THE RELATION OF MENARCHE AND OBESITY WITH THE INCIDENCE OF BREASTCANCER IN WOMEN OF CHILDBEARING AGE AT RSPAL DR. RAMELAN SURABAYA

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Abstract

Breastcancer is an evil for women in the world. The incidence of breastcancer in women of childbearing age (WUS) increases every year including at RSPAL dr. Ramelan Surabaya, from 389 to 457 cases (14.87%) during 2022. This research was conducted at Surgical Oncology Polyclinic RSPAL dr. Ramelan Surabaya toward WUS. This study was an analytical observational study with a case control design, breast cancer in WUS as the case group and no breast cancer in WUS as the control group. The dependent variable is breast cancer on WUS, while the independent variables are menarche and obesity. The sample size was 160 respondents, consisting of 80 case groups and 80 control groups. The sampling method uses simple random sampling. To determine the relationship between variables, the data collected was tested using the _chi-square test_ with a significance level of _α=0.05._ The results showed that most of the obese (75%) were included in the case group. The results of the Chi-square analysis of breast cancer in WUS with menarche showed _p value=0.421 (p>0.05),_ For breastcancer in WUS with obesity, the _chi-square_ analysis showed _p value=0.001 (p<0.05),_ meaning that there is a relationship between obesity and the incidence of breast cancer in WUS.

Keywords: Breast Cancer, Menarche, Obesity

Introduction

Breastcancer is a fear for every women. The incidence of breast cancer continues to increase every year, including at RSPAL dr Ramelan Surabaya. In 2022 there will be 389 new cases of breast cancer in WUS and this will increase in 2022 by 457 cases (14.87%). How can women avoid the incidence of breastcancer to their body? The cause of breast cancer is still unknown, but there are several risk factors, such as the age of menarche and women's obesity status.

There are several previous researches. Sukmayenti & Sari (2019) states that women who experience menstruation for the first time earlier (before 12 years) are at risk of developing breast cancer, because the sooner a woman experiences puberty, the longer the time her breast tissue will be exposed to dangerous elements that cause cancer such as estrogen. Several risk factors for obesity, hereditary breast cancer, menstrual cycle and menopause can cause breast cancer (Ningsih et al, 2021).

Menstruation before the age of 11 will increase the risk of breast cancer by 3 times. Early menstruation is related to prolonged exposure to the hormones estrogen and progesterone which influence the process of tissue proliferation, including breast tissue. This can also stimulate the development of breast epithelial tissue cells thereby increasing the incidence of breast cancer (Uswatun & Yuliyani, 2016)

Another research says that obesity can trigger and increase the risk of breast cancer, especially when you have experienced menopause (D. Tilong, 2014). Yanti's research (2016) in Padang explains that there is a relationship between obesity and breast cancer. This is because obesity can increase the production of estrogen by fat cells. Obesity is related to the hormone estrogen which is stored in fat tissue. The more hormone trapped increases the risk. In Anggorowati's (2013) research in Kudus, obesity was a risk factor associated breast cancer. The analysis results of Asari et al (2020), the proportion of obese women who experience breast cancer is 0.9%.

The research is conducted to analyze the relationship between menarche and obesity and the incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya. Moreover, it's also conducted; to identify the characteristics of women of childbearing age, to identify menarche in women of childbearing age, to identify obesity in women of childbearing age, to identify the incidence of breast cancer in women of childbearing age, to analyze the relationship between menarche and the incidence of breast cancer in women of childbearing age, to analyze the relationship between obesity and the incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya. The result can be used as input in strategies for preventing, treating and educating breast cancer, and also can be used as reference data for the development of hospital services that are integrated with the education system.

Metode

This research was conducted at the Oncology Surgical Polyclinic of RSPAL dr. Ramelan Surabaya. This research is an observational analytic with a case control design, breastcancer in WUS as the case group and no breast cancer in WUS as the control group. The dependent variable is breast cancer on WUS, while the independent variables are menarche and obesity. The sample size was 160 respondents, consisting of 80 case groups and 80 control groups. The sampling method uses simple random sampling. To determine the relationship between variables, the collected data was tested using the *chi-square test* with a significance level of *α=0.05*.

Result

The research is focused on the relationship between menarche and the incidence of breast cancer in women of childbearing age and also relationship between obesity and the incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya.

Data

Table 5.1 Characteristic of Responden at Surgical Oncology RSAL Dr. Ramelan Surabaya 2024

No	Characteristic	Case		Control		Total
		n	%	n	%	n
1	Amount of Children (Parity)					
	1 Child	21	26.2	22	27.5	43
	2 Children	41	51.2	39	48.75	80
	3 Children	15	18.8	17	21.25	32
	4 Children	3	3.8	2	2.5	5
	Total	80	100	80	100	160
2	Lactation History					
	No	15	18.75	14	17.5	29
	Yes, less than 2 years	18	22.5	15	18.75	33
	Yes, exclusive 2 years	47	58.75	51	63.75	98

No						
	Total	80	100	80	100	160
3	Contraception History					
	Pills	26	32.5	28	35.0	54
	1 month injection	18	22.5	5	6.25	23
	3 month injection	13	16.25	6	7.5	19
	IUD	16	20.0	32	40.0	48
	Condom	0	0.0	3	3.75	3
	Never	7	8.75	6	7.5	13
	Total	80	100	80	100	160
4	SADARI History					
	Never	67	83.8	61	76.25	128
	Ever	13	16.2	19	23.75	32
	Total	80	100	80	100	160

Table 5.1 explains all respondents have children. Half of the total respondents consisting of the case group (51.2%) and the control group (48.75%) had 2 children. Regarding the lactation history, the majority of respondent breastfeed for 2 years, with 47 respondents (58.75%) in the case group and 61 respondents (63.75%) in the control group.

The history of contraception used by respondents varies; hormonal, namely pills, 1-month injections, and 3-month injections; and non-hormonal contraception, namely IUDs and condoms, and the rest have never used contraception. The majority of the case group used pills, namely 26 people (32.5%). Meanwhile, in the control group, the majority used an IUD, namely 32 people (40%). In BSE activities, only 16.2% of the case group and 23.75% of the control group had ever done BSE, the others had never.

Based on preliminary study, in 2021, there were 708 visits for breast cancer cases. And in 2022 it will increase to 1011 visits. The number of new cases of breast cancer in WUS in 2021 was 389 cases. There will be an increase of 14.8% in 2022 to 457 cases.

Tabel 5.2 Menarche in WUS at Surgical Oncology RSAL Dr. Ramelan Surabaya 2024

No	Menarche	Kelompok sampel				
		Kasus		Kontrol		Total
		N	%	n	%	n
1	<9 th	3	3.75	7	8.75	10
2	9 – 12 th	54	67.5	52	65.0	106
3	>12th	23	28.75	21	26.25	44
	Total	80	100	80	100	160

Based on table 5.2, the results showed that 3 respondents (3.75%) in the case group and 7 respondents (8.75%) in the control group had menarche at the age of less than 9 years. A total of 54 (67.5%) cases and 52 (65%) had menarche in the age range of 9 to 12 years. Meanwhile, 23 (28.75%) of the case group and 21 (26.25%) of the control group had menarche at the age of more than 12 years.

Tabel 5.3 Obesity inWUS at Surgical Oncology RSAL Dr. Ramelan Surabaya 2024

No	Obesity	Group Sample				
		Cases		Control		Total
		n	%	n	%	n
1	Obese (IMT >25 kg/m^2)	60	75.0	40	50.0	100
2	Not Obese (IMT <25 kg/m^2)	20	25.0	40	50.0	60
	Total	80	100	80	100	160

Based on table 5.3, the results show that the number of respondents who are obese is greater than respondents who are not obese. The number of respondents who were obese was 60 people (75%). Meanwhile, 20 respondents (25%) were included in the non-obese category in the case group. Meanwhile, in the control group, the distribution of respondents was the same between obese and non-obese

Bivariate Analysis

Tabel 5.4 The Relation between Menarche and the Incidence of Breastcancer in WUS at Surgical Oncology RSAL dr. Ramelan Surabaya 2024

Menarche	Responden			
	Breast Cancer In WUS	Not Breast Cancer in WUS	Total	$\rho\ value$
<9 th	3	7	10	
9 – 12 th	54	52	106	0.421
>12th	23	21	44	
Total	80	80	160	

Table 5.4 is the result of bivariate data analysis using the chi-square test. The results of the analysis obtained a ρ value of 0.421. This shows that the ρ value is greater than the α value (0.05). So H0 is accepted. So, it was concluded that there was no relationship between menarche and the incidence of breast cancer in WUS. The results of the correlation test obtained CC 0.103, with a positive number so that the direction of the correlation is directly proportional.

Tabel 5.5 The Relation between Obesity and Incidence of Breastcancer in WUS inWUS at Surgical Oncology RSAL Dr. Ramelan Surabaya 2024

Obesity Status	Responden			ρ value
	Breast Cancer In WUS	Not Breast Cancer in WUS	Total	
Obese (IMT >25 kg/m^2)	60	40	100	
Not Obese (IMT <25 kg/m^2)	20	40	60	0.001
Total	80	80	160	

Table 5.5 shows the results of data analysis using the chi-square test, obtaining a ρ value of 0.001. This shows that the ρ value is smaller than the α value (0.05). So H0 is rejected. So, there is a relationship between obesity and the incidence of breast cancer in WUS. The results of the correlation test obtained CC 0.250, with a positive number so that the direction of the correlation is directly proportional. These results indicate that the power between variables is low.

The results are, first, characteristics of respondents based on parity, namely that most have 2 children. Respondent characteristics based on lactation history were that most respondents had breastfed for 2 years. The characteristics of respondents based on contraceptive history were that in the case group the majority used pills and in the control group the majority used IUDs. Characteristics of respondents based on BSE history were only a small proportion in the case and control groups. Second, there is no relationship between menarche and the incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya. Third, there is a relationship between obesity and the incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya.

Dicussion

Based on the study, for parity status, namely half of the total respondents in the case group (51.2%) and control group (48.75%) have 2 children. Parity status is related to breast function. Breasts undergo proliferation and differentiation during pregnancy in preparation for breastfeeding. This is hypothesized to be an important mechanism linking term pregnancy to a reduced risk of breast cancer in the long term, protecting breast tissue from carcinogenic transformation (Fortner, et al., 2019).

In terms of lactation history, 47 respondents (58.75%) in the case group and 61 respondents (63.75%) in the control group had breastfed for 2 years. Factors other than hormonal, first pregnancy at an older age such as over 35 years have a risk of 1.5-4 times greater than pregnancy at the age of 20-34 years, while nulliparity has a 1.3-4 times risk of developing breast cancer (Ashariati, 2019). This is because nulliparity patients do not breastfeed exclusively so that the lactation process can work continuously. This causes the formation of breast milk dams and incomplete emptying of the alveoli. From a theoretical perspective, breastfeeding can reduce a woman's risk of developing pre-menopausal breast cancer. From the research results of Fortner et al. (2019) stated that supports the role of breastfeeding in reducing the risk of breast cancer.

The history of contraception used by respondents varies. The majority of the case group used pills, namely 26 people (32.5%). Meanwhile, in the control group, the majority used an IUD, namely 32 people (40%). These results are in line with research by Santoso et al (2024) which states that

long-term use of hormonal contraception also influences the incidence of mammary ca. This incident is related to an imbalance of the hormones progesterone and estrogen which are used as ingredients for hormonal birth control devices. There are two theories that discuss how estrogen and progesterone cause breast cancer. Firstly, the risk of cell mutation during division increases because cell proliferation due to increased estrogen and progesterone also increases. The second theory, estrogen and progesterone stimulate the growth of breast cancer stem cells (Santoso et al, 2024).

In SADARI activities, only 16.2% of the case group and 23.75% of the control group had ever done SADARI, the others had never. In concept, the etiology of breast cancer is currently unknown. However, there are factors related to the incidence of breast cancer cases such as: age, marital status, age at first birth, age at first menstruation, age at menopause, individual disease history, and family history of cancer, genetic and hormonal factors, obesity, alcohol consumption, radiation and oral contraceptives (Iqmy et al., 2021). So that early detection with SADARI will be helpful to indicate breastcancer. It is suspected that the cause of breast cancer is multifactorial (Yulianti et al., 2016).

The results of data collection showed that the majority of respondents (106 respondents) had menarche between the ages of 9 and 12 years. And only 10 respondents had menarche at the age of less than 9 years. The remaining 44 respondents had menarche over the age of 12 years. The results of the chi square statistical test obtained a ρ value of 0.421, meaning that statistically this shows that there is no relationship between menarche and the incidence of breast cancer in WUS.

Menarche that is too early causes exposure to the hormone estrogen more quickly. The hormone estrogen influences the process of breast tissue proliferation (Uswatun & Yuliyani, 2016).

From the results of statistical tests using the chi square test, it was concluded that there was a relationship between obesity and the incidence of breast cancer in WUS. Obesity in women is associated with excess estrogen hormone. The results of this research are in line with research by Yanti (2016) in Padang, explaining that there is a relationship between obesity and breast cancer. This is because obesity can increase the production of estrogen by fat cells. The fatter that is stored, the more the hormone estrogen will be trapped in fat tissue, which can cause a risk of mammae ca cell growth.

Conclusion

Breastcancer is an evil for women around the world. Which woman will have the risk of breastcancer? This research is conducted at RSPAL dr. Ramelan Surabaya for women in childbearing age. The incidence of breast cancer in women of childbearing age at RSPAL dr. Ramelan Surabaya increases significantly during 2022 from 389 to 457 cases (14.87%).

The study has to find out the relationship between obesity and menarche and the incidence of breastcancer in WUS? Women of childbearing age have two children even in case group (51.2%) and also control group (48.75%). By having children, the women actively increase their breast function, so that it can reduced the risk of breast cancer in the long term, protecting breast tissue from carcinogenic transformation (Fortner, et al., 2019).

The study shows that there are 106 respondents had menarche between 9 and 12 years old. And only 10 respondents had menarche at 9. The remaining 44 respondents had menarche over 12 years old.

Obesity can trigger and increase the risk of breast cancer, especially when you have experienced menopause (D. Tilong, 2014). Yanti's research (2016) in Padang explains that there is a relationship between obesity and breast cancer. This is because obesity can increase the production of estrogen by fat cells. Obesity is related to the hormone estrogen which is stored in fat tissue. The more hormone trapped increases the risk. In Anggorowati's (2013) research in Kudus, obesity was a risk

factor associated breast cancer. The analysis results of Asari et al (2020), the proportion of obese women who experience breast cancer is 0.9%.

The study concludes that there is no relationship between menarche and the incidence of breast cancer in women of childbearing age, because of *chi square* statistical test obtained a *ρ value* of 0.421.

The study shows that the obesity in WUS women increases the risk of breastcancer. The *chi square test* shows that there was a relationship between obesity and the incidence of breast cancer. Obesity in women is associated with excess estrogen hormone which increases risk of breastcancer growth. The results of this research are in line with previous researchers D. Tilong (2014), Yanti (2016), Anggorowati's (2013), Asari at el (2020).

This study finally find out that there are several characteristics like parity, lactation history, contraceptive history, and SADARI history. The results showed that most of the obese (75%) were included in the case group. The results of the *chi-square* analysis of breast cancer in WUS with menarche showed *p value=0.421* (p>0.05), meaning that there was no relationship between menarche and the incidence of breast cancer in WUS. Meanwhile, for breast cancer in WUS with obesity, the *chi-square* analysis showed p value=0.001 (p<0.05), meaning that there is a relationship between obesity and the incidence of breast cancer in WUS.

Hopefully, this result can be used as input in strategies for preventing, treating and educating breast cancer, and as reference data for the development of hospital services.

References

[1] Alam, Syamsul., Syahrir S., Adnan Y, Asis A. (2021). "Hubungan Status Gizi dengan Usia Menarche pada Remaja Putri." *Jurnal Ilmu Kesehatan Masyarakat*. 2021; 10 (3): 200-207. https://doi.org/10.33221/jikm.v10i03.953

[2] Alfiani, Dian., Widayanti & Mirasari Putri. (2022). "Literature Study: Obesitas sebagai Faktor Risiko pada Kanker Payudara Triple Negative." *Bandung Conference Series: Medical Science*. Volume 2, No. 1, Tahun 2022, Hal: 326-329

[3] Anggorowati, Lindra. (2013). "Faktor Risiko Kanker Payudara Wanita." *Jurnal Kesehatan Masyarakat*. KEMAS 8 (2) (2013) 121-126.

[4] Arafah, Alvita BR., Hari Basuki Notobroto. (2017). "Faktor yang Berhubungan dengan Perilaku Ibu Rumah Tangga Melakukan Pemeriksaan Payudara Sendiri (SADARI)." *The Indonesian Journal of Public Health.vol 12 no 2, desember 2017: 143-153* doi: 10.20473/ijph.vl2il.2017.143-153

[5] Ardelia, K. I. A., Hardianto, G., & Nuswantoro, D. (2019). "Passive smoker during pregnancy is a risk factor of low birth weight." *Majalah Obstetri & Ginekologi*. Vol 27(1), 12–16. https://doi.org/10.20473/mog.V27I12019.12-16

[6] Ariana, S., Budijitno, S., dan Suhartono. (2020). "Riwayat Usia Pertama Menarche < 12 Tahun Berhubungan Dengan Kejadian Kanker Payudara Pada Wanita Usia Subur." *Jurnal Ilmiah Ilmu Kesehatan*. 8487(2), 168–175.

[7] Artikasari, Lia., Herinawati, Enny Susilawati. (2021). "Faktor-Faktor yang Berhubungan dengan Perilaku Wanita Usia Subur Terhadap Deteksi Dini Ca Mammae Menggunakan Teknik Sadari." *JURNAL ILMIAH OBSGIN*. Vol.13.No.1

[8] Asari, Hazella RV, dkk. (2020). "Hubungan Obesitas dengan Kejadian Kanker Payudara pada Perempuan di Indonesia (Analisis Data Riset Penyakit Tidak Menular Tahun 2016." *THESIS*: Fakultas Kesehatan Masyarakat Universitas Indonesia.

[9] Ashariati A. (2019). *Manajemen Kanker Payudara Komprehensif*. Surabaya: Universitas Airlangga.

[10] Aster, K. A. (2013). *Buku Ajar Patologi Robbins*. Indonesia: Elsevier.

[11] Astutik, R. Y. (2017). *Payudara dan Laktasi edisi 2*. Jakarta: Salemba Medika.

[12] Ayu, G., Dewi, T., Hendrati, L. Y., Ua, FKM., Epidemiologi, D., & Ua, FKM. (2013). "Analisis risiko kanker payudara berdasar riwayat pemakaian kontrasepsi hormonal dan usia." 12–23.

[13] Balitbangkes. (2019). *Data Presentasi Kasus Kanker*.

[14] Barus SB, Yufdel, S.Kep., Ns MK. (2019). "Hubungan Pengetahuan dan Sikap Remaja dengan Perilaku Pemeriksaan Payudara Sendiri (SADARI) Pada Remaja Putri Kelas X di SMA RK Delimurni Bandar Baru Tahun 2019." *Jurnal Poltekkes Kemenkes Medan*. 2019;6(1):5-10.

[15] Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. "Global Cancer Statistics 2018: GLOBOCAN Estimates of ncidence and Mortality Worldwide for 36 Cancers in 185 Countries." *CA Cancer J Clin*. 2018;68: 394-424

[16] Chomairoh, Feni Priana N. , Fernandus, Euvanggelia D. & Bambang Purwanto. (2021). The Relationship Between Dysmenorrhea And Physical Activity Of Midwifery And Psychology Students Unair . *International Journal of Research Publications*. 91(1), 344-350; doi:.10.47119/IJRP1009111220212589

[17] Dahlan ,F.M.,& Ardhi,Q. (2021). "The Effect of Fe Tablet and Date Palm on Improving Hemoglobin Level among Pregnant Women in the Third Semester." *Journal of Midwifery*, 5(1), 32. https://doi.org/10.25077/jom.5.2.32-38.2020

[18] Daraz, Fadila Gustiani., Indri Windarti, Putu Ristyaning Ayu Sangging. (2023). "Peran Obesitas dalam Metastasis Kanker Payudara." *Medula*. Volume 13 Nomor 1 Januari 2023 172-178

[19] Depkes RI. (2016). *Pencegahan dan Penanggulangan Anemia pada Remaja Putrid an Wanita Usia Subur*. Kemenkes RI: Jakarta.

[20] Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular Kemenkes RI. (2020). https://sehatnegeriku.kemkes.go.id/baca/umum/20220202/1639254/kanker-payudara-paling-banyak-di-indonesia-kemenkes-targetkan-pemerataan-layanan-kesehatan/ diakses tanggal 30 November 2023

[21] Donoseputro, IntanWasaputri (2016) *Hubungan Paritas terhadap Terjadinya Kanker Payudara di RSUD Dr. Saiful Anwar Malang Periode Januari 2012-Desember 2014*. Sarjana thesis, Universitas Brawijaya.

[22] D.Tilong, A. (2014). *Waspada Penyakit-Penyakit Mematikan Tanpa Gejala Menyolok*. Jogyakarta: Buku Biru.

[23] Firman N, Syahril E, Abdi DA, Nulanda M, Dewi AS. (2022). "Gambaran Faktor Risiko Pasien Kanker Payudara di RS Ibnu Sina Makassar Tahun 2019." *Fakumi Medical Journal*. 2022; Vol 2(5).

[24] Fortner, et. al. (2019). "Parity, breastfeeding, and breast cancer risk by hormone receptor status and molecular phenotype: results from the Nurses' Health Studies." *Breast Cancer Research* volume 21: 40

[25] GLOBOCAN. (2020). *Breast - Global Cancer Observatory*. https://gco.iarc.fr/today/data/factsheets/cancers/20-Breast-fact-sheet.pdf . Diakses tanggal 17 Desember 2023.

[26] Handayani, LT., Hamid, MA., dan Kurniawan, H. (2019). "PKM Kelompok Perempuan Usia Reproduktif Berisiko Kanker Payudara di Kelurahan Patrang dan Kelurahan Kebonsari Kabupaten Jember Propinsi." *Jurnal Pengabdian Masyarakat J-DINAMIKA*. Vol. 4, No. 1, Juni 2019, P-ISSN : 2503-1031, E-ISSN: 2503-1112 PKM, 4(1), 46–49.

[27] Harahap, H Pratiwi, & Sarma N. Lumbanraja. (2018). "Faktor Risiko Kanker Payudara Pada Wanita Usia Subur di Rsud Dr. Pirngadi Medan." *Jurnal Kesehatan Global*. Vol. 1, No. 1, