

Physicians' and consumer's attitude towards direct-to-consumer advertising of the pharmaceutical industry

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Abstract

The main purpose of the study is to examine consumers' attitudes towards direct-to-consumer advertising and, based on consumers' income, determine the effects of this type of advertising on consumers' attitudes, differences in attitudes across income levels, and purchasing behavior. The target population of this study was doctors and consumers of leading hospitals. The sample comprises doctors and consumers. The findings of this research study reveal that the prescription is generated by the physician's positive attitude and the requested information. Survey respondents also reported that advertising and their income motivate them to take better care of their health. The researchers concluded that consumer attitude, physician attitude, and information requested do have a significant impact on prescription generation. Although some coefficients for attitude of consumers were negative, most showed positive correlations, and a positive and significant relationship among the variables was concluded. The significance of the research lies in understanding the relationship between physicians and consumers, the doctor-patient relationship, physicians' behavior, and consumers' behavior towards direct-to-consumer advertising.

Keywords: direct-to-consumer advertising, prescription generation, consumer behavior, sustainable health systems.

1. Introduction

The pharmaceutical industry plays a very important part in the healthcare sector. Pharmaceutical marketing is firstly different from the traditional consumer product marketing, except for the OTC (over the counter) products, as it is highly regulated and is done legitimately and religiously without any false claims to attract the customers that are the prescribing doctors, pharmacists, or consumers/patients. Medical science has identified a primary trend in the selection of medicine, based on four factors: the type of disease, the doctor's judgment, the patient's affordability, and the psychological experience with the product (Prosser et al., 2003). Digital platforms and the Internet are prevalent and have significantly affected consumers' mindsets and purchasing behavior, including that of buyers and sellers, thereby

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spurring competition in the pharmacy industry to gain market share. Relying on the product detailing and marketing of the drugs through Ads to the doctors who are the customers of the industry. E-business, e-commerce, and sales and marketing are gradually gaining prominence and have strong potential for online shopping. Generating new trends of commercialization, replacement of traditional marketing by internet e-marketing or digital marketing, the existing role of the Internet and social media in the pharmaceutical industry, impact on the prescribing behavior of doctors, and their clinical practices. Mentioning the marketing techniques, tools, and customer segmentation through internet marketing, through which the impact of the physicians' attitude on the patients' prescribing behavior is that the patient asks to generate the prescription of his/her choice, and awareness of the diseases and medicines (Bukhari et al., 2020). The main concept of this study is the marketing of prescription pharmaceutical products (drugs, medicines) through DTCA (direct-to-consumer advertising) and its effects on doctors' prescribing behavior (Siddiqi & Shah, 2017). Because direct-to-consumer advertising (DTCA) of prescription drugs (PDs) is not allowed, marketers target non-PD consumers with advertising (Donohue & Berndt, 2004).

The study also carries implications for sustainable healthcare. By identifying patients' information requests and physicians' attitudes as the dominant antecedents of prescription generation, it isolates the demand-side mechanism through which promotional communication is converted into dispensed therapy — a mechanism that recent scholarship argues should be judged against patient safety, rational prescribing and health-system sustainability rather than sales alone (Umaru & Aremu, 2026). Where medicines absorb roughly 43% of household health expenditure (Zaidi et al., 2013) and 88.6% of private health spending is out of pocket (Bashir et al., 2024), brand-driven prescribing bears directly on SDG 3, Target 3.8, which commits states to financial risk protection and affordable essential medicines (United Nations, 2015). The findings simultaneously engage SDG 12, since responsible consumption depends on whether advertising builds health literacy (Budhathoki et al., 2017) or merely brand salience, and on preserving antimicrobials as a finite global resource (Jasovský et al., 2016).

The following research questions are addressed in the paper:

- To what extent does the DTCA influence consumers in the customized prescription of medicines?
- How will DTCA affect the attitude and behavior of the customers and physicians' prescription practices?
- How far will the DTCA increase patients' requests for additional information about the specified medicines and drugs advertised?
- Will advertising the non-PD increase unnecessary traffic from patient requests to a particular brand of medicine?
- What would be the influential criteria towards the physicians' attitude and impact on their prescription of the specific brand?
- What will be the extent of patients' perception of the web and the Internet for DTCA prescription, and their credibility when communicating with doctors?

