



Article

# Influence of Interpersonal Processes on the Performance of Primary Health Care Organizations

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Abstract: Processes in the health sector include diagnostics, treatment, rehabilitation, prevention, education of patients, and all other interactions between qualified medical personnel and patients. Interpersonal processes pertain to the psychosocial aspect of said activities and include variables that describe communication, continuity, patient awareness, and the degree of patient involvement and influence the performance of health institutions in primary health care (PHC). The dimensions of importance for researching the influence of indicators of interpersonal processes on the performance of PHC organizations were identified, taking into account the underlying theory and specifics and characteristics of PHC. This paper studies the influence that patient-centeredness, as a dominant dimension that encompasses interpersonal processes, has on effectiveness, i.e., outcomes presented through health-related quality of life (HRQOL). Data on the factors of importance for this research subject were collected in the Republic of Serbia, while data analysis was carried out using partial least squares structural equation modeling (PLS-SEM). The research results show a complex relationship between indicators of interpersonal processes, highlight the importance of this group of processes for increasing the effectiveness of PHC organizations, and demonstrate the influence of interpersonal processes on the performance of PHC organizations.

**Keywords:** organizational performance; interpersonal processes; effectiveness; performance measurement; primary health care organizations



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## 1. Introduction

The processes in the domain of health services include activities and interactions between patients (service users) and doctors (healthcare professionals) for the purpose of providing health care. These processes include diagnostics, treatment, rehabilitation, prevention, and patient education, as well as all other interactions between trained medical personnel and patients [1]. Primary health care (PHC) involves first contact; continuous, comprehensive, and coordinated care provided to the population regardless of sex, disease, or organ system [2]; health-related educational and promotional activities; and interlinking with other parts of the health care system.

The process indicators and performance dimensions of importance for this paper were identified using the widely accepted "Donabedian framework" structure–process–outcome [3,4]. Many studies use this model to identify and categorize performance indicators [5], evaluate PHC quality, and monitor PHC performance. Process measures are predominant indicators of PHC quality and reflect both preventive care and the management of chronic diseases [6]. Processes can be analyzed from two aspects, i.e., two groups: 1. technical and 2. interpersonal [4,5]. The technical aspect includes indicators that describe the implementation of medical knowledge and medical procedures and protocols for dealing with certain health issues of service users. Interpersonal processes refer to the psychosocial aspect of the relationship between qualified medical personnel and patients. This group of processes in most cases includes variables which describe communication,

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continuity, patient awareness, and the degree of patient involvement and which affect the total performance of a PHC organization. Interpersonal processes highlight the perception (aspect) of the service user and, according to [7], emphasize the functional quality of service and focus on its effectiveness. Interpersonal processes are the basis for realizing technical processes, and their improvement and efficient management can improve the technical quality of care. In this paper, the authors focused on the empirical study of relationship between interpersonal processes and the performance of PHC organizations (healthcare institutions).

Observing the structure–process–outcome framework, the authors identified dimensions important for determining the influence of interpersonal processes on the performance of PHC organizations and evaluated the relationship between the indicators and performance dimensions inside this triad. The analyzed data were obtained using the questionnaire constructed by the authors. The questionnaire contains 68 items. The field survey was conducted in 30 municipalities of the Republic of Serbia, Autonomous Province of Vojvodina, and involved 621 respondents. The research model was empirically tested and confirmed as valid and reliable.

## 1.1. Literature Review

The performance of an organization can be regarded as complex interrelationship between different aspects of performance. In the case of health care institutions, performance is often viewed as a function of quality improvement. In that sense, quality is regarded as a dominant activity or component of performance measurement [8], which was taken into account when selecting performance dimensions important for this research. When designing and implementing the system for measuring performance in the health sector, it is important to use a combination of process indicators and outcome indicators and, at the same time, include perception measures and performance indicators [9], as well as indicators of structure, meaning the environment in which said processes occur. Many authors and existing performance measurement systems highlight the relationship between process and outcome indicators [10-15]. Taking into account the theoretical basis for the evaluation based on the structure-process-outcome framework, it is possible to assess the relationship between structure and process, evaluate the process itself, and, after assessing the health status of a service user, determine the relationship between those processes and outcome of services provided. This forms the theoretical basis for the conceptual framework for studying the influence of interpersonal processes on the performance of PHC organizations.

When studying and measuring performances pertaining to the health system as a whole, many authors [13,16–18] highlight the following dimensions of importance: effectiveness (or improvement of health status), safety, patient-centeredness, availability, efficiency, continuity, adequacy (compliance), acceptability, capacity, competency, sustainability, timeliness, equity (fairness), and relevance.

