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Attitude and practice of physicians in King Khalid University Hospital, regarding placebo 2021-2022

Nourhan E Mohamed[1], **Ghazlan A Alhenaki**[1*], **Hajer K Albalawi**[1], **Maha M Alasmari**[1], **Joud A Aburisheh**[1], **Shouq A Alshehri**[1], **Fatimah A Althamin**[1], **Latifah Y Alhussain**[1], **Hayfa H Alhayyaf**[1], **Batool A Althamin**[1], **Mona A Alfadeel**[2]

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Authors' Affiliation:
[1]Medical intern, AlmaarefaUniversity, Riyadh city, KSA
[2]Assistant professor of Community Medicine, College of Medicine, Almaarefa University, Riyadh city, KSA

[*]**Corresponding author**
Medical intern, Almaarefa University, Riyadh city, KSA
Email: 161220099@student.mcst.edu.sa

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ABSTRACT

Background: In the developing world of medicine, placebo treatment has been viewed as a subject of controversy. Some physicians support its' use and advocate its effectiveness while others are against it for various reasons. This study provides identification of the practice of placebo and debates its validity. *Methods:* A cross-sectional study was conducted in King Khalid University Hospital in Riyadh-Saudi Arabia, targeting doctors from both genders different ages and experiences. 190 physicians were chosen by quota sampling technique. The data was collected by a printed survey and distributed manually. SPSS software was used for analyzing. *Results:* The results showed that age, years of experience and the specialty of the physician doesn't influence their frequency of placebo use or the attitude. However, positive attitude prevailed more among male physicians (p=0.0204). 78% of the physicians in this study had positive attitude towards placebo prescription while none showed a negative attitude. 80% of residents used placebo used it to calm the patient and 35% as a treatment for nonspecific symptoms. *Conclusion:* Despite of the ethical controversy of prescribing placebo, a fair number of doctors prescribe it to their patients. This study revealed that there is no significant difference in age, gender, experience, or specialty between doctors who support placebo as a medical treatment compared to those who do not. Our study provides valuable data about the attitudes of physicians towards such a controversial methodology of treatment.

Keywords: Attitude, practice, physicians, King Khalid University Hospital, regarding placebo

1. INTRODUCTION

Placebo is a treatment that stimulates a medical intervention without exerting a biological effect on the disease in question. Placebo plays an important role in clinical trials and in evaluating the effectiveness of new treatments (Linde et al., 2011). Many questionnaires showed that it is also common in daily medical practices in which differences were made between pure placebo (materials with no pharmacological effect) and impure placebo (substances with pharmacological effect but not on the condition being treated, e.g., antibiotic or vitamins in viral infections) (Fent et al., 2011). Any type of treatment may act as a placebo. The patient's response to that treatment, whether it's physiological or psychological, is known as the placebo effect (Munnangi et al., 2022; Cai and He, 2019). Some doctors believe it is unethical and completely unacceptable due to various reasons. There for they are unsure of how to give placebo treatment to their patients (Gupta, 2013).

Most of them would appreciate ethical guidelines on how to deal with this issue. Several studies have stated that the majority of primary care physicians (PCPs) only gave their patients vague and very general information when prescribing placebos. They utilize placebos often during the situations where they believe the patient has a less serious or psychogenic disorder and in particular in situations where a strong psychological strain is assumed (Fent et al., 2011; Meissner et al., 2011).

In UK, a pervious study done in 2014 assessed the GPs' attitudesabout placebo influences in clinical practice. GPs believed that pure placebos are beneficial (68.3 %) and pure and impure placebos use clinically was 12.3% and 96.9% respectively. The study found that benefits and use of impure placebo was better and more than pure placebo (Bishop et al., 2014). In 2016, a UK study found that the majority of trainee surgeons think that placebo is real and beneficial in therapy, with concretion of its risk side effect associated with it use. Also, the study showed that trainee use placebo more than surgeons in pain management (Baldwin et al., 2016).

