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Effect of pharmaceutical companies' corporate reputation on drug prescribing intents in Romania

Luminiţa Mihaela Ion[a], Ana Iolanda Vodă[b], Rodica Cristina Butnaru[c], Gina Ionela Butnaru[d] and Gabriel Mircea Chirita[e]

[a]Faculty of Economics and Business Administration, Alexandru Ioan Cuza University, Iasi, Romania; [b]Social Science and Humanities Research Department, Institute for Interdisciplinary Research, Alexandru Ioan Cuza University, Iasi, Romania; [c]Department of Business Strategy and Social and Environmental Responsibility, School of Management Sciences, Université du Québec à Montréal, Montréal, Canada; [d]Faculty of Economics and Business Administration, Alexandru Ioan Cuza University, Iasi, Romania; [e]Department of Administrative Sciences, Université du Québec à Rimouski, Rimouski, Canada

ABSTRACT

This research examines the effect of pharmaceutical companies' (PCs') corporate reputation on drug prescribing intents. The aim is to determine the extent to which the PCs' corporate reputation influences general practitioners' (GPs') drug prescribing intents. This research is based on quantitative analysis using structural equation modelling (SEM) on data collected from a sample of 177 Romanian GPs. The PCs' corporate reputation contributes to build and maintain trust in their products, which in turn influences the GPs' prescribing intents. PCs need to acknowledge that corporate reputation is a multi-dimensional construct and should focus their efforts accordingly. Indeed, our study shows that GPs' favourable perception of the PCs' medical representatives (MRs) has a strong impact on their drug prescribing intents. An investment in corporate social responsibility (CSR) would, therefore, be conducive to increasing a PCs' corporate reputation capital. We constructed and tested a conceptual model to explain GPs' prescribing intents by highlighting the influential relationships between different non-pharmaceutical variables. Our conceptual model integrates marketing concepts, such as consumer behaviour, the drug prescribing intention of GPs, as well as specific public relations concepts, corporate reputation, and corporate social responsibility.

1. Introduction

The pharmaceutical industry is one of the largest in the world and, according to IQVIA Institute for Human Data Science (2019), in recent years, the pharmaceutical market has experienced a significant growth worldwide. The global pharmaceutical

market value will exceed 1.5 trillion US dollars by 2023 and will have an average annual growth rate of 3–6% over the next 5 years. The pharmaceutical industry is not just a business, their products are crucial for patients and contribute to improving the quality of life and to saving lives (Han et al., 2019), which results in a highly regulated industry at global level (Sharabati, 2018).

There is a shift in today's society from the neoclassical economic model arguing that companies were held responsible only to their shareholders, to a more inclusive one, which considers various stakeholders (Demir & Min, 2019). In the context of strategic management, according to Newburry et al. (2019), corporate reputation is a valuable intangible resource playing a key role in the positioning strategy of an organisation, defined as the traits ascribed to an organisation and determined from its past activities (Shahani et al., 2019), and contributing to create a sustainable competitive advantage, integrating all its past and current performance, behaviour and communication (Goldstein & Doorley, 2011). Other scholars emphasise the contribution of corporate reputation to developing and maintaining a loyal relationship with various target groups of customers (Iglesias et al., 2020; Mehralian et al., 2019). Kim (2019) considers the corporate reputation as the overall result of a legitimisation process or a 'credibility' mechanism for the organisation. Under these circumstances, it is not surprising that corporate reputation receives so much attention and that vast amounts of money are used to improve it through communication and marketing strategies. Companies have become aware that sales growth, a vital source of profitability, depends largely on their corporate reputation, which in turn has an impact on brand image and positioning or consumer loyalty.

The pharmaceutical industry has a reputation problem which has resulted in a loss of public confidence in the sector. Not so long ago, the pharmaceutical industry was one of the most respected sectors, but today its reputation is not much better than that of the financial or tobacco companies (Kessel, 2014). The most frequent criticisms against the pharmaceutical industry are the lack of transparency of the results of clinical studies, the priority given to incremental innovation at the expense of breakthrough innovations, the excessive cost of certain drugs and the level of profits, often deemed indecent (Chen et al., 2017). Even worse, many PCs have been found accountable for adopting shady practices such as bribery of public officials, deceptive marketing campaigns, gifts to physicians, direct-to-consumer (DTC) advertising with misleading messages and unethical conduct of clinical trials in at-risk populations (Kessel, 2014). Thus, in the pharmaceutical sector, building and maintaining a solid corporate reputation must be seen as a strategic imperative of high priority (Chen et al., 2017; Wu & Kimura, 2018).

Considering the above, our legitimate inquiry is whether a strong corporate reputation increases the trustworthiness of a PC and, therefore, positively influences GPs' intentions to prescribe the pharmaceutical products marketed by that PC. The role of physicians in drug purchasing decisions is crucial. Physicians act as users (sometimes), influencers, gatekeepers and decision makers, while patients act as buyers and users (Abratt & Lanteigne, 2000). Therefore, determining what factors influence physicians in their drug prescribing decisions is critical to the success of a pharmaceutical company. Studies have identified several factors which determine physicians'

prescribing preferences towards certain drugs, such as pharmaceutical quality and the relationship with MRs (Chhabra et al., 2019), professional influence (Abratt & Lanteigne, 2000) as well as the PCs' corporate reputation (Wright & Lundstrom, 2004). Although the literature abounds with studies on corporate reputation from a social responsibility perspective, there are few studies that analyse the mediating effect of the corporate reputation between PCs' communication efforts and prescribing intent on the one hand, and between the image of PCs' medical representatives and the drug prescribing intent, on the other hand. To the best of our knowledge, little or no evidence is provided on PCs' corporate reputation influences general practitioners' (GPs') drug prescribing intents in Romania. Using data collected from a sample of 177 Romanian GPs, this study examines the influence of corporate reputation and its interactive effects on GPs' drug prescribing intents. Our study aims to determine whether the PCs' reputation contributes to maintaining confidence in their products, which further influences GPs' prescribing habits.

This article evolves as follows: first, we discuss relevant literature on the topic, followed by the methodology session, where we provide details about sampling, sample demographics and measurement operationalisation. We also include reliability test, non-parametric correlations and structural equation modeling (SEM), using SPSS 21 and STATA 13.0 software. In the next two sections, we discuss the findings and implications of the study, respectively. The article ends by stating the research limitations, providing, also, some directions for future research.

2. Literature review and concept definitions

2.1. The multidisciplinary approach to corporate reputation

Corporate reputation has been extensively studied by economists and researchers in organisational theory and marketing. Considering the diversity in the existing definitions of corporate reputation, and the lack of consensus on its ultimate meaning, it is not easy to define this concept. For economists, reputation is an asset which can generate future economic rents and providing customers relevant information related to the price and quality of a product (Brammer & Pavelin, 2006). Organisational theory authors analyse corporate reputation in terms of social identity and describe it as a strategic intangible resource with a very significant impact on the organisational performance (Goldstein & Doorley, 2011) and even organisation survival (Carmeli & Tishler, 2004) having as constituent elements *corporate responsibility*, *communication*, *products and services*, *talent*, *financial metrics and leadership necessary* to be aware of the external environment and adapt it to things done correctly, in order to build and improve its reputation (Butterick, 2011).

Despite the use of varied vocabulary and the inherent difficulty of conceptualisation, there is a consensus on the very essence of the corporate reputation concept. Thus, the reputation of an organisation is the direct result of its past decisions and actions. Reputation is a mere reflection of the history of the company, an asset, especially when the name of the company is also a brand and our research focuses on *the influence of corporate reputation on the drug prescribing intention*.

2.1.1. Communication

The pharmaceutical industry has historically relied more on product communication and less on corporate communication, so the reputation of the pharmaceutical industry depends on the right audience and the focus is on GPs, who have more favourable opinions about the pharmaceutical company's corporate reputation than end consumers. Drug consumption is highly dependent on the communication strategies of the pharmaceutical industry. The PCs' standard communication has been mainly focussed on raising awareness of the ailments which their drugs seek to cure.

Since GPs are legally responsible for decisions relating to drug prescription, they are the focus of most of the PCs' communication efforts (Shakeel et al., 2019). The main targets of drug communication campaigns are physicians, who receive valuable information about new drugs and treatments and benefit from educational activities, drug samples and drug familiarisation programmes, that is, tangible rewards (Faisal et al., 2020; Jacob, 2018). Other studies highlighted the significant impact of the marketing tools on the GPs' prescribing behaviour (Alowi & Kani, 2018; Biswas & Ferdousy, 2016). Others identified other promotion techniques which are less ethical, including gifts and travel offers (Hogarth et al., 2018). These communication efforts are producing the expected outcomes, as several studies showed that physicians may favour certain brands of drugs in their prescribing activity (Liu et al., 2019).

