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Perceived Organizational Justice in Care Services: Creation and multi-sample validation of a measure

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ABSTRACT

Organizational justice (OJ) perceptions predict attitudes and behaviors of customers and employees across a broad range of services. Although OJ has proven predictive power and relevance, it has rarely been studied in health care settings. This stems partially from the lack of a reliable and valid measure of patients' OJ in health care encounters. The objective here was to create and validate a measure of patients' OJ. With that purpose, a survey study with two sampling contexts – the U.S. and Spain – was carried out in order to provide a cross-national validation of the scale in two versions: English (Perceived Organizational Justice in Care Services, PJustCS) and Spanish (*Percepción de Justicia Organizacional en el Ámbito Sanitario*, PJustAS). Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to select the appropriate items in the final version of the instrument. Reliability and validity of the measure were tested. A total of 406 patients in the U.S. and 473 patients in Spain participated. The measures used were the newly created scale of Perceived Organizational Justice in Care Services (PJustCS/PJustAS) and scales of patients' Satisfaction, Trust and Global Justice. Factor Analyses supported the four dimensional structure of the instrument for each group. Multigroup CFA substantiated invariant factor loadings and invariant structural models across both samples, hence, supporting that the instrument is applicable in its two versions: English and Spanish. Validation results showed expected positive relations of OJ with patients' satisfaction, trust in clinicians and global perceived justice. These results point out the importance of health care customers' perceived organizational justice in the explanation of health care dynamics. The scale has desirable psychometric properties and shows adequate validity, contributing to the potential development of the area.

Introduction

Perceived organizational justice[1] (OJ) has a 30-year history of explaining the attitudes and behaviors of customers and workers (Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Ybema & van den Bos, 2010) but, OJ and its consequences has rarely been studied in health care settings. The few significant studies that do consider this variable in health care services (Dobson, Lepnurm, & Struening, 2005; Hughes & Larson, 1991; Kulik & Holbrook, 2002; Naumann & Miles, 2001; Virtanen et al., 2012) suggest that perceived justice is important in this context and that improving patients' perceptions of OJ is an effective and low cost way to improve health service results (Hughes & Larson, 1991).

A significant line of research, developed by Elovainio's group, focuses on health care workers' OJ perceptions and its impact on their caring behaviors (Elovainio et al., 2013) and their own health (Elovainio, Kivimaki, Steen, & Vahtera, 2004). Expanding these findings, an association between workers' justice perceptions and pupils' health has been found (Elovainio et al., 2011). Also, health workers' perceived procedural fairness was found to be associated with more optimal glycated hemoglobin levels among patients (Virtanen et al., 2012). Following these results, studying health customers' own perceived OJ and its possible direct effects on their health seems the logical next step to take.

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[1] Vocabulary note: "Justice" and "fairness" will be used as synonyms, in line with previous organizational research, and "Patient" and "health care customer" refer to the same entity in the present work.

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OJ in health care refers to the subjective perception of fair treatment from the organization or representative the patient encounters in a health care setting. This concept has four dimensions (see Table 1) based on facts, situations, other individuals, and behaviors or processes that contribute to the judgment that one is or is not fairly treated (adapted from Greenberg, 1990). First of all, distributive justice relates to the results obtained in an exchange, considering the investments made (Adams, 1965). This type of justice depends on the distribution of results or resources. Health care services might be seen as fair, for example, if they are allocated on the basis of need, equality, or some other "deservingness" rule.

Secondly, the justice literature highlights the importance of the procedures by which decisions are made. Procedural justice refers to the perceived fairness of an organizational procedure (e.g., the perceived fairness of how health care delivery is organized). A third dimension of justice is interactional fairness, which refers to the subjective perception that people perform a given procedure in a just fashion, treating with dignity and respect all individuals involved (Bies & Moag, 1986; Colquitt & Shaw, 2005). Finally, the informational justice dimension refers to the subjective perception that the information received during a procedure was adequate, correct and sufficient (Colquitt, 2001).