The main purpose of the study is to motivate the consumers towards the awareness and knowledge of their disease and with disease awareness advertisement boost the urge of the physical consultation of their doctors and to have more authentic need to have the medicine prescription of the medicine or drug advertised, will also influence it towards the prescription issuance which is the comprehensible and clear objective of the marketer that through these non-PD advertisement it will be fulfilled. To examine and understand consumers' attitudes towards DTC (direct-to-consumer) advertising, and, based on consumers' income, how such advertisements affect their attitudes and differences with respect to their income and purchasing power (Mathew Joseph et al., 2008). Therefore, it is very easy to infer from DTCA that patients must have a physical consultation with physicians for their conditions, and that physicians are driven to prescribe the advertised drug, which is then dispensed to them by their consulting physicians. However, it will also develop a critical matter-of-fact attitude towards the physicians' prescriptions for the advertised drug. It will also help the pharmaceutical industry with DTCA marketing, the expenses or outlays invested in this, and with having a concrete reason for the expense and its outcome factors.

2. Family firm evolution

The anomaly identified in the introduction is not difficult because existing theories overlook change. It is difficult because many explanations of change in family firms rest on assumptions about how transformation is presumed to occur. Those assumptions often remain implicit, embedded in models that appear analytically distinct yet share a common developmental ontology. The issue, therefore, is not a conventional gap in prior literature, nor a claim that existing theories are simply incomplete. The problem is that dominant models often presuppose a view of evolution organized around linear progression and static stability, even when the phenomenon under examination exhibits recursive repositioning, temporary equilibrium, and nonlinear movement.

In this section, we problematize three assumptions that sustain that hidden ontology. The first is the stage assumption, which treats family firm evolution as sequential progression. The second is the configuration stability assumption, which treats configurations as relatively stable endpoints rather than temporary equilibria. The third is the adaptation assumption, which treats adaptation as response rather than repositioning. These assumptions matter not because each is always incorrect, but because together they narrow what can count as transformation. They make movement appear derivative of progression, stability appear equivalent to persistence, and adaptation appear reactive rather than structurally patterned. Problematizing these assumptions creates the logical necessity for an alternative ontology centered on persistent strategic tensions, equilibrium dynamics, and movement.

2. Literature review

2.1. Theories and concepts

Pharmaceutical marketing, also known as medico marketing in different countries, is a business that involves advertising a company's products to increase sales of medicines, drugs, and other offerings in the pharmaceutical industry. According to Gamble, Gilmore, McCartan-Quinn, and Durkan (2011), the marketing concept is a way of thinking, or an idea in a business. Moreover, it is a management guideline that centers on consumer demand as the starting point. According to this concept, organizational goals can be achieved by identifying the target market's desires and needs and efficiently meeting them. Pharmaceutical marketing has many similarities to FMCG (fast-moving consumer goods) and other product categories in the market. The marketing of pharmaceutical products (drugs and medicines) is integral to disease treatment. For instance, we are all aware of television commercials, fast-paced social media, ads on various internet platforms, mobile apps, huge billboards on roads, glossy magazine advertisements, newspapers, and radio (Gellad & Lyles, 2007). Despite positive, neutral, and negative feelings, we remain loyal to our morning milk, athletic shoe, and detergent brands (Qadeer et al., 2014; Dimitris, 2002).

Apart from the above-mentioned marketing techniques, pharmaceutical marketing is different. The concepts of marketing, as well as the marketing mix, are present in the healthcare and Pharma industry's environment, which involves distinct marketing analysis, planning, execution, and estimation activities conducted by marketers worldwide. The Pavlovian theory is considered useful for marketers. As the theory suggests, when reinventing or establishing a brand, marketers use knowledge to change or create consumer habits and to reinforce brand elements tied to consumers' positive experiences (Gamble, Gilmore, McCartan-Quinn, & Durkan, 2011). While DTC advertising has been largely successful, pharmaceutical products present unique and inimitable circumstances for marketers (Menon et al., 2004) for numerous reasons. First, consumers cannot purchase the products (drugs) promoted without a physician's prescription (Parmar & Ahmed, 2013). Secondly, pharmaceutical promotion and pharmaceutical regulation fall under the FDA (Food and Drug Administration) under the Federal Food, Drug, and Cosmetic Act. Hence, marketers should adhere to strict advertising and promotional guidelines (Porter, 2011). Thirdly, it is the fact that DTC advertising is considered mandatory to enhance the side effects in DTC advertisement of different pharmaceutical products, which may lead towards the decrease in the consumption of pharmaceutical products that are prescribed to patients by physicians, caused by the fear of distinctive marketing, which rescues the consumption of products after the process of advertising. This feature of DTC advertising will be of particular concern and distress, since a considerable percentage of DTC ads for medications and treatments address severe conditions (Bell et al., 2000). The healthcare environment is their operational stage. There is variety of products which helps in provision of healthcare, such as surgical instruments, pharmaceuticals, laboratory devices, diagnostics, and medical

