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Communication and relationships: how patients perceive informational and interactional organizational justice can improve patient-centered care, a study with samples from Spain and the U.S.

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Abstract

Background Organizational variables as perceived organizational justice can influence patients' behaviors. After analyzing the three tenants of patient-centered care (i.e., communication, relationships and health promotion), we identified a gap regarding how patients' attitudes and organizational perceptions contribute to enhancing the effectiveness of patient-centered care. This study aims to improve the understanding of patients' experiences with health care organizations to enable health care service management to enhance patient-centered care quality. Given the structural differences in healthcare systems in Spain and the U.S., we examined both contexts to strengthen our analysis of patient perceptions that are critical for improving patient-centered care across different systems.

Methods We conducted a cross-sectional survey study using two data samples from Spain and the U.S. We tested the role of patients perceived interactional and informational organizational justice in health service performance with respect to patients' behaviors of adhering to professional advice and loyalty to the service. The final sample comprised 473 health care users from Spain (male 59.2%) and 406 from the U.S. (male 52.0%), all aged 18 or older. In Spain, we developed a random sample selection from patients that visited their primary care service onsite. In the U.S., patients were invited to participate though an online survey platform that randomly selected participants from their panel database of the general population. In both samples the participants had visited a healthcare service within the past six months. We assessed perceived organizational justice (interactional and informational), adherence to professional advice, and loyalty to the service, and the mediating role of trust in healthcare providers and satisfaction with services.

Results Significant correlations were found in both samples for each justice dimension with both behaviors: adherence to advise (interactional, $r = 0.15/0.18$, $p < 0.01$; informational, $r = 0.19/0.19$, $p < 0.01$) and loyalty to the service (interactional, $r = 0.45/0.79$, $p < 0.01$; informational, $r = 0.45/0.70$, $p < 0.01$).

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When we tested the model that included mediating patients' attitudes of trust and satisfaction, we found that the direct relationship between informational justice and adherence still held (standardized trajectory coefficient = 0.13, $p < 0.01$) showing their consolidated relationship. For interactional fairness, trust and satisfaction significantly mediated the relationship with adherence. On the other hand, the relationships between both justices and patient loyalty to the service were always partially mediated by patient trust and satisfaction (model fit for interactional justice perceptions RMSEA = 0.101, CFI = 0.959, GFI = 0.959; model fit for informational justice perceptions RMSEA = 0.136, CFI = 0.937, GFI = 0.946).

Conclusions Patients' perceptions of interactional and informational justice play an essential role in their adherence to professional advice, their loyalty to the service, and their ability to develop trust and satisfaction in health services. Communication and relationship-building in patient-centered care should incorporate fairness considerations to enhance healthcare outcomes. Policies and programs should integrate these justice perceptions into patient-centered care strategies. We outline specific implications for improving healthcare quality and patient-centered care.

Highlights

- Patients perceive how fairly treated they are by policies and practitioners when using health care services, and these perceptions influence their health behaviors.
- Patients' perceptions of organizational justice in relation to information handling (perceived as sufficient, accurate, suitable, clear, thorough, or timely) directly relate to adherence to professional advice (e.g., changes in diet, exercise habits, or drug prescriptions).
- Patients' interactional and informational perceived organizational justice relates to service loyalty through the mediation of patient trust and satisfaction with the service.

Keywords Patient-centered care, Fairness perceptions, Health care quality, Care management, Informational justice, Interactional justice, Communication, Relationships

Introduction

Worldwide, the major causes of death by 2030 are expected to be HIV/AIDS, depressive disorders, and heart disease; as chronic diseases, their trajectory may be influenced by the application of effective health behavior interventions, as individual behaviors increase the risk of morbidity and mortality [1]. In this context, health care service management should improve connections with patients to enhance their performance and strengthen efforts toward accomplishing general public health [2]. This patient-centered care approach is recognized as an essential dimension of healthcare systems' missions worldwide and an important condition for ensuring the quality of care [3–6]. Thus, health policy makers have advocated for patient-centered care, shared decision-making, and the engaged patient as a more accurate conceptualization of this new patient role [7, 8].

There is evidence that a better connection with patients and good patient-centered care imply the consideration of multiple streams, from an individual one focusing on preferences or characteristics of the patient in the health care process [9] to a dyadic stream centered on interactions and communications [8] and even an organizational approach including structural levers (design, technology, spaces, organizational models); procedural levers (e.g., care pathways); cultural levers (organizational climate, professional cultures such as the interprofessional collaboration level [10]; and professional and job training to convey relational skills) [11]. Additionally, patients' levels of information preference and perceived autonomy support are important for their trust, satisfaction, and mental health-related quality of life [12]. However, there is a research gap on patients' psychological variables influenced by the organization, like perceived organizational justice, that could help in enhancing the effectiveness of patient-centered care. When we approach the behavioral health field, theories of social cognition guide investigations aimed at identifying its determinants and, importantly, the processes by which these determinants relate to each other and to behavior [13, 14]. Following those lines, to better understand health-related behaviors and patients' experiences with health care, we study patients' perceptions of interactional and informational organizational justice, as well as some of their attitudes and emotions, for the first time in this field of research following the Theory of Reasoned Action (TRA) [15]. This theory identifies three kinds of constructs: cognition, attitudes and behaviors, proposing that attitude would mediate the relationship of cognitions and behaviors. Following this approach, we explored the relationship among perceived interactional and informational justice (i.e., cognitions), patients' trust and satisfaction (i.e., attitudes) and loyalty to the service and adherence to treatments (i.e., behaviors) (see Fig. 1).

Perceived interactional justice refers to patients' subjective perception of the quality of the interactions between health care providers and users. This dimension measures the extent to which users felt listened to and treated

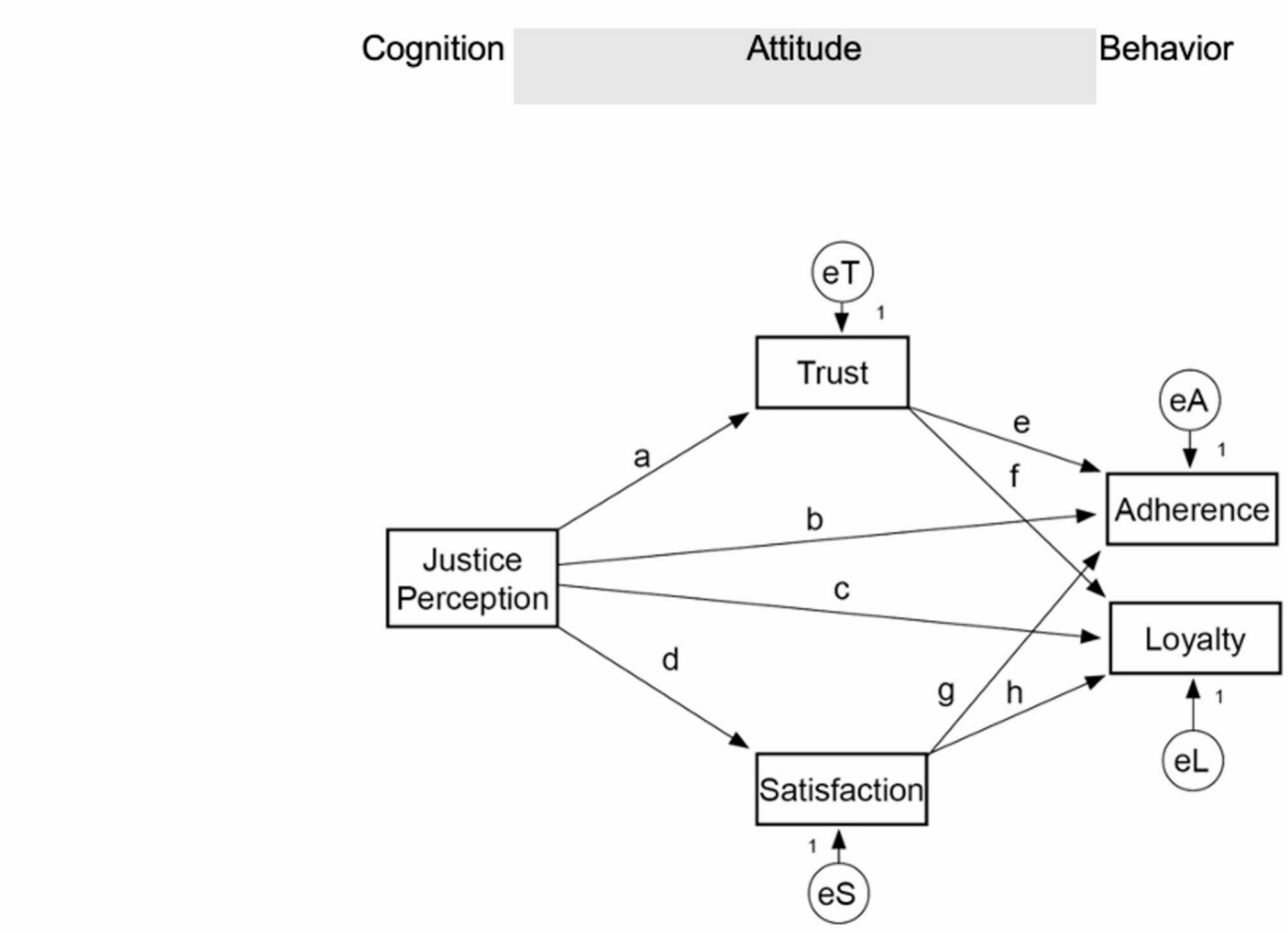

Fig. 1 A priori model of relationships showing the influence of justice perception on the attitudes and behaviors of health service users

