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The Impact of Interactional Justice and Supply-Chain Collaboration on Sustainable SCM Performance: The Case of Multinational Pharmaceutical Firms

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Abstract

This study explored the impact of interactional justice on supply-chain collaboration and sustainable supply-chain performance. Accordingly, it classified interactional justice of supply-chain management (SCM) into interpersonal and informational justice, and empirically classified the effects of these subordinate concepts on supply-chain collaboration and sustainable supply-chain performance. To this end, 700 questionnaires were distributed, and 201 final valid responses were used for the statistical analysis which revealed the significant positive influence of interpersonal justice on informational justice. This indicates that courtesy, respect, and proper words are important in the relationship between buyers and sellers. Both interpersonal and informational justice had a significant positive relationship with supply-chain collaboration. The results suggest that a fair-trade environment should be cultivated to encourage and facilitate seller-buyer collaboration. Lastly, supply-chain collaboration had a positive influence on sustainable supply-chain performance. This implies that if justice is not perceived in the seller-buyer relationship, collaboration can be hindered, which negatively impacts corporate performance. These findings also helped to understand the importance of interactional justice and to propose a new relationship between interpersonal and informational justice.

Keywords : Interpersonal Justice, Informational Justice, Supply-Chain Collaboration, Sustainable SCM Performance

JEL Classification Code : M00, F20, F23

1. Introduction

Healthcare is one of the most regulated industries in the US; many laws have been enacted in response to ethical concerns and precedents (Buchbinder & Shanks, 2017). The principles of justice are the top priority among the ethical principles applied in the medical field (Buchbinder & Shanks, 2017). According to the healthcare tort law in the US, wrongful acts, illegal acts, and nonperformance of duty are defined as negligence. These legal and ethical problems are especially important in the medical field because they

can affect the activities of healthcare-related institutions and firms.

Meanwhile, organizational justice is investigated in various studies and fields including social science (Colquitt, 2001). In the early stages of research on organizational justice, distributive justice was investigated (Adams, 1965), followed by procedural justice which pertains to the procedures followed in the distribution process and their correctness (Leventhal, 1980). Research on organizational justice was then extended to interactional justice, which refers to the level of perception of justice in interpersonal relationships (Colquitt, 2001). In the early stages of research in this field, interactional justice was investigated as a subordinate concept of procedural justice (Tyler & Bies, 1980). However, organizational justice is largely classified into distributive, procedural, and interactional justice (Greenberg, 1993), because scholars agreed that the social aspects of organizational justice needed to be concretized. Interactional justice is divided into the two dimensions of interpersonal and informational justice (Colquitt, 2001); interpersonal justice refers to justice perceived during personal treatment, while informational justice refers to that perceived in the process of information exchange (Colquitt,

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2001). Interactional justice can be used as an important antecedent variable, because it can be felt in interpersonal relationships (Cropanzano, Prehar, & Chen, 2002) whereas distributive and procedural justice are perceived only by the organization or superiors at work.

In this light, how can perceptions of justice influence collaboration and management performance? First, supply-chain collaboration is an action jointly planned and performed by two or more firms within the supply chain (Simatupang & Sridharan, 2002). It can improve management performance more than in the case of no-collaboration. Firms in the supply chain can efficiently achieve common goals by sharing information and resources and making collaborative efforts to reduce risks (Min et al., 2005). Furthermore, various problems such as new-product development, logistics, and marketing can be more easily solved by making cooperative decisions (Simatupang & Sridharan, 2002). Previous studies related to supply-chain collaboration have not focused on empirical analysis for specific industries. Accordingly, the present study investigated the influence of collaboration on supply-chain performance from the perspective of multinational pharmaceutical companies.

Sustainability is a broad concept that integrates economic, social, and environmental performances (Carter & Easton, 2011). Carter and Rogers (2008) defined sustainability in the supply chain context as the improvement of long-term economic performance by means of achieving social, environmental, and economic goals. Taken together, a sustainable supply chain can be achieved by managing operations, support, and information in focusing on environmental and social topics to maximize the profit of the entire chain. Many previous studies (e.g., Carter & Rogers, 2008; Hassini, Surti, & Searcy, 2012) have investigated sustainable supply-chain performance as classified into economic, environmental, and social-performance factors. Most of these studies presented only the basic concept of the sustainable supply chain (e.g., Carter & Rogers, 2008; Walker & Jones, 2012), as studies on the antecedent concepts necessary for the sustainable supply chain have been relatively insufficient. Accordingly, the present study conceptualized sustainable supply-chain performance in terms of economic factors, focusing on the relationship between multinational pharmaceutical companies and pharmacies and further examined those factors as consequence variables.

Fair trade has recently emerged as an important problem in supply-chain management in terms of shared growth or co-prosperity. Therefore, this research explores justice which is an ethical concept. Studying the influence of interactional justice on supply-chain collaboration and sustainable supply-chain performance can aid in suggesting various strategic implications for firms, sellers, and buyers

in the chain. Accordingly, the present study investigated the importance of interactional justice in the supply chain. Additionally, it determined the causal relationships between interactional justice and supply-chain collaboration and analyzed their effects on sustainable supply-chain performance, representing those relationships as a consequence variable in the supply chain. This study also uncovered the foundations of academic approaches related to interactional justice in the relationship between sellers and buyers in the supply chain. Thus, the purposes of the present study were as follows:

- Identify the influence of interactional justice on supply-chain collaboration and sustainable supply-chain performance
- Understand the importance and necessity of interactional justice
- Posit a new relationship between interpersonal justice and informational justice
- Suggest a useful method for investigating justice in academic research related to medicine.

2. Theoretical Background

The present study examined interactional justice, which is a subset of organizational justice, to determine its significance in the field of medicine. To that end, the concepts governing interactional justice in seller-buyer relationships in a supply chain — interpersonal justice, informational justice, supply-chain collaboration, and sustainable SCM performance — were also analyzed.

2.1. Interactional Justice

Justice in transactional relationships between firms refers to the extents to which policies and decisions implemented therein are fairly conducted (Kim & Bae, 2005). In terms of collaborative SCM, justice is an essential factor, because justice, as well as ethics, must be observed and secured before any such cooperation within the supply chain can proceed and be maintained (Gundlach & Achrol, 1993). Liu Huang, Luo, and Zhao (2012) found that organizational justice is related to knowledge-sharing and continuance commitment. Wang, Craighead, and Li (2014) argued that these kinds of justice can be used to resolve conflicts caused by suppliers. As such, justice is vital to the strengthening and maintenance of the relationship among partners in a supply chain.

Theories such as self-interest and attribution can explain justice (Brockner & Wiesenfeld, 1996). Justice can satisfy personal desires and motivate efficient work (Lind, 2001). Such justice is largely classified into procedural, distributive, and interactional justice (Colquitt, 2001).

Procedural justice refers to justice in procedures or processes among partners (Luo, 2008), while distributive justice refers to justice in compensation and distribution (Kim & Kim, 2011). Interactional justice is procedural justice in the process of decision-making, and it can be recognized in interpersonal relationships (Colquitt, 2001).

Greenberg (1990) and Colquitt (2001) classified interactional justice into interpersonal and informational justice, stating that interpersonal justice refers to treating others with respect and dignity. Informational justice was defined by Kernan and Hanges (2002) as the provision of correct communication with detailed information. Interactional justice is important not only in an organization but also in personal relationships, yet, it has been researched less than other types of justice in previous studies. Accordingly, the present study investigated the influence of interactional justice's two dimensions, namely interpersonal and informational justice, on collaboration and sustainable SCM performance in a supply chain.

2.1.1. Interpersonal Justice

As noted above, Greenberg (1993) and Colquitt (2001) classified interactional justice into interpersonal and informational justice and defined interpersonal justice as the treating of others with respect and dignity. Similarly Kernan and Hanges (2002) defined interpersonal justice as treating others with respect and honor. Such interpersonal justice allows for better prediction of others' behaviors (Folger & Cropanzano, 1998), thereby helping to facilitate and expedite decision-making processes. In light of these several study findings, interpersonal justice appears to be related to interpersonal sensitivity. Indeed, when interpersonal justice is recognized, one can trust others and form emotional bonds (Aryee, Budhwar, & Chen, 2002).

2.1.2. Informational Justice

Informational justice is the provision of information with sincerity and justification (Colquitt, 2001). Kernan and Hanges (2002) conceptualized informational justice as the provision of accurate information with transparent communication, while Ellis, Reus, and Lamont (2009) saw it as the degree to which information is openly shared. That is, informational justice reflects the fair distribution of information related to procedures or communication. Such informational justice focuses on the correct delivery of information or the delivery of the intended explanation during decision-making processes. It will have significant influence on others' decision making in terms of the level of acceptance (Ellis et al., 2009). The present study distinguished interpersonal and informational justice as separate concepts according to Colquitt, Conlon, Wesson, Porter, and Ng (2001), who reported that procedural and distributive justice are recognized by organizations and that

interpersonal and informational justice are created by the other party.

In sum, interactional justice in seller-buyer relationships has been shown to play an important role in developing and strengthening relationships among partners. Therefore, attention must be paid to the causal relationship between interactional justice and collaborative actions such as solidarity, knowledge-sharing, and relationship investment.

2.2. Supply-Chain Collaboration

A supply chain is a network of participants in the process of converting raw materials into final products, and it is defined with concepts positioned in the middle of the market (Handfield & Nichols, 2002). SCM is largely divided into arms-length and collaborative approaches (Hoyt & Huq, 2000). The arms-length approach is a traditional SCM method focusing on market-price-based competition; the collaborative approach is a method focusing on long-term relationships and partnerships based on trust.

The concept of collaboration in firms can be considered as collaboration between departments as well as cultural sharing. It can also be considered as collaborative work between two or more firms seeking to satisfy customers' demands (Kim & Song, 2013). That is, collaboration can be seen as the management process of collaboration among firms to achieve the common goals of satisfying customers and achieving profits (Stank, Keller, & Daugherty, 2001); and certainly, it is an essential factor that impacts a firm's performance improvement (Min et al., 2005). Many firms focus on their core competencies, and outsource other operations. In this way, firms participate in a supply chain; the chain structure enables them to more easily establish superiority in their respective markets than by individually competing.

The findings of previous studies indicate that effective SCM is necessary for both gaining competitive advantage and customer satisfaction. Therefore, sharing information, sharing risks, integrating processes, and maintaining long-term relationships with partners are important (Mentzer et al., 2001). Chen and Paulraj (2004) proposed that the support of top management, communication, information technology, and logistics integration are necessary for effective SCM. In this vein, the present study examined the importance of collaborative SCM. Trust, dedication, information sharing, and future-vision sharing are necessary for collaborative SCM (Lambert, Knemeyer, & Gardner, 2004), and once it is secured, firms within a supply chain will have greater success than will independent firms.

Through a case analysis of firms, Bowersox (1990) found that long-term mutual profits can be obtained when retailers, manufacturers, and logistic firms collaborate. Further,

Lewis and Naim (1995) suggested the importance of collaboration as a means of gaining competitive advantage, based on their analysis of more than 80 firms that collaboratively manage their business.

In sum, collaborative decision-making enables joint solution of problems arising from product development, redesign, and logistics support, and enables transfer of technology and knowledge in addition to resources. As such, collaboration is an important factor for successful SCM as well as supply-chain sustainability.

