

*Original Research Article*

# Knowledge and Perception of Dental Practitioners about the Oral Healthcare System in Saudi Arabia; A Cross-sectional Study

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**Objectives:** To determine the knowledge and perception of dental practitioners towards the oral healthcare system of Saudi Arabia. To determine the factors associated with the dentists' selection of working in private or public sectors. **Materials and methods:** The target population was dental practitioners throughout the KSA, working in both private as well as public hospitals. A total number of 1000 dentists were targeted, with an online survey sent using social media and emails. **Results:** 54% of private dentists believed that the dentist/patient ratio in Saudi Arabia is satisfactory (p-value: 0.001). They also showed better knowledge when inquired about the current dentist/patient ratio (p-value: 0.005). It was understood that private dentists believed the performance of private hospitals to be better than public hospitals (p-value: 0.002). **Conclusions:** Dental professionals prefer to work in the public sector more than the private. Knowledge of dental professionals about the dental healthcare system in KSA is average.

**Keywords:** Healthcare system, Private dental care, Public dental care, dental professionals, Knowledge.

## INTRODUCTION

In the last few decades, special consideration and care have been given to improve the health care system in Saudi Arabia. These measures have resulted in the induction of various types of healthcare setups, which include the public and private sectors. Similar is the case with oral healthcare, which has improved to a great extent with its aim to provide the best possible care to all Saudi citizens. The World Health Organization has played an important role in designing the oral healthcare system in many countries. In Saudi Arabia, the health ministry has been following the footsteps of WHO in order to achieve the best possible health outcomes for its citizens. This includes education, clinical training and operational research (Peterson & Yamamoto, 2005).

The development of oral healthcare system in a few countries is focused on the universal delivery to their citizens in order to improve their oral health. However, these achievements are limited to the public sector, as the tax money is not linked with the healthcare system in the private sector. Several factors are involved when aiming to provide oral healthcare to all citizens, which include distribution of the oral diseases in the population, investment and funding, finally the clinical training in order to improve the workforce (Pucca et al, 2015; Etiaba et al, 2015; Kothia et al, 2015).

This study focuses on the healthcare system of Saudi Arabia; therefore it is imperative to discuss the structure. The

healthcare system comprises mainly of public and private sectors. The public sector is majorly contributed by the ministry of health, accompanied by other government bodies including the National Guard, armed forces, interior security forces and ministry of education (university hospitals). Apart from these, the private sector is also quite active in the provision of dental care in Saudi Arabia, which includes dental clinics, primary care centers, university hospitals and hospitals (Alshahrani & Raheel, 2016; Altamimi, 2016; Al Yousuf et al, 2002).

A thorough analysis of the Saudi oral healthcare system revealed that a huge expansion took place in the last couple of decades, which include the building of an increased number of hospitals, hiring workforce and modernization of existing services. Although the aim was to provide free health for all citizens, yet there are Saudis who prefer receiving dental treatment from private clinics (Jannadi et al, 2008; Walston, Al-Harbi & Al-Omar, 2008).

Dental professionals work in different setups, which are mentioned above. Each sector of work is different from one another, leading to comparisons. These differences affect the choice of dentists whether they want to work in private or public healthcare setups. This choice is also related to the level of understanding of the healthcare system of a particular country (Naidu, Newton & Ayers, 2006). Speaking of different delivery methods in a healthcare system, Saudi Arabia is

looking to modify its structure by converting the public run hospitals into private-owned organizations. However, primary healthcare centers will keep on functioning under the ministry of health (Khaliq, 2012).

The above-mentioned transition of the Saudi healthcare system is a result of the future challenges that the nation will face as a result of the current economical situation. There is a large proportion of the Saudi population, which is dependent on seeking healthcare from public hospitals. These people will be encouraged to reach out to private hospitals in order to fulfill their healthcare needs.

## AIMS OF THE STUDY

- Determine the knowledge and perception of dental practitioners towards the oral healthcare system of Saudi Arabia
- Determine the factors associated with the dentists' selection of working in private or public sectors.
- Determine the areas needed to be improved in these sectors.

