

## PHYSICIAN'S PERCEPTION TOWARDS CONTEMPORARY PHARMACEUTICAL ADVERTISEMENTS IN PAKISTAN

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**Abstract.** *The aim of this survey research was to study the perceptions of public and private sector physicians*

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*toward Direct to Consumer Pharmaceutical Advertisements (DTCPA) with the help of triangulated study approach. Using cluster sampling technique, the primary data was collected via adapted questionnaire and, 389 completely filled questionnaires were compiled out of 400 questionnaires distributed. Data analysis was conducted in SPSS by using descriptive statistics and t-test. Results revealed that private sector physicians are more inclined towards DTCPA; they believe that DTCPA can help to improve physician patient relationship, diagnosis and treatment plans. However, self-medication and undesirable interventions from patients can increase the healthcare hazards and cost. Moreover, the public sector physician's tendency towards DTCPA is comparatively less than private sector, even though majority of public sectors physicians have also favored the stance to achieve better healthcare outcomes.*

**Keywords:** Physician perception, patient demand, physician patient relationship, physician prescribing behavior

### Introduction

The marketing of medicines from the organization point of view is equally crucial as the development and production of the product is important. Marketing in pharmaceutical is being run through two broad concepts i.e. conventional and contemporary practices. In practice, conventional marketing refers to physician focus promotional campaigns that influence physician prescribing behavior rather than patient as the consumer of medicine. On the contrary, contemporary marketing practices are similar to Fast Moving Consumer Goods (FMCG) firms' practices, in which consumer of the products are the primary target audience (Rao, 2012). Conventional pharmaceutical

marketers adapt different strategies and use multiple instruments in the context of marketing mix to influence the physician prescribing decision towards their interest of products (Shah, Khan, Ayub, & Anwar, 2017). While, contemporary or DTCPA is an approach in which marketer directly target the patients and at the same time tactfully tries to influence the physician and other stakeholders (e.g. patient family, social community, business partners, social blogs etc.), through high resonance of brand messages (Dey, Rautray, & Soni, 2019).

DTCPA is relatively new concept of pharmaceutical advertisements for millennial generation (Generation–Y) as compared to conventional marketing practices (Rao, 2012), though the concept was started in 1980's in US market. Currently it's allowed only in USA and Newzealand (Siraj & Curley, 2018), in lined with Food Drug Administration's (FDA) rules for drug advertisements; which can be categorized into three types of advertisements i.e. the product claim ads, brand reminder ads and help-seeking ads (Food & Drug Administration, 2015). However, it has now been accelerated with technological advancement and digitalization of industries (Narula, 2017). Although digitalization is yet to be transformed in pharmaceutical from conventional marketing practices as compared to FMCG's and banking fields (Ivan's, 2006), especially, in local context of Pakistan.

In Pakistan, DTCPA is allowed for help-seeking ads and only for over the counter products, but not for prescription products (Jacob, 2018; Siddiqi & Shah, 2017b). The healthcare system in Pakistan mainly comprise of public and private sectors. Private sector has effectively bridged the gap of healthcare facilities due to increase in population and limited healthcare budget allocation from government side (World Health Organization, 2017). This situation on one side promote healthcare, whilst on other hand, it promote commercialism in health sector of Pakistan, patients are considered as a source of income and being exploited even by the noble professionals (Masood, Wang, Daud, Aljohani, & Dawood, 2018).

In reality, patient demand is least considered by the physicians, patient is often neglected because of low health literacy and lack of knowledge about the subject (Grunloh, Myreteg, Cajander, & Rexhepi, 2018). Moreover, physician induced demands are the main cursers to shift the curve of patient demands towards physician demands (Mohammadshahi et al., 2019). Despite, patient being the expert of his surroundings better understand their socio economic status and preferences of life than physician, they are static entities during health care decisions. Considering, patients can develop skills and knowledge to read and understand health records through e-portals or DTCPA, they will be encouraged asking more relevant and right questions to participate in their

healthcare decisions, which will promote impartiality between physician patient relationship (Cutler, Skinner, Stern, & Wennberg, 2019).