These four dimensions together address fairness in the situations and interactions that occur in health care services. Perceiving fairness in these different areas will affect patients' reactions to their clinicians and to the health system in general (Hughes & Larson, 1991; Naumann & Miles, 2001). Previous research shows close links between fairness judgments and attitudes and behaviors like trust in the health care professional (Dolan, Tzafir, & Baruch, 2005; Pillai, Schriesheim, & Williams, 1999) or satisfaction with the service (Clemmer & Schneider, 1996; Swan, Sawyer, Van Matre, & McGee, 1985). Hughes and Larson (1991) found that perceived procedural justice is related to the level of patient involvement in their health care. Naumann and Miles (2001) explored justice dimensions related to the patients' perceived control over their waiting time to receive assistance. Perceived procedural and distributive fairness were found to relate to patients' satisfaction with the service. Both works emphasize the impact of patients' perceived control on their justice judgments and the impact of those judgments on patients' attitudes and behaviors.

Table 1
Description of the construct of Perceived Organizational Justice.

Justice dimensions	Facets/Rules	Description
Distributive	Equality	Outcome or distribution of resources that provides the same to everyone involved.
	Equity	Outcome or distribution of resources where what you get is commensurate with the investment and, in turn, with what others had invested and obtained in a similar situation.
	Need	Outcome or distribution of resources that gives everyone what they require in their situation.
Procedural	Consistency	Procedure always applied in the same way.
	Absence of bias	Procedure that does not favor certain groups or individuals over others.
	Accuracy	Procedure that takes into account adequate and enough information.
	Correction	Procedure that provides possibility of rectification if there is a fault in it.
	Representativeness	Procedure that considers everybody affected by it.
	Ethics	Procedure that is consistent with the current ethical rules.
Interactional	Respect	Interaction by mean of respectful communications.
	Education	Interaction that treats people politely.
	Dignity	Interaction that treats people decently.
	Property	Interaction without inappropriate comments.
Informational	Appropriate	Information that includes suitable explanations.
	Right	Information provided free of faults.
	Sufficient	Enough information for what is needed.
	Sincere	Truthful and forthright information.

However, these works measured OJ with only one or two questions that were created *ad hoc* for the particular research study. Although others have attempted to measure patients' justice perceptions (Fondacaro, Frogner, & Moos, 2005), no instrument, validated with multiple samples, considers all four justice dimensions and accurately defines the construct. An example of such attempt was that of the Health Care Justice Inventory (Fondacaro et al., 2005). It assesses the justice of interactions of patients with their providers and health care plans representatives in decision making procedures. The instrument includes distributive justice and what the authors conceptualize as three dimensions of procedural justice: trust, impartiality and participation. Even though knowledge of trust levels is important to understand patient–organization interactions, according to the justice literature, trust should not be considered part of the procedural justice dimension. Also this work gives no justification for using only two of the six rules for a fair procedure established in the classic work of Leventhal (1980) and for not taking into account interactional and informational justice dimensions (Colquitt, 2001). Hence the instrument shows inconsistencies with existing accepted definitions of organizational justice. Even though the importance of justice perceptions has been acknowledged, the health care area does not have a theoretically-grounded measure that includes all fairness dimensions.

To address the need for a justice measure of all dimensions of perceived justice in health care services (Cohen-Charash & Spector, 2001; Colquitt et al., 2001; Greenberg & Colquitt, 2005), we present a scale of OJ for health care customers (PJustCS/PJustAS). Thus, it aims to contribute to the field in two ways: 1) it is designed to be applied to health care customers, and 2) it considers all four justice dimensions. Here we present the construction, validation and psychometric analysis of two parallel forms of the same test in two separate cultures, Spanish (PJustAS) and English (PJustCS).

Method

We used a cross-sectional design to validate a measure of OJ for health care customers. We developed two versions of the instrument: Spanish and English; and validated it in two countries with different health care system characteristics: Spain and the U.S.

Considerations in the items construction

Items construction was based on previous qualitative research about what is considered fair and unfair by health care customers (Pérez-Arechaederra, Herrero, Lind, & Masip, 2010), contributing to questions face validity. This work found that the way customers had been treated by the staff during the implementation of procedures, along with the information exchange between client and service providers had a strong impact on fairness perception. Moreover, it was proved that the patients' comments about waiting times, pricing and the physical and emotional consequences of the encounters with health services also played a major role in the patients' assessment of their experience. Both results were considered in the creation of the present scale.