The high quality of a drug is a key factor that contributing to the success of any pharmaceutical company on the market, due to the fact that it is a priority for most GPs when recommending or prescribing a particular product. PCs should constantly communicate with GPs to promote their products. In addition, PCs should invest in research and development to be able to launch new pharmaceuticals and enabling the introduction of these pharmaceutical products on the market.

2.1.2. Ethical behaviour

Ethics has been defined as a search for the meaning of 'what is good' in many contexts or an answer to the question 'What should I do?' (Brown & Mitchell, 2010; Langlois, 2011). Ethics considers human action and focuses on the moral qualities of an individual (Melé, 2012). Some authors associate it with a system of values, obligations (Hogarth et al., 2018; Malik & Kanwal, 2018), and norms which guide individuals' behaviour (Aasland, 2004).

Promotional activities usually lead to increased prescription of drugs, acceptance of commercial opinions in favour of those of a scientific nature, but also the physicians' inclination to adopt irrational drug prescribing behaviours (Ion, 2013). Tomažič and Čelofiga (2019) studied the ethical aspects of the abuse of pharmaceutical enhancements (PCE) by healthy people who do not have a medical reason to use them, in the context of improving cognitive functions. In a society where the pharmaceutical industry offers a pill for every problem, PCEs are ethically questionable because it is necessary to establish their safety (long-term side effects) and their effectiveness for healthy people. From the perspective of doctors' prescribing behaviour, today's society faces an important problem: a doctor may prescribe a drug with potential side effects for the therapeutic treatment of a mental illness but he may also prescribe a drug with potential side effects to improve normal mental function. Within the context of

the pharmaceutical industry, the corporate reputation is determined by the consolidation of the pharmaceutical brand, in order to obtain trust from the professional environment, represented in this case by GPs (Panigyrakis & Veloutsou, 1999).

2.1.3. Socially responsible behaviour

The concept of business ethics is complemented by the concept of socially responsible behavior. According to Mitchell (2002), when assessing an organisation's ethical behaviour, consequences do not count as long as intentions are 'good'. In the case of CSR, the results are also considered, social responsibility being a key dimension of organisational reputation (Schnietz & Epstein, 2005; Sharabati, 2018). Being responsible means bearing liability for one's own actions, accepting the consequences. CSR consists of both a duty to account for the firm's actions—reporting, audits, etc. (Hogarth et al., 2018) and a duty to assume their consequences—compensation and prevention actions (Malik & Kanwal, 2018).

Researchers have already identified social responsibility (Fombrun, 2005) as a corporate reputation antecedent, stating that corporate social responsibility is a key attribute by which a corporate reputation is assessed. Several studies identified corporate social responsibility to be a significant determinant of corporate reputation (Iglesias et al., 2020; Leiva et al., 2016). Studies also show that the impact of CSR on corporate reputation is now the primary reason to implement CSR in companies. This resulted in several scholars using Corporate reputation and CSR as mutual proxies (Leiva et al., 2016). The company's CSR efforts give a strong signal to stakeholders and the market, thereby positively impacting the company's share price. The responsiveness of stakeholders and demand to their CSR initiatives encourages companies to establish and maintain effective CSR policies or risk losing a competitive advantage (Cook et al., 2018; Demir & Min, 2019; Mehralian et al., 2019).

In this sense, pharmaceutical companies invest in strengthening the corporate reputation towards physicians by carrying out direct promotion actions, through medical representatives. The socially responsible behavior of a pharmaceutical company has been intensively studied in relation to the corporate reputation construct (Fombrun, 2005). Schnietz and Epstein (2005) evaluated the company's social responsibility as a precedent in shaping and influencing its corporate reputation.

2.1.4. Image of medical representatives

Prescribing medications is a standard part of the practice of most GPs, requiring proper knowledge, skills and professional judgement. GPs, who are legally responsible for drug prescribing decisions, act as intermediaries between PCs and patients. Gonzalez et al. (2008) showed that physicians are important agents in the prescribing process and determine the extent to which patients should receive prescriptions containing generic or brand drugs. Moreover, academics highlighted in their research that the GPs' form of interaction with Pharmaceutical Sales Representatives has an important influence on their prescribing behaviour (Jacob, 2018). Faisal et al. (2020) analysed the behaviour of 248 health practitioners and demonstrated with the help of the theory of planned behaviour that physicians' interactions with pharmaceutical sale representatives in terms of corporate reputation affect the physicians' prescribing

behaviour directly, as well as through the mediating effect of the attitudinal component. Ahmed et al. (2018) highlights the significant impact of marketing strategy on physicians' prescribing behaviour. They conclude that the corporate image and customer relationship have likewise a substantial impact as moderating variables. This is why GPs are the primary target for most of PCs' marketing efforts. This was done primarily through MRs, also known as pharmaceutical representatives (Wright & Lundstrom, 2004).

Most prescribers participating in Fischer et al.'s (2009) study believe that their overall interactions with MRs are beneficial to patient care and health practice. They trust the information provided by MRs or believe they can adequately evaluate and filter the information presented to them by MRs (Fischer et al., 2009). Kersnik et al. (2011) showed three groups of MRs' characteristics which were valued by GPs: selling skills, communication skills, and sense of trustworthiness. GPs were more satisfied with MRs who have good informational and scientific abilities, empathy, and who are reliable and responsible (Karayanni & Georgi, 2007).

In our study, we measured GPs' perceptions of MRs by assessing personal values demonstrating ethical, honest and reliable behaviour.

2.2. The GPs' prescribing intention

The action of prescribing medicines to patients is both a challenge and a current problem, given that the doctor–patient interaction is subject to simultaneous action between different categories of factors influencing the GPs in the prescriptive act. The literature highlights that the study of the determinants underlying physicians' drug prescription is considered from multiple perspectives: drug characteristics, patient's and prescriber's characteristics, health system, and pharmaceutical marketing (Sharifnia et al., 2018).

2.2.1. The subjective norm regarding drug prescribing

The study of the mechanisms underlying the adoption of a behaviour started from the premise that most decisions made in clinical practice are individual in nature (Godin et al., 2008). Cognitive mechanisms are at the basis of human behaviour, amplifying the role and importance of individual decision in adopting that behaviour. The way in which behavioural changes occur in terms of prescribing drugs was studied from the perspective of the analysis of the Theory of Planned Behaviour (TPB). To explain behaviour intentions better, Ajzen's (1991) theory of planned behaviour uses two variables, that is, subjective norms and perceived behavioural control. Ajzen (1991) defined subjective norm as 'the perceived social pressure to perform or not to perform the behaviour' (p. 188). Subjective norms and perceived control variables allow understanding how specific attitudes are linked to behavioural intentions to perform specific actions. In general, the stronger the individual's intention to adopt a particular behaviour, the more likely an individual will adopt that behaviour.

Using Ajzen's TPB (1991), we aimed to identify the influence of subjective norms and perceived control variables on GPs' prescribing intents. Vodă and Florea (2019)

used the TPB context, arguing that the stakeholders' perspective and the vision of perceptions can lead to beliefs which are, in turn, a key driver of attitudes and subsequently of behaviours.

2.2.2. Perceived control in adopting the prescribing behaviour

Perceived behavioural control refers to the individual's perception of the behaviour in terms of ease or difficulty in adopting the behaviour. It is also based on past experiences and anticipated obstacles. As with other variables influencing intent, perceived control is determined by beliefs, more specifically by control beliefs based on past experiences and information which the individuals receive from their environment.

Liu et al. (2019) analysed the influencing drug prescribing behaviour and highlighted the influence of promotional efforts by pharmaceutical companies to increase sales of targeted drugs to prescribers, who act as intermediaries between the patient and 'pharmaceuticals'. Perceived control is analysed from the perspective of the patients' interest in making the final decision of the prescription, by involving them in the discussions with the prescribers.

Accordingly, we have formulated the following hypotheses:

H1: *GPs' perceptions of the PCs' corporate reputation have a significantly positive effect on their drug prescribing intents.*

H2: *PCs' socially responsible behaviour influences GPs' perception of PCs' corporate reputation.*

H3: *There is a strong relationship between PCs' ethical behaviour and their socially responsible behavior.*

H4: *GPs' perceptions of the corporate reputation of PCs is influenced by the PCs' ethical behaviour.*

H5: *Corporate reputation has a mediation effect on the communication efforts deployed by PCs and GPs' prescribing intents.*

H6: *Corporate reputation has a mediation effect between the image of PCs' medical representatives and GPs' prescribing intents.*

H7: *GPs' prescribing intents are influenced by their attitudes towards the subjective norm regarding drug prescribing.*

H8: *GPs' prescribing intents are influenced by their attitude towards the perceived control in adopting the prescribing behaviour.*

3. Research design and methods

3.1. Conceptual model

In addition to the effectiveness of drugs, there are a number of non-pharmaceutical factors which can influence physicians' normative behaviour. Thus, according to Geitona et al. (2006), physicians assess not only the safety, efficacy and effectiveness of generic drugs, but also the PCs' reputation when prescribing drugs to patients. The overall factors contributing to the construction of a strong corporate reputation identified in the literature refer to the *quality of the products and services offered*
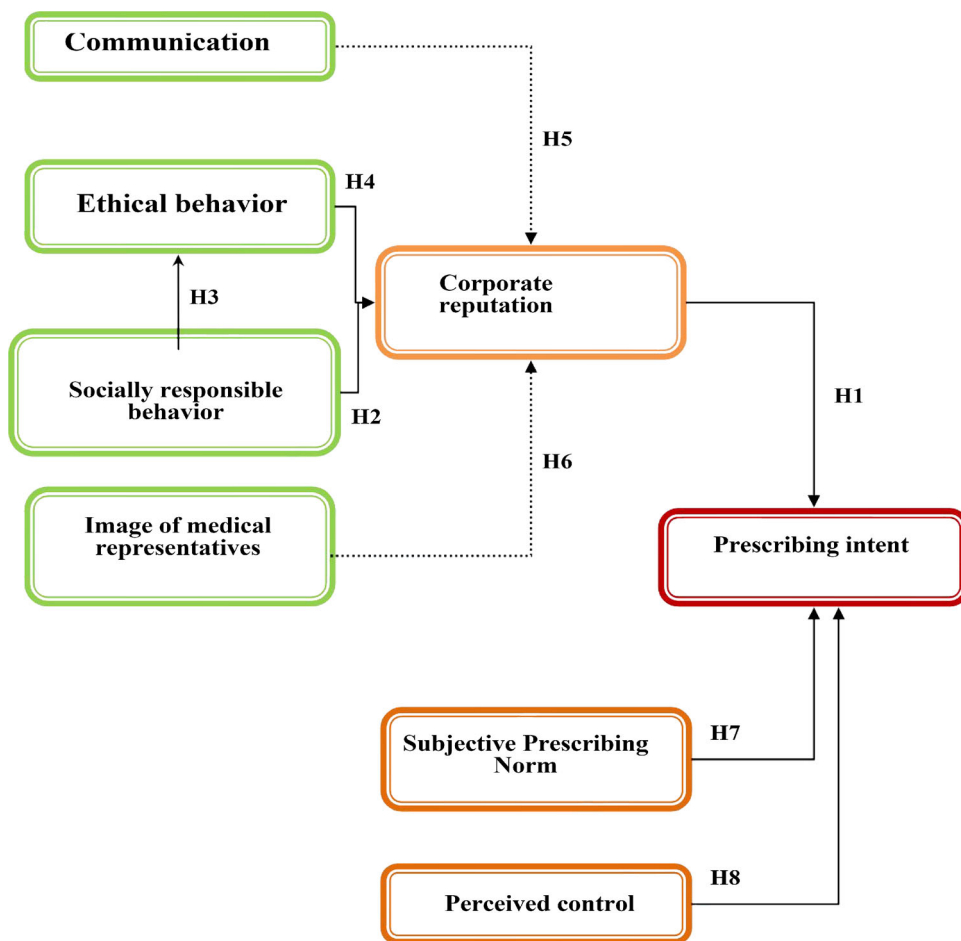
Figure 1. Conceptual model—the proposed conceptual framework on relationships between non-pharmaceutical factors and their influence on physicians' prescribing intents. Source: Authors' creation.

(Fombrun & Shanley, 1990), *the degree of innovation brought to market* (Fombrun & Shanley, 1990; Prentis et al., 1988), *honest communication with stakeholders, business ethics* (Leiva et al., 2016) and *CSR* (Fombrun & Shanley, 1990).

Drawing on the existing body of literature, we constructed a conceptual model to explain the GP's prescribing behaviour, highlighting the influential relationships between the different non-pharmaceutical variables.

The relationships between the variables included in the model shown in Figure 1 can be represented by the following statistical equations:

$$y = a + b*x_1 + c*x_2 + d*x_3 + e,$$

where y is the prescribing intent, x_1 is the corporate reputation, x_2 is the subjective norm, x_3 is the perceived control, a is the regression constant, b, c, d, g are the regression coefficients of independent variables and e is the error.

4. Methods

4.1. Research design

Our research design was based on quantitative methods. The determinants of GPs' drug prescribing intent were examined from multiple perspectives. Marketers, psychologists and sociologists have focussed on assessing the motivations leading to the adoption or rejection of certain drugs in the prescribing process (Ahmed et al., 2018; Pareek et al., 2019; Renkema et al., 2019). The overall objective of this research is to determine the extent to which the corporate reputation of PCs is a determinant of physician prescribing intents.

Quantitative research was conducted using a questionnaire survey. We analysed GPs' attitudes and perceptions regarding the various factors that could influence their intentions when issuing drug recommendations or prescriptions to patients, and the extent to which the *corporate reputation of the PCs influences their choice in the process of issuing drug recommendations or prescriptions to patients.*

4.2. Questionnaire

The research tool (questionnaire) includes a number of variables which make up the planned behaviour conceptual model (Ajzen, 1991; Vodă & Florea, 2019), according to which the intention to adopt a certain behaviour is determined by attitude, subjective norm and perceived control over behaviour. The model examined in this article assumes that the PCs' corporate reputation, subjective norms and perceived control of prescribing behaviour have a direct impact on GPs' prescribing intentions, while factors such as the PCs' communication and the MRs' image indirectly influence prescribing intentions through the PC's corporate reputation.

The questionnaire consists of eight different sections: Section 1 assesses the communication relationship between PCs and GPs; Section 2 seeks to identify GPs' perceptions of PCs' MRs; Section 3 examines GPs' perceptions of PCs' CSR and Section 4 examines GPs' perceptions of PCs' ethical behaviour.

The subsequent sections aim to identify GPs' attitudes towards perceived control in prescribing drugs (Section 5), subjective norm (Section 6) and prescribing intention (Section 7). The final section includes socio-demographic information on responding GPs (Table 1).

A special approach of the concept of *corporate reputation* (CR) belongs to Kimberly Goldstein (2010), who defines it as 'the sum of all past/present performance/behaviour and communication of a company'. The constituent elements of the corporate reputation derived from the definition of the concept are: Communication; behaviour, with two component dimensions: Socially Responsible Behaviour and Ethical Behaviour and the image of Medical Representatives.

Corporate reputation = SUM (Communication; Ethical Behaviour;

Socially Responsible Behaviour; Image of Medical Representatives).

Table 1. Factor analysis summary.

Factors	Questions	Items	Source
Communication (COM)	The scientific information provided by the medical representatives is a very important criterium in order to prescribe it.	COM1	Adapted after Karayanni and Georgi (2012)
	Drug manufacturers' promotional actions and food reputation differentiate/reinforce the prescribing habits.	COM2	
Socially responsible behaviour (SRB)	Pharmaceutical companies invest sufficient financial resources in building the relationship with prescribers.	SRB1	Adapted after Schiebel and Pöchtrager (2003)
	Pharmaceutical companies spend enough time building relationships with prescribers.	SRB2	
	Pharmaceutical companies take sufficient promotional actions in building the relationship with prescribers.	SRB3	
	Pharmaceutical companies are investing enough human resources in building the relationship with prescribers.	SRB4	
	Pharmaceutical companies are taking measures to reduce environmental pollution.	SRB5	
	Pharmaceutical companies take responsibilities for environmental protection defined in the company	SRB6	
Ethical behaviour (EB)	National pharmaceutical companies produce reliable medicines.	EB1	Adapted after Clark et al. (2011)
	International pharmaceutical companies produce reliable drugs.	EB2	
	National pharmaceutical companies act with integrity.	EB3	
	International pharmaceutical companies act with integrity.	EB4	
	National pharmaceutical companies have the doctors' best interests in mind when prescribing drugs.	EB5	
	International pharmaceutical companies have the doctors' best interests in mind when prescribing drugs.	EB6	
	The national pharmaceutical companies are genuinely concerned that our practice succeeds.	EB7	
	International pharmaceutical companies are genuinely concerned that our practice succeeds.	EB8	
Image of medical representatives (IMR)	Medical representatives should provide information on the effectiveness of the medicine, its content and side effects in order to remove the reluctance to prescribe that medicine.	IMR1	Adapted after Karayanni and Georgi (2012) and Clark et al. (2011)
	I believe that medical representatives are a reliable source of information for prescribing medicines.	IMR2	
	I am satisfied with the relationship I have with the medical representatives.	IMR3	
	The relationship with the medical representatives of the pharmaceutical companies is valuable for the activity of prescribing medicines.	IMR4	
Prescribing intent (PI)	I am determined to continue prescribing certain medications if they are shown to be beneficial in previous treatments.	PI1	Adapted after Ajzen (1991)
	I prefer to prescribe medications which are reimbursed by the health care system.	PI2	
Subjective prescribing norm (SPN)	I believe that pharmacists must fully comply with doctors' prescriptions.	SPN1	Adapted after Ajzen (1991)
	I believe that pharmacists should not prescribe over-the-counter medicines.	SPN2	
	Patients want doctors to take into account their expectations for treatment when prescribing medication.	SPN3	
		SPN4	

Table 1. Continued.

Factors	Questions	Items	Source
	Medical representatives expect the prescription of medications to be based on the medical information provided.		
Perceived control (PC)	Patients' expectations for the treatment to be followed influence me in prescribing medication.	PC1	Adapted after Segal and Hepler (1982);
	The discussion with the patients about the administration and possible side effects of the drugs contributes to the prescribing decision.	PC2	Ajzen (1991); Vodă and Florea (2019)
	The discussion with patients about the cost of purchasing drugs contributes to the prescribing decision.	PC3	
	The discussion with the patients about the previous experience related to the results of the treatment of the condition contributes to the prescribing decision.	PC4	

Source: Authors' elaboration.

4.2.1. Communication (COM)

The measurement was two-item and scored on a five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree'. The respondents were asked to indicate if: (a) the scientific information provided by the medical representatives is a very important criterium in order to prescribe it and (b) if the promotional actions and food reputation of drug manufacturers differentiate/reinforce the prescribing habits. The questions were adapted upon marketing communication literature on prescribing medicines, as well as on industrial marketing (see Karayanni & Georgi, 2012).

4.2.2. Socially responsible behaviour (SRB)

The measurement was tapped by a six-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree', based on Schiebel and Pöchtrager (2003) methodology. According to Schiebel and Pöchtrager (2003), CSR refers to six dimensions or responsibilities: customers, employees, business partners, environment, community and investors. The adoption by a company of a behaviour based on certain values can result in improved financial performance, increased motivation and commitment of employees to the company, increased customer loyalty and increased corporate reputation.

The measurement of the variable—*socially responsible behaviour* is based on the tool used by Schiebel and Pöchtrager (2003) and Schiebel and Pöchtrager (2003) through which CSR was assessed by considering two areas of interest: market and society (items 1–4) and environment (items 5 and 6, respectively). The market and society variable was studied from the perspective of the relationship between the pharmaceutical company and the prescribing doctors (Table 1).

4.2.3. Ethical behaviour (EB)

Ethical behaviour was assessed using an eight-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree' starting from Clark et al. (2011) analysis. The inclusion of the variable ethical behaviour by a pharmaceutical company in the research model on the analysis of factors influencing the drug prescribing has its justification in analysing the impact of the existence of ethical values on increasing corporate reputation.

4.2.4. Image of medical representatives (IMR)

The measure was tapped by a four-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree', based on the approaches of Karayanni and Georgi (2012), and Clark et al. (2011). The important role of the pharmaceutical industry on the quality of life requires the understanding of how pharmaceutical companies use marketing resources as efficiently as possible and achieve the best possible results through medical representatives, so that all categories of stakeholders are advantaged. Therefore, the corporate image or reputation becomes the general perception of stakeholders about the company, formed by assessing their ability to meet their needs and interests. Therefore, doctors' perceptions of medical representatives will influence the formation of perceptions of the pharmaceutical companies they represent. The perception of the medical representatives is to be measured by evaluating the personal values regarding the demonstration of the characteristics of ethics, trust and honesty (see Table 1).

4.2.5. Prescribing intent (PI)

Prescribing intent was assessed using a two-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree', and was developed based on TPB (Ajzen, 1991; Vodă & Florea, 2019). The prescribing intent can be influenced by both subjective norms and perceived control (see Table 1).

4.2.6. Subjective prescribing norm (SPN)

Subjective prescribing norm was tapped by a four-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree', based on TPB (Ajzen, 1991; Vodă & Florea, 2019). The subjective norm refers to the sum of evaluations of what other relevant groups think about prescriptive behaviour, such as pharmacists, colleagues, doctors, health professionals and medical representatives.

4.2.7. Perceived control (PC)

Perceived control was assessed using a four-item, five-point Likert scale, anchored by 'strongly disagree' and 'strongly agree' based on Vodă and Florea (2019); Ajzen (1991) and Segal and Hepler (1982, 1985) approaches. Perceived control over the adoption of a certain behaviour is the extent to which individuals consider that they have the resources and the opportunities which are supposed to be necessary to behave in a certain way. The study of the perceived control construct was approached from the perspective of the patients' interest in making the final decision of the prescription, by involving them in the discussions with the prescribers (see Table 1).

4.3. Sampling

The research sample is represented by Romanian GPs who work in medical offices. We used the sampling strategy of a non-probability convenience survey. The sample size was calculated using least squares estimation, which requires a sample size 10 times larger than the number of variables impacting the conceptual construct (Hair et al., 2011). The variable identified as being influenced by the greatest number of

Table 2. Respondents' profile ($N = 177$).

Demographics	Frequency	Percent
Gender		
Male	106	59.9
Female	71	40.1
Age (years)		
31–40 years old	25	14.0
41–50 years old	67	37.9
51–60 years old	64	36.2
More than 61	21	11.9
Experience (years)		
1–10 years	16	9.1
11–20 years	45	25.4
21–30 years	73	41.2
More than 30 years	43	24.3
Cities		
Botosani	43	24.3
Iasi	57	32.2
Suceava	77	43.5
Total	$N = 177$	

Source: Authors' estimation.

elements, that is, eight, is the CSR of PCs. Therefore, 80 cases could be considered as an acceptable number for the statistical analysis development.

Following the recommendation of Hair et al. (2009) to ensure 15 cases per independent variable (i.e., 9), we determined that our sample size should be of at least 120 respondents. We conducted our research on a sample of 177 GPs. The study was conducted in three major cities from Nord-Eastern Romania: Iasi, Botosani and Suceava. The Statistical Package for Social Sciences (SPSS) software, version 21 and STATA 13.0 were used for data analysis. To test our hypotheses, we used correlation analyses, by which we intended to determine the possible relationship between two variables, the intensity of the relationship and the direction of influence of one variable on the other. We also used confirmatory analysis to ascertain the theoretical constructs (Cronbach's Alpha). In order to analyse the relationships between different constructs, we used SEM (*structural equation modelling*) software package in STATA 13.0., which allowed us to interpret and assess the causal influences of the constructs.

The description of the sample group under analysis is based on a series of specific demographic variables, as follows: gender, age, experience in medical practice (expressed in years) and the city/county and borough where respondents prescribe.

Our research sample included 106 women (59.9%) and 71 men (40.1%). Regarding age structure, 37.9% of the GPs interviewed were between 41 and 50 years old, while 36.3% were aged between 51 and 60. In terms of medical practice, most of the GPs interviewed (41.2%) had between 21 and 30 years of professional experience. Most of the surveyed healthcare professionals work in Suceava (43.5%), followed by Iasi (31.6%) and Botosani (24.3%) (Table 2).

Cronbach's alpha remains the most common measure for estimating the internal consistency reliability of the constructs, which requires only a single test administration to provide a unique estimate of the reliability for a given test. The outcomes in Table 3 demonstrate that the values of Cronbach's alpha range between 0.60 and 0.90, which meets the minimum threshold criteria (>0.6; Ahmed et al., 2018; Stros

Table 3. Reliability analysis (Cronbach's alpha, $N = 177$).

Factors	Scale	No of items	Cronbach's alpha
Communication (COM)	1–5	2	0.785
Ethical behaviour (EB)	1–5	8	0.830
Socially responsible behaviour (SRB)	1–5	6	0.802
Image of medical representatives (IMR)	1–5	4	0.747
Prescribing intent (PI)	1–5	2	0.819
Subjective prescribing norm (SPN)	1–5	4	0.628
Perceived control (PC)	1–5	4	0.732

Source: Authors' estimation.

et al., 2009). The Cronbach alpha for ethical behaviour (EB), socially responsible behaviour (SRB) and prescribing intent (PI) are above 0.8. For communication (COM), image of medical representatives (IMR) and perceived control (PC) the values of the reliability tests are above 0.70.

The study of the relationship between a PC's reputation and GPs' prescribing intent was based on Spearman's non-parametric correlation analysis. Table 4 shows a direct and positive relationship of moderate intensity between the two variables (the correlation coefficient is 0.456) and statistically significant with a 99% confidence level. The Sig. (0.000), lower significance level than the conventional 0.05, statistically proves that there is a direct relationship between the PC's corporate reputation and GPs' prescribing intent (Table 4). Consistent with Fombrun's outcomes (2005), we wanted to determine whether the CSR variable is a core attribute on which the corporate reputation is based. Table 4 shows a direct and positive relationship of high intensity between the two variables (the value of the correlation coefficient is 0.668), and statistically significant with a 99% confidence level. The Sig. (0.000), lower significance level than the conventional 0.05, statistically proves that the socially responsible behaviour of PCs directly influences and contributes directly to the assessment of their reputation by GPs.

Table 4 also shows a direct and positive relationship of average intensity between PCs exhibiting social responsibility and GPs' perceptions of ethical behaviour in companies (the correlation coefficient value is 0.553), and statistically significant. The Sig. coefficient value (0.000), lower than the accepted level of 0.05 proves that PCs exhibiting social responsibility directly influences GPs' perceptions of ethical behaviour in companies.

Table 4 shows a direct and positive relationship of high intensity between ethical behaviour of PCs and GPs' perceptions of corporate reputation (the value of the correlation coefficient is 0.694), and statistically significant with a confidence level of 99%. The Sig. coefficient value (0.000), lower than the accepted level of 0.05, proves that the ethical behaviour of PCs directly influences GPs' perceptions of corporate reputation.

Table 4 shows a positive relationship between the subjective norm and GPs' drug prescribing intents ($r = 0.08$) but with no statistically significant result. Subsequently, we can identify a direct and positive low-intensity relationship between the perception of the perceived control of GPs' drug prescribing behaviour and the intention to prescribe (Spearman's correlation coefficient value is 0.287). The Sig. coefficient value (0.000), lower than the accepted level of 0.05, statistically proves that GPs' perceptions

Table 4. Spearman's Rho correlations.

Spearman's Rho		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corporate reputation (CR)	Correlation coefficient	1.000							
	Sig. (2-tailed)	·							
	N	177							
Communication (COM)	Correlation coefficient	0.682**	1.000						
	Sig. (2-tailed)	0.000	·						
	N	177	177						
Ethical behaviour (EB)	Correlation coefficient	0.694**	0.209**	1.000					
	Sig. (2-tailed)	0.000	0.005	·					
	N	177	177	177					
Socially responsible behaviour (SRB)	Correlation coefficient	0.668**	0.200**	0.553**	1.000				
	Sig. (2-tailed)	0.000	0.008	0.000	·				
	N	177	177	177	177				
Image of medical representatives (IMR)	Correlation coefficient	0.749**	0.409**	0.424**	0.392**	1.000			
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	·			
	N	177	177	177	177	177			
Prescribing intent (PI)	Correlation coefficient	0.456**	0.178*	0.520**	0.351**	0.348**	1.000		
	Sig. (2-tailed)	0.000	0.018	0.000	0.000	0.000	·		
	N	177	177	177	177	177	177		
Subjective Prescribing Norm (SPN)	Correlation coefficient	0.177*	0.072	0.078	0.130	0.210**	0.008	1.000	
	Sig. (2-tailed)	0.019	0.343	0.300	0.086	0.005	0.921	·	
	N	177	177	177	177	177	177	177	
Perceived Control (PC)	Correlation coefficient	0.374**	0.275**	0.397**	0.264**	0.298**	0.287**	0.298**	1.000
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	·
	N	177	177	177	177	177	177	177	177

Source: Authors' estimation.
*Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).
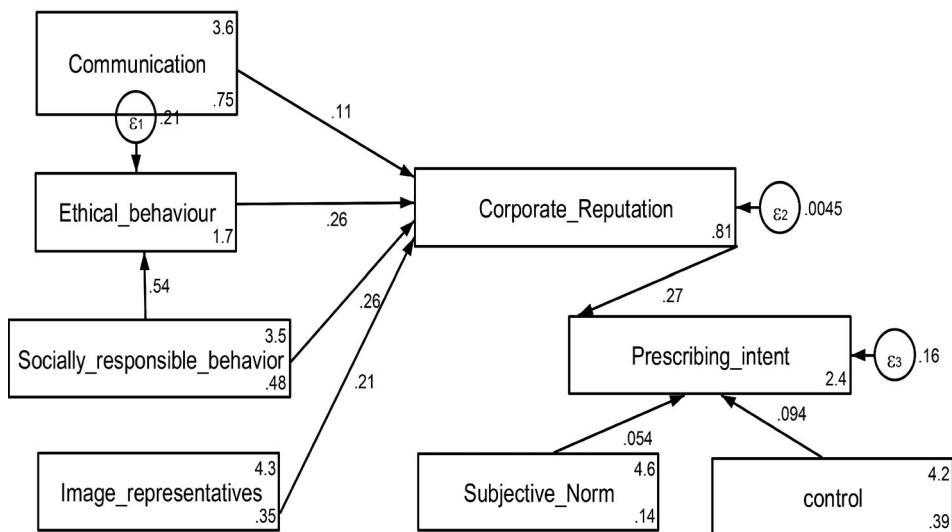
Figure 2. The structural model.

of their control regarding drug prescribing directly influences prescribing intent (Figure 2).

Table 5 presents the developed hypotheses, the path, coefficients, the standard errors and the significance of the relationships (see also Annexes 1–3). H1 hypothesised that GPs' perceptions of the PCs' corporate reputation have a significantly positive effect on their drug prescribing intents. The findings confirm the significant relationship ($\beta = 0.274$; $p = 0.001$). According to H2, PCs' socially responsible behaviour influences GPs' perception of PCs' corporate reputation. The findings confirm the significant relationship ($\beta = 0.261$; $p = 0.000$). Therefore, H1 and H2 are supported.

Hypothesis 3 predicted that there is a strong relationship between PCs' ethical behaviour and their socially responsible behaviour. The findings confirm the significant relationship ($\beta = 0.544$; $p = 0.000$). Also, GPs' perceptions of the corporate reputation of PCs was predicted to be influenced by the PCs' ethical behaviour (H4). The data from Table 5 confirms the positive and significant relationship ($\beta = 0.257$; $p = 0.000$). Therefore, H3 and H4 are supported.

According to Hypotheses 5 and 6, corporate reputation has a mediating effect on the communication (H5) and image of PCs' medical representatives (H6) deployed by PCs and GPs' prescribing intents. The findings confirm both assumed hypotheses ($\beta = 0.029$; $p = 0.001$ and $\beta = 0.056$; $p = 0.001$). We can conclude that corporate reputation mediates PCs' communication efforts and prescribing intents. Consequently, corporate reputation has a statistically significant mediating effect on medical representatives and drug prescribing intent. Therefore, H5 and H6 are supported.

The last two hypotheses refer to the influence of attitudes towards subjective norm and perceived control in prescribing intention. H7 hypothesised that GPs' prescribing intents are influenced by their attitudes towards the subjective norm regarding drug prescribing. The findings however do not confirm this relationship ($\beta = 0.054$; $p = 0.513$). Therefore, H7 is not supported. According to H8, GPs' prescribing intents

Table 5. SEM output.

Hypothesis	Content	Regression paths	Coeff. of regression (β)	SE	P	Result
H1	GPs' perceptions of the PCs' corporate reputation have a significantly positive effect on their drug prescribing intents.	PI<-CR	0.274	0.081	0.001	Supported
H2	PCs' socially responsible behaviour influences GPs' perception of PCs' corporate reputation.	CR<-SRB	0.261	0.009	0.000	Supported
H3	There is a strong relationship between PCs' ethical behaviour and their socially responsible behaviour.	EB<-SRB	0.544	0.503	0.000	Supported
H4	GPs' perceptions of the corporate reputation of PCs is influenced by the PCs' ethical behaviour.	CR<-EB	0.257	0.111	0.000	Supported
H5	Corporate reputation has a mediation effect on the communication efforts deployed by PCs and GPs' prescribing intents.	PI<-CR<-COM	0.029	0.008	0.001	Supported
H6	Corporate reputation has a mediation effect between the image of PCs' medical representatives and GPs' prescribing intents.	PI<-CR<-IMR	0.056	0.017	0.001	Supported
H7	GPs' prescribing intents are influenced by their attitudes towards the subjective norm regarding drug prescribing.	PI<-SPN	0.054	0.082	0.513	Not Supported
H8	GPs' prescribing intents are influenced by their attitude towards the perceived control in adopting the prescribing behaviour.	PI<-PC	0.941	0.053	0.080	Supported, for a risk of 10%

Source: Data processed by STATA.

are influenced by their attitude towards the perceived control in adopting the prescribing behaviour. The results confirm the significant relation for an associated risk of 10%. Therefore, H8 is supported for a risk of 10%.

In order to test the validity of the model, we performed Comparative Fit Index (CFI = 0.916), Standardised root mean squared residual (SRMR = 0.067), which indicate a good fit (Hair et al., 2009).

5. Discussions and conclusion

5.1. Theoretical implications

This research contributes to the consolidation of the literature on GPs' prescribing intents, through a conceptual model highlighting the relationships between various non-pharmaceutical variables. Our study is based on the assumption that a strong corporate reputation based on an effective corporate social responsibility initiative (responsible behaviour) influences prescribing intent, hypothesis which was confirmed in the study.

In addition, our study aims to understand the mediating effect of the corporate reputation between PCs' communication efforts and prescribing intent on the one hand, and between the image of PCs' medical representatives and the drug prescribing intent, on the other hand. The results show that PCs' corporate reputation plays a mediating role with a significant impact on drug prescribing intents. We may thus infer that *the reputation of PCs contributes to build and maintain trust in their pharmaceutical products, which further influences GPs' prescribing intent.*

5.2. Managerial implications

A good reputation can help a company position itself better than its competitors in the eyes of all stakeholders. PCs need to acknowledge that corporate reputation is a multi-dimensional construct and should focus their efforts accordingly. Indeed, our study shows that GPs' favourable perception of the PCs' medical representatives has a strong impact on their drug prescribing intents. However, another important yet overlooked aspect of the PCs' corporate reputation is represented by the PCs' social responsibility image. Crucially, PCs' failure to focus their efforts on managing their social responsibility image can result in an adverse effect on their corporate reputation. An investment in CSR would, therefore, be conducive to increasing a PCs' corporate reputation capital.

To maximise reputation value, PCs must make reputation management a cornerstone of their corporate culture. Thus, the reputation must be an inseparable part of the company's identity. A strong corporate reputation can increase the trustworthiness of a PC, positively influencing the GPs' prescribing intents for the pharmaceutical products which the company markets. To sum up our outcomes, our research suggests that the PCs' corporate reputation contributes to maintaining confidence in their pharmaceutical products, which further influences physicians' prescribing intent.

6. Conclusions

A first important implication that pharmaceutical companies should take into consideration is related to the attempt to build relationships based on trust with the categories of public they interact with directly, with prescribers through medical representatives or indirectly with the final consumer of medicines. These relationships of trust contribute to the construction and consolidation of the corporate brand of pharmaceutical companies, and implicitly positively influence the corporate reputation, considered an intangible asset, which pharmaceutical organisations use as a key success factor.

The importance of this concept, relatively new as an approach to the success of a company, led us to deepen the topic of doctors' prescribing behaviour by highlighting the influencing factors which act on doctors' drug prescribing, by including the variable corporate reputation in the theoretical model. Regarding the connection between the reputation of a company and the industry in which it operates, it was discussed that the reputation of the pharmaceutical industry influences the public's perception of drug companies. Also, pharmaceutical companies, in an attempt to strengthen the corporate reputation, should turn their attention to the component dimensions, granting major importance to each of them, given their contribution to the positive influence of reputation.

The results of the study demonstrate that GPs' perceptions of the PCs' corporate reputation have a significantly positive effect on their drug prescribing intents. These results are consistent with previous research studies such as Goldstein and Doorley (2011) and Butterick (2011). Indeed, the study also shows that the socially responsible behaviour of PCs directly influences and contributes directly to the GPs' assessment of their reputation. Our results are consistent with Iglesias et al. (2020); Demir and Min (2019); Mehralian et al. (2019); Cook et al. (2018); Hogarth et al. (2018); Malik and Kanwal (2018); Sharabati (2018); Leiva et al. (2016) and Fombrun (2005). The results further confirm that there is a direct and positive relationship of average intensity between PCs exhibiting social responsibility and GPs' perceptions of ethical behaviour in companies, which is also in line with the earlier studies: Demir and Min (2019); Cook et al. (2018); Hogarth et al. (2018) and Malik and Kanwal (2018). Moreover, the results confirm that the GPs' perceptions of the corporate reputation of PCs is influenced by the PCs' ethical behaviour. The results are validated by the previous studies such as Ion (2013) and Fombrun (2005). Furthermore, the outcomes of the study also conclude that the corporate reputation has a mediating effect on the communication efforts of the PCs and GPs' prescribing intents. Our results are in line with the previous research studies such as Faisal et al. (2020); Shakeel et al. (2019); Alowi and Kani (2018); Hogarth et al. (2018); Jacob (2018). Additionally, the results highlight that the corporate reputation has a mediating effect between the image of PCs' medical representatives and GPs' prescribing intents. These results also validated the previous literature in studies such as: Faisal et al. (2020); Ahmed et al. (2018) and Jacob (2018).

However, there is a positive relationship between the subjective norm and GPs' drug prescribing intents but with no statistically significant result. Our results are opposing previous research studies such as Sharifnia et al. (2018); Godin et al. (2008)

and Caruana et al. (2006). Although Sharifnia et al. (2018); Godin et al. (2008) and Caruana et al. (2006) have identified a positive relationship between the subjective norm and the intention to prescribe drugs, in our study the link is a statistically insignificant one. We believe that such a result may be due to the specific characteristics of the medical system in Romania such as the pharmacists' role in the process, the type of interaction between doctors and patients, the patient purchasing power and the physicians' interactions with pharmaceutical sale representatives.

Finally, the results conclude that the GPs' prescribing intents are influenced by their attitude towards the perceived control in adopting the prescribing behaviour. These results also validate the previous literature in studies such as Liu et al. (2019).

7. Limitations and further research

This article presents a number of limitations which may be overcome in future research. The present research focuses on studying the impact of corporate reputation on drug prescription in a single category of prescribing physicians. Subsequent research could examine the parallel analysis of pharmacists' and physicians' attitudes and perceptions regarding the influence of different factors on the process of recommending or prescribing drugs to patients. Another limitation of this study is the non-pharmaceutical approach to factors which may influence physicians' prescribing behaviour. Further research may also consider the analysis of clinical-pharmaceutical factors such as patient history, treatment status, drug characteristics, etc. The methodology of this research uses a non-probability sampling method which does not allow the generalisation of the conclusions of the study to the entire target population in Romania. In addition, another difficulty was encountered in the study data collection process using the online questionnaire, with a 15.3% response rate to complete the research instrument. Future research will have to take into account aspects such as: the use of a quota sampling method by broadening the scope of research.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Aasland, D. (2004). On the ethics behind, business ethics. *Journal of Business Ethics*, 53(1/2), 3–8. https://doi.org/10.1023/B:BUSI.0000039395.63115.c2

Abratt, R., & Lanteigne, J. (2000). Factors influencing general practitioners in the prescription of homeopathic medicines. *South African Journal of Business Management*, 31(3), 91–98. https://doi.org/10.4102/sajbm.v31i3.738

Ahmed, R. R., Channar, Z. A., Soomro, R. H., Vveinhardt, J., Streimikiene, D., & Parmar, V. (2018). Antecedents of symmetry in physicians' prescription behavior: Evidence from SEM-based multivariate approach. *Symmetry*, 10(12), 721. https://doi.org/10.3390/sym10120721

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alowi, M., & Kani, Y. (2018). Impact of pharmaceutical companies' promotional tools on physicians' prescription patterns: A systematic review. *Journal of Applied Pharmacy*, *10*(3), 1–10.

Biswas, K., & Ferdousy, U. K. (2016). Influence of pharmaceutical marketing on prescription behavior of physicians: A cross-sectional study in Bangladesh. *Journal of Accounting & Marketing*, *5*(2), 1–4. https://doi.org/10.4172/2168-9601.1000160

Brammer, S. J., & Pavelin, S. (2006). Corporate reputation and social performance: The importance of fit. *Journal of Management Studies*, *43*(3), 435–455. https://doi.org/10.1111/j.1467-6486.2006.00597.x

Brown, M., & Mitchell, M. (2010). Ethical and unethical leadership: Exploring new avenues for future research. *Business Ethics Quarterly*, *20*(4), 583–616. https://doi.org/10.5840/beq201020439

Butterick, K. J. (2011). *Introducing Public Relations Theory and Practice*. SAGE.

Carmeli, A., & Tishler, A. (2004). Resources, capabilities, and the performance of industrial firms: A multivariate analysis. *Managerial and Decision Economics*, *25*(67), 299–315. https://doi.org/10.1002/mde.1192

Caruana, A., Cohen, C., & Krentler, K. (2006). Corporate reputation and shareholders' intentions: An attitudinal perspective. *Journal of Brand Management*, *13*(6), 429–440. https://doi.org/10.1057/palgrave.bm.2540284

Chen, C. C. M., Nguyen, B., Melewar, T. C., & Dennis, C. (2017). Investigating the uses of corporate reputation and its effects on brand segmentation, brand differentiation, and brand positioning: Evidence from the Taiwanese pharmaceutical industry. *International Studies of Management & Organization*, *47*(3), 240–257. https://doi.org/10.1080/00208825.2017.1318019

Chhabra, A., Nidhi, C., & Jain, A. (2019). Knowledge, attitudes and practice preference regarding drug prescriptions of resident dental doctors: A quantitative study. *International Journal of Risk & Safety in Medicine*, *30*(2), 91–100. (Preprint), https://doi.org/10.3233/JRS-180021

Clark, M., Vorhies, D., & Bentley, J. (2011). Relationship quality in the pharmaceutical industry: An empirical analysis. *Journal of Medical Marketing: Device, Diagnostic and Pharmaceutical Marketing*, *11*(2), 144–155. https://doi.org/10.1057/jmm.2010.39

Cook, L., LaVan, H., & Zilic, I. (2018). An exploratory analysis of corporate social responsibility reporting in US pharmaceutical companies. *Journal of Communication Management*, *22*(2), 197–211. https://doi.org/10.1108/JCOM-02-2017-0020

Demir, M., & Min, M. (2019). Consistencies and discrepancies in corporate social responsibility reporting in the pharmaceutical industry. *Sustainability Accounting, Management and Policy Journal*, *10*(2), 333–364. https://doi.org/10.1108/SAMPJ-03-2018-0094

Faisal, A., Ahmad, M. S., Thurasamy, R., & Ahmed, R. (2020). Doctors' interactions with pharmaceutical sales representatives: Modelling doctors prescription behaviour. *Community Mental Health Journal*, *56*(3), 456–463. https://doi.org/10.1007/s10597-019-00501-w

Fischer, M. A., Keough, M. E., Baril, J. L., Saccoccio, L., Mazor, K. M., Ladd, E., Von Worley, A., & Gurwitz, J. H. (2009). Prescribers and pharmaceutical representatives: Why are we still meeting? *Journal of General Internal Medicine*, *24*(7), 795–801. https://doi.org/10.1007/s11606-009-0989-6

Fombrun, C. J. (2005). Building corporate reputation through CSR initiatives: Evolving standards. *Corporate Reputation Review*, *8*(1), 7–11. https://doi.org/10.1057/palgrave.crr.1540235

Fombrun, C., & Shanley, M. (1990). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal*, *33*(2), 233–258. https://doi.org/10.5465/256324

Geitona, M., Zavras, D., Hatzikou, M., & Kyriopoulos, J. (2006). Generics market in Greece: The pharmaceutical industry's beliefs. *Health Policy (Amsterdam, Netherlands)*, *79*(1), 35–48. https://doi.org/10.1016/j.healthpol.2005.11.004

Godin, G., Belanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science*, *3*, 36. https://doi.org/10.1186/1748-5908-3-36

Goldstein, K. (2010). *Corporate Reputation Management in the Pharmaceutical Industry* (p.6). June 25.

Goldstein, K., & Doorley, J. (2011). *Corporate reputation management in the U.S. pharmaceutical industry.* https://pdfs.semanticscholar.org/d74b/c5ea48e64701c15073334e3dae3bac8ce04f.pdf

Gonzalez, J., Sismeiro, C., Dutta, S., & Stern, P. (2008). Can branded drugs benefit from generic entry? The role of detailing and price in switching to non-bioequivalent molecules. *International Journal of Research in Marketing*, 25(4), 247–260. https://doi.org/10.1016/j.ijresmar.2008.08.002

Hair, J. F., Black, W. C., Babin, B., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7th ed.). Prentice Hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeeda silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–151. https://doi.org/10.2753/MTP1069-6679190202

Han, L. Y., Arokiasamy, L., & Marn, J. T. K. (2019). The association between ethical customer management and organizational sustainability in pharmaceutical industry in Malaysia. *Global Business and Management Research: An International Journal*, 11(1), 607–619.

Hogarth, K., Hutchinson, M., & Scaife, W. (2018). Corporate philanthropy. Reputation risk management and shareholder value: A study of Australian corporate giving. *Journal of Business Ethics*, 151(2), 375–390. https://doi.org/10.1007/s10551-016-3205-8

Iglesias, O., Markovic, S., Bagherzadeh, M., & Singh, J. J. (2020). Co-creation: A key link between corporate social responsibility, customer trust, and customer loyalty. *Journal of Business Ethics*, 163(1), 151–166. https://doi.org/10.1007/s10551-018-4015-y

Ion, L. M. (2013). Qualitative study on physicians' motivations and drug prescribing behaviour. *CES Working Papers*, 5(1), 29–40.

Jacob, N. T. (2018). Drug promotion practices: A review. *British Journal of Clinical Pharmacology*, 84(8), 1659–1667. https://doi.org/10.1111/bcp.13513

Karayanni, D., & Georgi, C. (2007). *How do physicians appreciate detailers' personal and relational skills?—An exploratory empirical investigation.* http://www.bma.upatras.gr/staff/karayan/articles/EBES2010.pdf

Karayanni, D., & Georgi, C. (2012). Segmenting generic medicines' market, using physicians' attitudes and generic companies' prescription span as grouping criteria. *Journal of Medical Marketing: Device, Diagnostic and Pharmaceutical Marketing*, 12(2), 104–120. https://doi.org/10.1177/1745790412443144

Kersnik, J., Klemenc-Ketis, Z., Petek-Ster, M., Tusek-Bunc, K., Poplas-Susic, T., & Kolsek, M. (2011). Family doctors' views of pharmaceutical sales representatives: Assessment scale development. *Family Practice*, 28(4), 456–460. https://doi.org/10.1093/fampra/cmq105

Kessel, M. (2014). Restoring the pharmaceutical industry's reputation. *Nature Biotechnology*, 32(10), 983–984. https://doi.org/10.1038/nbt.3036

Kim, S. (2019). The process model of corporate social responsibility (CSR) communication: CSR communication and its relationship with consumers' CSR knowledge, trust, and corporate reputation perception. *Journal of Business Ethics*, 154(4), 1143–1159. https://doi.org/10.1007/s10551-017-3433-6

Langlois, L. (2011). *The anatomy of ethical leadership.* University Press.