Physician believes and organizational factors are the dominant factors that drive the physician decision during physician patient interaction (Mohammadshahi et al., 2019; Zaman, Asim, Shah, & Ahmed, 2018), especially, in the context of local setup of Pakistan such as public and private sectors, where; “patients are less participatory and being neglected by physicians while deciding about their healthcare plans” (World Health Organisation, 2017).

What are the perception differences about DTCPA among public and private sectors physicians in Pakistan is an important point to ponder upon and in this regard, the study at hand intends:

1. To assess the physician perception about usefulness of direct to consumer pharmaceutical advertisement to achieve balance between physician patient relationships.
2. To measure the tendencies of private and public sectors physician toward DTCPA in the context of Pakistan.
3. To provide condensed basis to understand conventional and contemporary pharmaceutical marketing practices.

Physician’s perception about DTCPA has been thoroughly studied in respect to private and public sectors in the local context of Pakistan as suggested by Zaman et al. (2018) and Shah et al. (2017).

This study intends to enhance the existing knowledge of contemporary pharmaceutical advertisement practices impact on physician prescribing behavior, which is relatively a new concept, with particular reference to the academic and managerial implications in Pakistan. It set avenues for future research to explore the contemporary pharmaceutical marketing practices, particularly, in the context of Pakistan.

### **Literature Review**

The history of drug dispensing is as ancient as human origin; this can be traced back through the study of ethno regional divisions of human beings e.g. Egyptian, Chinese, European and African etc. (Saah, 2005). However, the drug as a regulated commodity is linked back to 1820, when for the first time United State Pharmacopeia (USP) i.e. a compendium of standard drugs was formulated by eleven physicians at Washington DC. Prior to the American Medical Association (AMA), which was established in 1905, patients or consumers were not restricted to obtain any compounds from doctors or neither pharmacist nor the sellers were regulated. There were only two classes of drugs as “ethical

group” listed in USP and the other “patent or proprietary group”. These drugs were made of hidden ingredients; generally consist of mixture of substances as oil or tonic syrups under the trademark names. These drugs were directly advertised to consumers through posters, newspapers and product packages, the contents of their ads were an oil compound claimed such as “to get rid of all types of body pain” or “tonic syrup for stronger back bone”. In contrast, the ethical group drugs were not advertised to consumers, because of the organized efforts of USP (Dodgson, 2006; Donohue, 2006).

In 1906 the Food and Drug Administration (FDA) originated as law enforcing organization, since it was founded in 1862 as scientific institution to monitor clinical trials but the new role of FDA have had little impact on the patent group industry (Dodgson, 2006). In 1938 FDA amended the Food, Drug and Cosmetic Act (FDCA) with expanded regulations for manufacturer to label the drug name, ingredients and FDA user safety approval prior the drug could be marketed. This was first time when Over the Counter (OTC) and prescription drugs concept was exempted from conditional medicines marketing. However, proper definition of OTC and prescription drugs was given in 1951 (Donohue, Cevalco, & Rosenthal, 2007).

### **Conventional pharmaceutical advertisements**

The American Medical Association (AMA) being the opponent of the direct to consumer advertisements, regarded the self-medication as threat to medical profession; they created an incentive plan for pharmaceutical companies to advertise medicines only to physicians on ethical grounds (Donohue, 2006). Since 1938, pharmaceutical companies shifted their focus of advertisements from consumer to doctors, this era was considered as boom of pharmaceutical revenues, many conventional pharmaceutical marketing models were applied to understand the physician prescribing decisions. A medical representative concept as “detail men” was introduced in 1958. The “detail men” was a company representative; they were used to visit the physicians to introduce companies’ medicines and builds relationship with physicians. Physicians had been shown dependence on “detail men”, for drug information, promotional materials and for different promotional activities including academic sessions; in return physicians prescribed the product of medical representative to patients.

