



Journal Homepage: -www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/3132
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/3132>



RESEARCH ARTICLE

DENTAL PATIENTS PERCEPTIONS AND KNOWLEDGE ON TOOTH BLEACHING.

Mufareh AlAmri, Abdulkarim AlShamrani, Mohammed Al Ali, Abdulfatah Abu-Khashab, Abdul Qadir Abdul Wahid, Syed Hammad Ahsan.

Manuscript Info

Manuscript History

Received: 02 Decmber 2016
 Final Accepted: 04 January 2017
 Published: February 2017

Abstract

Aim: The main aim of the study is to assess the perceptions and knowledge on tooth bleaching among patients visiting various dental health care centers in Riyadh. KSA

Materials & Methods: A cross sectional survey based study was conducted at four dental health care centres in Riyadh. The survey was based on face to face interview which utilized a structured questionnaire. The data obtained was analysed utilizing frequency distribution and chi square test.

Results: No statistically significant relationship was found between knowledge / perception regarding teeth bleaching and age ($p= 0.250$), gender ($p=0.189$), ethnic group ($p= 0.966$), level of education ($p= - 0.843$) or marital status ($p= 0.552$). 80% of the subjects were dissatisfied with the appearance of their teeth, colour being the main reason. 70% of the dissatisfied patients stated that B1 – vita shade was the shade which they preferred. The main source of information regarding tooth bleaching was advertisements, while, the commonest method of tooth bleaching was bleaching toothpaste. 23% subjects didn't consider bleaching treatment safe.

Conclusion: Majority of the patients were aware about tooth bleaching as a treatment. Tooth color was the main reason for seeking bleaching treatment. Tooth color was the main reason for seeking bleaching treatment and shade B1 was the whitest and the most chosen color.

Copy Right, IJAR, 2017,. All rights reserved.

Introduction:-

Tooth discoloration is of two main types, namely, intrinsic tooth discoloration and extrinsic tooth discoloration. Intrinsic tooth discoloration usually occurs due to intake of certain teratogenic drugs such as tetracycline or exposure to high levels of elements such as fluoride and certain heavy metals during the phase of tooth formation (Hannig and Joiner, 2006; Alshara et al., 2014). While, extrinsic tooth discoloration occurs after the tooth formation and is usually caused by certain dietary products such as tea, coffee and social habits such as tobacco (Hannig and Joiner, 2006; Alshara et al., 2014).

Since tooth discoloration is directly associated with the esthetics of patients, thus, numerous studies have tried to evaluate the level of satisfaction of individuals in relevance to dental esthetics (Azodo and Ogbomo, 2014; Mehl et al., 2014, 2015). A study comprising of 235 Malaysian individuals showed that the 52.8% were dissatisfied with their dental appearance, while, 56.2% were not happy with their tooth color (Tin-Oo et al., 2011). Another study

conducted in Poland showed that 61.0% of the subjects were dissatisfied with the appearance of their teeth (Wisniewski et al., 2004). It is also important to observe the relationship of various factors with the individual's level of satisfaction in regards to dental esthetics. Thus, a New Zealand based study conducted on general dental practitioners (GDPs) showed that according to GDPs females were more demanding regarding tooth whitening as compared to males (Theobald et al., 2006). Similarly, a Hong Kong based study showed that age was an important predictor for increased demand of tooth whitening (Chan et al., 2013). Two other studies reported that general satisfaction with tooth appearance was influenced mainly by tooth color, followed by malalignment and caries. Therefore it was suggested that when planning treatment, dentists should consider, patient's esthetic objectives in addition to function, structure and biology. This can lead to a higher level of patient satisfaction (Gili R. Samorodnitzky-Naveh, 2007; Tin Oo et al., 2011).

Today the cosmetic dentistry has become an important part of restorative dentistry as the patients perception of teeth appearance is associated with their general health and well being (BA Matiset al, 2007). Recent advancement in restorative and esthetic dentistry has led to the emergence of various tooth bleaching agents (Dahl and Pallesen, 2003). The level of trustworthiness of these products has increased globally because of their application under professional care and supervision (Nora Nomay, 2016). In addition to that, these bleaching agents are considered to be the least invasive method to treat the discolored teeth (R Zekonis et al., 2003). This upscale in the demand of tooth bleaching is evident in an American study which showed a 300% increase in demand of bleaching agents amongst adults (Morley, 1999). The New Zealand based study on GDPs also showed that 77.8% of the patients desired dental bleaching (Theobald et al., 2006). Another study showed that the popularity of teeth whitening has increase many-fold with the availability of over the counter bleaching agents (Dimitrios Tortopidis et al., 2007).

Limited studies of such nature have been conducted in Saudi Arabia. A study conducted in 2000 showed that 25.6% of the dental patients used saline and 10% used lemon as home based dental whitening agents (Almas et al., 1999). Another study was conducted recently in Saudi Arabia which assessed the attitude and awareness of tooth bleaching among general population attending shopping malls in Riyadh city, Saudi Arabia (Nora Nomay, 2016). Patient's perceptions and expectations from tooth bleaching must be assessed before the patients undergo the treatment. The expected outcome must be made clear to the patient as discrepancies between the patient's and dentist's perceptions of esthetic treatment needs have been reported (R Ahmad et al. 2005).

This study aims to assess the dental patient's perceptions and knowledge on tooth bleaching so that the discrepancies between the patient's and the dental surgeon's perception regarding tooth whitening are identified and a comprehensively better dental care is delivered to the dental patients.

Materials and Methods:-

It was a cross-sectional survey based study. The samples were selected based on a two stage convenience sampling technique. The first stage comprised of selection of study sites. The study sites were Muneseyah campus of Riyadh Colleges of Dentistry and Pharmacy, Ministry Health Hospital (Eastern Branch), Sigal Clinics and Suleman Alhabib (Olaya branch) which are located in Riyadh (capital of Kingdom of Saudi Arabia). The second stage comprised of selection of subjects. The subjects were dental patients arriving in the above mentioned dental clinics. The sample size was 300. The subjects were interviewed face to face in the waiting area of the respective clinics. An informed consent was taken before interview. The interview was structured, based on a questionnaire which was available with the interviewer. The questionnaire was based on a study published by R Ahmad, E.H.Z.M. Ariffin, I. Vengrasalam, N.H.A. Kasim et al 2005 (R Ahmad et al. 2005).

The questionnaire had been modified and translated to meet the requirements of our study. The questionnaire comprises of three parts.

Part A is based on socio-demographic questions

Part B is based on patient's perception of their oral health

Part C is based on their knowledge of dental bleaching agents.

The questions of the questionnaire are as follows:-

A :

Age : Gender : M/F Nationality : Marital status : Married / Single

Occupation : , Level of education : No education / Primary/intermediate/High school / University

B:

1-What do you think about your oral health?

Excellent. Good. Not good

2-Are you happy about your teeth appearance ?

Yes .No: why ?(Color, Appearance, Size, Decay)

3-Are you satisfied about your teeth color ?

Yes. No: so, which color you prefer? Shade?

4-Are you a smoker ?

No. Yes : which type : *Cigarette *Shisha *Tobacco chewable *Cigar *Other
how many times per day :

5-Do you drink tea or coffee ?

No. Yes. How many cups per day :

C:

1. Have you heard about tooth bleaching? Yes. No.

2. How did you know about tooth bleaching?

dvrtisments articles dentist Family/friends

3. Have you ever tried using bleaching productsor undergone tooth bleaching treatment indental clinics?

No. Yes. Where? In-clinic. In-home

4. If yes in-home , which of the listed products you have used .

- a. Toothpaste :Synsodyne-true white , Colgate-optic white , Blanx-whiteShock other :
- b. 3D Crest white strips other :
- c. iWHITE Gel with trays other :
- d. Miradent Oxygen Whitening Pen other :
- e. Others.....

5. What are the reasons for using the bleachingproducts / treatment?

Coffee/tea Cigarette Stain Trail Improve esthetic

6. How long did you use the products / treatment before you noticed the results? Hours, Days, Weeks, Months

7. How often do you use the bleachingproducts / how often do you visit your dentistfor the bleaching treatment?

8. How would you rate your satisfactionregarding the results of using the bleachingproducts/ treatment?

Highly satisfied satisfied not satisfied Don't know

9. Do you think the bleaching products/treatment are safe?

Yes. No. why? Not sure.

10. Do you intend to use any bleaching products/ treatment in the future?

Yes. No.

11. What do you think about the prices of these teeth bleaching treatment options?

Expensive.Reasonable.cheap

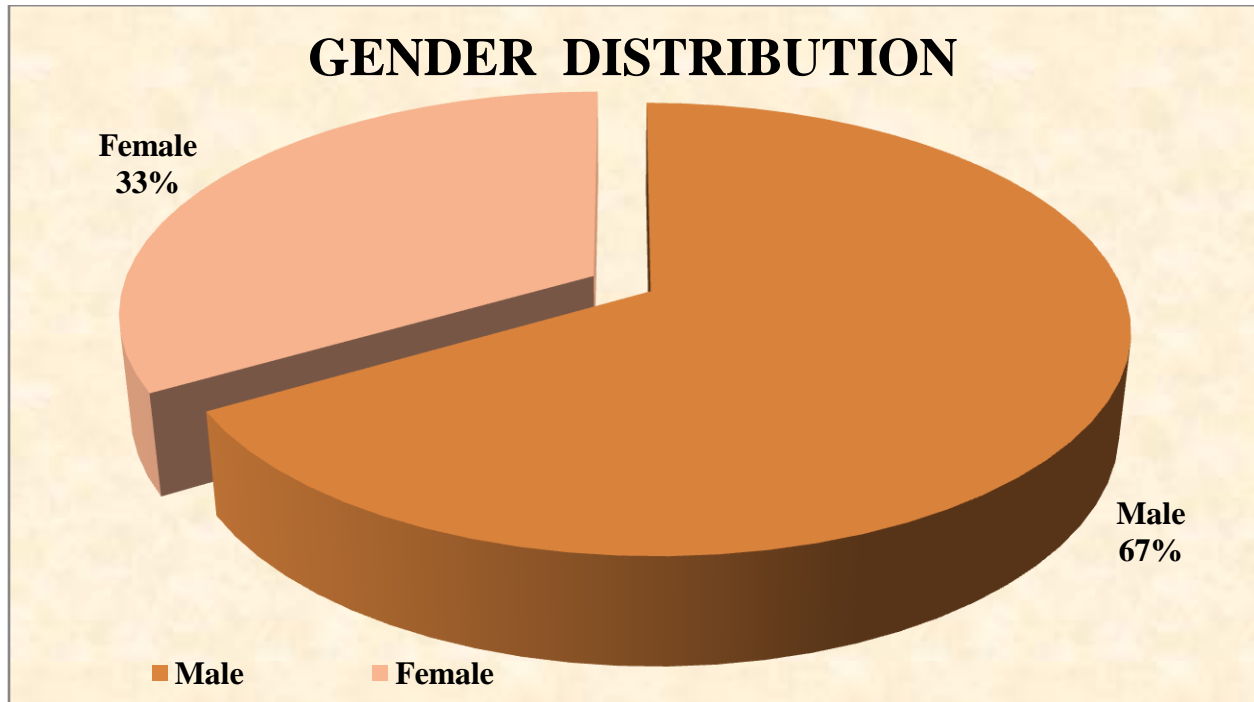
12. Would you recommend to your friends and family to use these bleaching products /treatment?

Interviewers were level 12 dental students. The average time of the interview was 10 minutes. The interview comprised of showing the patient Vita Shade Guide to aid them in selecting the desired shade for themselves. Statistical analysis was conducted by SPSS Version 20. Pearson chi square and Fisher's exact test were performed for statistics.

Results:-

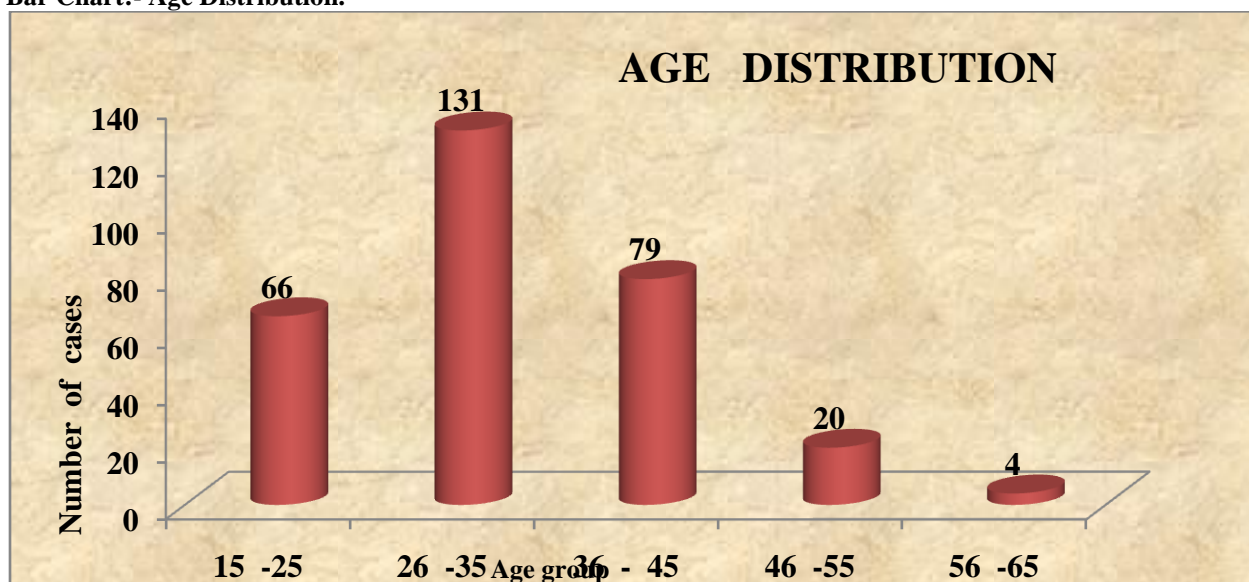
Results 1

Pie Chart:- Gender Distribution.



Results 2:-

Bar Chart:- Age Distribution.



Results 3:-

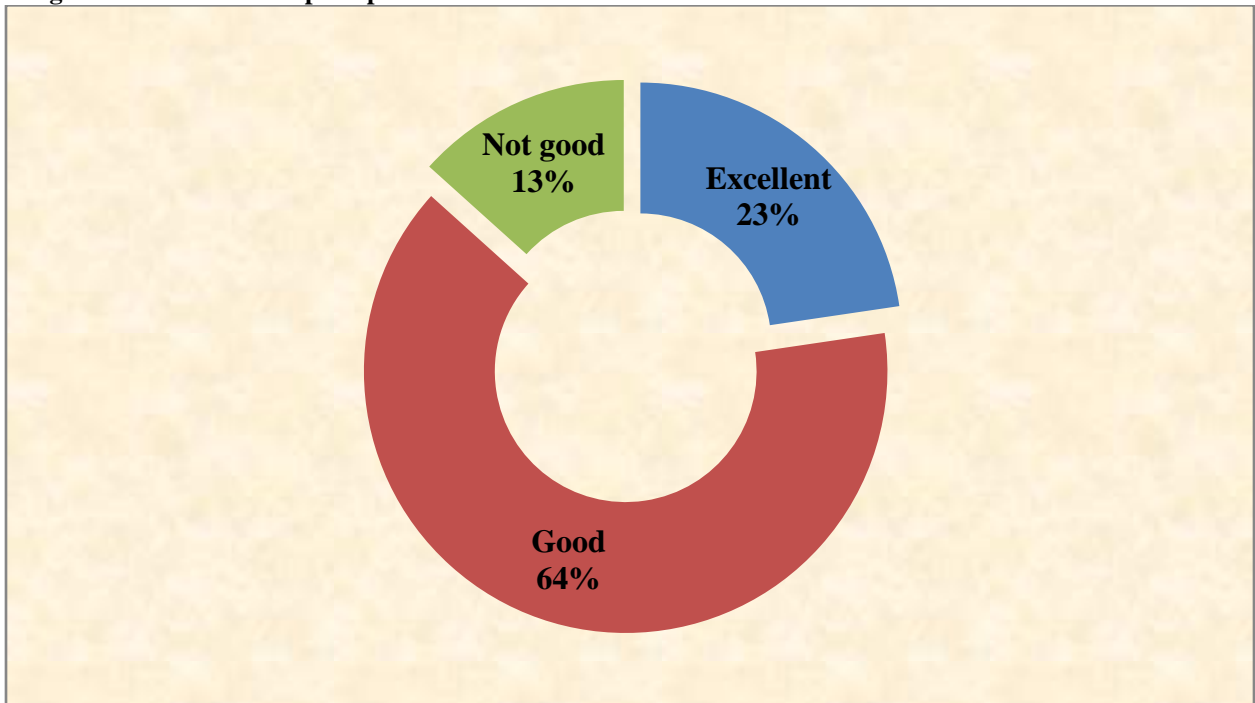
Education.

EDUCATION

	Frequency	Percent
highschool	80	26.7
intermediate	17	5.7
primary	3	1.0
university	200	66.7
Total	300	100.0

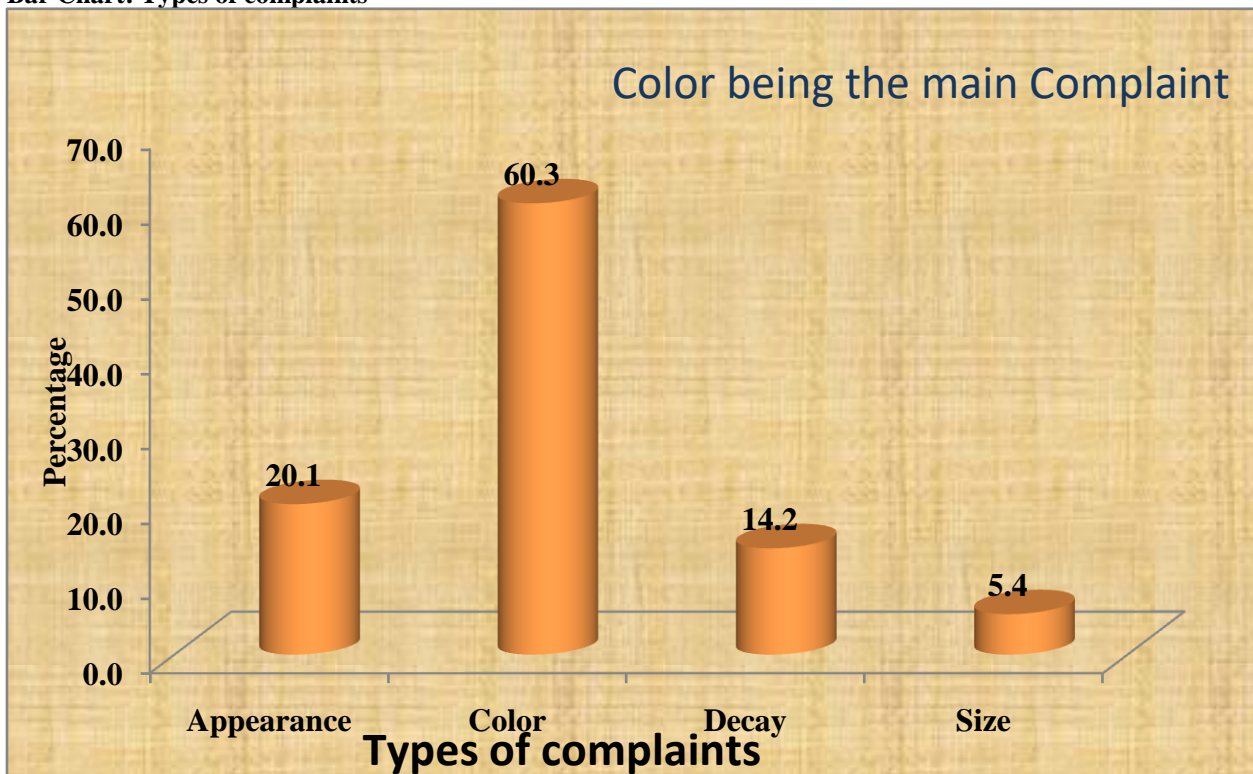
Results 4:-

Doughnut Chart: Patients perception about their Oral Health.



Results 5:-

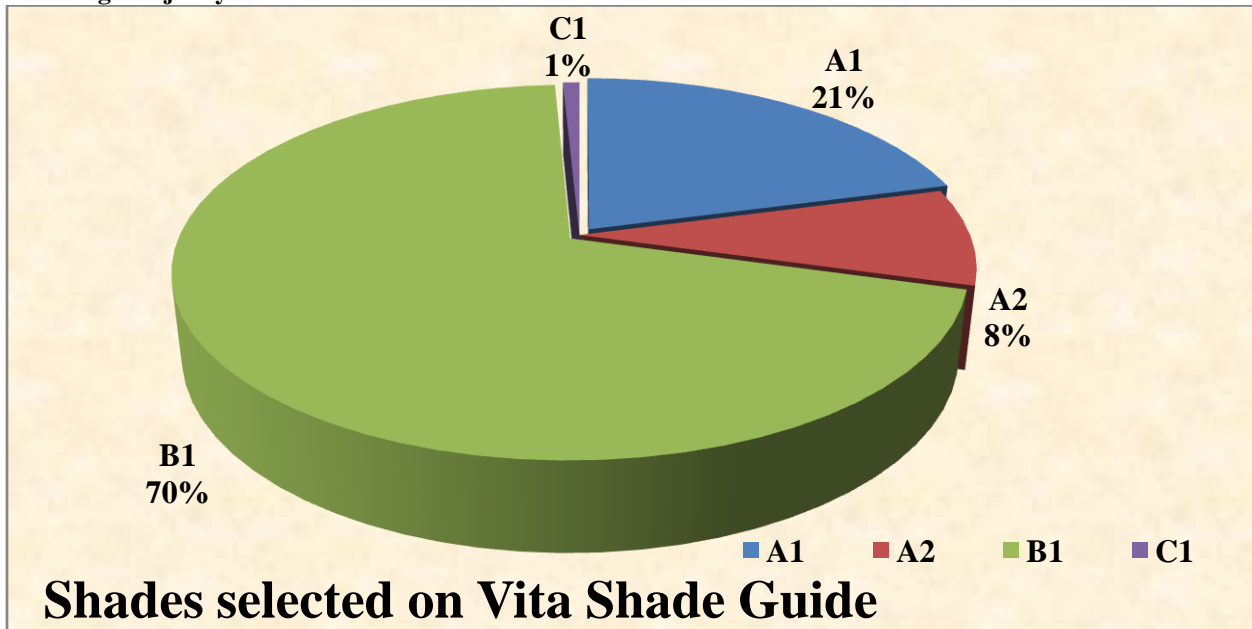
Bar Chart: Types of complaints



Results 6:-

Pie Chart: Patient's satisfaction with the color of their teeth

- Only 17% were satisfied
- Large majority selected B1 as their desired shade



The Vita Shade Guide that was shown to patients for shade selection.



Results 7:-

In our study, there was no statistically significant relationship between the patient's knowledge / perception regarding teeth bleaching and age ($p= 0.250$), gender ($p=0.189$), ethnic group ($p= 0.966$), level of education ($p= 0.843$) or marital status ($p= 0.552$) of the subjects.

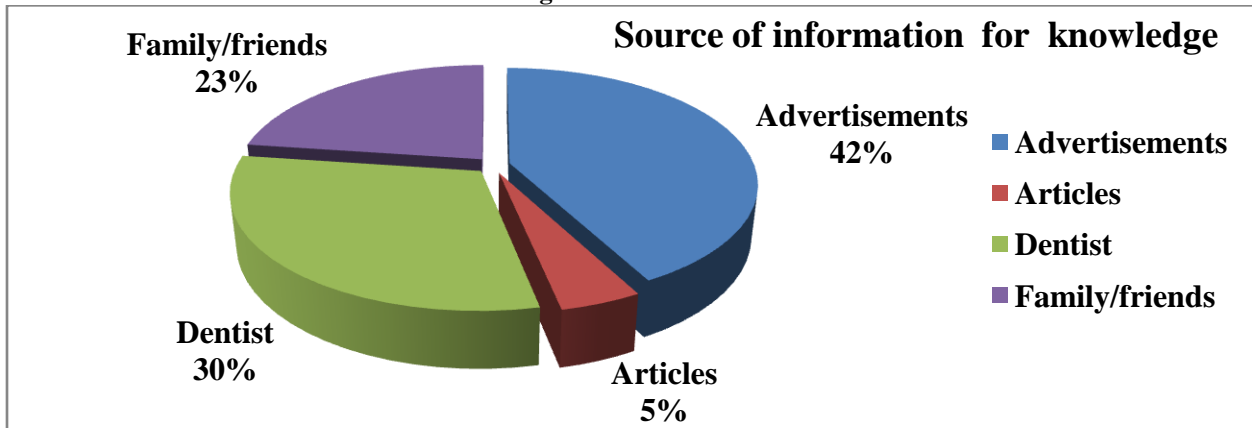
Results 8:-

Patients Knowledge about Bleaching treatments availability.

98% of the patients knew that bleaching is a treatment option to improve dental aesthetics

Results 9:-

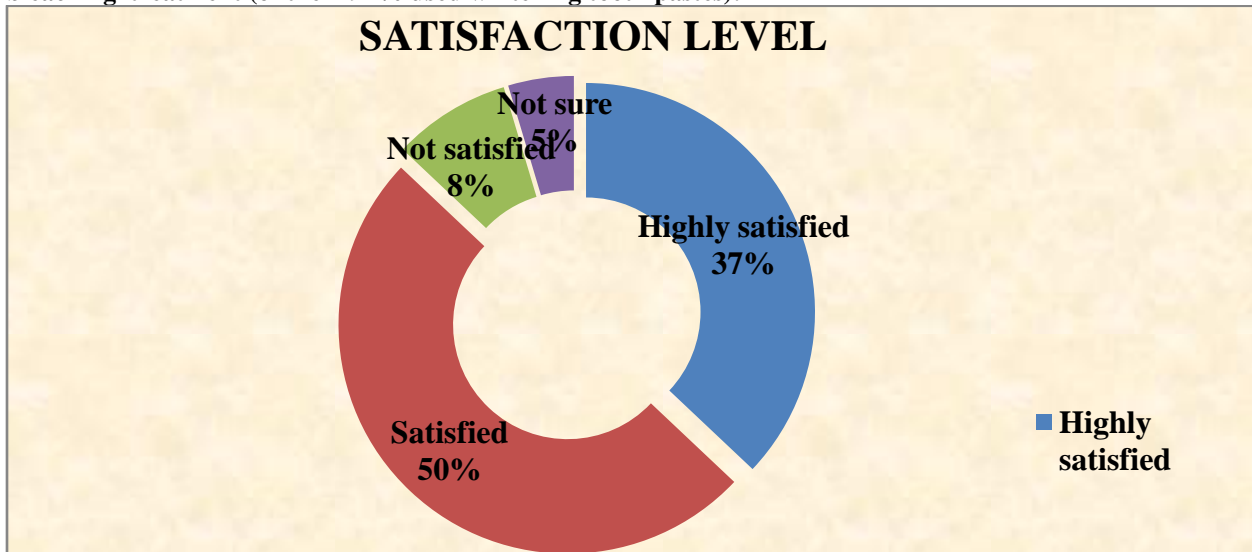
Pie Chart: Source of information for knowledge.



Results 10:-

Doughnut Chart: Satisfaction Level.

