International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR |Volume 7 | Issue 3 | Jul - Sep - 2019
www.ijamscr.com

Research article *Medical research*

Factors related to the chronic periodontitis occurrence on the pregnant women in the public health centres at tabanan regency at 2018

Ni Nengah Sumerti, Ni Made Sirat

Lecturers at JKG Poltekkes Denpasar

***Corresponding Author**: **Ni Nengah Sumerti**

ABSTRACT

Poor oral hygiene in pregnant women can cause infections of teeth or periodontium tissues such as periodontitis. The state of the oral cavity of a pregnant woman can affect the condition of her baby. Plaque plays a role in the pathogenicity of caries and periodontal disease. Increased gum inflammation occurs gradually during pregnancy.

Research objective

To know the factors associated with chronic periodontitis in pregnant women.

Research type

Using a cross-sectional design. The study population was all pregnant women at the Public Health Centres in Tabanan Regency at 2018. The sample of 420 people, and only 163 people who suffered from chronic periodontitis. Sampling was by using accidental sampling.

Research result

46.6% of pregnant women who suffer from chronic periodontitis have bad index debris criteria, 71.6% have medium calculus index criteria. 46% of pregnant women suffering from periodontitis consume cariogenic food every time. Most in the third trimester is 40.5%. Most suffer from chronic periodontitis with mild criteria. Variables that were correlated with chronic periodontitis occurence were debris/plaque index with the Spearmans correlation test, p = 0,017 or p <0,05 and calculus with p = 0,000 or p <0,05. The variable correlation is strong/high is calculus/tartar sig. 0,000 and rho score of 0.783

Conclusion

Pregnant women who suffer from chronic periodontitis have bad plaques criteria, most have moderate calculus index, every time they eat soft/cariogenic foods and many periodontitis occurs at the final trimester with mild categories of periodontitis. Calculus has a strong/high correlation to the occurrence of chronic periodontitis in pregnant women

Keywords: Factors, Chronic periodontitis, Pregnant Women

PREFACE

Pregnancy can affect oral and dental health; this condition occurs due to the increase of the oestrogen and progesterone hormones during pregnancy which is associated with an increase in the amount of plaque stuck to the teeth. The existence of nausea and vomiting in the morning (morning sickness), especially in early pregnancy, so the mouth tends to be ignored and the acid released from the stomach during vomiting can reduce dental health towards dental and oral

diseases [24]. According to Yalsin in [20], gum inflammation will look very great during pregnancy. Based on research that has been done it has been discovered that, 50% of pregnant women experience gum inflammation. Other studies based on clinical observations, show the prevalence of periodontal disease during pregnancy is 35% - 100%.

Bad oral hygiene in pregnant women can cause infections of teeth or periodontium tissues like periodontitis. Infection can spread systemically and causes pro-inflammatory mediators increase that will affect the occurrence of Low Birth Weight (LBW) [18]. The condition of the oral cavity of a pregnant woman can affect the condition of her baby. If a mother suffers from periodontal infection, when she is pregnant, there is a greater risk of having a low birth weight baby and having a premature birth. Komara's research results (2006) at Hasan Sadikin Hospital, West Java stated that there was a very significant relationship between patients with chronic marginal periodontitis with LBW events. Pregnant women with chronic periodontitis have 10,9 times greater risk of having LBW baby, even pregnant women who suffer from periodontal infection have a risk of 19,2 times the occurrence of LBW infants compared to normal (Ministry of Health RI., 2012). The results of the [18] research at the Orchid Pavilion of Jombang Regional Hospital showed that periodontitis in pregnant women had 8.6 times the risk of having LBW infants compared to mothers who did not experience periodontitis. According to the Ministry of Health R.I. (2004) in [14] that, around 57% percent of infant deaths occur in infants under 1 month of age and are mainly caused by prenatal and LBW interruptions. Low Birth Weight is the leading cause of infant mortality. The infant mortality rate in Bali Province in 2015 was 5,7 per 1.000 births. While the highest infant mortality rate occurred in Karangasem Regency, 10, 6 per 1.000 births, the second highest was in Tabanan Regency, 10, 3 per 1.000 births (Bali Provincial Health Office, 2016). According to WHO (1992) in [14], LBW is very closely related to neonatal mortality and morbidity, stunted growth and cognitive development, and chronic diseases in the future.

Plaque plays a role in the pathogenicity of caries and periodontal disease (Forrest, 1995). According to Carranza and Newman in [20] in addition to plaque, hormonal changes are also the cause of gingivitis in pregnant women. Increased gum inflammation occurs gradually during pregnancy. In pregnant women, bacteria increase with increase in the progesterone and oestrogen hormones. Yalcin in [20] states that, based on clinical observational studies, the prevalence of periodontal disease during pregnancy ranges from 35% to 100%.

Research by [20] concluded that there was an increase in the severity of gingivitis during pregnancy, the severity of gingivitis was most severe in trimester III, highly educated pregnant women had lower gingivitis severity compared to low-educated pregnant women, and working pregnant women had lower severity of gingivitis than unemployed pregnant women. [6] research concluded that there was a significant relationship between the level of oral hygiene and the severity of gingivitis in third trimester pregnant women compared to second trimester pregnant women. The purpose of the study was to determine the factors associated with chronic periodontitis in pregnant women who went to the public health centres in Tabanan Regency

RESEARCH METHOD

This type of research was conducted with a cross-sectional design. The study was conducted from June to August 2018, located in the Tabanan Regency Public Health Centres. The study population was all pregnant women who were patient of public health centres in Tabanan Regency in 2018. The sample size would be 384 people from all pregnant women who were patients and rounded up to 420 people according to Murti's (1997) formula. Determination of the number of samples taken from all public health centres in Tabanan was 20 public health centres by means of a quota sampling, so a sample size of 21 people each was obtained and the intake was categorized according to gestational age, each of which was seven people in the first trimester, II and III. Sampling by accidental sampling method is pregnant women who are willing to be the research samples.

DATA ANALYSIS

Quantitative data analysis was carried out univariately and multivariate between chronic periodontitis variables with several significant

variables during the bivariate test, with Spearman's correlation test (Santoso, 2006)

RESEARCH RESULT AND DISCUSSION

Characteristics of research subjects including age and level of education. The age of the youngest pregnant women aged 16 years and the oldest age of pregnant women is 44 years. The education level of the research subjects is as the following table.

Table 5: Distribution of Pregnant Women with Periodontitis in Public Health Centres in Tabanan Regency by Education Level

Education Level	Frequency	Proportion
Elementary School	2	1,2
Junior High School	16	9,8
Senior High School/Vocational High School	113	69,3
Diploma	19	11,7
Bachelor	13	8,0
TOTAL	163	100

Table 5 shows that most 69,3% of pregnant women have high school vocational high school level and only 1,2% have elementary school education.

Research result

The frequency of pregnant women suffering from Chronic Periodontitis based on the debris index as the table below:

Table 6: Frequency Distribution of Pregnant Women with Periodontitis in Public Health Centres in the Tabanan District in 2018 Chronic Based on Debris Index (Plaque)

Debris Index/Plaque	Frequency	Proportion
Bad	76	46,6
Moderate	68	41,7
Good	19	11,7
Total	163	100

Table 6 shows that most of the 76 people (46,6%) of pregnant women suffering from periodontitis had a debris index with bad criteria, 68 people (41,7%) with moderate criteria, and only 19 people (11,7%) with good criteria.

The frequency of pregnant women suffering from Chronic Periodontitis based on the calculus index as the table below

Table 7: *Calculus Index* Frequency Distribution of Pregnant Women with Periodontitis at the Public Health Centres in Tabanan Regency in 2018 based on Calculus Index

Calculus Index	Frequency	Proportion
Bad	41	25,2
Moderate	117	71,8
Good	5	3,1
Total	163	100

Table 7 shows that most of the 117 people (71,6%) of pregnant women suffering from periodontitis had a calculus index with moderate criteria, and only 5 people (3,1%) with good criteria.

The frequency of pregnant women suffering from Chronic Periodontitis based on the physical properties of the food consumed as the table below:

Table 8: Frequency Distribution of Pregnant Women Suffering from Periodontitis in Public Health Centres in Tabanan Regency in 2018 Based on Physical Properties of Foods Consumed

Foods Physical Properties	Frequency	Proportion
Every meal (> 3 times/day)	75	46
Every day (2-3 times/day)	39	23,9
Not every day (<2/day)	49	30,1
Total	163	100

Table 8 shows that as many as 75 people (46%) of pregnant women who suffer from periodontitis consume cariogenic food every time.

The frequency of pregnant women suffering from Chronic Periodontitis based on Pregnancy Trimester as the table below

Table 9: Frequency Distribution of Pregnant Women with Periodontitis in Public Health Centres in Tabanan Regency in 2018 Based on Pregnancy Trimester

Pregnancy Trimester	Frequency	Proportion
Trimester I (0 – 3 month)	43	26,4
Trimester II (>3 – 6 month)	54	33,1
Trimester III (>6 – 9 month)	66	40,5
Total	163	100

Table 9 shows the most, that is 143 people (34, 0%) pregnant women in the third semester who suffer from chronic periodontitis, while the least is in the first trimester

The frequency of pregnant women conducting examinations at the Public Health Centres in Tabanan Regency in 2019 based on chronic periodontitis conditions as the table below

Table 10: Frequency Distribution of Pregnant Women with Periodontitis in Public Health Centres in Tabanan Regency in 2018 Based on Chronic Periodontitis Conditions

Chronic Periodontitis Conditions	Frequency	Proportion
Heavy	0	0
Medium	51	31,3
Light	112	68,7
Total	163	100

Table 10 shows that most of the 112 people (68,7%) of pregnant women suffered from chronic periodontitis with light criteria of 257 people, and only 51 people (31.3%) with medium criteria, and no pregnant women suffered from hevy criteria for periodontitis.

Analysing the relationship of plaque with chronic periodontitis in pregnant women who do examination at the Public health Centres in Tabanan Regency in 2018 with the Spearman's correlation test as the table below.

Table 11: The relationship of Debris/Plaque, Calculus, Physical Characteristics of Food, and Pregnancy Trimester (Hormonal) with Chronic Periodontitis on Pregnant Women

Variable	Correlation Coefficient (rho score)	Significance	Explanation
Debris Index/Plaque	0,187	0,017	Related
Calculus Index/tartar	0,783	0,000	Related
Physical Characteristics of Food	0,027	0.733	-
Pregnancy Trimester (Hormonal)	0,059	0,454	-

Table 11 shows that the relationship of debris index/plaque variables with chronic periodontitis in pregnant women shows that the significance analysis with Spearman's correlation test shows the

score of p = 0,017 or p <0,05. The results show that there is a correlation between plaque with the occurrence of chronic periodontitis in pregnant women.

The calculus variable with chronic periodontitis in pregnant women shows that from the analysis of the significance of Spearman's correlation test it shows score of p = 0,000 or p <0,05. This means that there is a significant correlation between the variables of chronic calculus periodontitis in pregnant women in Tabanan Regency in 2018.

The variable of physical properties of food that consumed with chronic periodontitis in pregnant women show that from the analysis of the significance of Spearman's correlation test showed score of p = 0,733 or p> 0,05. This means that the physical characteristics of the food consumed does not correlate with chronic periodontitis in pregnant women.

The variable of trimester of pregnancy with chronic periodontitis in pregnant women shows that from the analysis of the significance of Spearman's correlation test shows score of p = 0,454 or p> 0,05. This means that the pregnancy trimester variable is not correlated with the occurrence of chronic periodontitis in pregnant women.

Analysing the factors most related to the occurrence of chronic periodontitis in pregnant women in Public Health Centres throughout Tabanan Regency in 2018 with the Spearman's rho test. From the analysis of several variables with Spearman's correlation test with a significance score of 0.05, the variables that have a correlation with chronic periodontitis in pregnant women are plaque variables with sig. 0,017 and rho score of 0,187 means that there is a weak correlation or almost no correlation, while the calculus variable (tartar) with a sig score. 0,000 with a rho score of 0.783, meaning that there is a high correlation between calculus/tartar with chronic periodontitis in pregnant women.

DISCUSSION

The results of data analysis shows that 46,6% of pregnant women suffering from periodontitis had debris index with bad criteria, 41,7% with moderate criteria, and 11,7% with good criteria. According to Machfoedz and Zein (2006) most pregnant women who do not understand dental and oral health, are lazy to keep their teeth clean during pregnancy. Pregnant women during pregnancy have irregular brushing habits. During pregnancy, attention is usually only paid to the pregnancy and the baby to be born, while attention to other body parts is almost forgotten, because it is considered not related to pregnancy. The results of the study are supported by the statement of Maulid (2008), that when pregnancy changes in maintenance of oral and dental hygiene which can be caused by nausea and vomiting, fear of brushing teeth due to bleeding in the gums or the mother is too tired with pregnancy, causing the pregnant women lazy to brush the teeth. This situation by itself will increase the build-up of plaque, thus worsening the level of hygiene of the teeth and mouth of pregnant women. Furthermore, according to Susanti (2003), the occurrence of pregnancy can affect oral health. This situation occurs because of increased levels of the oestrogen and progesterone hormones during pregnancy, which is associated with an increase in the amount of plaque stuck to the tooth surface.

Furthermore, calculus index in pregnant women who suffer from chronic periodontitis shows that most 71,6% have calculus index with moderate criteria and only 3,1% with good criteria. These results indicate that pregnant women suffering from chronic periodontitis have poor dental and oral hygiene due to the accumulation of calcified plaques so that they become calculus and so plaque build-up occurs on the rough surface of the calculus. Poor oral hygiene in pregnant women can cause infections of teeth or periodontium tissues such as periodontitis [18]. According to Carranza in [20], an increase in gum inflammation occurs gradually during pregnancy. This inflammation of the gums is called pregnancy gingivitis, which is caused by plaque and hormonal changes in pregnant women. Changes in subgingival plaque composition occur during pregnancy. Increased Protella Intermedia in subgingival plaque may be associated with increased serum from oestrogens and progesterone during pregnancy

Data of pregnant women suffering from periodontitis associated with consumption of cariogenic foods shows that as many as 75 people (46%) of pregnant women who suffer from periodontitis consume cariogenic food every time. This is likely due to nausea and vomiting in the morning (morning sickness), especially in early pregnancy, so the mouth tends to divert by snacking, especially foods that are soft and

cariogenic. This is explained further according to Saputra (2013), hormonal changes during pregnancy affect the ability of salivary buffer. The ability of salivary buffer is the ability of saliva with its contents to restore the acidity of the oral cavity to conditions that are not harmful to the integrity of the structure of hard tooth tissue. Also, the rate of saliva flow also decreases, meaning that the volume of saliva released by the salivary glands becomes reduced. Saliva is a liquid that is thicker than water released by the salivary glands of the body. Its functions including soaking the food eaten to ease the process of mastication and ingestion, then assist in the process of cleaning leftovers. The rest of the food left behind and stuck to the teeth will be easy to clean if the volume of saliva is enough. The self-cleansing process is strongly supported by the availability of salivary volume.

Pregnant women who suffer from chronic periodontitis the least is pregnant women in the first trimester is 20,6%, followed by pregnant women in the trimester of 33,1%, and the most is at gestational age in the third trimester of 40,5%. The results of this study are supported by Carranza and Newman's statement in [20], in addition to plaque, hormonal changes also cause gingivitis in pregnant women. Increased gum inflammation occurs gradually during pregnancy. In pregnant women an increase in bacteria with an increase in the progesterone and oestrogen hormones. Research by [20] concluded that there was an increase in the severity of gingivitis during pregnancy, the severity of which occurred in the third trimester. Then according to Yalcin in [20], states that, based on clinical observational studies, the prevalence of periodontal disease during pregnancy ranges from 35% to 100%.

Research data shows that most 112 people (68.7%) of pregnant women suffer from chronic periodontitis with light criteria, as many as 31,3% with moderate criteria, and no pregnant women suffer from heavy criteria for periodontitis. This is probably due to the average age of pregnant women is only 28 years old, so that the functional system of tissue that surrounds the teeth and attaches teeth to the jaw bone is good enough, so that periodontal tissue damage does not become severe, even though the maintenance of dental health is less than the maximum of pregnant women, especially pay attention to food consumption, cleaning plaque, and food debris left by brushing teeth regularly and correctly, and cleaning tartar. As stated by Kim & Amar, (2006), no destruction of the supporting epithelium or pocket formation in a healthy periodontal will be found, and the depth of the periodontal sac is less than 2mm. Periodontal sacs can reach 4 mm - 12 mm. Clinically, patients with 4 mm or more periodontal pockets are diagnosed with periodontitis. Patients with periodontal sacs of 6 mm or more are diagnosed with severe periodontitis. Thus, the severity of periodontitis is mostly in the light category which is periodontal tissue is not much or <3 mm has been damaged or separated from the socket. Another possibility is that most of the pregnant women have received a complete examination, that is, once in their pregnancy in accordance with the public health centres' program that has been planned, including dental and oral examinations, so that pregnant women have been exposed to dental health. Furthermore, regular visits to the dentist, whether there are complaints, are not being addressed. Many individuals do not treat periodontitis due to minimal symptoms of gingival bleeding. This can cause unmanaged gingivitis to develop into irreversible periodontitis, which causes tooth loss (Kim & Amar, 2006).

The relationship of debris index/plaque variables with chronic periodontitis in pregnant women shows that from the analysis of significance with the Spearman correlation test shows score of p = 0,017 or p <0,05. The calculus variable with the significance analysis of Spearman's correlation test shows score of p = 0,000 or p <0,05. It means that the debris index/plaque and calculus variables have a significant correlation with the incidence of chronic periodontitis in pregnant women in Tabanan Regency in 2018. Periodontitis is generally caused by plaque. Plaque is a thin layer of biofilm containing bacteria, bacterial products, and food debris. This layer is stuck to the surface of the teeth and is white or yellowish white. Plaque that causes gingivitis and periodontitis is plaque that is just above the gum line. Bacteria and their products can spread under the gums so that the inflammation process occurs and periodontitis occurs (Mozarta, 2010).

From the analysis of several variables after Spearman's correlation test with a significance score <0,05 is a plaque variable with a score of <p 0,017 and a rho score of 0,187, meaning that there is a very weak correlation between plaque with the occurrence

of chronic periodontitis in pregnant women. Calculus/tartar variable with p score and rho score of 0,783. This means that there is a high correlation with a positive direction between calculus with the occurrence of chronic periodontitis in pregnant women. The results showed that the presence of tartar or calculus is the accumulation of hardened dental plaque and growing little by little. Initially, plaque is formed when bacteria in the mouth mixed with protein and food debris. Tartar arises because pregnant women use the bad toothbrush. Tartar can cause teeth to shake and easily fall due to decreased gum, swollen gums, and bleed easily. Furthermore, according to the Indonesian Ministry of Health. (2012), pregnancy causes physiological changes in the body and includes the oral cavity. This is especially seen in the gums in the form of gum enlargement due to changes in the hormonal and vascular system, together with local irritation factors in the oral cavity. During pregnancy, a mother may experience several disorders of her oral cavity that can be caused by hormonal changes or due to negligence in dental and mouth care. Furthermore, according to Marya, (2011) periodontal pocket in periodontitis formed due to apical migration from the junctional epithelium and continues to separate epithelium from the root surface.

Research Weakness

In carrying out this study, of course, there are disadvantages, among others, because sampling uses acidental sampling so that this sample cannot generalize the overall oral health condition of pregnant women, and sampling does not use inclusion and exclusion criteria.

CONCLUSION

Based on the results of research of 420 pregnant women examined, there were 163 people who suffered from chronic periodontitis, then a discussion is made and conclusions can be made, which are:

As many as 46,6% of pregnant women who suffer from chronic periodontitis have a bad criterion index debris, only 11,7% with good criteria, and 71,6% have a medium calculus index, and only 3,1% with good criteria. As many as 46% of pregnant women who suffer from periodontitis consume cariogenic food every time. Only 20,6%, pregnant women who suffer from chronic periodontitis in the first trimester, the most is in the third trimester is 40,5%. Most of are 68,7% of pregnant women suffer from chronic periodontitis with light criteria and none suffer from chronic criteria for heavy periodontitis. Variables that were correlated with chronic periodontitis were debris index/plaque with the Spearmans correlation test, p = 0,017 or p <0,05 and calculus with p = 0,000 or p <0,05. The variable with the strongest/highest correlation is calculus/tartar sig. 0,000 and rho score of 0,783 with chronic periodontitis in pregnant women.

SUGGESTION

From the results of discussions and conclusions of the research that has been made, it can be given some advice, i.e.:

1. Pregnant women in early pregnancy need to be given counselling about maintenance of dental health and preventive efforts in the form of cleaning tartar so that it can improve dental health including periodontal tissue.
2. Efforts to approach cross-program must be increased more especially pregnant women in the last trimester to get dental health care before delivery.

REFERENCES

[1]. BPS, Selayang Pandang, Tabanan Dalam Angka Tahun 2011. https://www.tabanankab.go.id/page/3/Selayang-Pandang.html, diakses tanggal 10, 2018
[2]. Arikunto R, 2002. Prosedur Penelitian Suatau Pendekatan Praktek. Jakarta: PT RINEKA CIPTA.
[3]. Damanik R, 2011. Kejadian BBLR dan Faktor = Faktor Yang Mempengaruhinya. Tersedia di: repository.ipb.ac.id/bitstream/123456789/64666/1/pro2011_ mrd_2.pdf. Diakses: 11 Agustus 2017.
[4]. Pedoman Penyelenggara Upaya Pelayanan Kesehatan Gigi di Puskesmas, Jakarta: Depkes RI 1995.
[5]. Dinas Kesehatan (Dinkes) Provinsi Bali, 2016. Profil Kesehatan Bali, Denpasar: t.p.

[6]. Erawati S, Anastasia I, Sukmadara S, 2016, Hubungan tingkat kebersihan rongga mulut dengan status penyakit gingivitis pada ibu hamil di RSUD DR. RM. Djoelham Binjai Suci Erawati, Makasar Dental Journal 6(2), 2017. e-ISSN:2548-5830. Tersedia di: www.pdgimakassar.org/journal/file_ jurnal. Diakses.

[7]. Hanifa, W., 2000, Gambaran Karakteristik Ibu pada Kasus Kehamilan Ektopik di Rumah Sakit Umum Daerah Provinsi Sulawesi Tenggara Tahun 2007-2009, (online). Tersedia di: http://megalitikum.blogspot.com/2011/02/ gambaran_karakteristik _Ibu_pada_kasus.html. Diakses: 12, 2017.

[8]. Kementerian Kesehatan (Kemenkes) RI. Pedoman pemeliharaan kesehatan gigi dan mulut ibu hamil dan anak usia balita bagi tenaga kesehatan di fasilitas pelayanan kesehatan, Jakarta: t.p 2012.