2.3. Sustainable Supply-Chain Management (SCM) Performance

The concept of sustainability was first introduced in a 1972 report titled "The Limits to Growth," and has been continuously researched since then (Saarinen, 2014). The importance of sustainability has been discussed even with respect to supply-chain activities, because it has been considered to be necessary to the pursuit of cooperating firms' mutual gains (Beske, 2012). Seuring and Muller (2008) described a sustainable supply chain that strengthens corporate competence by adding social and environmental perspectives to the existing supply channels' activities. Carter and Rogers (2008) defined sustainable SCM as firms' strategic activities in managing social and environmental issues. That is, while the goal of general SCM is to improve quality, cost, and flexibility, sustainable SCM focuses on improving management performance by minimizing environmental and social risks (Hassini et al., 2012).

Elkington (1998) presented economic, social, and environmental outcomes as the results of sustainable SCM. Social outcomes can improve consumers' positive recognition of a firm by bolstering their trust in sellers, and economic outcomes can yield better performance through effective designs for recycling and savings in safety and health costs (Carew & Mitchell, 2008). Lastly, environmental outcomes can lead to performance improvement by reducing labor costs and improving work environments and product quality (Carew & Mitchell, 2008).

In fact, many previous studies have investigated sustainable supply-chain performance by classifying it into economic, social, and environmental factors. The present study, however, chose a strategy more appropriate to the evaluation of the relationship between multinational pharmaceutical companies and pharmacies; thus, it redefined supply-chain sustainability with respect to economic variables such as sales increase, relationship maintenance, performance improvement, productivity improvement, and re-transaction increase (Carter & Easton, 2011; Carter & Rogers, 2008; Elkington, 1998).

3. Derivation of Hypotheses and Research Models

The concept of justice was introduced in the field of organizational behavior to explain cognitive and reactive behavior related to individuals or groups (James, 1993). After specialized research on interactional justice began, many studies (e.g., Colquitt, 2001; Greenberg, 1993) performed their analysis by dividing it into interpersonal and informational justice. Kernan and Hanges (2002) defined interpersonal justice as treating others with respect and honor, and informational justice as the provision of information with sincerity and justification. Previous studies (Cameron, Cropanzano, & Vandenberghe, 2007; Colquitt, 2001) investigated interactional justice from a parallel perspective by dividing it into interpersonal and informational justice.

The present study conducted preliminary interviews with employees of pharmaceutical companies to determine the importance of interpersonal justice in a seller-buyer relationship within a supply chain. The interviews revealed that the possibility of an information exchange process to occur in a fair environment is high when amicable interpersonal relationships are formed between employees of pharmaceutical companies and pharmacists. In this context, the Fair Trade Law of South Korea was enacted to prevent the abuse of a market-dominant position and to restrict wrongful acts. All of this reflects the fact that interpersonal justice, which refers to justice that is recognizable to both parties in a business relationship, is an antecedent factor that must be considered to preserve market principles. In summary, interpersonal justice should be used as an antecedent factor rather than be explored in parallel with informational justice. Accordingly, the present study established the following hypotheses.

Hypothesis 1: Interpersonal justice positively affects informational justice.

Colquitt (2001) defined interpersonal justice as treating others with courtesy and respect. Luo (2007) argued that the level of such interpersonal justice is perceived as high when respect is shown and help is frequently provided in a strategic-alliance environment. Collaboration is the degree of collaborative tendency to achieve common goals among partners (Frazier, 1983), and can be considered as a situation in which work is collaboratively undertaken (Anderson & Narus, 1990).

The most notable previous studies on interpersonal justice and supply-chain collaboration are as follows. Dwyer, Schurr, and Oh (1987) stated that the recognition of justice in interpersonal relationships is important in a relationship development model, and Gundlach and

Murphy (1993) argued that the more people perceive others to be fair, the more they will be satisfied with others and the more, in turn, their relationship-oriented disposition will increase. Hui, Au, and Zhao (2007) found significant influences of interpersonal justice on appeal collaboration and satisfaction. Liu et al. (2012) empirically identified a correlation between interpersonal justice and bonding action in seller-buyer relationships. Taken together, the more interpersonal justice is perceived, the more easily collaboration is conducted. Therefore, the following hypothesis was established.

Hypothesis 2: Interpersonal justice positively affects supply-chain collaboration.