with respect and dignity [16]. Perceived informational justice refers to users' perceptions of information as sufficient, accurate, suitable, clear, thorough, and timely in their exchanges with health care services [16]. These two dimensions of organizational justice will add detail and accuracy to understanding the patient-centered care tenants of communication and relationship principles of patient-centered care provision [6, 17]. Then, we hypothesize that: 1) interactional and informational justice perceptions will relate to patients' adherence to treatments and loyalty to the service (b and c relationships in Fig. 1).

In response to the calls in recent research to explore unconscious and automatic processes to explain engagement in health behaviors [13], and according to the TRA, some mediating variables may play a role in the relationship between cognitions and behaviors. It seems that attitudes and more emotional, less conscious, variables might have a role in patients' dynamics with health care services. Satisfaction has been linked to treatment adherence [16] and loyalty to service [18]. In addition, user satisfaction is related to perceived organizational justice in health care [19, 20]. Patient–physician trust promotes medical adherence and is a mediator between health consciousness and medical adherence [21] and between patient-centered communication and patients' perceptions of healthcare quality [22]. So, our study also hypothesized that: 2) patients' attitudes of satisfaction and trust will mediate the relationship among interactional and informational perceived justice and patient's adherence to treatments and loyalty to the health care service.

Therefore, the main objective of this study was to test the role of patients perceived interactional and informational organizational justice in health service performance with respect to their adherence to professional advice and loyalty to the service as indicators of health-related behaviors. Furthermore, we studied the mediating effect of patient satisfaction with health services and trust in health providers in two different health care systems and countries. These are graphically represented in Fig. 1.

Method

We conducted a cross-sectional survey study using two data samples from Spain and the U.S. The data were collected with the help of a self-administered survey at one

point in time in each country. All methods were carried out in accordance with relevant guidelines and regulations. Participants met the following inclusion criteria: age 18 or older, prior experience with the healthcare system, and a healthcare visit within the past six months. Exclusion criteria included that survey responses completed in under 10 min were discarded, as this completion time was deemed unreliable based on pilot testing. The study was approved by the Ethics Committee of the Health Area of the Hospital of Salamanca (Spain) in accordance with international standards and the Institutional Review Board for the Protection of Human Subjects of Duke University (NC, the U.S.) in accordance with current law. Informed consent to participate was obtained from all subjects. Regarding sample size: accepting an alpha risk of 0.05 and a power of 0.8 in a two-tailed test 408 subjects are necessary in the first group and 408 in the second to find as statistically significant a proportion difference, expected to detect a difference between the groups of 0.1 points in the most unfavorable situation. A drop-out rate of 5% has been anticipated. Therefore, we consider that the current sample is sufficient to test the hypotheses of the study.

Description of Spanish sample recruitment

The sample comprised 473 participants who visited two health care services in a medium-sized city in Spain located in two distinct neighborhoods of the urban area. Considering the list of physicians currently working at the health care service, we randomly selected one of them and made appointments with the patients for the next day, inviting them to arrive early to participate in our study. Subsequently, two new doctors and their patients were selected every day. Informed consent was provided to the patients, who read and signed the form. The general purpose of the study was explained, and anonymity was guaranteed. The survey was then conducted with the help of a research assistant who provided the required instructions to the patients and checked the exclusion criteria about timing. No survey was excluded for this reason.

Description of the US sample recruitment

A sample of 450 participants was selected using a national paid panel of adult respondents recruited through a web platform, following the methodology outlined in previous studies [23]. The recruitment process involved the following steps: first, respondents from the platform's general pool who were located in the United States and aged 18 years or older were invited to participate in the survey on a first-come, first-served basis. Second, participants were presented with an informed consent statement, which outlined the survey's purpose, procedures, and assurance of anonymity. Only those who provided informed consent proceeded to the screening phase. Third, participants were, then, asked to answer a screening question regarding the timing of their most recent healthcare service visit. Those who reported visiting a healthcare service within the past six months were allowed to proceed with the survey. Participants who reported visits occurring more than six months prior were thanked for their interest and dismissed. Fourth, once the target sample size of 450 respondents was achieved, data collection was concluded. After examining the exclusion criteria, 44 participants were excluded from further consideration. The final sample for analysis consisted of 406 participants from the United States.

Measures

The demographics and characteristics of healthcare customers were recorded through specific questions in the survey. The Perceived Organizational Justice in Care Services scale (PJustCS) was used to measure the interactional and informational dimensions of justice [19]. The interactional justice measure included seven items. An example of these: "In terms of how people treated you personally during this health care experience, to what extent were they really concerned with you as a person?". Informational justice was measured using six questions. An example of these: "In terms of the information you received during your visit to the health care service, to what extent were your questions answered clearly?"

We used the Satisfaction With Health Care Services Scale [24] to measure satisfaction with different aspects of health services, including practitioner staff, support staff, center facilities, and center accessibility and procedures, by utilizing 11 items. An example of these: "To what extent were you satisfied with the time spent with your healthcare provider (nurse/physician)?"

Trust in the health provider was assessed using two items: "Were you willing to rely on the health care professional's judgment on important matters?", and "Did you trust the health care provider you dealt with?" [25].

To measure adherence, participants were required to respond to the following item about how far they followed the advice provided on their visit [16, 26]: "To what extent did you follow the advice or take the prescription provided by the health care worker?".

The user loyalty to the service measure included two items: (1) the intention to give a positive word of mouth, which was inferred from "Would you recommend this service to your friends and family?", and (2) the intention to return to the service, which was inferred from "Would you willingly visit this health care center again if you needed health care?" [27, 28]. All the items were answered on a five-point Likert scale ranging from 1 "not at all" to 5 "totally." The Cronbach's alpha of each measure

Table 1 Demographic characteristics of the data samples

	Spain	United States	Level of significance
N	473	406	
Women (%)	59.20%	52%	< 0.05
Age (*M* ± *SD*)	55.75 ± 16.77	52.24 ± 14.06	< 0.01
Years of schooling (*M* ± *SD*)	10.67 ± 3.70	13.23 ± 2.21	< 0.01
Recent health service visits (in the last month) (%)	65.80%	57.10%	< 0.05
Contact professional: doctor (%)	81%	72.2%	< 0.01
Private insurance (%)	14.20%	70%	< 0.01

N number of observations, *%* percentage, *M* mean, *SD* standard deviation

can be found in the Results section, Table 2, all above.87, showing an adequate reliability.

Data analysis

The results are expressed as the means and standard deviations for quantitative variables and as frequency distributions (n and %) for qualitative variables. Student's t test (2-tailed) and the chi-square test were used to determine differences in baseline characteristics between the two samples (Spanish and American). Pearson correlations were used to analyze the relationship between quantitative variables in each sample. The internal consistency and reliability of each scale were assessed using Cronbach's alpha. Concurrent validity was tested through the examination of correlation coefficients. We performed multigroup path analysis using Amos software to test the hypothesized, best-fitting models and multigroup analysis.

The hypotheses established an alpha of.05. The data were analyzed using SPSS version 23.0 (IBM Corp, Armonk, NY, USA) and AMOS version 16.

Results

Sample characteristics

Table 1 shows the demographic characteristics of the participants. In the Spanish sample, the proportion of women is slightly greater. In addition, visits to health care services are more recent in Spain than in the US. The number of people with private health insurance is greater in the U.S. than in Spain.

Descriptive results

The mean values of the variables analyzed in the model by country and the differences between them are shown in Table 2. In the U.S. sample, informational justice, satisfaction and loyalty scores were higher, and in the Spanish sample, adherence was greater.

The correlation coefficients and reliability of the scales for each sample are also presented in Table 2. All reliabilities are shown on the diagonal for the Spanish/the U.S. samples, indicating an adequate level of reliability in all the cases (all above 0.87). Significant Pearson's correlations are found in both samples for each justice dimension with all the variables. That supports the concurrent validity of the measures. It was expected that justice perceptions, trust and satisfaction would have a strong correlation among them, but not so big as being considered the same variable. That fits our results, all correlations being between 0.50 and 0.81.

Additionally, patients' attitudes, such as trust in the clinician and satisfaction with the service, are strongly related with the other variables (significant Pearson's correlations in all cases, except between patients' satisfaction and adherence for the Spanish sample).

Model tests

We present two models computed with the whole sample ($n = 879$), the hypothesized (Fig. 2, I & III) and the best-fitting models (Fig. 2, II & IV), for interactional justice perception and for informational justice perception (see Fig. 2). The fit indices can be found in Table 3. Afterwards, a multigroup analysis was computed using the country-of-origin data separately for each justice perception to test the model in both the U.S. and Spain.

Table 2 Correlations and descriptive data of each variable for both samples of health care users (below Spain/ above the U.S.)

