



A Questionnaire-Based Examination of Placebo Prescribing Patterns among the Doctors at Tertiary Healthcare Services

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Authors' contributions

This work was carried out in collaboration among all authors. Authors MN and SGM designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AA and KAB managed the analyses of the study. Author FG managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: The major theme of the research is relieving the patients by prescribing the placebo prescription by the health care provider of tertiary health care services.

Materials and methods: Descriptive cross-sectional research was conducted for the period of one year from February 2020 to January 2021 at various government and private tertiary care institutes of Nawab Shah, Kotri, Jamshoro and Hyderabad Districts after approval of the ethical committee of concern institutes and total 238 study subjects were selected.

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Results: The consequences of placebo prescription were approximately 80%. 137 were males and 101 were females. 130(54.62%) Doctors were from the government sector, 108(45.37%) were from private institutes. 21(8.8%) placebo prescriptions was assumed as alternative medicine, 52(21.84%) as Prebiotics, 63(26.47%) as saline injections. 41(17.22%) placebo was prescribed because patients need them, 67(28.5%) placebo was prescribed for psychological therapy. 41(17.22%) placebo was usually effective, 129(54.2%) were sometimes effective, 20(8.40%) never had any effect and 48(20.16%) had other outcomes for the placebo prescriptions.

Conclusion: Descriptive cross-sectional research was conducted for the period of one year from February 2020 to January 2021 at various government and private tertiary care institutes of Nawab Shah, Kotri, Jamshoro and Hyderabad Districts after approval of the ethical committee of concerned institutes

Keywords: Placebo effect; pure placebo; medical practitioners; questionnaire study.

1. INTRODUCTION

Advanced research technologies in the field of health and medicine help to reduce the numerous infectious diseases and various options for treatment are also developed but unfortunately, some clinical cases are still pending to solve and health care prescribers have only one option to prescribe only placebo drugs to that type of patients. Some time placebo didn't have given any effects similar to therapeutics results so it becomes challenging factors for any prescriber. According to the literature, prescribers suggest placebos in order to get better outcomes for their patients and get rid of the symptoms that appear among the patients. [1] A placebo can be defined as "Any drug excipients given to the patients that didn't have any pharmacological action but patient perceive to be treated or being managed" [2] enhancing the better health and reducing the effects of hazard by consumption of any substance without pharmacological active chemical constituents is called as *Placebo effect*. [3] Placebo can be distinguished as "Pure" & "Impure" depending on their ingredients types. Any surgical procedure or treatment options that are used instead of actual disease for diminishing the symptoms are considered as *impure placebo* and any management therapy such as sugar tablet, saline injections are considered as *pure placebo*. [4] Irrational therapy is also considered as an impure placebo such as prescribing antibiotics for viral therapy or sometimes prescribing multivitamin therapy for a healthy person. Placebo treatment options are also used in the field of research or sometimes in the various clinical trials that are different from actual patient care. [5] "placebos didn't mean to have any pharmacological therapy or surgical procedures, it is the type of psychological management that can be carried out with ethical

consideration, it mostly used to treat the addict patients to get rid of the drug consumption and their effects on the body" [6] According to literature survey it was sorted out that placebo was frequently prescribed in routine OPDs among various countries. [7,8] practice of placebo prescription is limited in Pakistan [9]. So, the major aim of the study to analyze the questionnaire-based examination of placebo prescribing patterns among the doctors at tertiary healthcare services.

2. RESEARCH METHODOLOGY

Descriptive cross-sectional research was conducted for the period of one year from February 2020 to January 2021 at various government and private tertiary care institutes of Nawab Shah, Kotri, Jamshoro and Hyderabad Districts after approval of ethical committee of concern institutes. A total of 300 questionnaires were given to medical practitioner and only 245 filled questionnaires were obtained and the sample size was calculated by the formula as

$$\text{Required sample size} = 4pq/L^2$$

Where, p was taken as prevalence of placebo use among practitioners,

$$p = 89\%$$

$$q = (100-89) = 11\%,$$

$$L = \text{allowable error as } 5\% \text{ of } p = 4.45.$$

Hence, the required sample size arrived was 200

In order to get the perfect results as non-response, incomplete data and other factors, the sample size is increased up to 250. Medical prescriber with numerous specialties including Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Anesthesiology, Orthopedics, Psychiatry, Dermatology, Ophthalmology, and