According to Savedoff (2004) the asymmetry of information exists between physician and patient; he argued that equilibrium in health cannot be achieved, due to tradeoff between health optimization and cost associated with third party decision making power (i.e. physician). He further says that a fundamental gap exist between physician and patient in terms of context of the parties. He applied agency theory concept in physician patient relationship (Donohue,

2006), in which physician as an agent was responsible for all health related decisions for his principal (patient) due to physician distinct knowledge and skills (Savedoff, 2004). Physician with distinct knowledge in conventional practices, least considered patient's demands, while prescribing products to patients due to fundamental distinction. Patients being the primary consumers of the medicines considered as static entity for his health care decisions. The entire decision making power is (was) with physician. Therefore in conventional practices, the target audience for advertising campaigns are always physicians (Ahmed et al., 2014). Physician will remain the primary customer for pharmaceutical companies and to influence the doctor's prescribing behavior, pharmaceutical companies use different tools as marketing mix to influence the prescribing decision (Shahzad & Wahab, 2016). Although, there were some American scholars who stressed that doctors should not take solely the decisions on patient behalf. Therefore; different physician patient relationship models have been developed as solution to balance between physician authority and patient autonomy, especially, when consumer right movement was extended to patient right movement in 1970 after a report published on biomedical research abuse of humans (Savedoff, 2004).

### **Contemporary pharmaceutical advertisements**

Since, consumerism rights movement was thought provoking point for marketers to rethink for an alternative option to physician focus strategy for the promotion of medicines. The tradition was broken by Brooks enterprise in 1980 for its product "Rufen" a painkiller and followed by Merck which had begun direct to consumer advertisement for "Pneumovax", a vaccine formulation for pneumonia. Meanwhile, no explicit regulation was available to monitor DTCPA until 1983, when FDA voiced the matter and stopped the companies from DTCPA by de facto of 1969 act. However, in 1985 proper guidelines were formulated after public debate on pros and cons of DTCPA, legislation for DTCPA in USA was passed followed by revision in 1997.

Currently pharmaceutical companies are being regulated by FDA under 2015 drugs advertisements criteria, which state three categories of ads i.e. help seeking ads, brand reminder ads and product claim ads (Food & Drug Administration, 2015). Direct to consumer pharmaceutical advertisements is similar to Fast Moving Consumer Goods (FMCG) advertising model, in which marketer directly advertise the medicines to the consumer (patients), through brand story messages to increase the noise level for brand awareness in order to generate revenues for organization (Pharma, 2017). DTC advertisements are drafted in such way that can influence both the patients and physicians as well their other stakeholders (i.e. family, social community, business partners, social

blogs etc) (Santana et al., 2019). DTC ad content help the undiagnosed patients, who see the ad content that reflects story or symptoms from audience are being suffered, they gets stimulation and start discussing about disease with himself, doctors, family, and friends or start searching at internet, about disease prevention and available treatment options (Epstein, Fiscella, Lesser, & Stange, 2010).

However there is debate on merits and demerits of patient's centric or DTC pharmaceutical advertisements (Arney, Street Jr, & Naik, 2013). The prevailing debate exist due to the types of pharmaceutical products and risks associated to humans (Watson, 2015) including role of regulatory authorities (Food and Drug Administration, 2015). According to Murray, Lo, Pollack, Donelan, and Lee (2004), DTCPA can play a major role in health behavior, health service utilization, and relationship building in order to encourage people of low socioeconomic status for the benefits of preventive care. In views of Hampl, Bramlett-Solomon, and Wharton (2006), DTCPA can help to increase the productivity of advertising by almost US\$ 4.2 additional revenues generation from every US\$- 1 expenditures, moreover top 25 pharmaceutical companies around the globe have increased their social media marketing budgets since 2012, approximately US\$ 9.7 billion has been spent in 2015 for DTCPA (Julie, 2016). According to Siddiqi and Shah (2017a) physician also encouraged DTCPA, which is supplementary for health care system of the country. Besides, Preechavuthinant, Willis, and Coustasse (2018) mentioned in their research paper that patients had shown higher satisfaction associated with DTCPA prescribed drug. From patient's perspective, it is further found that patient centric advertisement enhanced the patient's confidence to discuss about his disease symptoms and treatment options with physicians. Patient gets help early to register themselves timely to improve the quality of life (Defibaugh, 2019; Epstein & Street, 2011). Moreover, it can also help to improve the quality of life and patient's well-being, however self-medication adherence need to be mitigated by providing quality information through digital media (Or & Karsh, 2009).