disposals etc as well as the services which acute, preventive, restorative, chronic, and palliative and the network of healthcare facilities comprises of the professionals, services, patients and groups related are inclusively called a Healthcare System (Dimitris, 2002).

The necessary long-term facility includes various planning and regulatory bodies that administer and control the products and services. The building blocks are the group of patients in a health care system. Furthermore, the media and the public are influential groups that should receive appropriate attention from marketers and government regulators (Robinson et al., 2004). Pharmaceutical products also share marketing similarities with FMCG products, which are fast-moving, and therefore, similar concepts are also applied here. In analyzing the marketing process for pharmaceutical products, industry marketers will recognize the significant idiosyncrasies that define the industry's neutral segment. These volatile and fast-changing idiosyncrasies are part of the dynamic healthcare environment; another is the extreme & intense regulatory environment surrounding it, and it is also associated with the nurturing and preservation of human life (Huh & Becker, 2005). Bradley (2010) and Bradley and Blenkinsopp (1996) added that the emphasis and importance of pharmaceutical marketing are mainly based on pharmaceutical care, with the sector focusing on products and drugs. It covers a diverse range of activities carried out by individuals and organizations to actualize markets for pharmaceutical care. Investigating the definition directly, the emphasis is given on pharmaceutical care, and not just on drugs. Any article, service, or idea that helps anticipate and remove existing gaps in pharmaceutical care would be included in the pharmaceutical marketing discussion.

The marketing of various clinical services provided by the pharmaceutical industry, as well as of programs, is just as significant a part of pharmaceutical marketing as the marketing of drugs and their products. In simple words, pharmaceutical marketing is not synonymous with, and is considerably broader than, the marketing of pharmaceuticals. Pharmaceutical care is the main focus of this definition, indicating that patients are the justification for pharmaceutical marketing, not the manufacturer, the sector, or the pharmacist. Any party concerned in the trade for pharmaceutical care may engage in pharmaceutical marketing activities. Hospital pharmacies serving patients, community pharmacies within communities, third-party companies related to insurance, consulting pharmacies, as well as many other organizations, patients, and individuals, in addition to pharmaceutical manufacturers & drug wholesalers, are concerned and involved in pharmaceutical marketing. Pharmaceutical marketing, as a field of investigation, is unethical or objective-free (Huh & Becker, 2005).

2.2. Over-the-counter drugs and prescription drugs

Drugs, medicines of the pharmaceutical companies are classified into mainly two categories: "Over the Counter Drugs" (OTC) and another one is known as "Prescription drugs" (PD). OTC drugs or products usually refer to those drugs

produced by companies that have comparatively fewer side effects and can be consumed or used without a prescription or consultation with any physicians or doctors. On the other hand, the PD has mainly serious treatment for patients or can be linked with different side effects, and can be obtained only with physicians' prescription from the production. Likewise, with the help of drug specifications, various PD promotions were made available to doctors and other healthcare professionals. With the concern of severity and about life severity or death associated with the PD utilization, DTCA is often considered forbidden in the case of prescription medications. However, PD advertising is being done under the "Disease Advertising" section. Thus, policymakers should be concerned about this to share the same opinion on the level of advertising PD, which can be converted into a doctor's prescription. Misuse of drugs may increase if a broad DTCA of PD is done, integrating with the increase in unnecessary visits and treatment cost by the patients to visit their physicians (Hood, 2009).