Colquitt (2001) defined informational justice as providing information with sincerity, while Kernan and Hanges (2002) defined it as transparent communication based on detailed information and accurate explanation. Such informational sharing can be considered to entail the exchange of transaction-related information among partners within a supply chain. Ellis et al. (2009) defined informational justice in a seller-buyer relationship as honest, thorough, and reasonable communication, and they further proposed that justice reduces dishonesty that can be an obstacle to relationship development (Tyler & Bies, 1990). Liu et al. (2012) argued that a high level of mutual recognition of information is necessary for a healthy relationship.

Through mutually recognized informational justice, parties involved in information exchange will more attentively listen to each other and accordingly adjust their official work (Lind & Tyler, 1988). This will positively influence relationship sustainability (Anderson & Narus, 1990). In summary, individuals in a seller-buyer relationship are better able to focus when they recognize informational justice. Liu et al. (2012) argued that informational justice provides for a collaborative environment by reducing information asymmetry and mutual uncertainty. Accordingly, since informational justice is expected to influence collaboration, the following hypothesis was derived.

Hypothesis 3: Informational justice positively affects supply-chain collaboration.

SCM improves a firm's efficiency and generally plays an important role in increasing customer satisfaction with interested parties (Heikkila, 2002). Accordingly, maintaining relationships with collaborating firms by integrating all processes including production, inventory control, and sales is essential. Tanner (1999) argued that building a collaborative relationship in a seller-buyer

relationship can improve a firm's competitiveness in the long run. Firms developed collaborative relationships from the 1970s to the second half of the 1990s; however such relationships deteriorated due to the expansion of globalization (Mah, 2002). However, due to the problems related to product supply and resource limitations, firms realized once again the importance of collaborative seller-buyer relationships.

The relationship between supply-chain collaboration and sustainability has been empirically investigated in previous studies. Horvath (2001) established the importance of collaboration within SCM, and Cao and Zhang (2011) found that building collaborative relationships among firms improves management performance. Additionally, Chin, Tat, and Sulaiman (2015) analyzed the correlation between collaboration and sustainable performance in Green SCM. Min et al. (2005) argued that collaborative relationships within the supply chain increase firms' efficiency and profitability. Accordingly, collaboration is expected to affect performance improvement, and, based on that expectation, the following hypothesis was formulated.

Hypothesis 4: Supply-chain collaboration positively affects sustainable supply-chain performance.

The above hypotheses were derived to establish a research model (Figure 1) to be tested.

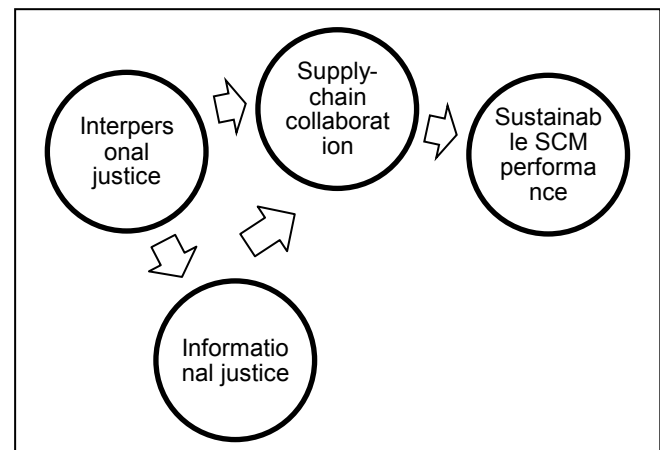


Figure 1: Research model

4. Research Method

4.1. Data Collection and Characteristics of Sample

The present study empirically examined the relationships among interpersonal justice, informational justice, supply-

chain collaboration, and sustainable supply-chain performance with respect to the employees of multinational pharmaceutical companies that are in supply-chain partnerships with pharmacies. To that end, a survey was conducted via email and visitation, and 700 questionnaires were distributed from March to July 2018 to collect data. A total of 208 questionnaires were collected (questionnaire return rate: 29.71%), and a total of 201 responses were used in the subsequent data analysis. A total of seven questionnaires were excluded due to insincere or no responses. The characteristics of the sample are presented in Table 1 below. A total of 57.7% of the sample were in their 30s, and 25.4% were in their 40s; and more than half of the sample were in business with 10 or more pharmacies. This showed that the majority of the sample recruited for the present study was employed by medium or large multinational pharmaceutical companies.