Given the specifics and characteristics of PHC, which is the first level of contact with the health system and which includes curative care, rehabilitation, prevention, and health education [19], it is necessary to have a targeted approach and observe the specifics of organizations at this level of health care in order to make an optimal selection of performance dimensions of importance. Basic measurable characteristics of PHC [20,21] such as availability, comprehensive care, continuity, and coordination of care, with healthcare quality attributes which, according to [1], include success (adequacy), effectiveness, efficiency, optimality, acceptability, legitimacy, and fairness, whereby these attributes can be used individually or in combination in order to define quality, represent the first step in identifying performance dimensions of importance for this research. In order to develop the research model and identify performance dimensions, the authors used, in addition to the above, the Health Care Quality Indicators (HCQI) conceptual framework [13,19,22], which focuses on technical quality while maintaining a broader perspective of other dimensions, and the Primary Health Care Performance Initiative (PHCPI) [15,23,24], which focuses on

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the intersection between the services and basic functions of PHC as key drivers of different performance dimensions.

Based on the aforementioned conceptual framework and underlying theory, the following dimensions were identified as important for developing the research model and determining the influence of interpersonal processes on the performance of PHC organizations: effectiveness, patient-centeredness, continuity, comprehensiveness, and human resources in PHC.

Effectiveness in the health sector means the ability of a certain intervention to achieve a significant effect on patients in normal clinical setting [25]. Effectiveness is the key dimension of performance/quality and indicates the degree of achievement of desired outcomes with the provision of established health services [13]. Effectiveness refers to the performance aspect related to quality and outcomes. In available models for measuring the performance of health systems and health institutions, effectiveness is an indispensable component for analysing outcomes and understanding the relationship between outcomes and overall results of an organization and/or system. Defining and understanding the effectiveness as a degree to which health can be improved [1] served as the basis for selecting outcome indicators that allow insight into health-related quality of life (HRQOL). Due to the nature of interpersonal processes and their potential influence on outcomes, the authors chose to focus on the effects, i.e., outcome indicators, which comprise the aspect of mental health. Performance measurement is relevant only if a specific framework within which one can assess the effectiveness of the undertaken actions is observed [26]. This approach was accepted in this paper, and in that regard, effectiveness is crucial to understanding the relationship between interpersonal processes and outcomes and how the former influence the latter. When regarded as indicators of functional quality, interpersonal processes can be as important as technical quality when assessing health outcomes [27], and that is how they were analysed in this paper.

Patient-centeredness represents the degree to which the system puts the patient into the centre of the healthcare process and is often evaluated through patient satisfaction, i.e., their experience and perception [13]. According to the HCQI framework, patientcenteredness can also encompass acceptability (compliance with wishes, needs, and expectations of service users and their families) and timeliness (degree to which patients are able to receive prompt service). Patient-centeredness ensures that health services meet specific preferences and needs, thus ensuring that medical decisions are tailored to each patient [28]. Patient-centeredness is central to this paper, taking into account PHC characteristics, the nature of interpersonal processes, and the potential influence on other dimensions of importance for this research. Interpersonal processes that describe communication were used as patient-centeredness indicators. The analysis of interpersonal processes allows insight into the compliance of health services with the above needs and into patient-centeredness as a performance dimension. In this case, patients' perceptions were taken into account in order to determine whether the services provided were in compliance with their individual needs, preferences, and expectations [20,29-31]. Good communication with patients gives better insight into their needs. A patient-centred approach to communication allows for a better understanding of patients' individual needs, convictions, and values; gives them the information they need in order to participate in the process; and builds doctor-patient trust and understanding [32]. In addition to focusing on the specific health problem that is the reason for the visit, communication also includes the exchange of information on other possible issues, patient's life circumstances, medical history, and/or other issues of importance to the patient. Different modes of communication ensure a better understanding of patients, increase their willingness to adhere to the recommendations, and result in higher satisfaction [33].

Continuity represents the relationship between patient and the PHC service provider, which leads to the accumulation of knowledge and establishes a long-term relationship with the patient [20]. Continuity is an essential function of PHC and as such can be divided into at least three domains of importance to PHC: interpersonal or relational, informational, and

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management continuity [34,35]. This paper used the indicators of interpersonal continuity, which represents an ongoing therapeutic relationship between a patient and one or more service providers. This type of continuity is essentially a subjective experience that reflects the relationship between the patient and service provider, representing a relationship of trust and consistent long-term care that is tailored to patient's personal, psychosocial, and cultural needs [36]. In this context, continuity is the way in which a patient experiences the integration of services and coordination of care, i.e., the degree to which individual health services and interactions are perceived as appropriate and consistent with patient's needs [34]. The analysis of patients' perception provides insight into whether patients feel that they received appropriate and timely services adjusted to their needs and in a way that ensures continuity. The time dimension, regardless of duration, is crucial in separating continuity from other PHC dimensions.

Comprehensiveness is one of the main characteristics of PHC [20,21]. It refers to a wide variety of health services and appropriate care for a wide range of health problems in different age groups. In this sense, health services include not only medical procedures, interventions, and analyses aimed at managing the course of chronic diseases but also preventive care and health education and promotion [2,37]. Interpersonal processes were used in order to analyse preventive activities (particularly in the area of health education), risk factors, and the needs and preferences of patients. In this paper, comprehensiveness is presented through preventive activities which are necessary for achieving PHC sustainability goals and which contribute to high-quality health services.