ENT (Ear Nose & Throat) were included in the study and pediatrics surgery and cancer chemotherapy were excluded from the study. MS Excel 2010 was used for data entry and EPI Info 7.0 version was used for data analysis. Numerical variables are represented as mean \pm SD and percentages, and proportions for categorical variables. Significance was assessed by Chi-square test for categorical variables.

3. RESULTS

After the collection of proper data and questionnaires from the study subjects, the results were prepared and a total of 238 questionnaires were collected. From them 137 were males and 101 were females as described in Table 1.

Study subjects are further divided into various age groups as described in Table 2.

The number of study subject various post-graduation studies that are described in Table 3.

Prescriber was related to various government and private institutes as mentioned in Table 4.

Number of elements considered for prescribing placebo among the clinician was described in the Table 5.

There were various reasons available for prescribing the placebo as mentioned in Table 6.

On the behalf of information given by the physician, placebo prescription can frequently be divided into the following groups as mentioned in Table 7.

The outcomes of placebo administrations were also described in Table 8.

4. DISCUSSION

The evaluation of the frequency of placebo prescription among the medical and clinical practice was carried out in Pakistan for the very first time and the response rate was approximately 80% and when this rate is compared with other research conducted in Germany (54%), United Kingdom 47%, it is quite greater [3,6]. Placebo is type of therapy that can

Table 1. Gender wise distribution of study subjects

Gender	Number	Percentage
Male	137	57.56%
Female	101	42.43%

Table 2. Age wise distribution of study subjects

Age group	Number	Percentage
21-30 years	86	36.1%
31-40 years	102	42.85%
41-50 years	34	14.28%
51year & Above	16	6.72%

Table 3. Post gradation status of study subjects

Post-graduation	Number	Percentage
M.D	139	58.4%
M.S	78	32.77%
Other	21	8.82%

Table 4. Job status of study subjects

Job Status of Prescriber	Number	Percentage
Government job	130	54.62%
Private job	108	45.37%

Table 5. Elements for prescribing the placebo

Elements for prescribing placebo	Number	Percentage
Complementary/ Alternative Medicine	21	8.8%
Prebiotics for dysentery	52	21.84%
Saline Injection / Distilled water	63	26.47%
Antibiotics for viral infections	10	4.20%
Mild Sedative	25	10.5%
Nutritional Supplements	124	52.1%
Vitamins	148	62.18%
Minerals or Trace Elements	110	46.21%

Table 6. Reasons for prescribing the placebo by the physicians

Reasons	Number	Percentage
Patients need any therapy	41	17.22%
Patients requested some therapy	65	27.31%
For Psychological effects	67	28.15%
Patients with vague symptoms	21	8.82%
For un-curable diseases	15	6.30%
Any other reason	29	12.18%

Table 7. level of information of physician regarding placebo prescription

Level of information	Number	Percentage
Highly effective drug	21	8.82%
Only placebo drug	37	15.54%
Therapy helped many other patients	49	20.58%
Promote self healing process	42	17.64%
Treatment without Pharmacological actions	61	25.63%
Others	28	11.75%

Table 8. Outcomes of placebo prescription

Outcomes of placebo prescription	Number	Percentage
Usually Effective	41	17.22%
Sometime effective	129	54.2%
Never Effective	20	8.40%
Others	48	20.16%

consume among the clinical practice, but numbers of participants were unaware of the placebo existence. Similarly, Danish [7] and American Physician [9] had a quite higher rate of placebo utilization. As far as gender is concern Male prescribers had a greater number of prescribing placebo as compared to the female gender. The frequency of placebo prescriptions by male prescribers was also reported by Kermen et al., which was approximately 68% [10]. The number of study subjects agreed on the condition that a placebo can be prescribed in frequent clinical practice in order to get better outcomes [7,11]. Nutritional therapy, steroids, multivitamins and minerals were the major items that were frequently prescribed by the study