Table 1: Classification of sample characteristics

	Range	Frequency	Percentage
Age	20s	25	12.4
	30s	116	57.7
	40s	51	25.4
	50s	9	4.5
Position	Employee	23	11.4
	Chief	21	10.4
	Assistant Manager	62	30.8
	Manager	54	26.9
	Deputy Head of Department	32	15.9
	Director	9	4.5
Number of pharmacies	10 or less	82	40.8
	30 or less	39	19.4
	50 or less	38	18.9
	100 or less	31	15.4
	101 or more	11	5.5
Transaction period	5 years or less	145	72.1
	10 years or less	43	21.4
	15 years or less	10	5.0
	16 years or longer	3	1.5

4.2. Measurement of Variables

The questionnaire consisted of demographic information to determine the characteristics of the sample along with four sections on “interactional justice,” “informational justice,” “supply-chain collaboration,” and “sustainable supply-chain performance.” Sustainable supply-chain performance had five detailed items, while the others each consisted of four detailed items.

Table 2: Operational definitions of variables

Variable	Operational definition	Measurement item	Related research
Interpersonal justice	Courtesy	Level of courteous behavior toward others	Colquitt (2001); Greenberg (1990)
	Respect	Level of respect	
	Mutual exchange of opinions	Level of mutual exchange of opinions	
	Inappropriate speech and behavior	Refrain from inappropriate speech and behavior	
Informational justice	Honest communication	Honest communication about medicine and medical supplies	Colquitt (2001); Ellis et al. (2009)
	Proper explanation	Proper explanation of medicine and medical supplies	
	Detailed explanation	Detailed explanation of medicine and medical supplies	
	Exchange of opinions	Exchange of opinions on medicine and medical supplies at the appropriate time	
Supply-chain collaboration	Creation of mutual benefits	Effort to create mutual benefits	Cao & Zhang (2001); Min et al. (2005)
	Information on market trends	Sharing of market-trend information	
	Profit/Cost	Sharing of profit/cost	
	Harmonious communication	Level of harmonious communication	
Sustainable SCM performance	Increased sales	Level of increase of sales of medicine and medical supplies	Carter & Easton (2011); Carter & Rogers (2008); Elkington (1998)
	Relationship maintenance	Continuous relationship maintenance with pharmacies	
	Improving performance	Continuous improvement of financial performance	
	Increased productivity	Level of increase of productivity of medicine and medical supplies	
	Reasonable price	Offer of products at a reasonable price	

Each item was evaluated on a 5-point Likert scale to measure participants’ level of recognition. In addition, and in line with previous studies, the present study treated interpersonal and informational justice in the supply chain, information sharing, sharing of decision-making, and cost

sharing (all of which are variables of collaboration between firms) along with a sustainable supply-chain performance variable (see Table 2).

4. 3. Reliability and Validity Tests

Before testing the hypotheses, the reliability and validity of the measurement variables were tested. The reliability test (Cronbach’s alpha) determines whether the same measurement values can be obtained when measurements are repeated for the same concept. For research in social science, reliability is generally considered secured when Cronbach’s alpha is 0.7 or higher (Hair, Black, Babin, & Anderson, 2010). In the present study, the reliability was measured using SPSS 18.0, and the reliability of the measuring instrument was generally secured with Cronbach’s alphas for interpersonal justice (=0.797), informational justice (=0.796), supply-chain collaboration (=0.757), and sustainable supply-chain performance (=0.808).