In view of Pandey, Jha, and Saha (2019) DTCA can manipulate the physician patient relationship and can lead to dissatisfaction of patients. Ortiz and Rosenthal (2019) argued that DTCPA will bring the trust in physician on stake if the trend continue to be unchecked by authorities. Ghani, Waqar, Jambulingam, and Sharma (2019) suggested that it can be more beneficial for branded products than generics particularly for companies with huge marketing expenditures. Siraj and Curley (2018) highlighted the importance of burden of responsibility in case adverse event occurred due to misleading information; whether patient misunderstood or the quality of message was weak. Furthermore, being the strongest opponent of DTCA; Stange (2007)

recommended to ban the DTCA due to risks associated with human lives. However, the solution is to improve the quality of information, the content of ad should be more meaningful for consumers rather mislead the patients (Adams, 2016). Some other authors' findings on DTCPA in critical review perspective have been enlisted in table 1.

Table 1. *Chronological literature review on DTCPA*

<b>Author's</b>	<b>Methodology</b>	<b>Findings</b>
Rentmeester (2020)	A qualitative analysis of DTCPA in historical and rationality perspective	The contemporary term of patient autonomy is being exploited by pharmaceutical companies through irrational advertisement contents.
Pieriegud (2019)	A case study of Poland pharmaceutical market conversion of pharmacies to digital market.	The increasing trend for digitalization in Poland pharmaceutical market has boosted OTC product sales due to e-pharmacies outlets availabilities.
Defibaugh (2019)	Observational study on DTCPA from TV broadcasting contents.	Provoking statements to patients encourage them to talk with doctors about symptoms and drug ads as empowered neoliberal patient.
(Ortiz & Rosenthal, 2019)	A comprehensive analysis on DTCPA in context to USA market.	DTCPA yet to be increased in coming times. However, trust in HCP may be at stake, if products continue to be promoted unchecked.
Ghani et al. (2019)	An experimental internet based approach to assess the effects of DTCPA on generic advertising companies' revenues.	DTCPA is favorable for both branded and generic base companies; However, generic products are less advertised on internet or DTCPA.
Zaman et al. (2018)	Cross section survey to assess the 325 physician's perspective on DTCPA	Physician takes DTCA and e-detailing as positive initiative for neutral-ceuticals, however, physician needs to be more prepared to deal with informed patient for his higher satisfaction.
Preechavuthinant et al. (2018)	A systematic literature review on DTCPA effects on Physician's, Patient and pharmaceutical companies.	DTCPA has influence over physician's patient relationship and patient satisfaction. It has also increased the revenues for pharmaceutical companies.

Jalal, Imran, Mashood, and Younis (2018)	Cross sectional survey in Pakistani context, assessed the knowledge, attitude and practices of medical ethics for patient care.	There were significant difference of knowledge, attitude and practices among HCP; consultants were more aware particularly female staff. However, junior HCP needs to be educated about medical ethics in treatments.
Arora and Banerjee (2018)	Survey research on brand marketing strategies by small pharmaceutical brands in India.	The small brands declined in sales due to inappropriate marketing strategies; people perceived low quality and price factor to avoid products.
Siraj and Curley (2018)	A systematic literature review of USA and New Zealand pharmaceutical market trend on DTCPA through 7 search engines.	It has revealed that pharmaceutical companies using different techniques for advertising directly to consumer very successful. However, there is sizeable misleading information for patients, which needs to be review by marketers and regulatory bodies.
Jiang (2018)	A comparative trial on patient attitude towards HCP versus internet consultation.	Consumer more trusts the prescription ads than HCP.
Vijayabanu, Gayathri, Prashanthi, and Subalakshmi (2018)	A case study of Indian pharmaceutical market in context to digital era.	Indian pharmaceutical market is transforming to digitalization and can be more benefited via strategically transformation of pharmaceutical industry to e-content of advertising.