Another study found that few North American physicians appear to favor the elimination of placebos from clinical practice and most acquiesce to the clinical merits associated with placebos (Harris et al., 2015). In Malaysia, a study was done in 2016 investigated doctors' understanding of 'placebo' effectiveness and the use among them besides to their attitudes. He found out that (73%) of doctors believed that improvements in pain demonstrated were because the pain was psychogenic (73%). There appears to be differences in doctors' knowledge regarding placebos, how they work and how they may be used (Tuthill et al., 2016) and in Portuga, a study done in 2017 found that placebos were prescribed by 73% of the GPs. Placebo prescription is frequent and associated with empathy from the prescriber, especially among younger GPs (Braga et al., 2017). In Saudi Arabia, a previous study was done on GP, residents and specialist. The study found that 68% believed in the effectiveness of placebo in reaching a positive impact (Hassan et al., 2011). This study aimed to identify the attitude and practice of physicians in King Khalid University Hospital (KKUH), regarding placebo.

2. SUBJECTS AND METHODS

This study is an observational descriptive cross-sectional study that was done during the period of 2021-2022 at King Khalid University Hospital (KKUH), Riyadh, Saudi Arabia. This study was approved by the Local Research and Committee board of AlMaarefa University, Riyadh, KSA (ethical approval code 5/191).

Informed consent was granted from each participant in our study. In this study, we aimed to include all the physicians from every department in our institution. The inclusion criteria included: A doctor currently practicing in our institution and those we agreed to participate in our study. We excluded any individual who is not a physician and those who disagreed to participate in our study. Any incomplete questionnaire was also excluded from the analysis. The data collection was done through well-trained data collectors that were recruited by the authors of this study. The following CONSORT diagram explains the steps we followed in the collection of our data figure (1).

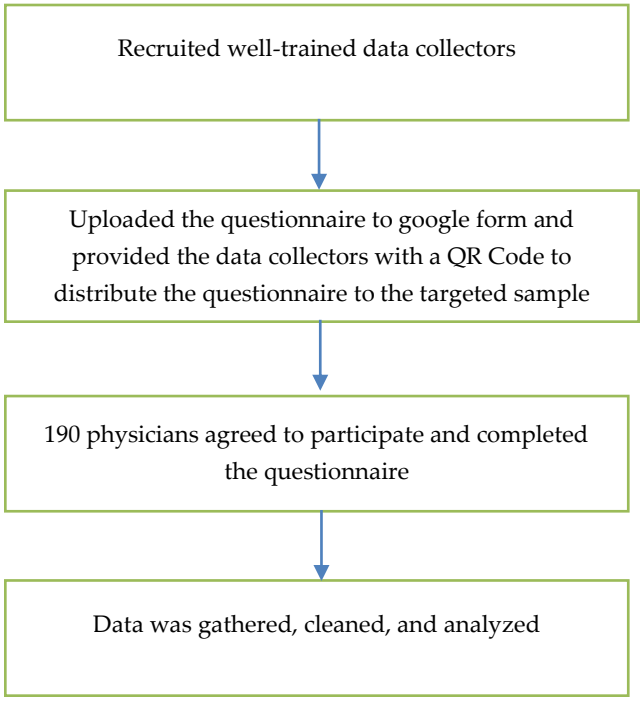

Figure 1 Shows the CONSORT diagram explaining the steps in data collection

As showed in the CONSORT diagram, our sample size consisted of 190 doctors from different specialties practicing in KKUH. The sample size was selected using quota sampling technique. The questionnaire that we distributed was a predesigned questionnaire. The questionnaire started with personal data including the doctor's (age, gender, years of experience and specialty). The questionnaire contained questions regarding the doctor's opinion and their attitude towards the placebo use. In addition it included circumstances in which placebo was prescribed. There were 7 questions regarding the doctor's attitude about the use of placebo. The attitude scale was scored according to their answers. Answering 4 or more questions with (agree or strongly agree) indicates a positive attitude, answering 2-3 questions with (agree or strongly agree) indicates a moderate attitude and less than 2 questions implies a negative attitude towards the placebo use. The data was analysed using the SPSS program version 26. Qualitative data was expressed as numbers and percentages and Chi- squared test ($\chi 2$) was applied to test the correlation between variables. A p-value of <0.05 was considered as statistically significant.