## MATERIALS AND METHODS

This study is cross-sectional in nature, which used a closed-ended questionnaire electronically designed on Google forms. The target population was dental practitioners throughout the KSA, working in both private as well as public hospitals. A total number of 1000 dentists were targeted, with an online survey sent using social media and emails. The survey included questions related to dentists' clinical experience and place of work, knowledge, and perception of the oral healthcare system in Saudi Arabia, factors associated with them choosing to work in private or public practice, etc.

### *Informed Consent and Approval*

This study was registered to the research center of REU, with acquiring of Institutional review board's approval for the collection of data in clinics. Participants were asked to fill up the survey, which was considered as the consent to participate in this study.

### *Statistical Analysis*

The collected data was subjected to statistical analysis using the Statistical Package for Social Sciences (SPSS) version 19. Descriptive as well as inferential statistics was done and displayed using tables and graphs. Comparisons were made between the group of private and public working dentists with the value of significance kept under 0.05. Chi-square test was conducted to compare the findings on the basis of study groups.

## RESULTS

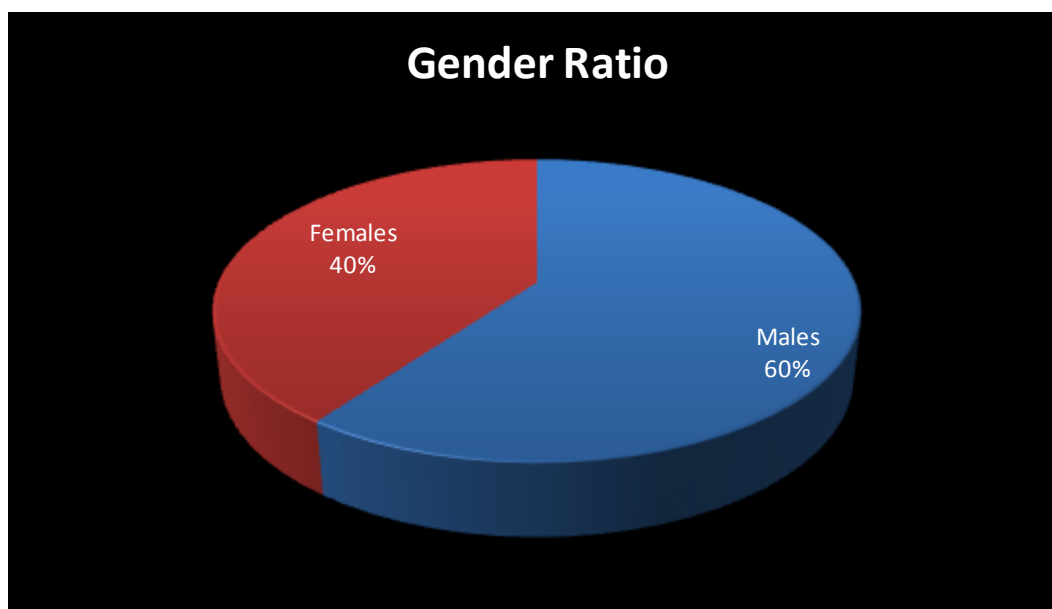
This study involved N=508 Saudi dental professionals, which included 60% males and 70% females (figure 1). As far as the designations were concerned, 43% were general practitioners, 48% were specialists 9% were working as consultants (figure 2). Working sectors of participants were also inquired, which showed that 49% worked in the public sector and 51% in private (figure 3). Finally, the study participants were also grouped according to their work experience, which revealed that 39% had work experience of less than 3 years, 43% had 3-6 years and 17% had 6 or more years of experience.

Table 1 describes the percentages of each response in every survey question. 46% of the participants believed that the dentist/patient ratio in Saudi Arabia is satisfactory. 53% answered correctly when inquired about the dentist/patient ratio in Saudi Arabia, which is 1/1700. 45% of the subjects thought that the performance of public dental hospitals is satisfactory, 29% of them said the same thing about private hospitals. On the other hand, 39% of the dental professionals labeled the performance of dental university hospitals as satisfactory.