In addition to this source, the definition of each dimension in the literature (see Table 1), the characteristics of the health care context and the most established scale in the area, Colquitt's scale (2001), were also considered in the elaboration of a list with multiple potential questions. That means that Colquitt's instrument was not just translated, but considered along all those sources, to create the pool of perceived OJ items to be used with health care customers.

As in Colquitt's instrument, the headings for each section specified what object or entity patients should evaluate in each case (e.g., "the procedures used to organize health care delivery"). The answers ranged from 1 ("Not at all"), to 5 ("Totally"). "I do not know/not applicable" option was added in case that the user did not experience that circumstance.

To work on the content validity of the instrument, four health care and organizational justice literature experts studied these questions to select which ones would be included in the pilot test. They considered the perceived justice concept, its dimensions and health services and patients daily organization. Items were ranked by each expert according to their suitability. The goal was to develop a meaningful survey that asked about typical circumstances in an understandable format that was easy to read and less than 10 min long. The final version was agreed by this expert committee.

In total, six questions were included to measure perceived informational justice, eleven for interactional justice, eleven for procedural justice and seven for distributive justice, proportionally distributed as in Colquitt's measure. All items were created in Spanish. A pilot test ($n = 30$) was performed to check the understandability and suitability of the Spanish version scale.

The 35 questions were translated into English and evaluated by a health and justice expert committee for content and wording. In the case of the distributive dimension an extra question was added about the assessment of the price of the visit. A pilot study ($n = 22$) was conducted with health care customers of Duke University in the U.S.

Both Spanish and American respondents found the instrument easy to understand and suitable. They provided a few suggestions to improve the instrument, which the research team incorporated into the survey. Testing time was also recorded to check the average duration. For both pilot studies, the method of data collection was the same as that used in the real application described below.

Description of Spanish sample recruitment

A survey with several instruments was administered to a randomized sample of consulting population at two primary care centers from a medium sized city in Spain (Salamanca). The centers were located in two distinct neighborhoods in the urban area of Salamanca. The data collection took place during fall 2010. The study was approved by the Ethics Committee of the University Hospital of Salamanca (Spain) and follows the data protection law 15/1999 and its update [Royal Decree (RD) 1720/2007] according to Spanish law.

Recruited patients for the study were 18 years or older. To facilitate recall, they had to have visited one of the two centers in the last 6 months. We randomly selected one of the physicians currently working at the health center, then, every day, the next two doctors were selected in alphabetic order. All of their patients with visits scheduled for the next day were called and invited to arrive a bit early to fill in a survey about their opinion of health services. Once they arrived, an informed consent form was delivered, read and signed. The general purpose of the study was explained and anonymity was guaranteed. Then the survey was delivered and the research assistant explained the instructions to fill in it.

Description of the U.S. sample recruitment

Data were collected through a Web-based survey administered to a national paid panel of adult respondents, following previous research (Lynch, Netemeyer, Spiller, & Zammit, 2010). The data collection took place during spring 2010. A sample of 450 participants who were 18 years old or older and who had visited any kind of health service in the last 6 months was requested. The survey design included quality control procedures for the data. For example, the time taken for each section and for the whole survey was registered. The pilot study showed that no participant could go through the whole survey in less than 10 min, so participants who completed it in less than 10 min were excluded from analyses because they did not appear to have taken the survey seriously.

First, an invitation to fill in the survey was delivered; then, participants read an informed consent statement detailing the characteristics of the survey and guaranteeing their anonymity. After indicating consent, they could proceed with the survey.

The study was approved by the Institutional Review Board for the Protection of Human Subjects at Duke University (Expedient No. 3166, FWA No. 00000265), according to the current law.