[9]. Pokok – Pokok Hasil Riskesdas Provinsi Bali 2013, Jakarta: Lembaga Penerbitan Badan Litbangkes Jakarta 2013.

[10]. Kim, J., Amar, S. Periodontal disease and systemic conditions: A bidirectional relationship. Odontology, 94(1), 2006, 10–21

[11]. Machfoedz, I., dan Zein A, Y, Menjaga Kesehatan Gigi dan Mulut Anak-Anak dan Ibu Hamil, Yogyakarta: Fitramaya 2006.

[12]. Marya, CM. A Textbook of Public Health Dentistry. London: Jaypee Brothers Medical Publisher 2011.

[13]. Maulid, G A., Manajemen Kesehatan Gigi Pada Kehamilan, (online). Tersedia di: http://www.slideshare.net/guest2735210a/manajemen kesehatan gigi pada kehamilan.132, 2008, 875-880. Diakses: 11, 2017.

[14]. Mozartha M, 2010. Periodontitis, tersedia di www.alodokter.com/periodontitis

[15]. Murti B, Prinsip dan Metode Riset Epidemiologi. Yogyakarta: Gadjah Mada University Press 1997.

[16]. Pramono dan Paramita, 2014, Pola Kejadian dan Determinan Bayi Dengan Berat Badan Lahir Rendah (BBLR) di Indonesia Tahun 2013. Tersedia di:

[17]. https://media.neliti.com/.../20923-ID-pola-kejadian-dan-determinan-bayi-dengan-berat badan lahir rendah. Diakses: 10, 2017.

[18]. Pujiani , Khotimah , Bayu I, Hubungan Antara Penyakit Periodontitis Pada Ibu Hamil Sebagai Faktor Resiko Kejadian BBLR. Tersedia di: www.journal.unipdu.ac.id › Home › 3(1), 2013 , Diakses: 10, 2017.

[19]. Prawirohardjo, S., 2008, Ilmu Kebidanan, Jakarta: PT Bina Pustaka Sarwono Prawirohardjo.

[20]. Pujiastuti dan Praharani (2005), Pengaruh status sosial budaya pada kondisi jaringan periodontal selama kehamilan. Indonesia Journal of Dentistry 12(3), 2005, 171-175.

[21]. Santoso S, Menguasai Statistik di Era Informasi dengan SPSS 14. Jakarta: PT Elex Media Komputindo 2006.

[22]. Saputra, Perubahan Hormonal Ibu Hamil Pengaruhi Kesehatan Gigi dan Mulut, Dental & Dental. Mei-Juni 16, 2013, Netras Media Utama. Yogyakarta.

[23]. Septira S, 2017. Hubungan Riwayat Penyakit Periodontal Terhadap Kejadian Persalinan Preterm di RSUD Dr H Abdul Moeloek Bandar Lampung. Skripsi. Fakultas Kedokteran Universitas Lampung. Tersedia di: portalgaruda.org. Diakses: 10, 2017.

[24]. Susanti, E. F.X., 2003, pengaruh Kehamilan pada Kesehatan Gigi dan Mulut serta Modifikasi Perawatan yang diperlukan. Jurnal Kedokteran Gigi Mahasarawati. 1(I), ISSN: 1693-0002, Denpasar.

[25]. Universitas Sumatera Utara (USU), Penyakit periodontal. Tersedia di: ocw.usu.ac.id/course/download/611.../kgm-427_slide_penyakit _periodontal. pdf. Diakses tanggal 10, 2017.

How to cite this article: Ni Nengah Sumerti, Ni Made Sirat. Factors related to the chronic periodontitis occurrence on the pregnant women in the public health centres at tabanan regency at 2018. Int J of Allied Med Sci and Clin Res 2019; 7(3): 1088-1095.
Source of Support: Nil. **Conflict of Interest:** None declared.