	1	2	3	4	5	6
1. Informational Justice	(0.96/0.95)	0.79**	0.70**	0.75**	0.70**	0.19**
2. Interactional Justice	0.66**	(0.91/0.94)	0.76**	0.81**	0.79**	0.18**
3. Trust	0.61**	0.56**	(0.89/0.93)	0.75**	0.76**	0.18**
4. Satisfaction	0.57**	0.50**	0.50**	(0.89/0.96)	0.82**	0.18**
5. Loyalty	0.45**	0.45**	0.46**	0.59**	(0.87/0.88)	0.16**
6. Adherence	0.19**	0.15**	0.17**	0.09	0.15**	n.a.
Mean ± SD (Spain)	4.24 ± 1.02	4.40 ± 0.79	4.52 ± 0.87	3.87 ± 0.67	3.91 ± 0.59	4.75 ± 0.68
Mean ± SD (the U.S.)	4.47 ± 0.81	4.48 ± 0.80	4.51 ± 0.82	4.32 ± 0.86	4.46 ± 0.97	4.64 ± 0.73

Cronbach's alpha for each scale in each sample are given in the diagonal between brackets (Spain/the U.S.) where *n.a.* not available, *SD* standard deviation, significance level: *$p < .05$, **$p < .01$

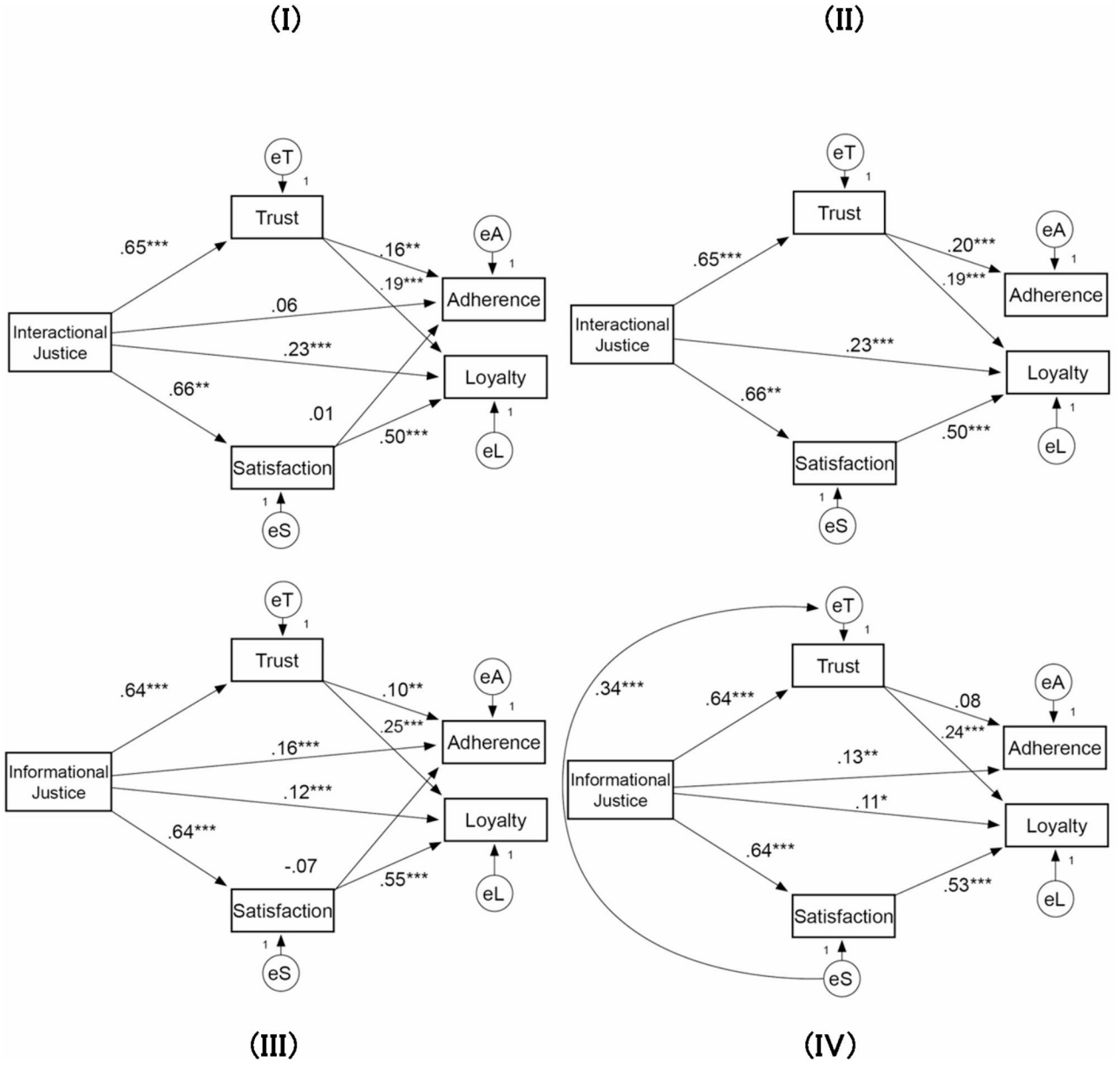

Fig. 2 Hypothetical (**I** and **III**) and final (**II**, **IV**) path analysis models predicting treatment adherence and user loyalty in relation to the perception of interactional justice (**I** and **II**) and for informational justice (**III** and **IV**). Standardized trajectory coefficients. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Interactional justice perception path analyses

The fit indices were acceptable in the case of the hypothesized model (see Table 3), but they could be improved. The best-fitting model showed that the effect of satisfaction on adherence (g) was not maintained in the case of interactional justice [$\Delta\chi^2 = 0.1$, df = 1, $p = 1.00$]. The best-fitting model (see Fig. 2, II) excluded the direct effect of interactional justice on adherence and the effect of satisfaction on adherence, showing a satisfactory better fit with respect to the hypothesized model [$\Delta\chi^2 = 2.3$, df = 2, $p = 0.86$].

According to our multigroup analysis, the ΔCFI was close to the critical recommended value of 0.01 ($\Delta\chi 2 = 95.18$, df = 6, $p < 0.001$; ΔCFI = 0.042). Testing the final model for each of the samples yielded a good fit for Spain [χ^2 (4) = 34.0, $p < 0.001$; CFI = 0.961, RMSEA = 0.126, TLI = 0.902] and the U.S. [χ^2 (4) = 51.7, $p < 0.001$; CFI = 0.965, RMSEA = 0.172, TLI = 0.914]. Nevertheless, significant differences appeared in specific relationships, between interactional justice and trust (z = 2.94, $p < 0.05$), interactional justice and satisfaction ($z = 9.04$, $p < 0.05$), and satisfaction and loyalty ($z = -2.50$, $p < 0.05$), with loadings in the same direction but significantly greater in the U.S. sample. The model that did not include these three relationship parameters was invariant between samples ($\Delta\chi 2 = 8.19$, df = 3, $p = 0.04$;