Measures

1. Demographics and characteristics of health care customers (e.g. frequency of use of health care services in the last six months, kind of health insurance, etc).
2. Perceived Organizational Justice in Care Services (PJustCS/PJustAS) including the four dimensions of justice. The elaboration and functioning of those questions are detailed in the next section and in Supplementary Table 2.
3. Health customers' rated satisfaction with different aspects of the service (Varela, Rial, & García, 2003), including satisfaction with practitioner staff, satisfaction with support staff, satisfaction with center facilities and satisfaction with center accessibility, measured with eleven items (in the original work, Cronbach's alpha of 0.82). An example of these is: "To what extent were you satisfied with the time spent with your health care provider (nurse/physician)?"
4. Trust in the health care professional, adapted from Aryee, Budhawar and Chen (2002) using two items (in the original work, Cronbach's alpha of 0.84): "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?"
5. Global justice based on Lind (2001) and Ambrose and Schminke (2009), using nine questions about global perceptions of fairness (in the original work, Cronbach's alpha of 0.93). An example item is "Would you say that your experience in the health service was fair overall?"

Analysis

Means, standard deviations, and item-scale correlations are presented in Supplementary Table 2. Internal consistency reliability of each dimension was assessed using Cronbach's alpha. Since the organizational justice concept was applied to a new area (i.e., customers and health care) and giving the new creation of the questions, an Exploratory (EFA) and Confirmatory Factor Analysis (CFA) were performed to test the structure of the measure. EFA with oblique rotation identified the domains assessed by the instrument. Items with a minimum loading of 0.40 were retained and assigned to the factor on which they had the highest loading. This criterion was complemented by examining item descriptives (means and standard deviations), item content, scale reliability if the item were

deleted and the number of missing cases. This process was enacted with both samples separately.

Multigroup CFA tests the equivalence of measurement and structural models between samples. Fit values and χ^2 were used to assess tested models. Given that χ^2 values are sample size dependent, the differential of the Comparative Fit Index (ΔCFI), that overcomes this limitation was used (Cheung & Rensvold, 2002). The ΔCFI value must be lower than 0.01 to conclude that models are equivalent.

Fit indexes used were CFI, Goodness of Fit Index (GFI), and Tucker Lewis Index (TLI) (good fit considered with values over .95, and acceptable over .90). For Root Mean Square Error of Approximation, RMSEA index, values under .05 are good, between .05 and .08 are acceptable and over .10 indicate questionable fit (Browne & Cudeck, 1992; Byrne, 2010; Dorman, 2002; Kline, 2005). AMOS 16 software was used in these analyses.

Construct validity was evaluated by testing for hypothesized positive association between fairness perceptions and global justice perceptions. Concurrent validity was tested in relation to patients' satisfaction and trust in the physician. Associations were tested using Pearson correlation coefficients with SPSS 18. Partial correlations controlled for the effect of the remaining validation variables in each relationship to avoid spurious increased indexes (e.g., correlations between each justice dimensions and patients' satisfaction, were controlled by patients' trust and global fairness perception). These analyses were performed in the U.S. and Spanish samples separately.

Results

In Spain, from a consulting population of 36,000 persons, 2319 consecutive health customers were selected. A number of 684 were reached and eligible for enrollment, and 473 (69.15%) actually enrolled and completed the questionnaire. In the U.S., from a random selection of 2000 panels receiving the invitation to answer the survey, the website provided the first 450 surveys completed according to the number asked for. The total sample of usable responses was composed by 406 participants (90.22%) most of them were born in the U.S. (93%) and from almost every State in the country. Detailed characteristics of participants are shown in Supplementary Table 3.

For both samples the most frequent contact person was the physician (81% in Spain, 72% in the U.S.) and most of respondents were outpatients. Regarding the organizational fairness scale functioning, item-scale correlations were between 0.68 and 0.94, as shown in Supplementary Table 2. This compares favorably with the usual minimum criteria of .40 suggested for inclusion when refining a scale. The Cronbach's alpha was over 0.87 for every dimension, indicating high internal consistency.

Structure of the measure

After examining item behavior, the same items were retained in both samples (22 items, see Supplementary Table 2), grouped in four dimensions. Every item remained in the dimension initially assigned. This item distribution was tested with two CFA's, one with each sample. The CFA's showed that the measurement and structural model for the Spanish and U.S. sample worked properly.