2.3. DTCA and consumer's attitude

Preferably, DTCA should have little effect on prescribing DTCA. However, if doctors support DTCA development, there is a need for relevant authorities to put in place specific policies to balance DTCA use with its risks. In addition to several advantages of DTCA, some drawbacks significantly affect health behaviors and the utilization of health services (Bukhari et al., 2020; Murray & Wintle, 2003). Previously, PD advertisements were very rare, but they have slowly become more common and ordinary in recent years. DTCA has matured rapidly as a result of PD advertising, as with other consumer goods (Scherer, 2004). On the other hand, consumer activities are useful for DTCA, and consumers are willing to request more information from doctors about a particular brand (Herzenstein et al., 2004).

However, it is demonstrated by Donohue and Berndt (2004) that DTCA has no considerable impact on antidepressant selection. There are three important factors in prescription choice: patient characteristics, consumer advertising, and the physicians' medication preferences. Moreover, advertising is considered helpful and supportive in physicians' initial medication selection. A boost in expenditure leads to higher pharmaceutical pricing, driven by DTCA. Concerns about the impact of DTCA on patients' welfare and safety will lead to more visits to physicians to obtain prescriptions for advertised medicines (Brekke & Kuhn, 2006). Moreover, DTCA also appeared to be challenging for pharmaceutical producers, as it serves as an alternative to detailing by physicians, a significant feature of pharmaceutical marketing (Mukherji & Mukherji, 2017).

Though pharmaceutical companies have recognized DTCA as an influential marketing tool, they have gradually come to dominate the market. It has also stimulated the need and demand for new users of a variety of antidepressant medicines as well as overstated the practice, which also leads towards drug misuse (Meyer, Hoefer, and Zuvekas, 2008). DTCA is a significant and controversial practice that involves detailing and advertising in journals, and its sample distribution is also

used with DTCA, which eventually increases demand and boosts sales (Pasdirtz, 2009). The main drivers of the pharmaceutical industry are doctors (Scherer, 2004). In the past, marketing in the pharmaceutical industry focused solely on doctors, but later shifted to patients (Vaithianathan & Ryan, 2009).

Consumers use both electronic and print media to obtain information. Due to consumer-oriented media and sources, the promotion and advertising of drugs can be easily monetized. Moreover, it can encourage valued consumers to request a prescription. Therefore, it eventually leads to mistreatment of drugs, as well as the treatment cost also increases (Vaithianathan & Ryan, 2009). Targeting consumers and their patients is now the trend among pharmaceutical companies, which encourage people to request the issuance of advertised drug brands. It has been noted that patients are becoming better educated about their medical treatments. Today, the Internet, web, and social media platforms, product advertising trends, and the substantial dissemination of medical information, along with detailed explanations, support patients in taking part in their care. It has increased patients' information and knowledge, rather than simplifying physicians' jobs. Therefore, new challenges are arising (Matthews, 2001).

Many studies support the argument that DTCA aimed to provide information to the population seeking information about diseases (Murray et al., 2003). Testosterone use began to increase significantly in the United States, especially among men without obvious symptoms. During this period, direct-to-consumer advertising (DTCA) also increased (Ahmed et al., 2018). A recent study published in the authoritative journal JAMA aimed to investigate the link between television DTCA and the use of testosterone testing in the United States. Moreover, ecological studies were conducted across designated market areas (DMAs) in the United States. The Poisson generalization estimation equation was used to estimate the association between DTCA and testicular stress testing, use, and use without recent tests. This study primarily evaluated (1) the new testosterone test rate; (2) the ratio of all testosterone products and specific brand of testosterone use (injection, surgical implantation, or pharmacy distribution); and (3) recent serum-free testosterone tests. The study conducted by Friedman and Gould (2007) showed that before 2012, unbranded advertising was common; after 2012, branded advertising became more common.

2.4. DTCA and physicians' attitude

The probability of physicians prescribing increases due to DTCA-driven requests. The drug commercial will increase patient traffic to physicians and encourage patients to consult physicians about the marketed drug. A positive attitude among physicians towards drug advertisements, as well as patients' requests for prescriptions and additional statistics, will increase the likelihood of prescribing (Ahmed et al., 2016; Ventola, 2011).

Generally, patients are attracted to advertised brands, but before using those medicines or drugs, they need additional information and their healthcare provider's

recommendations on their appropriateness. Patients visit the physician for a suggestion or a prescription (Gellad & Lyles, 2007). The convincing concept and attractiveness of DTCA are not enough for patients, as they cannot get the technical appropriateness. Thus, they request more information about advertised drugs (Bradford et al., 2010). This has led to changes from physician detailing to DTCA. Traditional offerings are being transformed into direct advertising across media such as print, digital, and social media (Ahmed et al., 2018; Brekke & Kuhn, 2006).

According to Wilkes et al. (2020), debates over opinions reveal problems in the DTCA field, so some scholars use empirical methods and raise concerns about issues such as: Does DTCA have educational potential? Does an increase in DTCA on consumption does danger to the person? Does DTCA affect consumer behavior? Furthermore, it is necessary to explore the status of the problem; for example, what is the doctor's attitude towards DTCA? Attitudes of elderly consumers towards DTCA, whether DTCA can promote public health awareness, and what is the value of the data provided in DTCA? Basara, L. R. (1992) stated that there is a need to investigate more detailed and complex relationships, such as consumer background knowledge, DTCA exposure frequency, and consumer. The relationship between DTCA attitudes and the relationship between DTCA costs and drug prices should be explored. In addition, scholars have proposed future research directions from a macro perspective: consumers' reporting attitudes; FDA's relationship with pharmaceutical companies in DTCA; a per-patient-fee model for health care organizations; and the detection of DTCA relationships aimed at increasing the number of visits.

According to Hoek and Gendall (2002), New Zealand is the only country outside the United States to permit DTCA in the mass media. In the New Zealand academic community, there is also fierce debate over DTCA, but the predominant view is that strengthening legal norms is needed to guarantee DTCA's trust fully. In Canada and Europe, the feasibility of DTCA is under discussion. Optimists believe that DTCA can be implemented within 5-10 years, while conservatives believe that DTCA will involve many aspects, including the medical system, policies and regulations, consumers, and industry interests, which must not be taken lightly. Regarding DTCA, the World Health Organization recommends restricting advertising for serious and life-threatening diseases. Patients' fears or hopes should not be misused to promote medication.

On the other hand, the preventive character is particularly welcomed by disease education advertisements, since the organization considers it beneficial to increase the level of information among the population. The FDA said it should take more action against such advertising measures and that further guidelines are in the works (Polen, Khanfar, & Clauson, 2009). It should be noted that the American public's confidence in the pharmaceutical industry has decreased since 1997, the year the FDA adopted more business-friendly rules for DTC television advertising. In 1997, 79% of the population said that the pharmaceutical industry was doing a good job, compared to 44% in 2004. Since 7,000 to 15,000 cases are estimated in Germany alone in which Vioxx caused severe side effects or resulted in death, numerous lawsuits and court hearings are expected to follow worldwide (Van de Pol & De

Bakker, 2010). In addition, marketing analysts predict a shift in DTCA expenditures toward public relations to strengthen pharmaceutical companies' reputations (Almasi, Stafford, Kravitz, & Mansfield, 2006).

A systematic observational study in the U.S. found that referring to DTCA not only led to prescriptions being made much more often but also caused doctors to act against their own beliefs. When asked whether they had prescribed the same branded medication to another patient with comparable symptoms, the doctors answered that they had not done so in half the cases. Approximately 30% of patients who saw a prescription drug advertisement discussed the drug or disease for which it was advertised with their doctor (Zahradnik et al., 2009; Lyles, 2002). According to Royne, Marla, and Myers, Susan (2008), without this small preface on the general principles of persuasion, it is good to deepen the case of DTCA (Direct to Consumer Advertising). It consists of promoting drugs to provide people with knowledge about certain products. This phenomenon is not new, as the first advertisement appeared in the early 18th century for a pharmaceutical product. Therefore, the United States Congress has since enacted a series of legislative measures to regulate the promotion of medicines. First, it has been established that the Food and Drug Administration (FDA) must verify the completeness and truthfulness of the advertised content.

The criticisms raised about this practice are that pharmaceutical companies provide false information, that their goal is solely to sell the product, and that only the most expensive drugs are advertised. Advertising stimulates patients' requests for that particular drug, often at the expense of the drug's actual benefit (Basara, 1992). However, it must be emphasized that even if the DTCA does not contain false information, persuasion strategies cannot tell the truth (Royne, Marla, & Myers, Susan, 2008).