3. RESULTS

The study sample involved of 111 male and 79 female (58% male, 42% female) of them, 117 residents, 73 medical and surgical specialties, one pharmacologist, one vascular surgery and one psychiatry (62% residents, 38% others). About 59% (59.5%) had an age that ranged from 20 – 29, 61.6% were residents and 75.8% had 0-9 years of experience (Table 1).

Table 1 Distribution of the participants according to their demographic data

Age	Total	Percentage%
20 – 29 years	113	59.5%
30 – 39 years	46	24.4%
40 – 49 years	19	10.1%
≥ 50 years	12	6.2%
Gender		
Male	111	58.4%
Female	79	41.6%
Specialty		
Resident	117	61.6%

Medical specialty	56	29.5%
Surgical specialty	14	7.4%
Specifically, specialty	3	1.6%
Experience		
0 – 9 years	144	75.8%
10 – 19 years	30	16%
20 – 29 years	5	2.6%
≥ 30 years	11	5.8%

Of the participants, 47.4% have prescribed placebo and 52.6% never prescribed placebo. Fifty percent of the 20-29 years old physicians have prescribed placebo and there was no significant difference among various age groups regarding placebo prescription (Table 2).

Table 2 Distribution of the use of placebo among the physicians.

Use	Total	Percentage %
Prescribing	90	47.4%
Not prescribing	100	52.6%
Total	190	100%

About 46% of male prescribed placebo in varying frequencies, compared to forty nine percent of females. Moreover, about 46% of physicians of varying years of experience have prescribed placebo and prescription of placebo among the physicians who have experience between 0-9 years was forty-eight percent, compared to forty-four percent physicians who have experience ≥ 10 years. The difference among physicians with varying years of experience was not significant. Fifty-three percent of physicians in all specialties never prescribed placebo. Relationship between frequency of placebo prescription and participants demographics, experience and specialty (Table 3 and Figure 2)

Table 3 Relationship between frequency of placebo prescription and participants demographics, experience and specialty

Characteristics	Prescribing					Total
	On daily basis	Once a week	Once a month	Once a year	Never	
Age						
20 – 29 years	4	13	15	25	56	113
30 – 39 years	0	3	4	11	28	46
40 – 49 years	0	0	1	8	10	19
≥ 50 years	1	1	1	3	6	12
Gender						
Male	2	8	12	29	60	111
Female	3	9	9	18	40	79
Experience						
0 – 9 years	4	15	17	33	75	144
10 – 19 years	0	1	3	9	19	32
20 – 29 years	0	0	0	2	3	5
≥ 30 years	1	1	1	3	5	11
Specialty						
Residents	2	15	13	26	61	117
Medical specialty	2	2	5	16	31	56
Surgical specialty	0	0	2	4	8	14

