levers for hospital performance. These results support and contextualise the research of Stewart, Berwick, DiMatteo and Hernandez, while suggesting an integrated relational structure appropriate to the Cameroonian context.

## CONCLUSION AND OUTLOOK

Moreover, the results confirm that the partnership model, characterised by transparent knowledge sharing and close collaboration between caregivers and patients, significantly improves treatment adherence, strengthens mutual trust and reduces clinical errors, thereby contributing to optimal therapeutic outcomes. Similarly, the

interpretive approach, which adapts recommendations to patients' cultural and individual contexts, has been shown to be effective in reducing complaints and promoting greater acceptance of care. On the other hand, the informative model, which focuses on the unilateral transmission of information, and the empathic model, which focuses on emotional expression, have not demonstrated a significant impact, revealing gaps in their implementation, potentially due to contextual constraints such as a lack of training or time on the part of healthcare professionals. These findings highlight the need to strengthen the interpersonal skills of healthcare professionals through continuing education programmes focused on collaborative communication and cultural adaptation. They also call for the development of clinical protocols that promote the caregiver-patient partnership in order to optimise the quality of care in an environment marked by limited resources. Finally, this research highlights the urgent need to continue investigating patient perceptions, regional dynamics and socio-cultural factors influencing the caregiver-patient relationship, in order to propose more contextualised interventions and support sustainable improvement of the Cameroonian healthcare system.

Despite the robustness of the method used, certain limitations are apparent. The analysis is mainly based on self-reported data from self-administered questionnaires, exposing it to biases related to social desirability and memory, particularly among patients with low literacy levels. The lack of systematic observational data makes it impossible to compare perceptions expressed with actual practices. From an empirical point of view, the sample does not include rural health facilities or certain key areas (Far North, East, Adamaoua), whose cultural and infrastructure characteristics vary considerably. In addition, the assessment of clinical effectiveness was based on secondary indicators, due to the lack of reliable clinical records to measure more robust data such as adjusted mortality or preventable complications.

These limitations define research areas that are both specific and complementary. It would be relevant to explore in greater depth the link between interpersonal trust theory and patient-centred communication methods in order to develop an integrated model for vulnerable health systems. This model would merge relational, structural and cultural aspects. From a methodological perspective, the use of mixed and longitudinal studies, including direct observation of consultations and discourse analysis, would make it possible to objectify relational styles and evaluate the effect of partnership training on tangible clinical indicators. Empirically, extending the scope of study to rural areas and linguistic or ethnic minorities, as well as implementing partnership training programmes, could provide valuable practical and economic evidence for decision-makers.

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