Almasi, Stafford, Kravitz, and Mansfield (2006) added that foreign studies on DTCA are very detailed but can be summarized to explore issues such as the status and reasons for the rapid development of DTCA. The pharmaceutical industry has shifted its market strategy since the 1980s, when U.S. laws governing prescription drug advertising changed (Zahradnik et al., 2009). DTCA has grown rapidly over the past decade, spending between 1996 and 2000 on such advertising. Costs increased by 212%, and absolute costs increased by 1.7 billion over four years. The largest increase in DTCA The big one is TV advertising costs, and DTCA is also common in major consumer magazines.

The scholars believe that the rapid development of DTCA is due to relaxed regulations; restrictions on the social environment and intensified competition in the pharmaceutical industry prompt pharmaceutical companies to seek new benefits and growth (Jardine, 2004). Another one is points and living space, which means enhanced consumer self-awareness (Mintzes et al., 2003). Although rapid, the development of DTCA has not been smooth and has been mainly influenced by health care organizations, as DTCA conflicts with the profit system of these organizations (Every-Palmer, Duggal, & Menkes, 2014).

2.5. Research framework and hypotheses

Based on the literature review, Figure 1 develops the conceptual framework of the study.

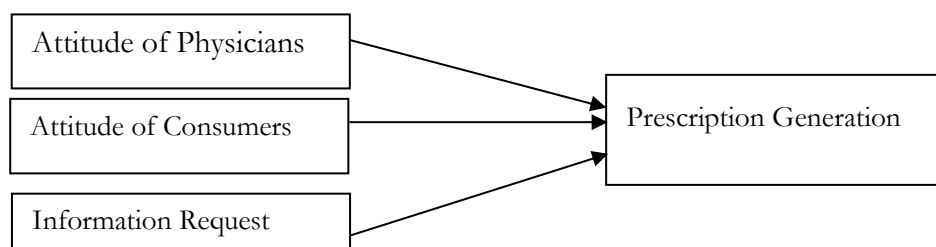


Fig. 1. Conceptual framework of the study.

The following hypotheses are to be tested empirically:

H₁. Physicians have a positive attitude towards DTCA.

H₂. Physicians provide more information about DTCA when patients ask for it.

H₃. Physicians are more likely to prescribe DTCA when they have a positive attitude towards it and when patients ask for an advertised drug brand.

H₄: Consumers have a positive attitude towards DTCA.

H₅: Consumers ask for prescription refill DTCA.

H₆: Consumers are well informed about the medicine through DTCA.

3. Methods

In this study, the researcher used a quantitative research method. Quantitative research refers to the use of statistics, mathematics, computing technology, and other methods to study systematic social phenomena (Hussain et al., 2021). The purpose is to develop and apply theories, mathematical models, and assumptions associated with social phenomena. Measurement is the most important process in quantitative research. Moreover, the data is presented as percentages or statistics. In quantitative research, both linear programming and statistical analysis are used. The study we are conducting is quantitative. Newman (1998) defined a quantitative study. The current study is grounded in positivism to test the hypothesis; it employs a multi-method, deductive approach and is cross-sectional.

Population is defined as "a group of individuals who have some common characteristics which differentiate them from other people" (Best & Kahn, 2006). The population would be too large for the study, given its limited scope. Moreover, the population would be too diverse to generalize the findings. Therefore, selecting a target population is necessary for researchers to collect more reliable data and draw appropriate conclusions. A target population is a specific group to which findings might be generalizable. In this study, the target population comprises doctors/Physicians and Consumers of leading hospitals (Ahmed et al., 2018).

Moreover, sample selection from a target population is important for addressing sample size issues. The sample should be selected in such a way that it forms the

basis of the research. A sample is a small subset of a population selected for analysis and observation (Best & Kahn, 2006). The target population of this study was Doctors and Consumers of leading hospitals. Doctors were selected on a judgmental basis with high patient turnover. Judgmental or purposive sampling is a strategy in which the researcher selects events or persons to obtain data that cannot be collected in any other way (Taherdoost, 2016). The sample comprises 282 respondents: 141 doctors and 141 consumers. Attitudes of physicians towards DTCA, Attitudes of consumers towards DTCA, and information sought by patients are independent variables, whereas prescription generation by doctors is a dependent variable.