Human resources in PHC organizations pertain to the dimension that includes structure indicators of importance for the research model. Structure represents the environment in which health services are provided and usually involves human resources, physical capacities and their properties, and certain policies that identify procedures relevant to the provision of health services. Providing high-quality services at the primary level of health care depends on the sufficient number of trained medical personnel that is evenly distributed and available to the population [15,24]. Human resources, i.e., their structure and characteristics, are one of the basic domains in this group of performance indicators [38]. The structure presented through human resources in PHC was included in order to highlight the importance of understanding the influence that this group of indicators has on interpersonal processes. This way, the research model included the evaluation that observed the structure–process–outcome framework, which was adjusted to the needs of this research.

#### 1.2. Relationship between Research Dimensions

The complexity and importance of PHC, as well as the nature and specifics of organizations at this level of health care, require the understanding of a large number of mutually interrelated indicators in order to adopt a systematic approach to developing the model and analyzing the influence of interpersonal processes on the performance of PHC organizations. Understanding the type and nature of the relationship between structure, process, and outcome indicators [1,9,11,13] and the influence on individual performance dimensions of importance for PHC organizations identified through available models [13,19,23,24,29] is paramount. Taking into account the aforementioned theoretical bases, empirical research, and current models, a conceptual framework was established along with the following hypotheses that were proposed and tested in this paper:

Hypothesis 1 (H1). The correlation between patient-centeredness and effectiveness is significant;

**Hypothesis 2 (H2).** *The correlation between human resources in PHC and patient-centeredness is significant;* 

Hypothesis 3 (H3). The orrelation between patient-centeredness and continuity is significant;

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**Hypothesis 4 (H4).** The correlation between patient-centeredness and comprehensiveness is significant;

**Hypothesis 5 (H5).** *The correlation between continuity and comprehensiveness is significant.* 

#### 2. Materials and Methods

The above hypotheses were tested using a questionnaire, which was divided into five parts. The first part covered socioeconomic data and information on basic health status of respondents and chronic and acute diseases for the purpose of better understanding the needs and demands that PHC organizations have to meet. The remaining four parts of the questionnaire contained 16 items regarding interpersonal processes, i.e., communication, continuity, comprehensiveness, outcomes, and health-related quality of life. The questionnaire was designed using the Questionnaire on User Satisfaction with General Medical Services, developed by the Institute of Public Health of Serbia "Dr Milan Jovanović Batut" and CDC Health-Related Quality of Life (HRQOL) questionnaire. Items in the questionnaire were formed using a five-point Likert scale, where respondents graded their answers from 1 (strongly disagree) to 5 (strongly agree).

In addition to respondents' answers to the questionnaire, the research also included data on structure indicators—human resources in PHC, including the number and education level of trained medical (health) professionals and administrative and technical staff, and data on additional training and education of employees. The above data were collected from secondary sources, using the existing employee database of IPH "Dr Milan Jovanović Batut" and pertain only to health centres and municipalities where the survey was conducted.

## 2.1. Data Collection and Sample

In order to ensure comprehensive evaluation and analysis of indicators of interpersonal processes important for the performance of PHC organizations, the research was conducted in 30 municipalities of the Republic of Serbia—AP Vojvodina, which differ in their geographical location, population structure and size, and which are covered by PHC organizations—health centers and outpatient clinics of different capacity. By including different municipalities, the authors tried to maintain sample representativeness and variability of respondents' experience. The answers were collected through a field survey, taking into account the representation of respondents of different socioeconomic background.

The sample consisted of 621 respondents: 283 men (45.6%) and 338 women (54.4%). The age of respondents ranged from 20 to 89, with average age being 50 (standard deviation was 16.23 years). Most of the respondents held high school degrees (49.4%), whereas only 3.4% were with uncomplete primary education. Respondents described their health status through seven categories: poor, fair, good, very good, excellent, I don't know or I'm not sure, and I prefer not to answer. Distribution of answers to this question is given in Table 1.

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<b>Table 1.</b> Respondents' s	self-rated health status in the past year.

Health Status	Number	%		
Poor	41	6.6		
Fair	171	27.5		
Good	191	30.8		
Very good	120	19.3		
Excellent	84	13.5		
I don't know or I'm not sure	11	1.8		
I prefer not to answer	3	0.5		
Total	621	100.0		

Based on the data on health status in the past year, the sample can be divided into three equal groups: respondents who rated their health status as poor or fair (34.1%), good

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(30.8%), and very good and excellent (32.8%). Respondents cited the following chronic diseases as the main causes of deteriorating health and health problems with functional limitations: back or neck problems, hypertension, heart problems, vision problems, and diabetes. The variability of respondents in terms of sociodemographic background and variability of questions related to health assessment allowed for better understanding and analysis of data obtained from items about communication, continuity, comprehensiveness, and health-related quality of life.