Those who had the knowledge about Bleaching treatments Only 50% from them had tried some type of bleaching treatment (of them 97% used whitening tooth pastes).



Results 11:-**Reasons for bleaching**

85% for improving aesthetics followed by Tea/Coffee and Cigarette stains

Reasons for bleaching :-

	Frequency	Percent
Cigarette	4	3.7
Coffee/tea	9	8.3
Improve Esthetics	91	84.3
Trail	4	3.7
Total	108	100.0

Results 12:-**Patients perceptions about safety of bleaching treatments**

- 49% considered it a safe treatment
- 23% did not consider it a safe treatment
- 28% were not sure about the safety of treatment

Safety of dental bleaching:-

	Frequency	Percent
Yes	53	49.1
No	25	23.1
Not Sure	30	27.8
Total	108	100.0

Discussion:-

In our study, there was no statistically significant relationship between the patient's knowledge / perception regarding teeth bleaching and age ($p= 0.250$), gender ($p=0.189$), ethnic group ($p= 0.966$), level of education ($p=0.843$) or marital status ($p=0.552$) of the subjects.

This is in line with similar studies conducted in Malaysia, Sweden and China , which showed that the patient's knowledge and perception regarding teeth bleaching was not associated with age, gender, ethnic group or marital status of patient except for, the level of education of the patient (R Ahmad et al. 2005). However one Saudi study reported that female gender's perception about teeth bleaching is significantly higher than the male gender. (Nora Nomay, 2016). This reported difference may be because of the reason that her study was conducted with general population in shopping malls while our study was conducted in dental patients visiting different dental health care centers in Riyadh.

In our study, 80% of the patients were dissatisfied with the appearance of their teeth. This percentage is higher than other similar studies conducted in Saudi Arabia 67.4%, Poland 61% and two Malaysian studies 53.5% and 56.2%. (Nora Nomay, 2016; Tin Oo et al., 2011; R Ahmad et al. 2005; Wisniewski et al., 2004).

In our study, tooth color was the primary reason behind the dissatisfaction of the appearance of the teeth. This finding is again similar to some of the other studied conducted in Saudi Arabia, Malaysia and New Zealand. (Nora Nomay, 2016; Tin-Oo et al. 2011; Theobald et al. 2006). Amongst those who were dissatisfied, 70% stated that B1 was the shade which they preferred for their teeth (Based on Vita Shade Guide). B1 is the whitest shade in the Vita guide which shows that the patients perception of aesthetics is very different from that of the dental professionals, as the later considers many aspects like patient's skin tone/color, colors and shades of patient's other teeth and position of teeth in the oral cavity etc. This question was not asked in any of other similar studies published. 98% of the patients knew that bleaching is a treatment option to improve dental aesthetics. The result is comparable to other studies. Although it's a surprise that even as majority of the patients were not satisfied with the color of their teeth only 50% of them had tried some type of bleaching treatment. Amongst those who knew about the availability of bleaching agents, 42% comprised of those who got the information from advertisement, while, 30% got the information from dentist.

Similarly, another study showed that majority of subjects got knowledge of bleaching agents from advertisement (R Ahmad et al. 2005). It is therefore necessary for the dental professionals to educate their patients more effectively about the availability and benefits of various in office bleaching treatments. In our study, main reason for seeking dental bleaching was to improve the aesthetics.

Surprisingly, stains from tea/coffee and tobacco were only miniscule reasons, suggesting that, most of the patients do not perceive that bleaching can treat such stains. This information also must be delivered to the patients by the dental professionals. In our study, almost all the patients who were using bleaching agents had only tried the bleaching tooth pastes, most patients were not motivate enough to try other products like gels, pens and strips etc. While, in another study, majority knew about bleaching gel (R Ahmad et al. 2005). Therefore, further research needs to be done to ascertain why the patients do not choose other products.

In our study, those who used the bleaching toothpastes had high satisfaction levels (87%) which suggests that most of the commercial products available in the market are very effective. In contrast another study showed that only 13.3 % of the subjects were highly satisfied with the results obtained from bleaching agents (R Ahmad et al. 2005). The difference in the satisfaction level in between the two studies, might be due to the variability in products used by subjects. Further research can be conducted to compare the effectiveness of different products.

In our study, 17.7% of the respondents thought that bleaching products are safe to use, while, 1.6% of respondents in another study believed that bleaching products are safe to use (R Ahmad et al. 2005). In our study, 17% of the respondents stated that bleaching agents are expensive. 23.7% of the respondents stated that they would recommend bleaching treatment to others.

Conclusion:-

- 80 % of the patients were not happy with the appearance of their teeth, the main complaint being the color.
- When given choice to select the desired shade large majority picked the shade B1 (The whitest shade!)
- Knowledge of bleaching among dental patients in Riyadh was not related to age, gender ethnic group, level of education or marital status .
- 98% of the patients knew that bleaching is a treatment option to improve dental aesthetics, and those who knew of them only 50% had tried some form of treatment.
- Bleaching toothpastes were the preferred method (97%) and it also showed very high satisfaction levels (only 8% were not satisfied)
- Patients do not prefer In-office bleaching treatments and/or other over the counter bleaching treatments.
- Dentists must consider educating their patients more comprehensively regarding the availability of in-house bleaching treatments.

References:-

1. Almas K, Albaker A, Felembam N (2000). Knowledge of dental health and diseases among dental patients, a multicentre study in Saudi Arabia. *Indian J. Dent. Res.* 11(4):145-155.
2. Alshara S, Lippert F, Eckert GJ, Hara AT (2014). Effectiveness and mode of action of whitening dentifrices on enamel extrinsic stains. *Clin. Oral Investig.* 18(2):563-569.
3. Azodo CC, Ogbomo AC (2014). Self-Evaluated Dental Appearance Satisfaction among Young Adults. *Ann. Med. Health Sci. Res.* 4(4):603-607
4. BA Matis, MA Cochran, M Franco W Al-Ammar, GJ Eckert, M Stropes (2007) Eight In-office Tooth Whitening Systems Evaluated In Vivo: A Pilot Study. *Operative Dentistry*, 32-4, 322-327.
5. Chan LC, Ho DYH, Ko MSK, Liu YMY, Mok TYO, OSou SKH, Wong D, Wong COT, Yung KKH (2013). The pursuit of bright smile : tooth whitening among Hong Kong young adults. The University of Hong Kong (Pokfulam, Hong Kong). Available at: <http://hub.hku.hk/bitstream/10722/192773/1/ft.pdf>
6. Dahl JE, Pallesen U (2003). Tooth bleaching--a critical review of the biological aspects. *Crit. Rev. Oral Biol. Med.* 14(4):292-304.
7. DimitriosTortopidis, AndreasHatzikyriakos, MariaKokoti, GeorgeMenexes, NikolaosTsiggos. Evaluation of the Relationship between Subjects' Perception and Professional Assessment of Esthetic Treatment Needs (2007) *JOURNAL OF ESTHETIC AND RESTORATIVE DENTISTRY*. · DOI: 10.1111/j.1708-8240.2007.00089.
8. Gili R. Samorodnitzky-Naveh, Selly B. Geiger, Liran Levin (2007) Patients' satisfaction with dental esthetics. 10.14219/jada.archive.0269
9. Hannig M, Joiner A (2006). The structure, function and properties of the acquired pellicle. *Monogr. Oral Sci.* 19:29-64
10. Haywood VB (2003) New bleaching considerations compared with at-home bleaching. *J Esthet Rest Dent*; 15(3): 184-7.
11. Mehl C, Wolfart S, Vollrath O, Wenz HJ, Kern M (2014). Perception of dental esthetics in different cultures. *Int. J. Prosthodont.* 27(6):523529
12. Mehl C, Harder S, Lin J, Vollrath O, Kern M (2015). Perception of dental esthetics: influence of restoration type, symmetry, and color in four different countries. *Int. J. Prosthodont.* 28(1):60-64.
13. Morley J (1999). The role of cosmetic dentistry in restoring a youthful appearance. *J. Am. Dent. Assoc.* 130(8):1166-1172.
14. Nora Nomay (2016) Public attitude and awareness towards their teeth color and dental bleaching in Saudi Arabia: A cross-sectional survey. *Journal of Public Health and Epidemiology*. Vol. 8(4), pp. 45-52, April 2016
15. Theobald AH, Wong BK, Quick AN, Thomson MW (2006). The impact of the popular media on cosmetic dentistry. *N. Z. Dent. J.* 102(3):5863
16. Tin-Oo MM, Saddki N, Hassan N (2011). Factors influencing patient satisfaction with dental appearance and treatments they desire to improve aesthetics. *BMC Oral Health* 11(6)
17. R Ahmad, E.H.Z.M. Ariffin, I. Vengrasalam, N.H.A. Kasim (2005) Patients' Perceptions and Knowledge on Tooth Bleaching. *Annal Dent Univ Malaya*; 12: 24–30.
18. R Zekonis, BA Matis, MA Cochran SE Al Shetri, GJ Eckert, TJ Carlson (2003) Clinical Evaluation of In-Office and At-Home Bleaching Treatments. *Operative Dentistry*, 28-2, 114-121.
19. Wisniewski P, Szatko F, Wierzbicka M, Dybizbanska E, Rusyan E, Ganowicz M (2004). Patients' attitudes to tooth bleaching - a questionnaire study IADR/AADR/CADR Honolulu.