subjects. The practice of prescribing the placebo was noted in Denmark, Germany and Poland [3,7,12] and very strange and interesting placebo that were prescribed among the local population of United States of America were antibiotics for viral infections [10]. Oral route is commonly suggested route for the administration of placebo. Placebo has a psychological effect so it was not frequently prescribed by the participants. In order to get the satisfaction of clinical patients, placebo was prescribing 61% and the consequences were similar to other related studies [3,4,13] If there were no any particular options left behind for the prescription, so placebo was prescribed in order to meet the expectation of the patients [14]. 40% of

prescribers didn't disclose the nature of treatment as a placebo. Many patients had trust on the doctors and they believe that whatever so the doctor is prescribing that was quite beneficial to eradicate the condition of illness. There was a strong correlation between psychological and physiological effects for prescribing the Placebo to the patients [15]. Doctors get 77% outcomes by prescribing the placebo among the admitted patients and sometimes the rate may be enhanced up to 96%. Due to lack of knowledge about proper consumption of placebo, depending upon the clinical condition of patients and

fear of legal action the placebo usage is restricted.

5. LIMITATIONS

The practice of prescribing placebo by the physicians at tertiary care institutes cannot be followed among all health care facilities. This cannot be implemented by all physicians of Pakistan and results were also depending on the questionnaire filled by the selected doctors so this study may be limited to the specific area and considered as general.

Table 9. Practitioners acceptability of placebo and its relation to its use

Statement placebos	Ever prescribed placebo				P-value
	Yes (179)		No (59)		
	n	%	N	%	
Are acceptable when they are considered to cause psychological well-being					
Agree	174	97.2	47	79.7	0.005*
Disagree	4	2.2	10	16.9	
Do not know	1	0.6	2	3.4	
Are acceptable when all other established therapies fail					
Agree	84	46.9	22	37.3	0.375
Disagree	71	39.7	26	44.1	
Do not know	24	13.4	11	18.6	
Are acceptable when the patient wants or expects some form of therapy					
Agree	122	68.2	34	57.6	0.269
Disagree	37	20.7	18	30.5	
Do not know	20	11.2	7	11.9	
Are acceptable when clinical experience has shown a benefit in a given condition					
Agree	136	76.0	35	59.3	0.045*
Disagree	25	14.0	13	22.0	
Do not know	18	10.1	11	18.6	
May endanger the trust between doctor and patient					
Agree	59	33.0	29	49.2	0.029*
Disagree	96	53.6	20	33.9	
Do not know	24	13.4	10	16.9	
Usage may cause legal problems					
Agree	63	35.2	29	49.2	0.05*
Disagree	58	32.4	10	16.9	
Do not know	58	32.4	20	33.9	
May cause adverse effects					
Agree	74	41.3	21	35.6	0.184
Disagree	83	46.4	25	42.4	
Do not know	22	12.3	13	22.0	
Efficacy is doubtful					
Agree	131	73.2	40	67.8	0.292
Disagree	31	17.3	9	15.3	
Do not know	17	9.5	10	16.9	
Has no role in clinical practice					
Agree	20	11.4	19	32.2	0.0001*
Disagree	147	83.5	32	54.2	
Do not know	9	5.1	8	13.6	