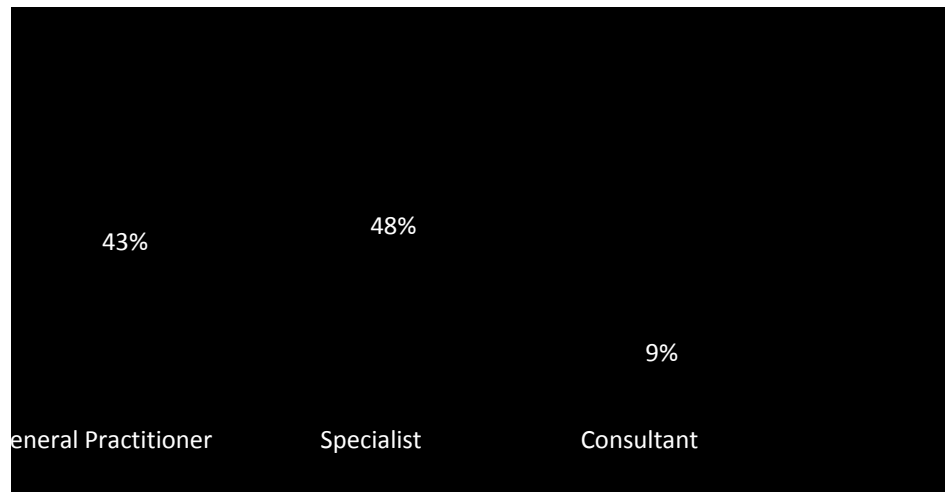
When inquired about the target population of dental university hospitals, only 38% of them believed that this service is for both Saudis and Non-Saudis, whereas 50% believed MOH hospitals to be targeted for Saudis only. There was a mixed response when inquired about the preferred sector for dentists to work, but the public sector received the most preference (35%). 32% of the dentists opted for work environment over financial incentives as a motivational factor to choose their workplace. The major problem with MOH hospitals was linked to their failure to provide appointments in a short time. Regarding the private hospitals, high cost was found to be a barrier with standards also not meeting the public hospitals.

Secondly, in table 2 we compared these responses between the dentists working in private and public sectors, which revealed a few significant differences in opinions and knowledge. 54% of private dentists believed that the dentist/patient ratio in Saudi Arabia is satisfactory (p-value: 0.001). They also showed better knowledge when inquired about the current dentist/patient ratio (p-value: 0.005). It was understood that private dentists believed the performance of private hospitals to be better than public hospitals (p-value: 0.002). 36% of dentists working in the public sector preferred working environment over financial incentives, whereas this was the opposite case with private dentists (p-value: 0.000).