Specifically specialty	1	0	1	1	0	3

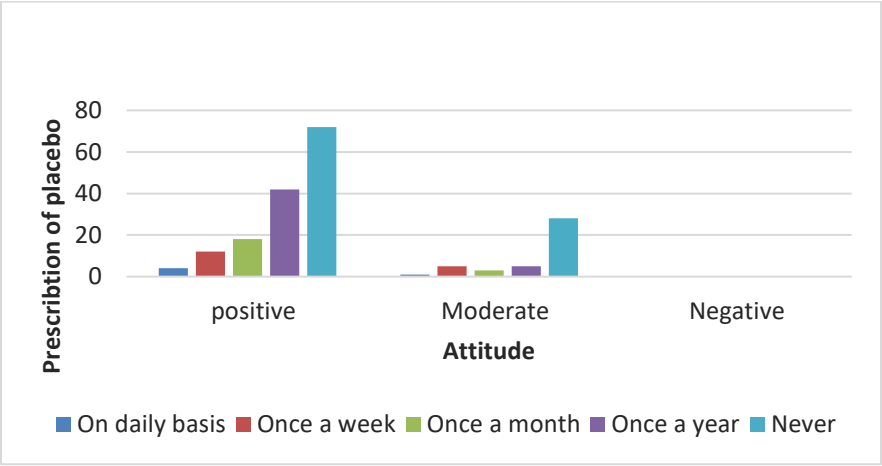

Figure 2 Frequency of placebo prescription and participants' attitude

About 78% of physicians in this study have positive attitude towards placebo prescription, compared to thirty-three of moderate attitude. This difference between frequency of placebo prescription and participants' attitude was statistically significant (p= 0.0390) (Table 4).

Table 4 Relationship between frequency of placebo prescription and participants' attitude

Use / Attitude	Prescribing					Total	p-value
	On daily basis	Once a week	Once a month	Once a year	Never		
positive	4	12	18	42	72	148	0.039
Moderate	1	5	3	5	28	42	
Negative	0	0	0	0	0	0	
Total	5	17	21	47	100	190	

The positive attitude of 20- 29 years old physicians prevailed among seventy-nine percent, in comparison to seventy seven percent of thirty and above year old physicians. There is no significant difference among physicians of different age groups regarding their attitude towards placebo use. About eighty-four percent of males and seventy percent of females have positive attitude towards placebo use with a statistically significant gender difference (p=0.0204). On the other hand, a non-significant relationship was found between the participants' attitude and their experience or specialty (Table 5) (Figure 3).

Table 5 Relationship between participants' attitude frequency of placebo prescription and participants' demographics, experience and specialty

Characteristics	Attitude			Total	p-value
Age	Positive	Moderate	Negative		
20 – 29 years	89	24	0	113	0.075
30 – 39 years	38	8	0	46	
40 – 49 years	12	7	0	19	
≥ 50 years	9	3	0	12	
Gender					0.0204

Male	93	18	0	111	
Female	55	24	0	79	
Experience					
0 – 9 years	116	28	0	144	0.063
10 – 19 years	21	9	0	30	
20 – 29 years	2	3	0	5	
≥ 30 years	9	2	0	11	
Specialty					
Resident	94	23	0	117	
Medical specialty	40	16	0	56	
Surgical specialty	12	2	0	14	0.057
Specifically specialty	2	1	0	3	

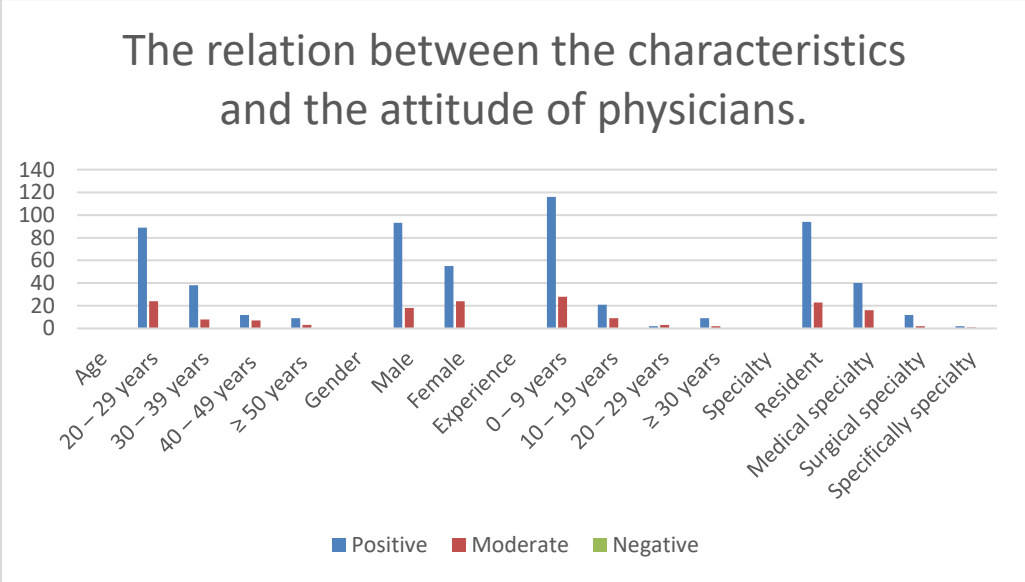

Figure 3 Participants' attitude frequency of placebo prescription and participants' demographics, experience, and specialty

The difference between residents and other specialties concerning placebo prescription was not significant regarding: prescribing it as a supplement to medication, as regards to placebo prescription in order to buy time between one dose of the actual medication and the next,to calm a patient, to control pain, as diagnostic tool, for immune problems and allergies, for viral infections, to prevent drug addiction, as possible psychological treatment effect and to prescribe placebo when the patient ask for a higher dose for no need while it was significant in using the placebo as a treatment for nonspecific symptoms (Table 6).

Table 6 The relation between specialties and circumstances for prescribing placebo among studied physicians

Circumstances	Resident		Surgical specialty		Medical specialty		Specifically specialty		Total	p-value
	Yes	No	Yes	No	Yes	No	Yes	No		
1. As a supplement to medication	34	83	19	37	9	5	1	2	190	0.053
2. In order to buy time between one dose of the actual medication and the next.	31	86	16	40	6	8	2	1	190	0.071
3. To calm a patient	81	36	29	27	10	4	2	1	190	p=0.067

4. As a treatment for nonspecific symptoms	37	80	23	33	9	5	2	1	190	p=0.0382
5. To control pain	44	73	20	36	8	6	2	1	190	0.056
6. As diagnostic tool	42	75	21	35	7	7	0	3	190	0.097
7. For immune problems and allergies	11	106	7	49	2	12	0	3	190	0.061
8. For viral infections	16	101	8	48	3	11	0	3	190	0.071
9. To prevent drug addiction	54	63	24	32	11	3	1	2	190	0.052
10. Possible psychological treatment effect	85	32	41	15	13	1	3	0	190	0.081
11. When the patient ask for a higher dose for no need	54	63	24	32	12	2	3	0	190	0.055

4. DISCUSSION

This study assumed that the old age physicians prescribe placebo more than the young physicians, with a higher frequency of placebo prescription among 20-29 years old physicians. This outcome was not expected because old generation physicians are thought to have more experience with different cases and therefore can know when a true medication is needed and when a placebo would be sufficient. In a study conducted in USA, younger physicians were significantly more likely to prescribe placebos than older physicians (Kermen et al., 2010).

The present study found that there was no significant difference between male and female physicians regarding placebo prescription. The same was revealed from a previous study done in University of Zurich, Switzerland (Fässler et al., 2011). A non-significant relationship was found between years of experience and placebo prescription in the present study. However, a higher frequency of physicians who have experience from 0-9 years was prescribing placebo. This can be because physicians with less years of experience are thought to be less confident with the use of placebo instead of a real medication. In a study conducted in Malaysia (Tuthill et al., 2016), there was no significant differences in placebo use by gender, age, or experience. It is recommended for physicians who prescribe placebo to have a good experience before using it instead of a real medication in order to provide the patient with optimal medical care (Tuthill et al., 2016).

Placebo prescription has the higher percent among residents, a matter that could be attributed to placebo that is a secured and harmless option to be prescribed (Bąbel, 2013). In a study conducted in the USA, about half of studied internists and rheumatologists reported prescribing placebo treatments to their patients on a regular basis (Bąbel, 2013). Many of these physicians were favorably disposed to recommending or prescribing placebo treatments. The present work found that a higher frequency of prescribing of placebo among these with positive attitude. This can be because the attitude influences the practice. It is logical that practice follows attitude (Bąbel, 2013).

Physicians of varying ages from 20 to 50 and above have positive to moderate attitude towards placebo. A study was conducted in USA and found that around 96% of the respondents of different age groups believed in therapeutic effect of placebo and 40% reported that placebo could benefit physiologically for certain health problems (Hassan et al., 2011; Kermen et al., 2010; Fässler et al., 2011). And in Poland placebo was very commonly used and physicians had generally positive attitude towards its use and effectiveness (Bąbel, 2013). Male physicians have a significant higher positive attitude than female physicians in this work, with no significant difference according to experience. In other studies, no significant difference between both genders, age or experience (Tuthill et al., 2016).

The results showed that the majority of resident had a positive attitude in prescribing placebo, with no significant difference according to specialty. This can be because they are still in their beginning years practice and are not as acknowledged and experienced as those who finished their residency and are specialized. Another reason is that residents are supposed to have a consultant's approval of whether to use a medication or placebo (Bishop, 2014). This work found that most of residents disagreed on using placebo as a supplement to medication was expected. The experience of the physicians in this field was found to encourage the patient to use placebo for their sake and trust their physician's advice (Friesen et al., 2019).

The higher frequency of placebo uses in order to buy time between one dose of the actual medication and the next among residents was expected. This is because the majority of cases residents' deals with are patients suffering from pain that they cannot tolerate placebo and need a painkiller more frequent during the relapse period or in acute state (Vase, 2019). A higher frequency of

residents agreed to prescribe placebo as a treatment to calm the patients. A study in USA, shows that placebo analgesia refers to pain reduction is not attributable to the physical properties of a treatment (Rosénet al., 2017). The higher frequency of residents disagreed to prescribe the placebo as a treatment of nonspecific symptoms was not expected. In Jazan, region in Saudi Arabia, research conducted in 2011concluded that placebo was most commonly prescribed for non-specific symptoms (Hassan et al., 2011).

The study found that prescription of placebo is the safest way to relief symptoms that patients suffer until the condition diagnosed. Residents did not prescribe placebo more frequently to manage discomfort. This agrees with a previous UK research (Baldwin et al., 2016), which showed that 34% % of trainees would not use placebo to control pain (34 %). Most of residents did not use placebo as a diagnostic tool in treating patients. This goes with a study done in Canada, where most of the physicians used placebo as a diagnostic tool. In addition, the majority of residents did not use placebo with patients who suffer from immune and allergic problems and this with a study done in Canada (Harris et al., 2015; Raz et al., 2011).

A great percentage of residents disagreed to prescribe placebo for viral infection and to prevent drug addiction in a Canadian study (Harris et al., 2015) only 20% of the Canadian and USA physicians using placebo to treat viral infection. In addition, only 47% of the Canadian and 32% of US physician use placebo to treat drug addiction. In contrary, placebo prescription was more frequently used as possible psychological treatment effect among residents. In the Malaysian study (Tuthill, 2016), 72% of physicians prescribed placebo because of its psychological effects. Another USA study, 62% of doctors believed that placebo has both psychological, physiological benefits in mental or emotional disorders (Kermen et al., 2010).

Most of this study residents disagreed to use placebo when a patient asks for a higher dose for no need because most of physicians avoid increasing the dose of drug to prevent any drug addiction (Fregni et al., 2010). Placebo in this circumstance can be the more proper choice due to its impact on many cases especially resident that have less experience in how to deal with medication doses (Fregni et al., 2010).

5. CONCLUSION

Despite of the ethical controversy of prescribing placebo, a fair number of doctors prescribe it to their patients. This study revealed there is no significant impact of age, gender, experience or specialty between doctors who support placebo as a medical treatment. However, most of doctors in this study have never used placebo and they disagree on using this method of treatment on their patient. It is recommended that if the conditions of patients are clear with clear complications for prescribing a real drug, physicians should approach the treatment without placebo. In addition, physicians should consider placebo in addiction and psychological cases. Future studies should focus on the safety of using placebo on patients and possible therapeutical effect.

Consent for publication

Informed consent was obtained from all the participants.

Ethical Approval

This study was approved by the Local Research and Committee board of AlMaarefaUniversity, Riyadh, KSA (ethical approval code 5/191).

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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