In this study, the researcher used a questionnaire as a research instrument. A questionnaire is a set of questions which designed to collect required data (Babbie, 1990). In survey research, observation, and experiments, researchers generally use questionnaires. The researcher collected 234 questionnaires from the total population using purposive sampling due to time constraints. Moreover, a closed-ended questionnaire was used as the data collection instrument, with responses rated on a 5-point Likert scale (1 to 5), where 1 indicated strongly disagree, and 5 indicated strongly agree (Burney & Saleem, 2008). The questionnaire was completed by respondents in natural settings, with no intervention or influence from the researchers.

The current study was survey-based and supported by both primary and secondary data sources. The idea is supported by the literature review, which was based on the survey results from the questionnaires (Ahmed et al., 2020). In statistical analysis, data collection plays a significant role. Moreover, various methods are used for data collection, including primary and secondary data collection (Douglas & Craig, 2015). Several factors distinguish primary and secondary data; the primary difference is that primary data is factual and original. On the other hand, secondary data is data that has been analyzed and interpreted by others. The aim of collecting primary data is to obtain a solution to the current research problem, and the data are collected in real time. On the other hand, secondary data relates to the past. Moreover, the primary method is a complex process that takes considerable time and energy. However, the process of secondary data collection is easy and rapid. Primary data sources include observations, questionnaires, surveys, experiments, and personal interview etc. In this study, data were collected in the field from general practitioners and consumers at leading hospitals. SPSS is used for data analysis.

4. Results

The Correlation results of the analysis clearly show that Consumer Attitude, Physician Attitude, and Information Requested do have a significant impact on Prescription Generation. The correlation values were also positive and close to 1, while the p-values were less than 0.05. The Pearson product-moment correlation coefficient (Pearson's correlation, for short) is a measure of the direction and strength of the relationship between two variables. Pearson's correlation is used for understanding whether there is a relationship between the variables. The p-values

for Information Requested and Physician Attitude are less than 0.05, indicating that they explain Prescription Generation. The values 0.393 and 0.622 also indicate a significant relationship among these variables. The strongest and most closed relationship among variables is between Information Requested and Prescription Generation, with a correlation of 0.622. It is strongest because it is closed to 1. The detailed results of the correlation analysis are provided in Table 1.

Table 1
Correlation analysis

Variables		PRes. Gen	AOC	AOP	Info Requested
PresGen	Pearson Correlation	1	-.071	.393**	.622**
	Sig. (2-tailed)		.404	.000	.000
	N	141	141	141	141
AOC	Pearson Correlation	-.071	1	.024	-.167*
	Sig. (2-tailed)	.404		.780	.048
	N	141	141	141	141
AOP	Pearson Correlation	.393**	.024	1	.255**
	Sig. (2-tailed)	.000	.780		.002
	N	141	141	141	141
InfoRequested	Pearson Correlation	.622**	-.167*	.255**	1
	Sig. (2-tailed)	.000	.048	.002	
	N	141	141	141	141

Notes: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed); AOC: Attitude of Consumer; AOP: Attitude of Physician; PresGen: Prescription Generation

Source: designed by the authors.

Multiple linear regression uses multiple explanatory variables to predict the response variable. The purpose is to identify the relationship between response and explanatory variables. A positive value is normally acceptable, provided the sig value is less than 0.05. R Square in Linear Regression must be positive, and it is preferred that the value should be close to 100%

R-squared is always between 0 and 100%, and 0% indicates that, around its mean, the model explains none of the variability of the response data, and 100% indicates that, around its mean, the model clearly explains all the variability of the response data. The R-sq. in our model is 44.7%, indicating the model fits our data moderately well. The detailed results are provided in Table 2.

Table 2
Model summary

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.668	.447	.434	4.27738

Note: Predictors: (Constant), InfoRequested, AOC, AOP.

Source: designed by the authors.

The findings in Table 3 present the ANOVA statistics, indicating that the model is suitable for further analysis.

Table 3
ANOVA

Source	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2022.482	3	674.161	36.847	.000 ^b
Residual	2506.554	137	18.296		
Total	4529.035	140			

Notes: Dependent Variable: PResGen: Prescription generation; Predictors: (Constant), InfoRequested, AOC: Attitude of Consumer, AOP: Attitude of Physician.

Source: designed by the authors.