In practice physician perceived patients as incompetent participant, while interacting for health related matters, due to lack of health literacy of the patient often neglected them during decision making process (Grunloh et al., 2018). Sole decisions are made by Physician, which are being influenced by many factors such as physician contextual and organizational factors, promotional activities, peer and pharmacy influence including physician personal factors also play major role (Murshid, Mohaidin, & Zayed, 2019). In this scenario, where physicians have some pre-assumptions about patient aligned with the theory of planned behavior, and patients come with stimulation of DTCPA in view of stimulus response and mass communication theory of persuasion. How physicians will respond to this situation being a health agent. What are the perception differences of physicians based on their organizational differences such as public and private sectors? Hence, following hypothesis has been set:

H1: There are significant perception differences about DTCPA among public and private sectors physicians in Pakistan?

**Methodology**

It was a comparative survey with triangulated philosophy of research, to validate the quantitative results. Primary data was collected through a questionnaire, which was adapted from Murray et al. (2004). Using cluster random sampling, 389 completely filled questionnaires were compiled out of 400 distributed. Data was analyzed through SPSS by using descriptive and independent t statistics. Moreover, for confirmative interviews a proportionate of study population was contacted to meet the minimum requirement of sample size for social sciences in lined with Creswell (2014) recommendation, especially, those had given consent to contact them back.

**Results**

It can be seen in table 2 that out of 389 compiled questionnaires almost 51% (n=197) respondents were from public sector and 49% (n=192) from private sector. In which approximately half of the study population were male respondents and rest were female. Moreover, the specialty of respondents were comparable in public sector i.e. physician and surgeon. However, in private sector physicians were in majority (62%) than surgeons respondents (38%), this data distribution was subjected to ground realities. Similarly, study population were widely experience in their field of work as mentioned in row for numbers of years of experience.

Table 2. *Demographics of the Respondents (N=289)*

Items	Public (n=197)	Private (n=192)
Gender		
Male	53%	48%
Female	47%	52%
Specialty		
Physician	46%	62%
Surgeon	54%	38%
Years of experience		
0 – 4.	21%	27%
5 – 9.	55%	44%
10 – 14.	15%	23%
≥15.	09%	06%

The summary of following table 3 has been transformed from 5 point Likert scale into favored and un-favored classes for reader’s convenience and

presented in Figure 1. Moreover, question number 1 to 6 has respectively been mentioned in following paragraphs that gives meaningful interpretations.

Table 3. *Physician Perception Descriptives*

Q #	Sector	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Public Sector	0.50%	26.90%	0.50%	68.00%	4.10%
	Private Sector	1.0%	14.60%	2.10%	70.80%	11.50%
2.	Public Sector	0.50%	25.90%	1.00%	72.10%	0.50%
	Private Sector	0.50%	14.60%	0.50%	82.80%	1.60%
3.	Public Sector	0.50%	26.90%	0.0%	66.50%	6.10%
	Private Sector	0.50%	15.10%	0.0%	75.00%	9.40%
4.	Public Sector	0.0%	24.90%	0.50%	74.60%	0.0%
	Private Sector	0.0%	15.60%	0.50%	82.30%	1.60%
5.	Public Sector	0.0%	0.0%	1.00%	31.0%	68.00%
	Private Sector	0.0%	1.60%	0.50%	28.10%	69.80%
6.	Public Sector	0.50%	25.90%	0.50%	73.10%	0.50%
	Private Sector	0.50%	12.50%	0.00%	85.40%	1.60%

The summary of individual responses on question 1 (can) encourage patients to attend physician for preventive care/treatment?) revealed that majority (82%) of study population in private sector favored the role of DTCPA in terms of patient encouragement to attend the physician, when compared with public sector slightly less (72%) than private sector has favored DTCPA. However, the overall trend of responses has shown that majority of HCP supported direct to consumer pharmaceutical advertisement. Although less than one third in private (16%) and almost one third (27%) in public sector population did not support DTCPA, while very few (3%) remained neutral to express their views on DTCPA. Furthermore, during interviews, it was also revealed that physicians themselves were inclined towards digital knowledge usage and convinced on the utility of such types of tools, however, majority of physicians were not well aware about the term DTCPA.

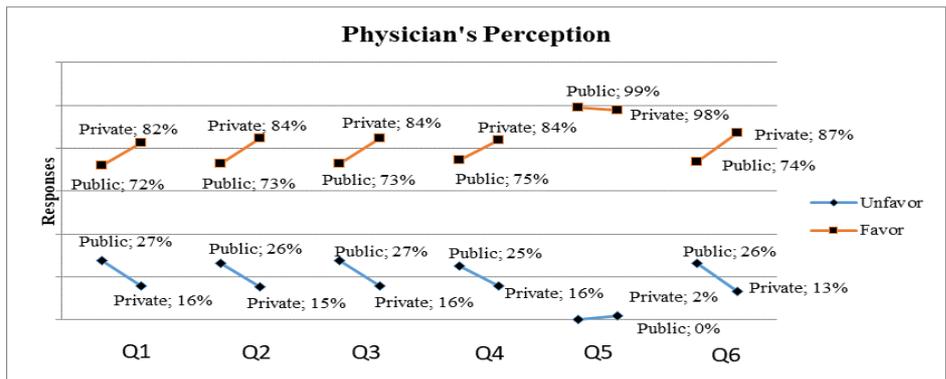


Figure 1. Summary of Physician Perception

Similarly, on question number 2 (i.e. drug advertisements for patients (can) encourage them to voice their previously unspoken concerns with improved communication?) the same trend has been observed (Figure 1) that majority (84%) of private sector physicians support the stance that DTCPA can help patients to speak up with healthcare professional for their unspoken health concerns. However, the margin of acceptability was at higher side among private sector than public institutes (i.e. 73%). There were also some (15%) cases in private sector, which did not favor DTCPA in comparison to public sector i.e. 25%. During confirmative interview, it's further found that the content of the advertisement also matter in order to educate the patients rather than provoking statements to intervene for their health care decisions.

Besides this, in response to question number 3 (i.e. drug advertisements for patients (can) result in improving diagnoses of currently under-diagnosed conditions, by attending physician?) the summary of results (Figure 1) have indicated that DTCPA can help early diagnosis of previously undiagnosed patients, it may helpful to reduce the rate of mortality and morbidities in particular societies. The stance has been supported by largely (84%) physician in private sector than public sector i.e. 73%. Although, antithesis exist in few (16%) cases of private and some (27%) of them in public sector that DTCPA will empower patients. However, majority of HCP has favored DTCPA.

Subsequently, the summary of question number 4 (i.e. drug advertisements for patients (can) result in improving treatment of currently under-treatment conditions?) has reflected almost similar trend (Figure 1) as predominantly 84% of the study population in private sector has backed the importance of DTCPA, especially, in the context of Pakistan. Moreover, during interview

phase it was evident that private sector has more acceptability for DTCPA as compared to public sector (i.e. 75%).

In response to question number 5 (i.e. drug advertisements for patients (can) contribute to increase in self-medications?), the survey results indicate that physician are with views that DTCPA can contribute to over commercialism of medicines may lead to self-medication and undue consumption of medicines. This was a point of indulgence for both the sectors physician, as it was largely reflected in private (98%) and public (99%) sector responses. Similar, trend has been observed in qualitative phase, which has validated the quantitative phase.