Modification indexes of the CFA with the 22 item instrument on the Spanish sample indicated better χ^2 values when including five covariances between error terms (i.e., ee1/ee2, ee9/ee10, ef7/ef8, ed2/ed3, ed5/ed6). CFA with these five covariances yielded a statistically significant χ^2 (198, $N = 473$) = 422.39, $p < .001$. The AGFI was 0.93 and RMSEA was 0.05, both indicating good fit to the model. Incremental fit indices, like CFI and TLI were 0.98 and 0.97 respectively. All standardized factor loadings were over .62.

Regarding the analysis with the U.S. sample, CFA with 22 items showed that factor loadings were appropriate, being all over .60. Global adjustment was adequate (χ^2 (197, $N = 406$) = 688.305, $p < .001$; CFI = .95, NFI = .93 and RMSEA = .08). Six covariance errors were added to improve model adjustment based on modification indexes values (i.e., ee1/ee2, ee9/ee10, ee9/ee7, ee10/ee2, ed2/ed3, ed5/ed6).

The four factor structure was compared with other factor solutions to further test the predicted model. As Table 2 shows, the four factor solution is the best fitting model of those presented.

Invariance of the measure

Once the structure of the instrument was tested separately, we proceed with the invariance test of the measure between samples. Multigroup CFA showed that the structural model (χ^2/df = 3.390; RMSEA = .05 (.050–.055); TLI = .94; CFI = .95) is adequate ($\Delta\chi^2 = 281.77$, $\Delta df = 28$, $p < .001$; $\Delta CFI = -0.014$) compared to the model without restrictions (χ^2/df = 2.916; RMSEA = .05 (.044–.050); TLI = .95 CFI = .96). This means that factor loadings, factor variances and covariances are equivalent between samples. Values of the final model are represented in Fig. 1.

Validity and reliability of the measure

Reliability indexes were presented for each justice dimension by country in Supplementary Table 2. Cronbach's alpha values are between 0.87 and 0.96.

Regarding the validity study, the comparison variables were: Global fairness perception (Cronbach's alpha in the Spanish sample was 0.91 and 0.95 in the U.S. sample), satisfaction (Cronbach's alphas of 0.89 in the Spanish sample and 0.96 in the U.S. sample), and trust (Cronbach's alphas of 0.89 and 0.93 in the Spanish and U.S. samples). Partial correlations of each dimension of the PJustCS/PJustAS Scale with mentioned variables showed significant results at a $p < .001$ level in most cases, in the samples from Spain and USA separately (see Table 3). A total of 24 correlations were expected to be significant. The results are largely consistent with expectations, as 19 correlations were found to be significant. So, almost every fairness dimension significantly correlated with global fairness perception, patients' satisfaction, and patients' trust in both samples. Significant correlation values ranged from .12 for Informational Justice and Global Justice in the Spanish sample to .60 for the Distributive Justice and Global Justice in the U.S. sample, with a mean correlation of .26. A number of five non significant correlations were found as well (see Table 3).

Discussion

The study created and validated the scale PJustCS/PJustAS to measure OJ of health care customers in two cultural contexts and in

Table 2
Confirmatory Factor Analysis with the total sample to test the fit of several factor solutions for the fairness scale.

Models		χ^2	df	RMSEA	IFI	CFI	AIC
One factor		4547.48	209	.15	.75	.75	4679.48
Two factors	DJ & PJ	4283.64	208	.15	.77	.77	4373.64
Three factors	DJ, PJ & IntJ	3605.52	206	.14	.81	.81	3699.51
Four factors	DJ, PJ, IntJ & InfJ	2144.68	203	.10	.89	.89	2244.68

Note. DJ = Distributive Justice, PJ = Procedural Justice, IntJ = Interactional Justice and InfJ = Informational Justice.

