BULLETIN OF STOMATOLOGY AND MAXILLOFACIAL SURGERY
Volume 21, Issue 6

DOI: 10.58240/1829006X-2025.21.6-233

ORIGINAL RESEARCH

THE IMPACT OF HYPO – ESTROGEN ON ORAL CAVITY HEALTH OF MENOPAUSE WOMEN.

Saad Ghadhban Hussein[1], Nafi Aziz Owaid Al Ani A.[2], Riyam Basim Ali[3] , Ruaa M. Fadhil[4] , Naderah Abdulhameed Hussein[5], Raad Muhyaldeen Helmi[6], Suhair Sulaiman Khaliel[7]

[1]Dr. Prof.Endocrine Vet. Medicine / Dental Department Al Hikma Univ. College. Private College, Baghdad, Iraq Saad.hussein@hiuc.edu.iq
[2]Prof. Dr. Community Physician / Dental dept. Al Hikma Univ. College . Private College, Baghdad,Iraq nafi.aziz@hiuc.edu.iq
[3]Dr. Institute of genetic engineering and biotechnology for post graduate studies,University of Baghdad, Iraq. Riyambasim@gmail.com
[4] Dr. Laser application / Dental dept. Al Hikma Univ. college Private College, Baghdad, Iraq . Ruaamohamed866@gmail.com
[5] Dr. Dentist, Prosthodontic / Dental dept. Al Hikma Univ. College Private College, Baghdad, Iraq Dr. Nadira.hussain@hiuc.edu.iq
[6] Dr. Prof. Dentist Oral Medicine / Dental dept. Al Hikma Univ. College . Private College, Baghdad, Iraq . dr_raad, helmi@yahoo.com
[7] Dr. Dintist Oral Medicine / Dental dept. Al Hikma Univ. College, Private College, Baghdad,Iraq. SuhairSulaiman@hiuc.edu.iq
***Corresponding Author:** A. Prof. Dr. Nafi Aziz Owaid Al Ani Community Physician / Dental dept. Al Hikma Univ. College. Private College, Baghdad, Iraq nafi.aziz@hiuc.edu.iq
Received: *Jun 7. 2025;* ***Accepted:*** *Jun 28, 2025;* ***Published:*** *Jul 20, 2025*

ABSTRACT

Hypo-estrogenism in menopause women effects on oral cavity. Its level of estrogen is infact decreased which consequently have many effects on oral cavity; since estrogen is important in maintaining proper health of the tissues forming the oral cavity, which includes bones, mucous, membrane and salivary glands, thus causing health disorders in oral cavity including dry mouth due to reduce salivation which consequently will lead to increase the risk of dental caries, gum disease and disability in speaking and swallowing beside gingivitis and periodontitis, loss bone density especially in the Jaw which consequently causes increased risk of tooth loss, in addition to the difficulties in the dentures or implants procedures, also change in taste, loss of appetite, prolonged time of tissue healing and recovery after injury.

Hypoestrogenism plays an important role in providing moisture of oral cavity mucosa which makes oral tissue more susceptible to irritation, ulceration and different lesions in oral cavity.

Keywords*:* Hypo-estrogenism, disorders of oral cavity, dental carries, bone loss and menopause women.

INTRODUCTION

Hypo-estrogenism in menopause women Whom aged 45 years and over are expecting and transitional period, it's clinical manifestation with variation related to genetics, environmental factors, exposure to u.v radiation, sleep deprivation, alcohol consumption and tobacco smoke respectively.

Menopause age is hard situation for old women, whom majority of them have been spent 30 years represented with normal reproductive life associated with menstrual cycle, then suddenly irregularity of menstrual bleeding and then cessation of menstrual cycle.

Epithelial tissue of vagina and oral cavity are similar[1].

In this age group six hormone receptors have been found out in buccal mucosa and salivary glands [2, 3, 4].

This age group i.e oral cavity in menopause women, their oral cavity is an environmental condition for growth of microorganism at degree temperature equal to 37°C.

Secretion of saliva is reduced, which is fundamental defense mechanism for oral mucosa.

Low estrogen level in menopause women has severe negative impact on teeth and oral mucosa membrane.

More over menopause women due to low estrogen level will have decreased salivation which consequently lead to deleterious effect on teeth and oral cavity bacteria and yeasts, which may cause systemic impact [7], besides bone loss and predispose to tooth loss due to osteoporosis [27].

Aims of the study: The study is carried out to determine the hypo-estrogen impact in menopause women on oral cavity health.

MATERIAL AND METHOD

1- Study group consists of thirty (30) menopause cases were selected randomly from dental checking clinic in dentistry dept. of Al- Hikma University College.

Based on systematic random sample whom aged is 45 years and over. 2- These cases were referred to laboratories for accessing hormonal assay (estrogen). 3- The laboratories were asked to give the results as normal or decreased. 4- Then check on their health condition of oral cavity in the same check in the clinic. 5- The statistical analysis the results carried out using available statistical package of IBM SPSS- 29 Data were presented in sample measures of frequency intern of Bar charts.

RESULTS

In general age groups are more than 45 yrs, old have decreased estrogen level, decreased vitamin. D3, osteoporosis, gum swelling, dental caries in variable degree and periodontitis.

Table (1)

Show the relationship of age groups and periodontitis for menopause women is not significant p value is > 0.05 . conducted using the Kruskal Wallis test and One Way ANOVA on days 7 and 14, yielding p-values of 0.743, 0.349, and 0.274 on days 2, 7, and 14, respectively, all of which were > 0.05, indicating no differences between groups on days 2, 7, and 14.

Table 1. Show the relationship of age groups and periodontitis for menopause women is not significant p value is > 0.05

Age groups	periodontitis		Chi square	P-value
	+v	-v	0.055	0.97
45-50	11	2		
51-55	4	1		
≥ 56	5	1		
P>0.05= Non Significant				

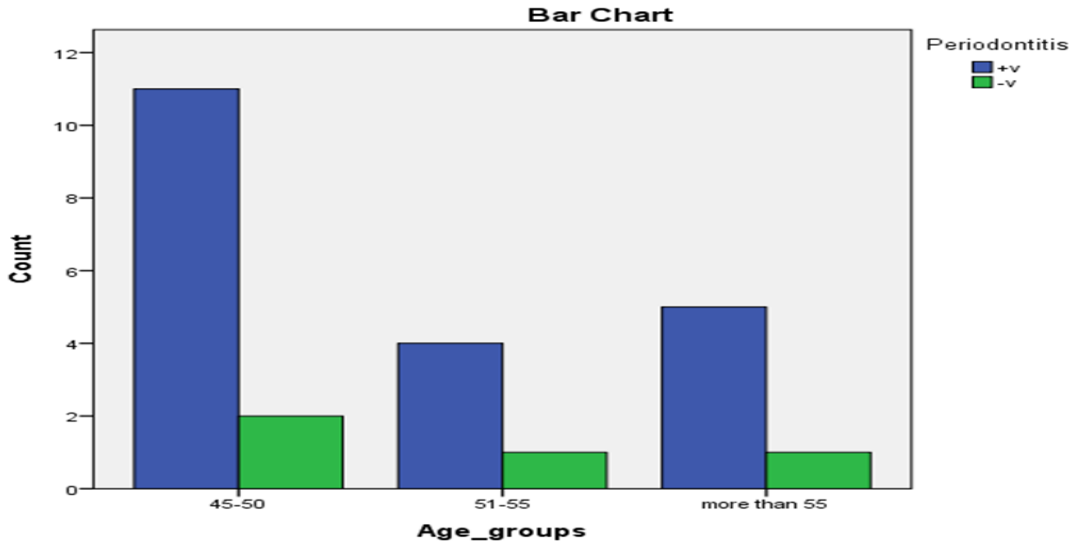

Figure 1. Shows increase number of periodontitis in age groups 50 to 55 years old.

Table 2. Shows the relationship of groups and occurrence of dental carries variation in menopause age groups, although the results statistically is not significant p. value >0.05

Age groups	Dental caries		Chi square	P-value
	3th	2th		
45-50	8	5	0.731	0.69
51-55	2	3		
≥ 56	3	3		
P>0.05= Non Significant				

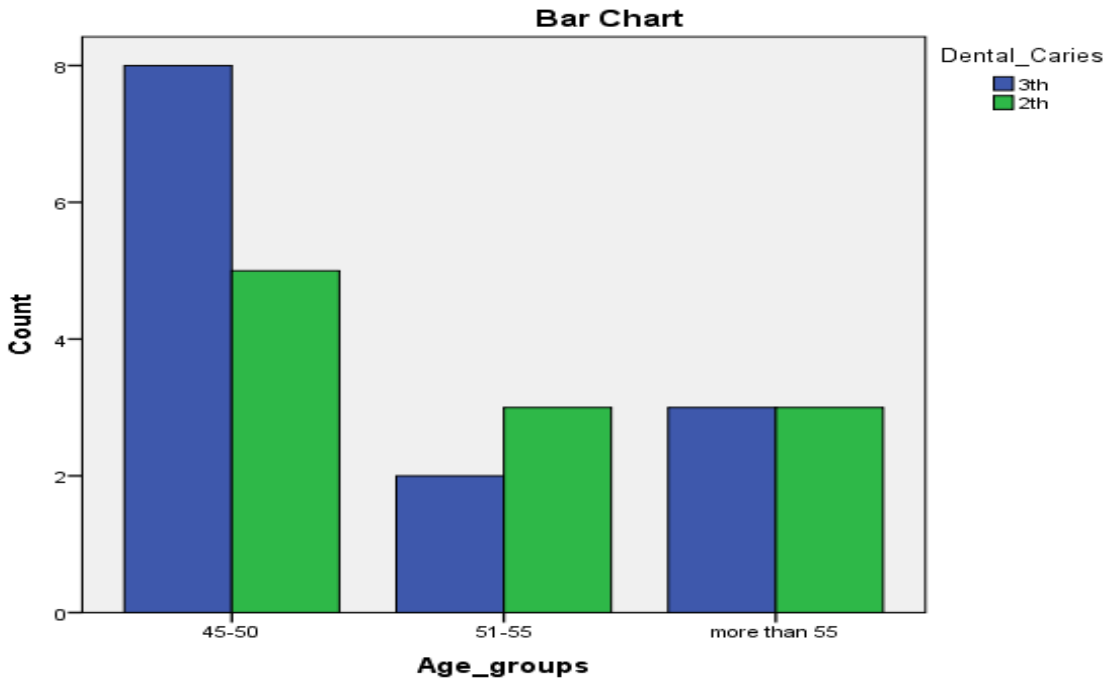

Figure 2. Shows vit D3 is more deficient in menopause.

Table 3. As regard to vit D3.

Age groups	VitD3 level		Chi square	P-value
	Normal VitD3	Lowering		
45-50	3	10	2.901	0.23
51-55	0	5		
≥ 56	0	6		
P>0.05= Non Significant				

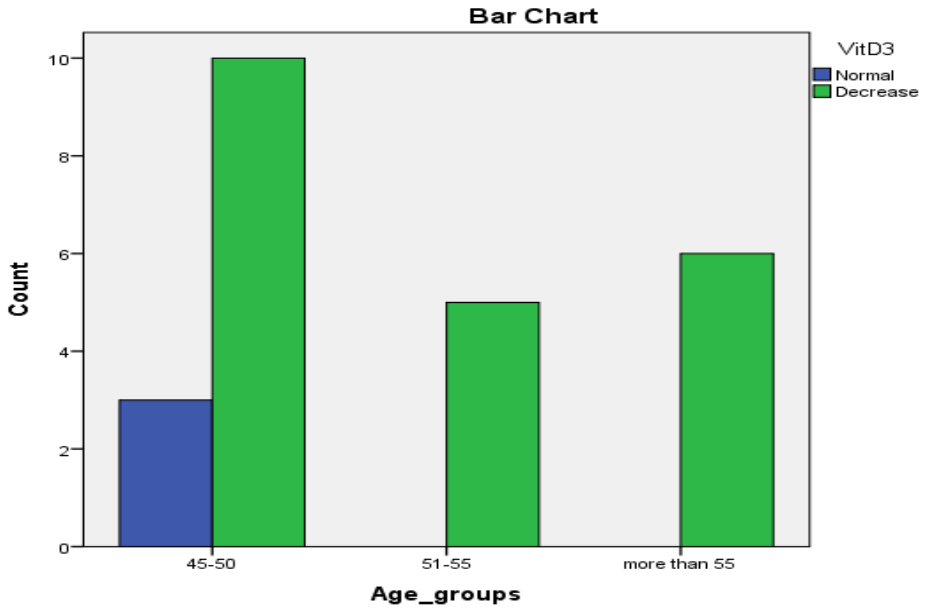

Figure 3. Shows vit D3 between normal and decrease.

Table 4. Shows vit D3 frequency and their level is decreased in menopause, the results is significant statistically p <0.01, p. value is significant

Vit D3 level	N (%)	Chi-square	P-value
decreased	21(87.5%)	13.5	0.0001
normal	3(12.5%)		
P≤0.01 = Highly Significant			

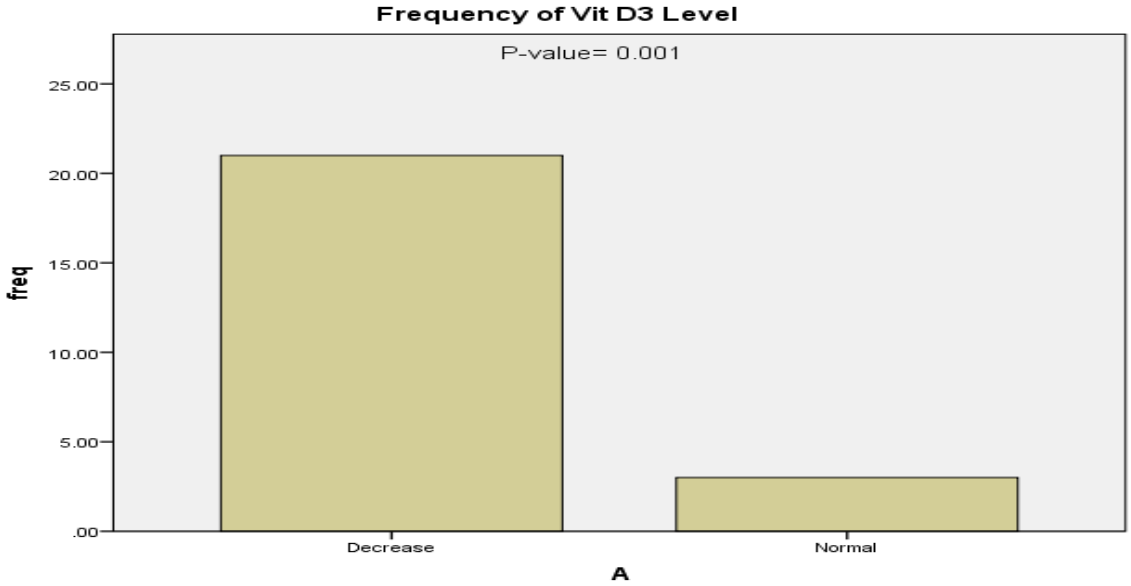

Figure 4. Frequency of vit D3 level.

Table 5. Shows the frequency of dental carries is increased in court in comparison with younger age group, which is non-significant, p value => 0.05

Dental caries	N (%)	Chi-square	P-value
3th	13( )	0.167	0.68
2th	11( )		
P>0.05= Non Significant			

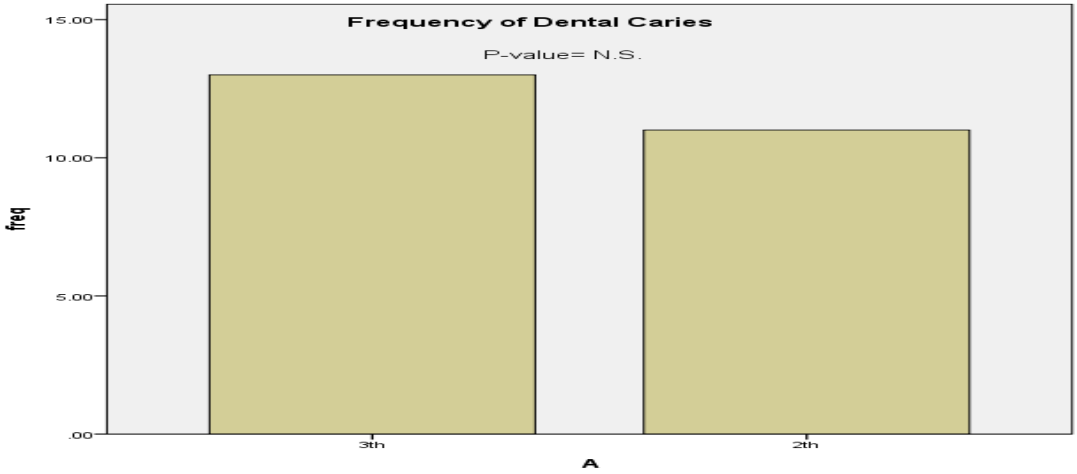

Figure 5. Frequency of dental carries.

Table 6. periodontitis frequency in menopause women is comparison with younger age groups, that shows statistically highly significant, p value ≤ 0.01

periodontitis	N (%)	Chi-square	P-value
+v	20( )	10.66	0.001
-v	4( )		
P≤0.01 = Highly Significant			

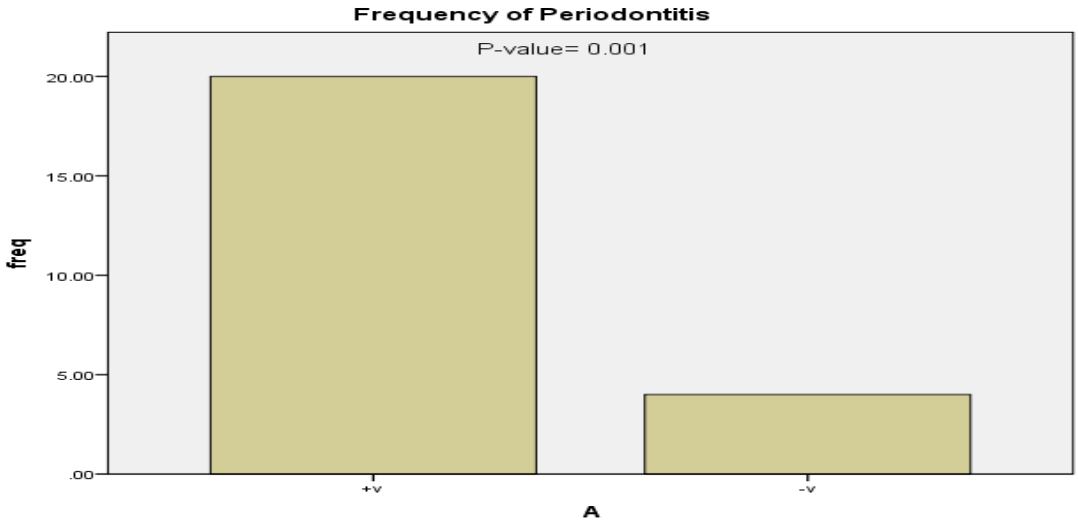

Figure 6. Frequency of periodontitis.

DISCUSSION

In general age groups above 45 years old women. The finding were shown as decreased estrogen levels, vit. D3, osteoporosis, gum swelling (gingivitis) dental carries in variable degrees and periodontitis.

Table (1): Shows the relationship of age groups and periodontitis for menopause women is not significant p value is > 0.05.

After menopause women become susceptible to periodontal diseases, decrease of estrogen hormone causes change in immune function and etiology and pathogenesis of the body especially oral cavity [13, 14].

Fig (1): Shows increase number of periodontitis in age groups 50 to 55 years old in comparison with younger age groups.

Table (2): Shows the relationship of age groups and occurrence of dental carries, also shows dental caries variation in menopause age groups, although the results statistically is also not significant p. value >0.05.

Vit.D3 plays a role in bone and tooth mineralization and when decrease level can lead to the rachitic tooth this situation will lead to highly susceptible for fracture and decay [23, 24].

Fig (2): Shows vit D3 is more deficient in menopause age group in comparison with younger age groups.

Table (3): As regard to vit. D3. Not significant.

Table (4): Shows vit. D3 frequency and their level is decreased in menopause women in comparison with younger age groups.

The results is significant statistically where p-value in chi-square is also statistically significant where p-value is 0.0001, p-value in chi-square is also statistically significant where p-value is 0.0001. The majority of women especially the menopause women are significantly to suffer from depression and anxiety disorders due to the decrease estrogen hormone.

Menopause women can feel vasodilatory symptoms in the short and medium term, like night sweats, palpitation and cold hands and feet [26].

Fig (4): Is complying with table (4).

Table (5): Shows the frequency of dental carries is increased in count in comparison with younger age groups, but variations in menopausal age groups gives the result not significant statistically where p-value => 0.05. This results is complying with figure (5).

Table (6): Show periodontitis frequency in menopause women is comparison with younger age groups. Shows statistically significant due to the fact of low levels of estrogen in menopause women where p-value ≤0.01.

Many researchers also suggested that postmenopausal women should maintain an adequate vitamin D3 lead to prevent osteoporosis- complying with periodontal disease [27].

CONCLUSION

To conclude it was found that hypo- estrogenism in menopause women have a significant impact on oral cavity mouth health, thus dental examination periodically is required in menopause women.

Recommendations

Dental examination periodically is essential in menopausal aged women and instruction through health education regarding oral hygiene due to the fact, which they are complaining of low levels of estrogen of its negative impact on health of oral cavity.

DECLARATIONS

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no conflict of interest.

Funding

This research received no external funding.

REFERENCES

1.Leimola R, - Virtanen etal: expression of estrogen receptors (ER) on oral mucosa and salivary gland. 1997; Maturitas.

2.Tivis L.T; etal: saliva versus serum estratradiol: implication for research studies using postmenopausal women. Prog. Neuro- pscho- pharmacal Biol. psychiatry 2005.

3.Sewon L. etal: the effect of hormone replacement therapy on salivary calcium concentration in menopausal women. 1999.

4.Eliasson L. etal: Minor gland and whole saliva in postmenopausal women using low potency estrogen (estradiol). Arch. Oral. Bio. (2003).

5.Valima LT. Savolainen S.Soukka T.Salivoniem p.Makela S.Kujari H.Gustafsson J.A. Laine M;: Estrogen receptors- beta is the predominant estrogen receptors sub-type in human oral epithelium and salivary glands, J.Endocrinol. 2004;: 180: 55-62.

6.Leimola- Virtanen R; saloT. L;: Expressing of estrogen receptors in oral mucosa and salivary glands. Maturitas 2000; 131-137.

7.Jukka H.Meurmon etal;: the menopause and oral health-Maturitas; 2009; volume 63 pages 56-62.

8.Parameters of care Chicago: The American periodontology ; The American Academy of Periodontology; 1995, pp. 9 -18 .

9.Glossary of periodontal terms 4th. ed. Chicago: The American Academy of Periodontology; The American Academy of Periodontology. 2001, P.39.

10.Page R.C. Beck J.D.; Assessment for periodontal diseases. Int. Dent. J. 1997; 47: 61-87.

11.Perry D.A.; Oral Contraceptive and Periodontal health. J. West. Soc. Periodontal Abstr. 1981; 72-80.

12.Kalkwarf K.L.; Effect of oral contraceptive therapy

on gingival inflammation in humans. J. Periodontal. 1978; 49: 560-3.
13.Zachariasen R.D.; Ovarian hormones and oral health pregnancy gingivitis. Compendium. 1989; 10: 508-12.
14.Newman M.G. Takei H., Klokkevold P.R., Carranza F.A. 4th ed. United States; WB Saunders; . Carranza's Clinical Periodontology. 2001, P.523.
15.Yildirim T.T, Kaya F.A.; The effect of menopause on periodontal tissue. In Dent. Res. 2011; 3: 81-6.
16.Tezal M; Wactawski - Wende J, et al. The relationship between bone mineral density and periodontitis in postmenopausal women J. Periodontal. 2000; 71: 1492-8.
17.Pitu Wulundari; Effect of hypoestrogenism on oral cavity. 29 August 2022; American J. Dent 10.5772/intechopen.106681.
18.Holick M.F.; Krane S.M, etal: Calcium phosphorus and bone metabolism: Calcium regulating hormones. 1998; pp. 2214–27.
19.Batra Sameer, Yamin M; Sabharwal Sanjeev,' Relationship between Vit. D insufficiency in osteoporosis and blood bone biochemistry - Indian j. orthop. 2006; 40(1): 41–45.
20.Harinarayah chittari V. etal.; High prevalence of low dietary calcium, high phytate consumption and Vit D deficiency in healthy South Indians. American J. of clinical nutrition. April 2007; 85(4): 1062–1067.
21.Lips; Duong T. etal.; Global study of Vit D status and parathyroid function in postmenopausal women with osteoporosis; Endocrinol. Metabo. 2001 Mar; 86(3); 1212–21.
22.Ghannam N.N. etal.; Bone mineral density of the spine and femur in healthy in Saudi females: relation to Vit.D. Status pregnancy and lactation, Calcify Tissue int. 1999; Jul; 65(1): 23–8.
23.Foster B.L., Nociti F.H., Somerman M.J.; The rachitic tooth. Endocr. Rev. 2014; 35; 1–34.
24.DortenzioL. Kahlon B, etal: The rachitic tooth. Refining the use of interglobular dentine in diagnosing Vit D. deficiency, In. J. Paleo pathol. 2018; 22: 101–108.
25.Arevalo M.A. etal,; The neuro- protective actions of estradiol and estrogen receptors. Nat. Rev. Neurosci. 2015; 16(1); 17–29.
26.Castanho T.C; etal,; The role of Sex and Sex related hormones in cognition, mood and well-being in older women. 2014; 103; 158–166.
27.Mascitelli L. Pezzetta F. Goldstein M.R.; Menopause vit D and oral health. Cleve Clin J. Med. 2009; 76: 629–30.