## 2.2. Data Analysis

Data analysis is based on partial least squares structural equation modelling (PLS-SEM). This approach was selected due to the exploratory nature of the research. In the national PHC system, the studied constructs have thus far been processed in theory only (in most cases), without empirical verification of set models. The selected method is recommended when trying to develop theories and explain the variance and relationships between constructs and their predictions [39]. Since the research tried to answer the question on the structure of and relationship between constructs, the research model included two phases. In the first phase, the model was evaluated using confirmatory factor analysis in order to identify the nature of constructs. The second phase involved the examination of relationships inside models and testing of proposed hypotheses.

#### 3. Results

The model was tested using confirmatory factor analysis as the first step towards defining constructs for further analysis. The initial set of variables included respondents' answers, with the aim of studying indicators of interpersonal processes in PHC, experiences and perceptions regarding interpersonal processes (communication, continuity, and comprehensiveness), and outcomes through health-related quality of life. The above data were supplemented with structural indicators of importance for the research model, i.e., human resources, their structure and quantitative characteristics, as well as data on the additional training and education of employees. A confirmatory factor analysis tested a 5-factor model based on 22 items. The results of the confirmatory factor analysis show fit indices that suggest the model has a satisfactory fit [40] ( $\chi^2 = 2.034$ , CFI = 0.983, AIC = 665.9, RMSEA = 0.041). The factor loadings range between 0.66 and 0.98. The factor structure obtained by the CFA is shown below.

Effectiveness (EFFECT)—Health-related quality of live—mental health aspect:

- Absence of depressive symptoms and emotional problems;
- Absence of sadness, gloom, and depression;
- Absence of worry, tension, and anxiety.

Patient-centeredness (PCENT)—Communication, focus on patient, awareness, compliance with individual needs and patient participation:

- Holistic approach that includes conversation about other possible issues, aside from the one that led to the visit (previous illnesses, personal problems, etc.);
- Detailed instructions in the event of deterioration of patient's health;
- Encouraging active patient involvement;
- Active consulting with the patient on the method of and approach to treatment in order to build trust and understanding;
- Providing additional information to the patient regarding health status;
- Sharing information about the findings and giving the patient insight into all test results.
  Continuity (CONT)—Interpersonal or relational continuity:
- Receiving appropriate medical care by the chosen physician in the past year;
- Receiving useful health advice by the chosen physician in the past year;
- Receiving full disclosure regarding the disease and its course from the chosen physician in the past year.

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Comprehensiveness (COMP)—Aspect of preventive activities—health education, risk factors, needs, and preferences:

- Education and exchange of information on proper nutrition;
- Education and exchange of information on the importance of physical activity;
- Education and exchange of information on building stress resistance;
- Education and exchange of information on the harmfulness of smoking;
- Education and exchange of information on the harmfulness of alcohol.

Human resources in PHC (HRPHC)—Structure and quantitative characteristics of human resources—trained medical (health) professionals and other workers, and additional training and education:

- Medical doctors with permanent and fixed-term employment;
- Medical associates with university degrees, with permanent and fixed-term employment;
- Health workers with vocational degrees, with permanent and fixed-term employment;
- Administrative staff with permanent and fixed-term employment;
- Technical staff with permanent and fixed-term employment;
- Number of workshops and educational seminars held in health institution.

The above factors describe the identified performance dimensions of PHC organizations. Patient-centeredness, continuity, and comprehensiveness encompass indicators of interpersonal processes, while effectiveness is described with HRQOL items as outcome indicators, which includes feelings of well-being and the absence of depressive and emotional problems, worry, tension, and anxiety. Human resources as indicators of structure represent an important dimension for evaluating and understanding the environment in which the investigated interpersonal processes take place. The conducted analysis shows that different performance dimensions of PHC organizations can be subsumed under one model, thus justifying the approach that involves the structure–process–outcome framework, i.e., comprehensive analyses needed to understand complex interrelationship of different performance dimensions and key indicators that describe them.

The convergent and discriminant validities of selected factors were also assessed. Average variance extracted (AVE) points to satisfactory convergent validity, with values over 0.7, which is considered acceptable [41,42]. According to the Fornell–Larcker criterion [39] for discriminant validity, the model also shows satisfactory results. The indicators are presented in Table 2.

	CR	AVE	MSV	MaxR(H)	HRPHC	CONT	COMP	PCENT	EFFECT
HRPHC	0.977	0.876	0.017	0.991	0.936				
CONT	0.860	0.674	0.482	0.879	-0.129	0.821			
COMP	0.910	0.671	0.341	0.931	-0.076	0.494	0.819		
<b>PCENT</b>	0.864	0.516	0.482	0.874	-0.105	0.694	0.584	0.718	
<b>EFFECT</b>	0.843	0.583	0.028	0.885	-0.070	0.167	-0.059	0.161	0.763

**Table 2.** Reliability and validity tests in the measurement model.

Based on these findings, it can be concluded that the selected factors are valid and that they are sufficiently related to other factors, thus supporting the theoretical concept but still sufficiently different to represent separate entities [43]. The confirmatory factor analysis included five factors: effectiveness, patient-centeredness, continuity, comprehensiveness, and human resources in PHC, which describe the influence of indicators of interpersonal processes on the performance of PHC organizations. The relationships between set factors and pathways of influence were examined using the structural model below.

## Structural Model

The conducted analysis indicates that the coefficient of determination (R2) is 0.47 for the first isolated factor that describes human resources in PHC, which is average and acceptable [39], and it is 0.35 for the second isolated factor—comprehensiveness. These

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results indicate a statistically significant correlation between factors, ranging from low to moderate and high (values range between 0.11 and 0.68). The correlation between patient-centeredness and effectiveness as an outcome indicator is positive and statistically significant. The highest recorded influence was measured between patient-centeredness and continuity (estimated at 0.685) and patient-centeredness and comprehensiveness (estimated at 0.484). The result indicates high positive correlations between indicators of interpersonal processes included in the model and their interrelationship, particularly where patient-centeredness is concerned. The correlation between continuity and comprehensiveness is also positive but lower. The factor that describes human resources in PHC shows a negative correlation with patient-centeredness. The correlation is statistically significant but low. Based on the conducted statistical analyses, the research hypotheses that describe the influence of interpersonal processes on the performance of PHC organizations and complex correlation between the structure, process, and outcome indicators in PHC organizations have been confirmed. The values of the coefficients and indicators are given in Table 3.

Hypothesis	Path	β	SE	t	p	Supported?
H1	$PCENT \rightarrow EFFECT$	0.31	0.071	5.132	0.000	YES
H2	$HRPHC \to PCENT$	-0.113	0.028	-2.644	0.008	YES
H3	$PCENT \rightarrow CONT$	0.685	0.068	11.055	0.000	YES
H4	$PCENT \rightarrow COMP$	0.484	0.084	7.861	0.000	YES
H5	$CONT \rightarrow COMP$	0.148	0.07	2.664	0.008	YES

Table 3. Structural model path coefficients.

The influence and relationship between set constructs was examined using the structural model shown in Figure 1.

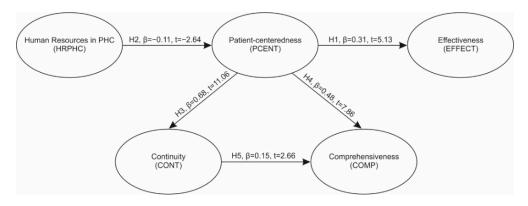


Figure 1. Empirically validated model.

#### 4. Discussion

The validated model reveals the statistically significant influence of interpersonal processes on the performance of PHC organizations. The relationship between identified and studied constructs has been confirmed, taking into account the underlying theory and the structure–process–outcome framework [1,3–5]. The evaluation has confirmed the correlation between patient-centeredness as the dominant dimension that encompasses interpersonal processes and the outcomes analyzed based on patient experience as an important outcome measure [44], which confirms hypothesis H1—*The correlation between patient-centeredness and effectiveness is significant*.

Interpersonal processes that describe communication are significant indicators of patient-centeredness. A process analysis was used to develop significant indicators for measuring the performance [45], i.e., the identified performance dimensions of PHC organizations. Communication together with understanding, informed consent, therapeutic

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choice, and prognosis should be considered not only as procedural elements but also as aspects that underlie subjective expressions and around which a relationship of care is built [46]. The patient needs to be able to express clearly what their problem is, and the physician needs to describe the intended course of treatment action in a way that the patient understands, whereby it should be taken into account barriers to patient involvement [47]. Patient's perception was analyzed in order to determine whether services provided were in compliance with their individual needs, but it is also important to emphasis health-care professionals' attitudes toward patient involvement and participation in promoting the safety of their care [48] to encourage patients to engage in higher levels of communication and participation. A physician's communication style may have an impact on the patient's autonomy and on their degree of involvement [49], but additional research is needed to assess the implications of different physician communication styles and health-care professionals' attitudes for this purpose. Patient participation in the context of effective communication and/or patient-centeredness can be extended to the management of chronic illness, which is a very important area of PHC organizations, and patients can be educated to participate in the care of chronic illnesses [50] whereby their participation may have an impact on improving outcomes.

Human resources in PHC, as an infrastructural component important for realizing interpersonal processes, form part of the group of structure indicators. The correlation between human resources and the patient-centeredness dimension is statistically significant, which confirms the H2 hypothesis—*The correlation between human resources in PHC and patient-centeredness is significant*. The obtained findings show low and negative correlation. The nature of this correlation can indicate the specifics of how PHC is organized in the Republic of Serbia, based on the network plan that projects the capacity at this level of health care. The nature of the data, the obtained results, and the organizational conditions specific to the national health system demonstrate the need to include a larger number of structural indicators in future research in order to better understand and evaluate the correlation between these two groups of indicators.

The existence of high, statistically significant correlations between patient-centeredness and continuity and patient-centeredness and comprehensiveness confirms hypotheses H3—*The correlation between patient-centeredness and continuity is significant*—and H4—*Correlation between patient-centeredness and comprehensiveness is significant*. These correlations demonstrate the complex relationship between indicators of interpersonal processes and the importance of their influence on performance dimensions of PHC organizations. In the HCQI framework, continuity is the dimension of importance that is often subsumed under patient-centeredness [13]. This additionally justifies the obtained results, in which the highest influence was measured between patient-centeredness and continuity.

A lower but statistically significant correlation was found between continuity and comprehensiveness, which confirms hypothesis H5—*The correlation between continuity and comprehensiveness is significant*. The nature of this correlation raises possibilities for further research of these two highly important functions and performance dimensions of PHC organizations. Introducing technical processes in future research may reveal other specifics of importance for researching the correlation between these two dimensions.

## 5. Conclusions

The aim of this paper was to study the influence of interpersonal processes on the performance of PHC organizations and to find correlations between the interpersonal processes and outcomes of PHC organizations. Previously developed models were mostly focused on measuring the performance of health systems as a whole or parts of the system in terms of levels of health care, whereas this paper focused on studying the performance of health institutions (organizations), taking into account the specifics of this level of health care when identifying and selecting dimensions of importance and limitations during analysis of outcomes as results of activities of PHC organizations. Given that process measures are designed to demonstrate the technical and interpersonal aspect of care and

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that they do not directly participate in most analyses of effectiveness and efficiency [5] but have potential for improving the outcomes [51,52], determining the influence of interpersonal processes on the effectiveness of PHC organizations is an innovative segment of this research. The results of this study reveal statistically significant correlations between the identified and analyzed performance dimensions. The investigated influences can provide information on how to improve the performance of PHC organizations. Based on the results of this research, the authors concluded that interpersonal processes have statistically significant influence on the performance of PHC organizations.

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## References

 Donabedian, A. An Introduction to Quality Assurance in Health Care; Bashshur, R., Ed.; Oxford University Press, Inc: New York, NY, USA, 2003.

- 2. Starfield, B. Is primary care essential? (Primary Care Tomorrow). Lancet 1994, 334, 1129–1133. [CrossRef]
- 3. Donabedian, A. Evaluating the Quality of Medical Care. Milbank Q. 2005, 83, 691–729. [CrossRef]
- 4. Donabedian, A. The Quality of Care, How Can It Be Assessed? JAMA J. Am. Med. Assoc. 1988, 260, 1743–1748. [CrossRef]
- 5. Kalinichenko, O.; Amado, A.F.C.; Santos, P.S. *Performance Assessment in Primary Health Care: A Systematic Literature Review*; CEFAGE-UE Working Paper; University of Algarve—Faculty of Economics and CEFAGE-UE, CEFAGE-UE, Universidade de Évora: Évora, Portugal, 2013.
- 6. Institute of Medicine—IOM. *Performance Measurement: Accelerating Improvement*; The National Academies Press: Washington, DC, USA, 2006. [CrossRef]
- 7. Elg, M.; Engström, J.; Witell, L.; Poksinska, B. Co-creation and learning in health-care service development. *J. Serv. Manag.* **2012**, 23, 328–343. [CrossRef]
- 8. McIntyre, D.; Rogers, L.; Jo Heier, E. Overview, History, and Objectives of Performance Measurement. *Health Care Financ. Rev.* **2001**, 22, 7–21. [PubMed]
- 9. Moullin, M. Eight essentials of performance measurement. Int. J. Health Care Qual. Assur. 2004, 17, 110–112. [CrossRef] [PubMed]
- 10. Chang, L.-c.; Lin, W.S.; Northcott, N.D. The NHS Performance Assessment Framework, A "balanced scorecard" approach? *J. Manag. Med.* **2002**, *16*, 345–358. [CrossRef]
- 11. Moullin, M. Performance measurement definitions, Linking performance measurement and organisational excellence. *Int. J. Health Care Qual. Assur.* **2007**, *20*, 181–183. [CrossRef]
- 12. Aday, A.L.; Begley, E.; Lairson, R.D.; Slater, H.C.; Richard, J.A.; Montoya, D.I. A Framework for Assessing the Effectiveness, Efficiency and Equity of Behavioral Healthcare. *Am. J. Manag. Care* **1999**, *5*, 25–44.
- 13. Kelley, E.; Hurst, J. Health Care Quality Indicators Project: Conceptual Framework. OECD HealthWorking Papers; No. 23; OECD Publishing: Paris, France, 2006.
- 14. OECD. Health at a Glance 2013: OECD Indicators; OECD Publishing: Paris, France, 2013. [CrossRef]
- 15. WHO—World Health Organization. Improving Quality Primary Health Care, From Measurement to Improvement: A roadmap. In Proceedings of the Primary Health Care Improvement, Global Stakeholder Meeting, Geneva, Switzerland, 6–8 April 2016.
- 16. Braithwaite, J.; Hibbert, P.; Blakely, B.; Plumb, J.; Hannaford, N.; Long, J.C.; Marks, D. Health system frameworks and performance indicators in eight countries: A comparative international analysis. *SAGE Open Med.* **2017**, *5*, 2050312116686516. [CrossRef]
- 17. Murray, C.J.; Evans, D.B. *Health Systems Performance Assessment: Debates, Methods and Empiricism*; World Health Organization: Geneva, Switzerland, 2003.
- 18. Rodella, S.; Bellini, P.; Braga, M.; Rebba, V. Measuring and Comparing Performance of Health Services: A Conceptual Model. to Support. Selection and Validation of Indicators; Commissione per laGaranzia dell'Informazione Statistica (CGIS): Rome, Italy, 2003.

Sustainability **2021**, 13, 12243

19. Schäfer, W.L.A.; Boerma, W.G.W.; Kringos, S.D.; De Ryck, E.; Heinemann, S.; Greß, S.; Murante, A.M.; Rotar-Pavlic, D.; Schellevis, F.; Seghieri, C.; et al. Measures of quality, costs and equity in primary health care: Instruments developed to analyse and compare primary health care in 35 countries. *Qual. Prim. Care* 2013, 21, 67–79. [PubMed]

- 20. Schäfer, W.L.A. *Primary Care in 34 Countries: Perspectives of General Practitioners and Their Patients*; NIVEL: Utrecht, The Netherlands, 2016.
- 21. Kringos, S.D. The Strength of Primary Care in Europe; NIVEL: Utrecht, The Netherlands, 2012.
- 22. Kringos, S.D.; Boerma, W.G.W.; Hutchinson, A.; van der Zee, J.; Groenewegen, P.P. The breadth of primary care: A systematic literature review of its core dimensions. *BMC Health Serv. Res.* **2010**, *10*, *65*. [CrossRef] [PubMed]
- 23. PHCPI—Primary Health Care Performance Initiative. Methodology Note. Available online: https://improvingphc.org/measuring-primary-health-care-performance (accessed on 7 September 2021).
- 24. PHCPI—Primary Health Care Performance Initiative. Primary Health Care Progression Model Assessment Tool. Available online: https://improvingphc.org/sites/default/files/PHC-Progression%20Model%202019-04-04\_FINAL.pdf (accessed on 7 September 2021).
- 25. Burches, E.; Burches, M. Efficacy, Effectiveness and Efficiency in the Health Care: The Need for an Agreement to Clarify its Meaning. *Int. Arch. Public Health Community Med.* **2020**, *4*. [CrossRef]
- 26. Bourne, M.; Neely, A.; Mills, J.; Platts, K. Implementing performance measurement systems: A literature review. *Int. J. Bus. Perform. Manag.* **2003**, *5*, 1–24. [CrossRef]
- 27. Fung, H.C.; Eliot, N.M.; Hays, D.R.; Kahn, L.K.; Kanouse, E.D.; McGlynn, A.E.; Spranca, D.M.; Shekelle, G.P. Patients' Preferences for Technical Versus Interpersonal Quality When Selecting a Primary Care Physician. *Health Serv. Res.* **2005**, 40, 957–977. [CrossRef]
- 28. Institute of Medicine—IOM. Crossing the Quality Chasm, A New Health System for the 21st Century; Committee on Quality of Health Care in America, National Academy Press: Washington, DC, USA, 2001.
- 29. National Health Service—NHS. NHS Performance Assessment Framework; NHS Department of Health: London, UK, 1999.
- 30. National Health Service—NHS. *The NHS Performance Framework: Implementation Guidance*; NHS Department of Health, NHS Finance, Performance & Operations Directorate: London, UK, 2012.
- 31. Grol, R.; Wensing, M.; Mainz, J.; Jung, H.P.; Ferreira, P.; Hearnshaw, H.; Hjortdahl, P.; Olesen, F.; Reis, S.; Ribacke, M.; et al. Patients in Europe evaluate general practice care: An international comparison. *Br. J. Gen. Pract.* **2000**, *50*, 882–887.
- 32. Levinson, W.; Lesser, S.C.; Epstein, M.R. Developing Physician Communication Skills for Patient-Centered Care. *Health Aff.* **2010**, 29, 1310–1318. [CrossRef]
- 33. Starfield, B. Is Patient-Centered Care the Same as Person-Focused Care? Perm. J. 2011, 15, 63–69. [CrossRef]
- 34. Haggerty, L.J.; Reid, J.R.; Freeman, K.G.; Starfield, H.B.; Adair, E.C.; McKendry, R. Continuity of care: A multidisciplinary review. *BMJ* 2003, 327, 1219–1221. [CrossRef]
- 35. Schwarz, D.; Hirschhorn, L.R.; Kim, J.H.; Ratcliffe, H.L.; Bitton, A. Continuity in primary care: A critical but neglected component for achieving high-quality universal health coverage. *BMJ Glob. Health* **2019**, *4*, e001435. [CrossRef]
- 36. Alyafei, A.; Al Marri, S.S. Continuity of Care at the Primary Health Care Level: Narrative Review. *Fam. Med. Prim. Care Rev.* **2020**, 4, 146. [CrossRef]
- 37. Boerma, W.G.W.; Van der Zee, J.; Fleming, M.D. Service profiles of general practitioners in Europe. *Br. J. Gen. Pract.* **1997**, 47, 481–486
- 38. Campbell, M.S.; Roland, O.M.; Buetow, A.S. Defining quality of care. Soc. Sci. Med. 2000, 51, 1611–1625. [CrossRef]
- 39. Hair, F.J., Jr.; Hult, M.T.; Ringle, M.C.; Sarstedt, M. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 2nd ed.; SAGE Publications, Inc.: New York, NY, USA, 2017.
- 40. Hu, L.-T.; Bentler, M.P. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55. [CrossRef]
- 41. Hair, F.J., Jr.; Sarstedt, M.; Matthews, M.L.; Ringle, M.C. Identifying and treating unobserved heterogeneity with FIMIX-PLS: Part I—Method. Eur. Bus. Rev. 2016, 28, 63–76. [CrossRef]
- 42. Matthews, M.L.; Sarstedt, M.; Hair, F.J., Jr.; Ringle, M.C. Identifying and treating unobserved heterogeneity with FIMIX-PLS: Part II—A case study. *Eur. Bus. Rev.* **2016**, *28*, 208–224. [CrossRef]
- 43. Fajgelj, S. Psihometrija—Metod i Teorija Psihološkog Merenja; Centar za Primenjenu Psihologiju: Beograd, Srbija, 2003.
- 44. Berenson, A.R.; Pronovost, J.P.; Krumholz, M.H. *Achieving the Potential of Health Care Performance Measures*; Timely Analysis of Immediate Health Policy Issues; Robert Wood Johnson Foundation: Washington, DC, USA; Urban Institute: Washington, DC, USA, 2013.
- 45. Scopetti, M.; Padovano, M.; Manetti, F.; Gatto, V.; D'Errico, S.; Santurro, A.; Frati, P.; Fineschi, V. Key Performance Indicators in Claims Management: Definition of a set of indicators for the evaluation of the Medico-Legal Activity. *Curr. Pharm. Biotechnol.* **2021**, 22, 1971–1984. [CrossRef]
- 46. Scopetti, M.; Santurro, A.; Gatto, V.; Padovano, M.; Manetti, F.; D'Errico, S.; Fineschi, V. Information, Sharing, and Self-Determination: Understanding the Current Challenges for the Improvement of Pediatric Care Pathways. *Front. Pediatrics* **2020**, *8*. [CrossRef]
- 47. Davis, R.E.; Sevdalis, N.; Jacklin, R.; Vincent, C.A. An examination of Opportunities for the Active Patient in Improving Patient Safety. *J. Patient Saf.* **2012**, *8*, 36–43. [CrossRef]

Sustainability **2021**, 13, 12243

48. Davis, R.E.; Sevdalis, N.; Vincent, C.A. Patient Involvement in Patient Safety: The Health-Care Professional's Perspective. *J. Patient Saf.* **2012**, *8*, 182–188. [CrossRef]

- 49. Rhondali, W.; Perez-Cruz, P.; Hui, D.; Chisholm, G.B.; Dalal, S.; Baile, W.; Chittenden, E.; Bruera, E. Patient-Physician Communication about Code Status Preferences: A Randomized Controlled Trial. *Cancer* 2013, 119, 2067–2073. [CrossRef] [PubMed]
- 50. Longtin, Y.; Sax, H.; Leape, L.L.; Sheridan, S.E.; Donaldson, L.; Pittet, D. Patient Participation: Current Knowledge and Applicability to Patient Safety. *Mayo Clin. Proc.* **2010**, *85*, 53–62. [CrossRef] [PubMed]
- 51. Canadian Institute for Health Information. *Primary Health Care (PHC) Indicators Chartbook: An. Illustrative Example of Using PHC Data for Indicator Reporting*; Canadian Institute for Health Information: 495 Richmond Road, Ottawa, ON, Canada, 2008.
- 52. Coulter, A.; Ellins, J. Effectiveness of strategies for informing, educating and involving patients: An overview of systematic reviews. *BMJ* **2007**, 335, 24–27. [CrossRef] [PubMed]