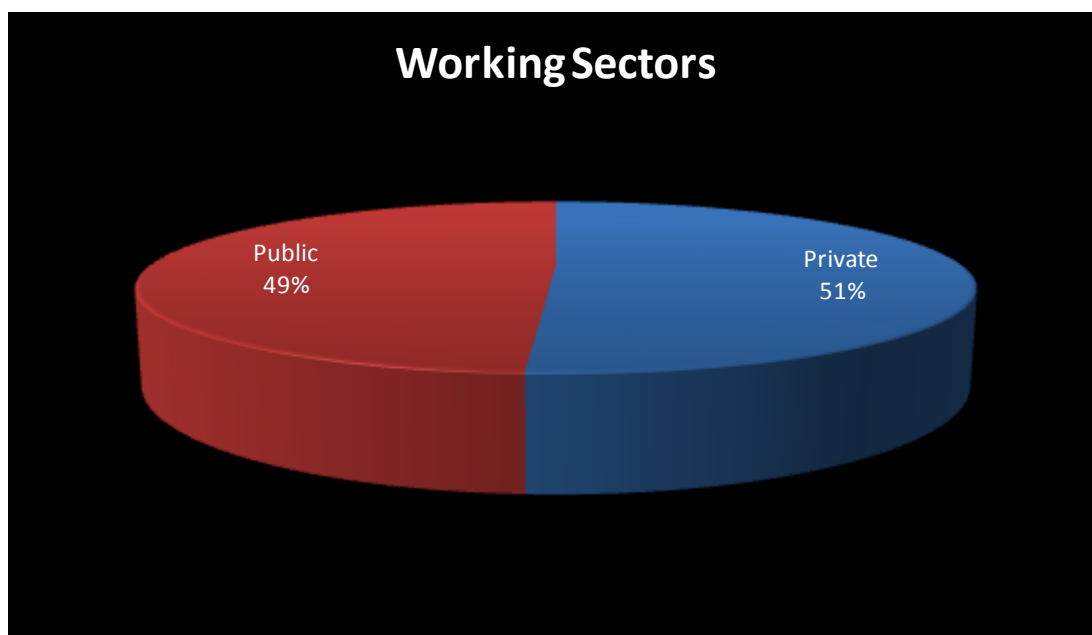
Furthermore, statistically significant comparisons were observed when inquired about different sectors lacking various services including cost, quality, duration of treatment and raising the efficiency of the dentist.



**Figure 1:** Gender ratio of the study participants



**Figure 2:** Designation distribution of study participants



**Figure 3:** Working sectors of the study participants



**Figure 4:** Work experience of the study participants

**Table 1:** Descriptive presentation of survey responses from all participants

Survey Items	Responses
Dentist/patient ratio is satisfactory in KSA?	Definitely Yes: 46% May be: 41% Definitely No: 13%
Ideal dentist/patient ratio for KSA?	1/170: 31% 1/1700: 53% 1/17000: 16%
Your perception of public dental hospitals performance in KSA?	Satisfactory: 45% Moderate: 40% Unsatisfactory: 15%
Your perception of private dental hospitals performance in KSA?	Satisfactory: 29% Moderate: 47% Unsatisfactory: 24%
Your perception of dental university hospitals performance in KSA?	Satisfactory: 39% Moderate: 46% Unsatisfactory: 15%
Who is the major target population of dental university hospitals?	Saudi: 39% Not Saudi: 27% Both: 38%
Who is the major target population of MOH dental hospitals?	Saudi: 50% Not Saudi: 27% Both: 23%
Who is the major target population of private dental hospitals?	Saudi: 28% Not Saudi: 27% Both: 45%
Dental university hospitals are working under which ministry?	Ministry of health: 46% Ministry of education: 20% Both: 33%
Dental university hospitals provide free oral health for their patients, these belong to:	Private sector: 14% Public sector: 34% Universities sector: 38% Don't know: 15%
Organizations such as National Guard, Armed forces, Interior security forces provide free oral health for their patients, these belong to:	Private sector: 22% Public sector: 59% Don't know: 19%
As a dental practitioner, which sector did you prefer to work in?	Private sector: 20% Public sector: 35% Universities sector: 23% National Guard etc.: 22%
As a dental practitioner, which is the main factor to choose the workplace?	Financial Incentive: 29% Environment and nature of work: 32% Medical equipment, supplies and availability of technology: 27% Working hours: 12%
The main factor for a patient for treatment in any of the health sectors?	Quality of treatment: 29% Cost: 43% Free treatment: 16% Duration of treatment: 12%
Which of the services are lacked by hospitals of Ministry of Health?	Provide appointments: 41% Increase the quality of treatment: 32% Reduce the duration of treatment: 16% Raising the efficiency of the treating physician: 11%
Which of the services are lacked by private hospitals?	The cost of treatment: 34% Increase the quality of treatment: 37% Reduce the duration of treatment: 17% Raising the efficiency of the treating physician: 12%
Which of the services are lacked by Dental University hospitals?	Provide appointments: 32% Increase the quality of treatment: 30% Reduce the duration of treatment: 24% Raising the efficiency of the treating physician: 15%
Which of the services are lacked by National Guard etc..?	Provide appointments: 41% Increase the quality of treatment: 29% Reduce the duration of treatment: 20% Raising the efficiency of the treating physician: 10%
Poor health services provided by private clinics and hospitals are due to:	The incompetence of the treating physician: 31% Failure to provide required medical equipment: 25% Non-application of clinics and private hospitals to the standards of the Ministry of Health: 35% Lack of adequate funding for the development of the establishment: 9%
The optimal choice for the development of health services provided by private hospitals and clinics:	Increase funding: 25% Increase health control and comply with the standards of the