Finally, the summary of question 6 (i.e. drug advertisements for patients (can) contribute to raising health care costs by leading them to request interventions?) has indicated that in general (87%) private sector physicians have shown concern about DTCPA that it can lead to increase in healthcare cost, particularly, when patient will insist for un due interventions such as laboratory diagnostics or medicines. However, few (13%) cases among private and some (26%) in public sector have shown disagreement with majority of study population that DTCPA can increase health care cost of the patients.

### Statistical Significance

In order to compare the mean values of the public and private sectors physician perception about direct to consumer pharmaceuticals advertisements, that whether these descriptive are statistically significant or not. Independent samples t-test was applied to assess the significance level of the above mentioned cross comparison of both the groups. Sample t- test is a popular parametric technique that compares the two unrelated variables on same continuous dependent variable. Following table 4 provides the group statistics of mean perception comparison of the public and private sectors. The mean score of private sector i.e.  $M=3.8932$ ,  $SD=0.66472$  is higher than the public sector mean values i.e.  $M=3.6836$ ,  $SD=0.80496$ .

Table 4. *Group Statistics of Public and Private Sectors*

Construct	Category	N	Mean	Std. Deviation	Std. Error Mean
Mean_Perception	Public Sector	197	3.6836	0.80496	0.05735
	Private Sector	192	3.8932	0.66472	0.04797

Moreover, the Levene test (Table 5) for equality of variance of group has been violated ( $F=29.159$ ,  $Df =387$ ) and statistically found significant i.e.  $t = -2.797***$ . It means that both the groups have mean difference of perception about direct to consumer pharmaceutical advertisement. In this case it seems that private sector physicians ( $M=3.8932$ ,  $SD=0.66472$ ) are more inclined

towards the direct consumer pharmaceutical advertisements as compared to public sector (M=3.6836, SD = 0.80496).

Table 5. *Independent t-test Statistics*

		Equal variances	Unequal variances
Levene's statistics	F	29.159	0.00
	Sig.	0.000	0.00
	T	-2.797	-2.804
	Df	387	376.890
t-test	Sig. (2-tailed)	0.005	0.005
	Mean Difference	0-.20964	0-.20964
	Std. Error Difference	0.07495	0.07477

According to Cohen's 1988 the magnitude of effect size of sample t-test can be classified into three categories that is low (d=0.2), medium (d = 0.5) and high (d = 0.8) (Lakens, 2013). There are three standard ways to measure the effect size, Cohen's benchmark is an appropriate measure of effect size, especially, when two groups have similar standard deviation and sample size. Glass Delta's is an alternate to Cohen's approach which uses only the standard deviation of control group to assess the effect size. Moreover, when groups have different sample size the recommended measure is Hedges effect size calculator (Lakens, 2013). In current case has taken the output of all three measures to benchmark the effect size. Hence, to calculate the effects size following formula has been used. Formula: Cohen's d = (M1 – M2) / SDpooled =  $\sqrt{((SD1^2 + SD2^2) / 2)}$ .

The results of calculation revealed more are less same effect size for Cohen's, Glass Delta and Hedge have output of 0.2839, 0.2603 and 0.2835 respectively. The output range falls under low effect size category for all the three categories of measures. It means that public and private sectors have low difference of effect size between each other.

**Qualitative Results**

The results revealed that majority of private sector physicians were more likely to favor DTCPA in order to encourage patients to attain the HCP for preventive or disease treatments. It is further evident that DTCPA can help timely diagnosis and self-awareness to managed patients themselves. Moreover, it has found that DTCPA can help to improve physician patient discussion, which will impact the physician-patient relationship in better way. Besides, through follow up interviews, it has also been observed that HCP believe that DTCPA

can help to educate patients for better treatment outcome via effective counseling or awareness campaigns. HCP in Pakistan are aware from the government limitations i.e. financial and educational constraints to provide full-fledged health care facilities at national level. In this scenario, DTCPA can help to create awareness among communities about different ailments that can potentially be transformed into national pandemics if not managed properly such as in recent time COVID-19 crises.