Chi-square test *P<0.05 – statistically significant

6. CONCLUSION

The number of study subjects was aware of the availability of placebo in the field of management and its prescription was not common among all. The consumption rate of placebo was quite higher among the male gender as compared to the female gender. Doctors had accepted that placebo can be consumed by the patients in different medical conditions and further research on the prescription of placebo is also needed to enhance the level of health.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Maharani B, Jafrin AL, Bahurupi Y, Sivagnanam G. Placebo prescription pattern among doctors of tertiary care institutions in Puducherry: A questionnaire-based study. *National Journal of Physiology, Pharmacy and Pharmacology*. 2021;11(03):232-237.
2. Orayj K, Akbari A, Lacey A, Smith M, Pickrell O, Lane EL. Factors affecting the choice of first-line therapy in Parkinson's disease patients in Wales: A population-based study. *Saudi pharmaceutical journal* : SPJ : the official publication of the Saudi Pharmaceutical Society. 2021;29(2):206–212. Available: <https://doi.org/10.1016/j.jsps.2021.01.004>
3. Diels J, Neslusan C. Comparative persistency with newer agents used to treat type 2 diabetes (T2DM) in the United States: Canagliflozin versus dipeptidyl peptidase-4 (DPP-4) inhibitors and glucagon-like peptide-1 (GLP-1) agonists. *Value in Health*. 2015;18(3):A68-9.
4. Chellew N, Chang AB, Grimwood K. Azithromycin prescribing by respiratory pediatricians in Australia and New Zealand for chronic wet cough: A questionnaire-based survey. *Frontiers in pediatrics*. 2020;8:519.
5. Riaz H, Godman B, Hussain S, Malik F, Mahmood S, Shami A, Bashir S. Prescribing of bisphosphonates and antibiotics in Pakistan: Challenges and opportunities for the future. *Journal of Pharmaceutical Health Services Research*. 2015;6(2):111-21.
6. Paterson R, Douglas C, Hallmayer J, Hagan M, Krupenia Z. A randomised, double-blind, placebo-controlled trial of dexamphetamine in adults with attention deficit hyperactivity disorder. *Australian and New Zealand Journal of Psychiatry*. 1999;33(4):494-502.
7. Saha MR, Sarwar S, Shill MC, Shahriar M. Patients' knowledge and awareness towards use of antibiotics in Bangladesh: A cross-sectional study conducted in three tertiary healthcare centers in Bangladesh. *Stamford Journal of Pharmaceutical Sciences*. 2010;3(1):54-8.
8. Stein K, Farmer J, Singhal S, Marra F, Sutherland S, Quiñonez C. The use and misuse of antibiotics in dentistry: A scoping review. *The Journal of the American Dental Association*. 2018;149(10):869-84.
9. Heersink JT, Brown CJ, Dimaria-Ghalili RA, Locher JL. Undernutrition in hospitalized older adults: patterns and correlates, outcomes, and opportunities for intervention with a focus on processes of care. *Journal of Nutrition for the Elderly*. 2010;29(1):4-1.
10. Trescot AM, Boswell MV, Atluri SL, Hansen HC, Deer TR, Abdi S, Jasper JF, Singh V, Jordan AE, Johnson BW, Cicala RS. Opioid guidelines in the management of chronic non-cancer pain. *Pain physician*. 2006;9(1):1.
11. Fernández A, Simian D, Quera R, Flores L, Ibáñez P, Lubascher J, Figueroa C, Kronberg U, Pizarro G, Fluxá D. Complementary and alternative medicine in patients with inflammatory bowel disease: A survey performed in a tertiary center in Chile. *Complementary therapies in medicine*. 2018;40:77-82.
12. Rathor MY, Rani MF, Akter SF, Azarisman SM. Religion and spirituality in specific clinical situations in medical practice: A cross-sectional comparative study between

- patients and doctors in a tertiary care hospital in Malaysia. Medical Journal of Islamic World Academy of Science. 2009;17(2):103-10.
13. Williamson I, Bengé S, Barton S, Petrou S, Letley L, Fasey N, Abangma G, Dakin H, Little P. A double-blind randomised placebo-controlled trial of topical intranasal corticosteroids in 4-to 11-year-old children with persistent bilateral otitis media with effusion in primary care. Health Technol Assess. 2009;13(37):1-44.
 14. Baptista R, Englar R, São Braz B, Leal RO. Survey-based analysis of current trends for prescribing gastrointestinal protectants among small-animal general practitioners in Portugal. Veterinary Sciences. 2021;8(5):70.
 15. Just J, Mücke M, Bleckwenn M. Dependence on prescription opioids: Prevention, diagnosis and treatment. Deutsches Ärzteblatt International. 2016;113(13):213.

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