	Ministry of Health raising the efficiency of the treating physician: 48% Improve the health facility and provide the required equipment: 27%
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**Table 2:** Comparison of survey responses on the basis of participants' working sector

Survey Items	Private sector	Public sector	p-value
Dentist/patient ratio is satisfactory in KSA?	Definitely Yes: 54% May be: 37% Definitely No: 9%	Definitely Yes: 39% May be: 44% Definitely No: 17%	0.001
Ideal dentist/patient ratio for KSA?	1/170: 37% 1/1700: 53% 1/17000: 10%	1/170: 28% 1/1700: 51% 1/17000: 21%	0.005
Your perception of public dental hospitals performance in KSA?	Satisfactory: 47% Moderate: 40% Unsatisfactory: 13%	Satisfactory: 42% Moderate: 41% Unsatisfactory: 17%	0.441
Your perception of private dental hospitals performance in KSA?	Satisfactory: 32% Moderate: 52% Unsatisfactory: 16%	Satisfactory: 27% Moderate: 42% Unsatisfactory: 31%	0.002
Your perception of dental university hospitals performance in KSA?	Satisfactory: 42% Moderate: 47% Unsatisfactory: 11%	Satisfactory: 37% Moderate: 46% Unsatisfactory: 17%	0.098
Who is the major target population of dental university hospitals?	Saudi: 42% Not Saudi: 22% Both: 36%	Saudi: 35% Not Saudi: 31% Both: 34%	0.082
Who is the major target population of MOH dental hospitals?	Saudi: 52% Not Saudi: 23% Both: 24%	Saudi: 48% Not Saudi: 30% Both: 22%	0.274
Who is the major target population of private dental hospitals?	Saudi: 34% Not Saudi: 20% Both: 46%	Saudi: 23% Not Saudi: 33% Both: 44%	0.002
Dental university hospitals are working under which ministry?	Ministry of health: 46% Ministry of education: 22% Both: 32%	Ministry of health: 48% Ministry of education: 18% Both: 34%	0.631
Dental university hospitals provide free oral health for their patients, these belong to:	Private sector: 17% Public sector: 30% Universities sector: 39% Don't know: 14%	Private sector: 12% Public sector: 36% Universities sector: 37% Don't know: 15%	0.386
Organizations such as National Guard, Armed forces, Interior security forces provide free oral health for their patients, these belong to:	Private sector: 23% Public sector: 57% Don't know: 10%	Private sector: 19% Public sector: 62% Don't know: 19%	0.570
As a dental practitioner, which sector did you prefer to work in?	Private sector: 24% Public sector: 32% Universities sector: 25% National Guard etc.: 19%	Private sector: 17% Public sector: 36% Universities sector: 22% National Guard etc.: 25%	0.105
As a dental practitioner, which is the main factor to choose the workplace?	Financial Incentive: 36% Environment and nature of work: 26% Medical equipment, supplies and availability of technology: 31% Working hours: 6%	Financial Incentive: 22% Environment and nature of work: 36% Medical equipment, supplies and availability of technology: 24% Working hours: 17%	0.000
The main factor for a patient for treatment in any of the health sectors?	Quality of treatment: 30% Cost: 43% Free treatment: 19% Duration of treatment: 8%	Quality of treatment: 26% Cost: 43% Free treatment: 14% Duration of treatment: 17%	0.026
Which of the services are lacked by hospitals of Ministry of Health?	Provide appointments: 44% Increase the quality of treatment: 30% Reduce the duration of treatment: 19% Raising the efficiency of the treating physician: 7%	Provide appointments: 38% Increase the quality of treatment: 35% Reduce the duration of treatment: 14% Raising the efficiency of the treating physician: 13%	0.065