Table 3 Path analysis data of the nested interactional and informational justice models to test trust and satisfaction mediation hypotheses

Models for Interactional J.		χ2	df	Δ χ2	Δdf	RMSEA	IFI	CFI	GFI
Hypothesized Model		236.7	17	-	-	0.131	0.958	0.958	0.960
Model 1	Without b	238.3	18	2.4	1	0.113	0.959	0.959	0.959
Model 2	Without c	293.1	18	56.4	1	0.145	0.932	0.931	0.933
Model 3	Without g	236.8	18	0.1	1	0.112	0.959	0.959	0.960
Model 4	Without b and g	239.0	19	2.3	2	0.101	0.959	0.959	0.959
Models for Informational J.		χ^2	*df*	Δ χ^2	Δ*df*	RMSEA	IFI	CFI	GFI
Hypothesized Model		281.7	17	-	-	0.155	0.938	0.938	0.948
Model 1	without b	293.4	18	11.7	1	0.140	0.933	0.933	0.942
Model 2	without c	296.5	18	14.8	1	0.143	0.931	0.930	0.939
Model 3	without g	283.9	18	2.2	1	0.136	0.937	0.937	0.946

Model 1 excludes the relationship between justice and adherence (b). Model 2 excludes the relationship between justice and loyalty (c). Model 3 excludes the relationship between satisfaction and adherence (g). Model 4 excludes the relationship between justice and adherence as well as satisfaction and adherence (b & g)

RMSA root mean square error of approximation, *IFI* incremental fit index, *CFI* comparative fit index, *GFI* goodness of fit index

ΔCFI = 0.003), indicating a proper fit [χ^2 (13) = 106.8, $p < 0.001$; CFI = 0.956, RMSEA = 0.091, TLI = 0.933].

Informational justice perception path analyses

In this case, the direct effect of informational justice on adherence must be maintained (see Fig. 2, III & IV, and fit indices in Table 3). Otherwise, the model worsened significantly when it was eliminated [$\Delta\chi^2 = 11.7$, df = 1, $p < 0.001$]. Additionally, we found that satisfaction had no influence on adherence, in contrast to what was hypothesized [$\Delta\chi^2 = 2.2$, df = 1, $p = 0.14$]. The modification indices with respect to this model indicated that if covariance was added between the measurement errors of trust and satisfaction, the model fit improved substantially [χ^2 (17) = 174.2, $p < 0.001$; CFI = 0.996, RMSEA = 0.040, TLI = 0.986].

When we performed the multigroup analysis, the group fit of the final model for each sample did not work invariably for the two samples (Δχ2 = 95.54, df = 7, $p < 0.001$; ΔCFI = 0.04), although its fit was good in both Spain [χ^2 (2) = 5.4, $p < 0.001$; CFI = 0.996, RMSEA = 0.060, TLI = 0.979] and the U.S. [χ^2 (2) = 0.05, $p < 0.001$; CFI = 1.00, RMSEA = 0.00 (0.00-0.00), TLI = 1.008]. Specifically, differences in the characteristics of the countries appeared in the relationship between informational justice and trust (z = 3.97, $p < .05$), informational justice and satisfaction (z = 9.59, $p < .05$), and trust with patient loyalty (z = 2.58, $p < .05$), with higher loadings in the U.S. sample.

Discussion

We have found that addressing patients' psychological variables in healthcare services could relate to better service performance through the improvement of patients' health behaviors. This paper answers how patients perceived organizational justice matters and how it should be considered when delivering patient-centered care to provide better health care results (i.e., adherence to clinical advice and loyalty to the service) and to improve health care procedures and policies.

More specifically, we showed that patients' perception of informational justice directly influenced adherence to professional advice, whereas both their perceptions of interactional or informational justice fostered their satisfaction with health services, trust in health providers, and loyalty to services. Significant correlations signaled all these direct relationships. Patient centered care should be developed considering patients' perceptions of justice due to their implications. For example, an implication of our study is that if patients perceive health care information as sufficient, accurate, suitable, clear, thorough, and timely, that will relate with their adherence to treatments. That implies that healthcare organizations and professionals should create the means to foster those characteristics to improve their performance. Information systems development at the organizational level and providers' training in effective communication are some of the initiatives that could be advised based on our findings. In addition, in our study, trust in health providers acted as a mediator of the influence of interactional justice on adherence. Providers respecting and treating patients with dignity should be assured because this will influence patients' adherence to treatments and their trust the professional. Trust can have different sources at the organizational or the individual levels (e.g., organizational or individual reputation, record of patient exchanges with the provider or perceptions of interactional justice). Organizations and professionals should be aware of the importance of creating trust during their exchanges with patients to foster adherence. These findings have major implications for the management of healthcare services and policies and, ultimately, for contributing to the quality of healthcare and patient-centered care.

Furthermore, the research design and main findings allow us to offer guidelines of the implications of each finding that contribute to the quality of health care and

patient-centered care that could be used in different health care systems. We develop them next:

Perceived organizational justice and adherence to clinical advice and loyalty to the service

Perceptions of interactional and informational justice were related to adherence to professional advice, which is in line with the findings of previous studies highlighting the importance of the communication process with health care users [29, 30] but here we add the necessary characteristics of patients' perceived justice to foster adherence and then, to generate good patient-centered care results [31]. The direct effects of perceived justice on loyalty to the service are also aligned with previous research involving workers and users of other services. This finding demonstrates the importance of the perception of interactional justice in variables related to loyalty, such as the intention to leave an organization [25], behaviors related to reusing the same service [32] or providing positive references [33]. Therefore, the connection between health service management and users can be improved by fostering interactional and informational justice perceptions related to creating spaces and procedures that allow interactional exchanges, sufficient time to interact and an adequate exchange of information [19].

Adherence to professional advice

Perceived interactional justice

In the context of best-fitting models, the results of the present study indicate that trust in the health provider acts as a mediator in the influence of interactional justice on adherence to professional advice. Thus, the perception that interactions with professionals show respect and dignity seems to foster the trust that generates adherence to advice, which is consistent with the findings of previous research [21, 34]. The quality of interaction with health personnel is essential in building trust [34], especially in contexts in which building trust is particularly challenging, such as those imposed by the COVID-19 pandemic and the use of masks [35]. In our study, we verified that the interactional dimension of organizational justice perception supports these assertions. Thus, perceiving interactions characterized by showing interest in the patient, willingness to listen, respect for their dignity, or treating the patient with respect and politeness are characteristics of interactional justice perception that foster the patient's trust in the health provider. This trust leads to better treatment adherence, service performance, and service-user connection as an important condition for ensuring the quality of care [36].