Leiva, R., Ferrero, I., & Calderón, R. (2016). Corporate reputation in the business ethics field: Its relation with corporate identity, corporate image, and corporate social responsibility. *Corporate Reputation Review*, 19(4), 299–315. https://doi.org/10.1057/s41299-016-0008-x

Liu, C., Liu, C., Wang, D., Deng, Z., Tang, Y., & Zhang, X. (2019). Determinants of antibiotic prescribing behaviors of primary care physicians in Hubei of China: A structural equation model based on the theory of planned behavior. *Antimicrobial Resistance & Infection Control*, 8(1), 23. https://doi.org/10.1186/s13756-019-0478-6

Malik, M. S., & Kanwal, L. (2018). Impact of corporate social responsibility disclosure on financial performance: Case study of listed pharmaceutical firms of Pakistan. *Journal of Business Ethics*, 150(1), 69–78. https://doi.org/10.1007/s10551-016-3134-6

Mehralian, G., Zarei, L., Akhgari, M., & Peikanpour, M. (2019). Does CSR matter in the pharmaceutical distribution industry? The balanced scorecard perspective. *International Journal of Pharmaceutical and Healthcare Marketing*, 13(2), 228–243. https://doi.org/10.1108/IJPHM-05-2017-0028

Melé, D. (2012). *Management ethics: Placing ethics at the core of good management*. Palgrave Macmillan.

Mitchell, L. (2002). *Corporate Irresponsibility: America's Newest Export*. Yale University Press. 214 p.

Newburry, W., Deephouse, D. L., & Gardberg, N. A. (2019). Global aspects of reputation and strategic management. *Global Aspects of Reputation and Strategic Management (Research in Global Strategic Management, Vol. 18)*, 1–20. https://doi.org/10.1108/S1064-485720190000018009

Panigyrakis, G. G., & Veloutsou, C. (1999). Brand managers in the pharmaceutical industry: Are they any different? *Journal of Product & Brand Management*, 8(6), 497–512. https://doi.org/10.1108/10610429910299737

Pareek, B., Liu, Q., & Ghosh, P. (2019). Ask your doctor whether this product is right for you: A Bayesian joint model for patient drug requests and physician prescriptions. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 182(1), 197–223. https://doi.org/10.1111/rssa.12365

Prentis, R., Lis, Y., & Walker, S. (1988). Pharmaceutical innovation by the Seven UK-owned pharmaceutical companies (1964–1985). *British Journal of Clinical Pharmacology*, 25(3), 387–396. https://doi.org/10.1111/j.1365-2125.1988.tb03318.x

Renkema, E., Ahaus, K., Broekhuis, M., & Tims, M. (2019). Triggers of defensive medical behaviours: A cross-sectional study among physicians in the Netherlands. *BMJ Open*, 9(6), e025108. https://doi.org/10.1136/bmjopen-2018-025108

Schiebel, W., & Pöchtrager, S. (2003). Corporate ethics as a factor for success–the measurement instrument of the University of Agricultural Sciences (BOKU), Vienna. *Supply Chain Management: An International Journal*, 8(2), 116–121. https://doi.org/10.1108/13598540310468715

Schnietz, K. E., & Epstein, M. J. (2005). Exploring the financial value of a reputation for corporate social responsibility during a crisis. *Corporate Reputation Review*, 7 (4), 327–345. https://doi.org/10.1057/palgrave.crr.1540230

Segal, R., & Hepler, C. D. (1982). Prescribers' beliefs and values as predictors of drug choices. *American Journal of Hospital Pharmacy*, 39(11), 1891–1897. https://doi.org/10.1093/ajhp/39.11.1891

Segal, R., & Hepler, C. D. (1985). Drug choice as a problem-solving process. *Medical Care*, 23(8), 967–976. https://doi.org/10.1097/00005650-198508000-00004

Shahani, A., Khoso, I., & Abbasi, M. (2019). The impact of corporate reputation on building brand equity: A perspective of multinationals FMCGs. *Journal of Business Strategies*, 13(1), 45–58. https://doi.org/10.29270/JBS.13.1(2019).073

Shakeel, S., Nesar, S., Iffat, W., Fatima, B., Maqbool, T., & Jamshed, S. (2019). A quantitative insight of the interactions of prescribers with pharmaceutical organization's representatives in clinical settings of Karachi. *Integrated Pharmacy Research & Practice*, 8, 75–83. https://doi.org/10.2147/IPRP.S196318

Sharabati, A.-A. A. (2018). Effect of corporate social responsibility on Jordan pharmaceutical industry's business performance. *Social Responsibility Journal*, 14(3), 566–583. https://doi.org/10.1108/SRJ-12-2016-0221

Sharifnia, S. H. A., Mohammadzadeh, M., Arzani, G., Salamzadeh, J., Abolfazli, S. A., Zali, A., & Khoshdel, A. R. (2018). Main factors affecting physicians' prescribing decisions: The Iranian experience. *Iranian Journal of Pharmaceutical Research*, 17(3), 1105–1115.

Stros, M., Hari, J., & Marriott, J. (2009). The relevance of marketing activities in the Swiss prescription drugs market. *International Journal of Pharmaceutical and Healthcare Marketing*, 3(4), 323–346. https://doi.org/10.1108/17506120911006038

The IQVIA Institute Reports. (2019). *The global use of medicine in 2019 and Outlook to 2023, forecasts and areas to watch institute report*. https://www.iqvia.com/insights/the-iqvia-institute/reports/the-global-use-of-medicine-in-2019-and-outlook-to-2023.

Tomažič, T., & Čelofiga, A. K. (2019). Ethical aspects of the abuse of pharmaceutical enhancements by healthy people in the context of improving cognitive functions. *Philosophy, Ethics, and Humanities in Medicine*, *14*(1), 7. https://doi.org/10.1186/s13010-019-0076-5

Vodă, A. I., & Florea, N. (2019). Impact of personality traits and entrepreneurship education on entrepreneurial intentions of business and engineering students. *Sustainability*, *11*(4), 1192. https://doi.org/10.3390/su11041192

Wright, R., & Lundstrom, W. (2004). Physicians' perceptions of pharmaceutical sales representatives: A model for analyzing the customer relationship. *Journal of Medical Marketing*, *4*(1), 29–38. https://doi.org/10.1057/palgrave.jmm.5040140

Wu, T., & Kimura, Y. (2018). Case study of corporate social responsibility in Japanese pharmaceutical companies: A comparison with western firms. In *Emerging Issues in Global Marketing* (pp. 291–309). Springer.

Annex 1. Direct effects.

Structural equation	Coef.	Std. err.	z	$p > |z|$	95% conf. interval	
CR<-EB	0.257	0.011	21.14	0.000	0.235	0.279
CR<-COM	0.107	0.006	16. 86	0.000	0.094	0.119
CR<-SRB	0.261	0.009	27.06	0.000	0.242	0.280
CR<-IMR	0.206	0.101	20.24	0.000	0.186	0.226
EB<-SRB	0.544	0.050	10. 81	0.000	0.445	0.642
PI<-CR	0.274	0.081	3.37	0.001	0.114	0.433
PI<-SPN	0.054	0.082	0. 65	0.513	−0.107	0.215
PI<-PC	0.941	0.053	1.75	0.080	−0.011	0.199

Source: Data processed by output from STATA 13.0.

Annex 2. Indirect effects.

Structural equation	Coef.	Std. err.	z	$p > |z|$	95% conf. interval	
CR<-SRB	0.140	0.014	9.80	0.000	0.112	0.168
PI<-EB	0.070	0.003	23.14	0.000	0.064	0.076
PI<-COM	0.029	0.008	3.30	0.001	0.011	0.046
PI<-SRB	0.110	0.329	3.34	0.001	0.045	0.174
PI<-IMR	0.056	0.017	3.32	0.001	0.023	0.090

Source: Data processed by output from STATA 13.0.

Annex 3. Total effects.

Structural equation	Coef.	Std. err.	z	$p > |z|$	95% conf. interval	
CR<-EB	0.257	0.011	23.14	0.000	0.235	0.279
CR<-COM	0.107	0.006	16. 86	0.000	0.094	0.119
CR<-SRB	0.401	0.015	26.30	0.000	0.371	0.431
CR<-IMR	0.206	0.101	20.24	0.000	0.186	0.226
EB<-SRB	0.544	0.050	10. 81	0.000	0.445	0.642
PI<-CR	0.274	0.081	3.37	0.001	0.114	0.433
PI<-EB	0.070	0.003	23.14	0.000	0.064	0.076
PI<-COM	0.029	0.008	3.30	0.001	0.011	0.046
PI<-SRB	0.110	0.329	3.34	0.001	0.045	0.174
PI<-IMR	0.056	0.017	3.32	0.001	0.023	0.090
PI<-SPN	0.054	0.082	0. 65	0.513	−0.107	0.215
PI<-PC	0.941	0.053	1.75	0.080	−0.011	0.199

Source: Data processed by output from STATA 13.0.