Next, a confirmatory factor analysis was performed using AMOS 18.0 to test the convergent validity of the measurement factors. The goodness-of-fit indices were measured for the model presented, and the research model was determined to be acceptable based on the indices’ satisfaction of the recommended levels: CMIN/DF=1.712, TLI=0.921, RMR=0.052, CFI=0.934, GFI=0.902 and RMSEA=0.060 (Hair et al., 2010).

Table 3: Results of discriminant validity analysis

	Interpersonal justice	Informational justice	Supply-chain collaboration	Sustainable SCM performance
Interpersonal justice	0.737			
Informational justice	0.681	0.758		
Supply-chain collaboration	0.493	0.524	0.666	
Sustainable SCM performance	0.529	0.509	0.629	0.747

To test the convergent validity, the construct reliability and standardized regression weights of each variable were tested. The criteria for convergent validity were found to be 0.7 or higher for construct reliability (Hair et al., 2010) and 0.5 or higher for standardized regression weights (Anderson & Gerbing, 1988). The construct reliabilities of the items used in the present study were interpersonal justice =0.823, informational justice =0.843, supply-chain collaboration =0.760, and sustainable supply-chain performance =0.863, and the standardized regression weights were 0.5 or higher for all of the variables.

Lastly, the average variance extracted (AVE) for each variable was calculated to analyze the discriminant validity,

and the correlation coefficients between variables were calculated. It was considered secured, as correlation between variables was smaller than the AVE square root of each variable, which generally confirmed the discriminative validity of the variables. The results of the discriminant validity analysis are presented in Table 3.

5. Empirical Results

The indices of the structural equation model for the hypothesis test were CMIN/DF=1.776, TLI=0.914, RMR=0.057, CFI=0.927, GFI=0.894, and RMSEA=0.062, and most of them generally satisfied the goodness-of-fit criteria suggested by Hair et al. (2010). This indicates that the questionnaire items of the present study properly explain the correlations between the presented variables. Accordingly, hypotheses were tested based on the path analysis model, and the results are presented in Table 4. The results of the hypothesis test showed that interpersonal justice had a significant impact on informational justice. This means that if fairness is not ensured in interpersonal relationships, the exchange of information is not correctly achieved. Meanwhile, interpersonal and informational justices, which constitute interactional justice, were found to have a positive effect on supply-chain collaboration. Further, supply-chain collaboration has been shown to have a significant impact on sustainable supply-chain performance. These results indicate that it is important to recognize fairness in the seller’s relationship with the buyer, and that ensuring fairness can lead to collaboration and improve sustainable supply-chain performance.

Table 4: Results of hypotheses tests

Hypothesis	Estimate	S.E.	C.R.	P	Result
1	0.491	0.071	6.879	0.001	Retain
2	0.221	0.090	2.473	0.013	Retain
3	0.370	0.130	2.840	0.005	Retain
4	0.768	0.122	6.312	0.001	Retain

6. Conclusion

6. 1. Findings and Implications

The present study examined the importance and necessity of interactional justice in seller-buyer relationships and investigated the influence of these ethical factors on supply-chain collaboration and sustainable supply-chain performance. To that end, an empirical study focusing on transactional relationships between employees of multinational pharmaceutical companies and pharmacists

was conducted. The results revealed that recognition of interactional justice in interpersonal relationships was integral to the improvement of the level of collaboration and that it ultimately had a positive influence on management performance.

The empirical analysis of the hypotheses showed that, first, interpersonal justice had a significant positive influence on informational justice. The results specifically indicated that courtesy, respect, and proper words and actions are important in the relationship between employees of pharmaceutical companies and pharmacists, and that such behaviors lead to appropriate information sharing. These results suggest that inappropriate behavior and language are inappropriate in interpersonal relationships, and that efforts should be made to make each party suitably cognizant of justice for maximal information exchange. Second, interpersonal and informational justices, which constitute interactional justice, were found to have a significant and positive relationship with supply-chain collaboration. These findings are consistent with those of previous studies that have investigated the relationship between justice and collaboration; they indicate, moreover, that justice is an important factor in building collaborative relationships. They also suggest that a fair-trade culture should be cultivated to encourage and facilitate seller-buyer collaboration. If unethical interpersonal relationships are established and unreasonable information sharing occurs, collaborative relationships within the supply chain will be difficult to sustain. Lastly, supply-chain collaboration was found to have a positive influence on sustainable supply-chain performance. These findings mean that relationships can be sustained only if harmonious communication, market-information sharing, and efforts to create mutual benefits are ensured in transactional relationships. That is, proper collaboration with business partners in a fair environment is helpful for improving a firm's performance.