Perceived informational justice

However, informational justice has such a powerful relationship with treatment adherence that the effect of total mediation of trust in the health provider can be neglected. This finding also adds to the trend regarding the importance of the quality of the information provided for treatment, which is essential in patient-centered care [37, 38]. Patients' positive perceptions of the information provided and clarity regarding the effects, dosage, and characteristics of treatments increase the probability of adherence to the professional's recommendations. Additionally, we know that when patients are ready for future procedures or outcomes through informational interventions, uncertainty levels decrease, and clinical outcomes improve [2]. Therefore, service design should try to provide well-tailored information to patients because if they do not perceive it as sufficient, accurate, suitable, clear, thorough, and timely (i.e., fair), the likelihood of adherence decreases.

Patients' satisfaction

Several contradictions have been found in previous research on the relationship between patient satisfaction and adherence. While certain studies [39] have found evidence of the existence of such a relationship, others have contradicted it [40]. In our study, satisfaction was not related to adherence in any of the models that we computed. This could be related to differences in satisfaction and adherence in terms of time, with satisfaction being an immediate and ephemeral reaction, while adherence is a behavior requiring long-term motivation. As both variables were at different levels, the relationship was ambiguous. These results suggest that satisfaction could have limited explanatory power for users' long-term behavior.

Loyalty to the service

Regarding patient loyalty, the current study showed that both dimensions of organizational justice have such a strong influence on this behavior that the loyalty of patients to health services is linked directly to their perceptions of justice and through their trust and satisfaction with the service. This result corroborates previous findings on the promotion of loyalty through patient satisfaction and trust [41–45].

Consequently, this research supports the importance of implementing a health service design that promotes the perception of organizational interactional and informational justice in health services, as these factors are directly and indirectly associated with patients returning to health services and their tendency to provide positive references. This would lead not only to better service performance, cost savings in resources, and an improved image of the services [43] but also to better patient-centered care.

Country comparison

Testing the relational models with each country's sample separately confirmed their robustness since the relationships were maintained in the health care systems of both countries. This means that all the implications discussed here holds for very different health services organizations, even from different health systems. Differences were found only in terms of the strength of certain relationships but not in the direction of the proposed links. There may be various reasons why the perception of justice is more closely linked to trust and satisfaction among users in the U.S. than in Spain, given that health care systems (mainly private in the U.S. vs. public in Spain, with freedom to choose the service in the U.S. vs. assigned services/practitioners in Spain) and types of users (mean age being older in Spain vs. in the U.S.) differ in many ways. Although the two contexts involve very different ways of organizing service delivery and user characteristics, we can conclude that patients' cognitions, emotions and behaviors and their relationships were similar in both contexts.

Strengths and limitations

The current study has several strengths, including the use of a comprehensive model that encompasses constructs to understand patients' experience and how to use this understanding in health care services management, and also, that the results were robust since it was confirmed in two countries with different healthcare systems.

The usual limitations of cross-sectional designs regarding the difficulties of establishing causality apply to the present study. Although we followed the Theory of Reasoned Action as a theoretical framework that proposed expected variables' relationships, longitudinal studies that strengthen the relationships found need to be conducted. The data collection method (i.e., a survey) was the same for all variables. Thus, the possible variance common to the method should be considered because it may artificially strengthen the relationships between the variables. In general, self-reports have proven to be a valid data collection method; however, they tend to yield slightly overestimated results [46].

Conclusions

Patients' perceptions of interactional and informational justice play an essential role in fostering trust and satisfaction in health services which relates to patients' health behaviors. Trust is always related to adherence to treatments and loyalty to the service, while patient satisfaction relates to loyalty but not adherence. We also found that the perception of informational justice has a remarkable influence on patients' adherence to professional advice. Thus, if we want better patient-centered care and better health results, health service design and practitioner behaviors should aim to foster organizational interactional and informational justice perceptions.

Future lines of research include the design and test of health services interventions aimed at supporting organizational justice, as well as the evaluation of their results from a patient-centered care approach.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-025-12461-x.

Supplementary Material 1

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Authors' contributions

Concept and design: DPA, EB; Acquisition of data: DPA; Analysis and interpretation of data: DPA, LGO; Drafting of the manuscript: DPA; Critical revision of the paper for important intellectual content: EB, LGO; Obtaining funding: LGO; Supervision: EB, LGO.

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Data availability

Data cannot be shared openly due to extra analysis carried out by the researchers, but they are available on request from authors.

Declarations

Ethics approval and consent to participate

The study was approved by the Ethics Committee of the Health Area of the Hospital of Salamanca (Spain) in accordance with international standards and the Institutional Review Board for the Protection of Human Subjects of Duke University (NC, the U.S.) in accordance with current law. Informed consent was obtained from all subjects.

Consent for publication

Not applicable

Competing interests

The authors declare no competing interests.

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