Which of the services are lacked by private hospitals?	The cost of treatment: 39% Increase the quality of treatment: 35% Reduce the duration of treatment: 21% Raising the efficiency of the treating physician: 5%	The cost of treatment: 29% Increase the quality of treatment: 39% Reduce the duration of treatment: 13% Raising the efficiency of the treating physician: 19%	0.000
Which of the services are lacked by Dental University hospitals?	Provide appointments: 32% Increase the quality of treatment: 22% Reduce the duration of treatment: 33% Raising the efficiency of the treating physician: 13%	Provide appointments: 31% Increase the quality of treatment: 36% Reduce the duration of treatment: 18% Raising the efficiency of the treating physician: 16%	0.000
Which of the services are lacked by National Guard etc..?	Provide appointments: 40% Increase the quality of treatment: 29% Reduce the duration of treatment: 24% Raising the efficiency of the treating physician: 7%	Provide appointments: 42% Increase the quality of treatment: 28% Reduce the duration of treatment: 18% Raising the efficiency of the treating physician: 11%	0.262
Poor health services provided by private clinics and hospitals are due to:	The incompetence of the treating physician: 29% Failure to provide required medical equipment: 24% Non-application of clinics and private hospitals to the standards of the Ministry of Health: 39% Lack of adequate funding for the development of the establishment: 8%	The incompetence of the treating physician: 32% Failure to provide required medical equipment: 27% Non-application of clinics and private hospitals to the standards of the Ministry of Health: 32% Lack of adequate funding for the development of the establishment: 10%	0.309
The optimal choice for the development of health services provided by private hospitals and clinics:	Increase funding: 28% Increase health control and comply with the standards of the Ministry of Health raising the efficiency of the treating physician: 47% Improve the health facility and provide the required equipment: 25%	Increase funding: 21% Increase health control and comply with the standards of the Ministry of Health raising the efficiency of the treating physician: 50% Improve the health facility and provide the required equipment: 29%	0.144

## DISCUSSION

This study aimed to determine the level of knowledge and perception of dental practitioners working in Saudi Arabia regarding the dental healthcare system. Previously, there have not been investigations conducted to achieve the above-mentioned objectives. Therefore, we intended to explore what dental practitioners think of the Saudi oral healthcare system and what their personal preferences are.

It is evident that there are differences between private and public dental services in majority of the countries. One of the major differences is the cost, which is a highly contributing factor in determining the patients' choice. Our study findings suggest that the dentists believed cost to be the major factor when patients want to choose private dental care. Similar findings were observed when a study conducted among the Australian population revealed that lower socioeconomic patients tend to receive poor dental care as public hospitals' major preference is to extract the tooth (Brennan, Luzzi & Thomson, 2008).

Another important aspect of the dental healthcare system was university hospitals, which was discussed in this study. It was noted that dental professionals believed the quality provided by these hospitals is not up to the high standards set by other private and public hospitals. One of the measures of quality is infection control, which is considered to be the most

important aspect of dental treatment regardless of the type of hospital. A Nigerian dental university hospital was investigated by Taiwo & Aderinokun (2002) for its ability to provide high-quality infection control protocol to the patients. It was noticed from the findings that the quality was on the lower side, which supports the argument of the low quality of treatment suggested by our study participants.

Another study conducted by Karydis et al (2001) explored the gaps in the quality of treatment provided by a dental university hospital in Greece. They observed a significant gap in the patients' expectations versus what they actually received in reality. These findings were similar to the ones we observed in our study in the form of dentists' response to the related query.

As far as dentists' own preference of workplace is concerned, we noticed from our findings that a clear majority of participants wanted to work in public hospitals due to the nature of work and a better environment. However, a study conducted by Abdullah & Saeed (2013) in Pakistan reported that the dental professionals working in public hospitals complained of greater workload as compared to the private practitioners. This may be a result of the fact that every country has a different healthcare system.

## CONCLUSIONS

- Dental professionals prefer to work in the public sector more than the private.
- Knowledge of dental professionals about the dental healthcare system in KSA is average.
- Financial incentive was the biggest motivational factor for private practitioners, whereas working environment was the preference for public sector workers.
- Private hospitals need to focus on improving the working environment for the dentists.

- Dental university hospitals should urge to reduce patients' dissatisfaction by imposing high-quality treatment.

## CONFLICT OF INTEREST

There is no conflict of interest among the authors regarding the results and publication of this research.

## REFERENCES

1. Petersen, P.E. and Yamamoto, T., 2005. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. *Community dentistry and oral epidemiology*, 33(2), pp.81-92.
2. Pucca Jr, G.A., Gabriel, M., de Araujo, M.E. and De Almeida, F.C.S., 2015. Ten years of a National Oral Health Policy in Brazil: innovation, boldness, and numerous challenges. *Journal of dental research*, 94(10), pp.1333-1337.
3. Etiaba, E., Uguru, N., Ebenso, B., Russo, G., Ezumah, N., Uzochukwu, B. and Onwujekwe, O., 2015. Development of oral health policy in Nigeria: an analysis of the role of context, actors and policy process. *BMC Oral Health*, 15(1), p.56.
4. Kothia, N.R., Bommireddy, V.S., Devaki, T., Vinnakota, N.R., Ravoori, S., Sanikomm, S. and Pachava, S., 2015. Assessment of the status of national oral health policy in India. *International journal of health policy and management*, 4(9), p.575.
5. Alshahrani, A.M. and Raheel, S.A., 2016. Health-care System and Accessibility of Dental Services in Kingdom of Saudi Arabia: An Update. *Journal of International Oral Health*, 8(8).
6. Altamimi, T., 2016. Healthy aging conceptualizations in Saudi Arabia: a systematic review. *International Journal of Medical Science and Public Health*, 5(4), pp.601-609.
7. Al Yousuf, M., Akerele, T.M. and Al Mazrou, Y.Y., 2002. Organization of the Saudi health system.
8. Jannadi, B., Alshammari, H., Khan, A. and Hussain, R., 2008. Current structure and future challenges for the healthcare system in Saudi Arabia. *Asia Pacific Journal of Health Management*, 3(1), p.43.
9. Walston, S., Al-Harbi, Y. and Al-Omar, B., 2008. The changing face of healthcare in Saudi Arabia. *Ann Saudi Med*, 28(4), pp.243-250.
10. Naidu, R., Newton, J.T. and Ayers, K., 2006. A comparison of career satisfaction amongst dental healthcare professionals across three health care systems: comparison of data from the United Kingdom, New Zealand and Trinidad & Tobago. *BMC health services research*, 6(1), p.32.
11. Khaliq, A.A., 2012. The Saudi health care system: a view from the minaret. *World health & population*, 13(3), pp.52-64.
12. Brennan, D.S., Luzzi, L. and Roberts-Thomson, K.F., 2008. Dental service patterns among private and public adult patients in Australia. *BMC Health Services Research*, 8(1), p.1.
13. Taiwo, J.O. and Aderinokun, G.A., 2002. Assessing cross infection prevention measures at the Dental Clinic, University College Hospital, Ibadan. *African journal of medicine and medical sciences*, 31(3), pp.213-217.
14. Karydis, A., Komboli-Kodovazeniti, M., Hatzigeorgiou, D. and Panis, V., 2001. Expectations and perceptions of Greek patients regarding the quality of dental health care. *International journal for quality in health care*, 13(5), pp.409-416.
15. Abdullah, S. and Saeed, T., 2013. Comparison of role stressors, job satisfaction and turnover intentions of dentists working in public and private sectors. *Pakistan Oral & Dental Journal*, 33(3).