The findings of the present study have both theoretical and practical implications. First, the results show a causal relationship between the sub-factors of interactional justice: interpersonal justice and informational justice. To date, the previous studies relevant to interactional justice (Colquitt, 2001; Colquitt & Rodell, 2001) have investigated interpersonal and informational justice from a parallel position. As such, the reason for measuring both as interactional justice is that they can be conceptualized as a common factor. However, the present study found that interpersonal justice can be presented as an antecedent factor of informational justice. This finding suggests that the concept of justice should be explored from a complementary perspective without being biased by circumstances. Therefore, the present study can provide potentially fruitful implications in its revelation of new relationships between interactional justice and its

constituents (i.e., interpersonal justice and informational justice).

Second, influences of interactional justice on sustainable supply-chain performance were newly found, whereas the relevant previous studies had investigated the influences only of organizational, procedural, and/or distributive justice (Conlon, Meyer, & Nowakowski, 2005; Liu et al., 2012; Zapata-Phelan, Colquitt, Scott, & Livingston). Additionally, the findings of the present study indicated that appropriate interpersonal relationships and proper information sharing are also important for sustainable supply-chain performance. In this respect, the significance of the present study lies in its empirical investigation of the relationships among interactional justice (which reflects the characteristics of interpersonal relationships in a seller-buyer relationship), supply-chain collaboration, and management performance within the supply chain.

Third, most research on supply-chain collaboration and sustainable supply-chain performance has treated each issue independently whereas the present study emphasized the relationship between supply-chain collaboration and sustainable supply-chain performance. Furthermore, while Bag and Anand (2016) used sustainable supply-chain performance as a mediating variable, and Wolf (2014) used sustainable SCM as an independent variable, the present study investigated the influence of interpersonal collaborative relationships on sustainable performance by embodying sustainability as a performance factor. In this way, the present study empirically revealed that collaboration positively influences sustainable performance.

Finally, the present study presents practical implications in the forms of requirements for seller-buyer relationships to be extended to a collaborative relationship. According to the findings, interpersonal and informational justices significantly influence supply-chain collaboration, which suggests that ethical behavior such as courtesy and respect must be maintained in seller-buyer relationships. Additionally, monitoring of inappropriate explanations, brief explanations, and disingenuous communication with purchasers is necessary during information exchange.

6.2. Research Limitations and Suggestions

The limitations of the present study and the suggestions for future research are as follows. First, the present study did not conduct its investigation in the home countries of the multinational pharmaceutical companies, which were the subjects of the present study. Since corporate culture and perception can differ according to the home country of the firm, future, demographics-based research by region and country will be more meaningful. Second, the present study investigated the relationship between supply-chain collaboration and sustainable supply-chain performance

according to only interactional justice, whereas organizational justice is composed of only interactional but also procedural and distributive justice (Colquitt, 2001). Many previous studies have investigated the influence of procedural and distributive justice on management performance. Accordingly, the importance of justice in a supply chain needs to be investigated from more comprehensive perspectives by investigating other types of justice besides interpersonal and informational justice. Third, the present study measured supply-chain collaboration as one variable. Mattessich and Monsey (1992), however, derived 19 factors related to collaboration and classified them into six categories (environment, membership, process structure, communication, goals, and resources). As such, since supply-chain collaboration comprehends many factors, future research must investigate the relationship between antecedent and consequence variables by classifying supply-chain collaboration in greater detail.

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