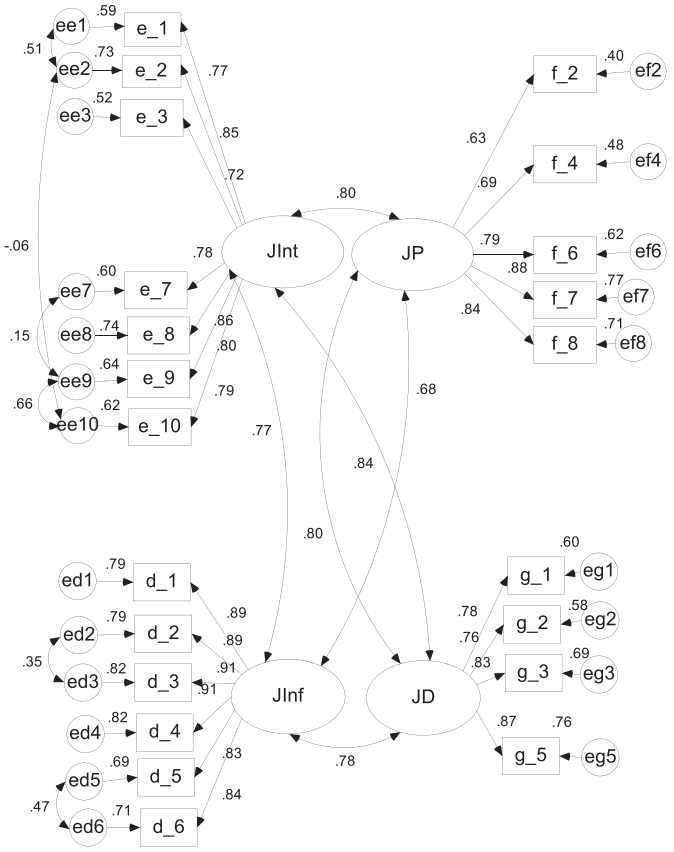

Fig. 1. Multigroup Confirmatory Factor Analysis of the perceived fairness instrument. Covariances designated by two-headed arrows, factor loadings appear on the arrow from the factor to the item and the residuals are next to the error terms. JD = Distributive Justice, JP = Procedural Justice, JInf = Informational Justice, JInt = Interactional Justice.

English and Spanish languages. Its final version is flexible and applicable to different environments. It can be used to measure one or several dimensions of the justice construct in different health care contexts like those from different countries.

The final instrument, composed of 22 questions, worked properly in both samples (American and Spanish). Multigroup CFA showed the instrument was invariant between cultural contexts. The four dimension distinction and the relationships among factors are equivalent between samples, supporting equivalent functioning and comparability of scores in different contexts. Following previous research, invariance of the measurement was tested in this multi-sample study to facilitate score comparisons and to explore cross-cultural stability of the measures (Steinmetz, Schmidt, Tina-Booh, Wieczorek, & Schwartz, 2009).

Table 3
Concurrent Validation (partial correlations) of the Perceived Justice in Care Services Scale (PJustCS/PJustAS) in the samples from Spain and EEUU.

Variables	Dimensions of the FP_HC Scale*							
	Spain				EEUU			
	DFP	PFP	IntFP	InfFP	DFP	PFP	IntFP	InfFP
Global Fairness Perception	.54[a]	.30[a]	.17[a]	.12[c]	.60[a]	.14[b]	.38[a]	.07
Satisfaction	.36[a]	.20[a]	.01	.17[a]	.49[a]	.28[a]	−.02	.25[a]
Trust	.17[a]	.15[b]	.06	.22[a]	.06	.14[b]	.15[b]	.19[a]

*DFP = Distributive Fairness Perception, PFP = Procedural Fairness Perception, IntFP = Interactional Fairness Perception, InfFP = Informational Fairness Perception.
Note. Statistical significance: [a]$p < .001$, [b]$p < .01$, [c]$p < .05$.

The final model includes some covariances between a few error terms to improve fit. It is suitable to add these covariances if they are coherent with theory and are between measurement errors of the same dimension (Byrne, 2010) as in the present case. Furthermore, most of the added error term covariances are equal between samples, indicating similar functioning of the instrument. Since the χ^2 test of fit is affected by the large sample size, additional fit statistics were examined, indicating good fit of the presented models (Byrne, 2010; Dorman, 2002; Eisen, Normand, Belanger, Spiro, & Esch, 2004; Hu & Bentler, 1999).

The instrument also had good reliability and validity. Every Cronbach's alpha worked properly, over the recommended value of .70 for both samples (Pallant, 2001). Concurrent validity demonstrates a significant relationship between dimensional justice and important variables in health services like patients' satisfaction or patients' trust, congruent with previous theoretical proposals (Kulik & Holbrook, 2002) and previous research (Hughes & Larson, 1991). These results point out the importance of health care customers' perceptions of OJ in the explanation of organizational health care dynamics.

Given that the instrument is based on Colquitt's work instrument and theoretical elaboration, construct validity was satisfied. Moreover, construct validity was also tested in relation to the global justice measure. Dimensional and global justice showed the expected positive correlation. Since global justice refers to the global sense of having a fair or unfair experience, it should be correlated with the dimensional version of perceived justice. Even though the dimensional instrument is closely related to the global justice perception measure, both scales are different measures with different applications. The instrument presented here permits a more diagnostic use by providing a detailed assessment of fairness dimensions, so intervention needs can be precisely identified to improve health services performance. This approach increases efficiency of management policies because it focuses efforts on the areas most in need of improvement.

The application of this scale can help practitioners and administrators to better understand the organizations they work for from the health clients' perspective. If any of the dimensions is not perceived as fair enough, it would show a great opportunity of improvement through intervention on that specific dimension. The use of this tool will help hearing health customers' voices and interests, so not only economic, professional and political interests of health care systems are considered (Mechanic, 2006).

Perceived OJ can also have an impact on health status. Previous research shows the impact of health care workers' justice perceptions on worker's and patients' health (Elovainio, Kivimaki, & Vahtera, 2002; Kivimaki, Elovainio, Vahtera, & Ferrie, 2003; Kivimaki, Elovainio, Vahtera, Virtanen, & Stansfeld, 2003; Virtanen et al., 2012), so this scale can be used to open a new research perspective testing the effects of patients' fairness perceptions on their own health.

This scale overcomes limitations of previous measures that lacked a complete dimensional coverage (Fondacaro et al., 2005). It includes the four fairness dimensions (i.e., distributive, procedural, interactional and informational justice) distinguished in the literature, using previous research to adapt the scale to the health care context. Comparison tests of the models of one, two, three and four factors verified that the four factor solution is the best fitting model. These results contribute to the body of research discussing fairness construct dimensionality. Also, the different relationships between each dimension and the variables considered (e.g., satisfaction) points to the understanding of fairness as a multidimensional construct (Colquitt, 2001; Fondacaro et al., 2005). Thus, health care customers' OJ shares the multidimensional structure found in other contexts.

In this study mean scores show the tendency to cluster on the positive side of the answer scale (see Supplementary Table 2). It is not unusual to find negatively skewed distributions when measuring certain psychological constructs of this sort (Hall, Camacho, Dugan, & Balkrishnan, 2002; Pallant, 2001; Thom, Ribisl, Stewart, Luke, & Physicians, 1999). Health services are assumed to work reasonably well and in a fair way so it is not surprising to find these results.

This is a self-report instrument that has the potential for social desirability bias. Although we need to consider this limitation, it is reasonable to think that our data are not highly influenced by this bias because anonymity was assured in data collection and results follow previous findings (Thom et al., 1999). Also, we need to be cautious because due to common method variance some relationships could be artificially increased (e.g. self-reported justice and self-reported satisfaction of the same individual).

Further research should consider using this scale to explore the relationship of OJ with additional health care variables (i.e., patients' loyalty to the service or adherence to treatments). Loyalty and adherence behaviors show relationship with factors linked to the fairness concept like obedience to authorities (Lind & Tyler, 1988) or communication quality between the health professional and the patient (Safran, Montgomery, Chang, Murphy, & Rogers, 2001), relationships that would benefit from more research. Also, the scale can be used to explore the aggregated perceptions at the organizational level to contribute to this line of research (Kivimaki, Elovainio, Vahtera, Virtanen, et al., 2003).

The present scale could be tested in other cultural contexts to check its functioning and psychometric characteristics. The comparison of cross-cultural results would deepen our substantive understanding, enriching both justice research and health services research. Also, it would be interesting to check the functioning of the Spanish version with Spanish speakers living in the U.S., so they would be assessing the same health system as their English speaking counterparts.

In sum, the scale presented here is a valid and reliable instrument that can be used to investigate the dynamics of justice perceptions and their effect on the functioning and performance of health care services. It gives us an important new tool to study the justice perceptions of health care customers to explore how fairness works in health care systems.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2013.11.045.

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