The findings of Table 4 exhibited that the Consumer Attitude has an insignificant but positive impact on prescription generation - The coefficient for Consumer Attitude is 0.011. Thus, for every unit change in Consumer Attitude, a 0.011-unit change in Prescription Generation is predicted, holding all other variables constant. However, a physician's attitude has a significant, positive impact on prescribing. Physician Attitude - For every unit increase in Physician Attitude, we expect a 0.153 unit increase in Physician Attitude, holding all other variables constant. Finally, Information Requested has a significant and positive influence on prescription generation - The coefficient for Information Requested is 0.827. Thus, for every unit increase in the requested information, we expect an approximately 0.827 increase in Prescription Generation, holding all other variables constant.

These are the t-statistics and their associated 2-tailed p-values used in testing whether a given coefficient is significantly different from zero. Using an alpha of 0.05: The coefficient for Consumer Attitude (0.011) is not statistically significant from 0 because its p-value is 0.796, which is greater than 0.05. The coefficient for Physician Attitude is 0.153, which is statistically significant ($p = 0.000$) and not larger than 0.05. The coefficient for information Requested (0.827) is statistically significant

because its p-value of .000 is not greater than .05. Table 5 summarizes hypothesis testing.

Table 4
Coefficient analysis

Variable	Unstandardized		Standardized	T	Sig.
	Beta	Std. Error	Beta		
(Constant)	4.305	3.475	0.127	1.239	0.217
Consumer	0.011	0.043	0.017	0.259	0.796
Physician	0.153	0.040	0.250	3.796	0.000
Info Requested	0.827	0.098	0.561	8.404	0.000

Note: Dependent Variable is Prescription Generation.

Source: designed by the authors.

Table 5
Summary of hypothesis testing

Hypothesis	Decision
H1. Physicians have a positive attitude towards DTCA.	Not Rejected
H2. Physicians provide more information about the DTCAB when patients ask for such information.	Not Rejected
H3. Physicians are more likely to prescribe the DTCAB when they have a positive attitude towards DTCA and when patients request the advertised drug brand.	Not Rejected
H4: Consumers have a positive attitude towards DTCA	Rejected
H5: Consumers ask for prescription refill DTCAB	Not Rejected
H6: Consumers are well informed about the medicine through DTCAB	Not Rejected

Source: designed by the authors.

5. Discussion

The findings of this research study reveal that the prescription is generated by the physician's positive attitude and the requested information (Ahmed et al., 2018). Survey respondents also reported that advertising and their income motivate them to take better care of their health. After gathering and analyzing the data in SPSS, the researcher concluded that Consumer Attitude, Physician Attitude, and Information Requested have a significant impact on Prescription Generation. The correlation

values were also positive and close to 1, while the p-values were less than 0.05. Although some coefficients indicated negative results for Attitude of Consumers, most showed positive correlations, and a positive and significant relationship among the variables was concluded (Ahmed et al., 2016).

This study critically examines physicians' prescribing attitudes towards the advertised drug and consumers' attitudes towards DTCA (Harker & Harker, 2007). Thus, it helps the pharmaceutical industry with DTCA marketing and the outlays invested in it, and provides a concrete rationale for the expense and its outcome factors (Dogramatzis, 2015). The intention is also to prompt consumers to ask their physicians for more details and instructions about the drug brand advertisements.

The researcher conducted this study among consumers who visited physicians and were also exposed to the advertisement. Consumers' opinions about advertisements and their content might differ among customers in other areas of the country with different demographics. Thus, it is recommended that future researchers examine whether customers in other localities differ in their opinions. If researchers in future studies find demographic and cultural differences in advertising across other cultures and localities, pharmaceutical and drug manufacturers can adjust their advertising to target specific market segments.

6. Conclusion

In this study, consumers' attitudes and behaviors toward direct-to-consumer advertising in the pharmaceutical industry were examined. The main motivations behind this research study were not only to understand and assess specific attitudes and behaviors, but also to determine whether other factors influence these behaviors. A sample consumer completed a questionnaire. This study was conducted to raise awareness of medicine advertising among consumers and emphasize the importance of consulting a doctor when obtaining medicines, obtaining prescriptions issued by physicians, and having essential knowledge of the drugs and diseases associated with the advertising. The intention is to prompt consumers to ask their physicians for more details and instructions about the drug brand advertisements. The significance of the research lies in understanding the relationship between physicians and consumers, the doctor-patient relationship, physicians' behavior, and consumers' behavior towards DTCA (direct-to-consumer advertising).

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