### **Discussion**

This comparative survey research was set out to fill the research gap identified by Zaman et al. (2018) and Shah et al. (2017) about contemporary pharmaceutical marketing practices in the context of local setup of Pakistan. Moreover, physician believes and organizational factors impact on physician perception about Direct to Consumer Pharmaceutical Advertisement (DTCPA) was set out based on Mohammadshahi et al. (2019) research work.

The results of undertaken study has revealed that majority of physician in Pakistan are inclined toward DTCPA. However, private sector physicians are comparatively more convinced about DTCPA role for better healthcare outcome as compared to private sector. These results have validated the findings of Jalal et al. (2018) that fundamental differences of opinion exist among physicians, especially, on demographics basis such as public or private sectors. Moreover, current findings have endorsed the assumptions of Preechavuthinant et al. (2018) that DTCPA can play an important role to improve physician patient relationship. According to Siddiqi and Shah (2017a), in Pakistan physicians encouraged DTCPA, which is supplementary for health care system of Pakistan. DTCPA motivate patients to register themselves timely to improve the quality of life, particularly in low socio economic countries (Defibaugh, 2019; Epstein & Street, 2011).

Although, antithesis about DTCPA also exists such as Ortiz and Rosenthal (2019) mentioned that increase in DTCPA can lead to mistrust the physician decision, patient will more trust the drug advertisements than physicians (Jiang, 2018). Moreover, Pandey, Jha, and Saha (2019) point out that DTCPA will facilitate un-due interventions from patient perspective, and may cause dissatisfaction as self-medication trend. In contrast, Defibaugh (2019) mentioned that DTCPA will ultimately foster neoliberal patient environment, where patients will be better know their miseries of disease and symptoms to discuss with healthcare professionals as empowered patient. According to Vijayabanu et al. (2018), digitalization and transformation of pharmaceutical industry is an auto accelerating phenomena, which can empower the e-patient autonomy, however there is high risk associated with such empowerment as misleading information (Dahl & Eagle, 2016). Stange (2007) being the

strongest opponent of DTCPA has recommended to ban DTCPA due to risks associated with human lives.

However, the solution is to improve the quality of information, the content of advertisement should be highly meaningful for consumers rather to mislead them (Adams, 2016). Moreover, Siraj and Curley (2018) has endorsed the promotion of DTCPA, which is good for patient and health care system conditionally to improve the quality of message for both patient and physicians. Zaman et al. (2018) also concluded that DTCPA is a positive initiative, this will encourage patients for participative role and thereby physicians will need to be more prepared to deal with more informed patients. However, it's important to identify the preferred mediums of communication for DTCPA that deliver rightly, timely and relevant information for better healthcare outcomes.

### **Conclusion and Recommendations**

Private sector physician likelihood towards DTCPA is higher than the public sector of Pakistan, which seems little conservative among public institutes. However, the overall trend has shown that more than one third study population has favored DTCPA in respect to patient empowerment, discussion with physician and thereby promotes physician patient relationship.

However, self-medication and unwanted intervention can be expected, which may cause unwanted health related events. Therefore, solution is to monitor the content of DTCPA to make it strongly relevant and adhered to patient that rightly guide and educate them instead of provoking the patients to unnecessarily intervene in their health care decisions.

Pharmaceutical companies should focus on this enormous potential market which is day by day expanding due to increase in information access. Moreover, government agencies should also take the leverage of this one click huge platform to educate people about basic healthcare importance with public private partnership programs.

Physician patient relationship is complex cognitive interaction for mutual goals. It will be scholarly contribution to explore the extent of patient being active and involved in health care decisions. Moreover, patient opinion should also be assessed on DTCPA whether patients intent to adapt or not? Moreover, it's important to identify the preferred mediums of communication for DTCPA, which can deliver rightly, timely and relevant information for better healthcare outcomes in local setup of Pakistan.

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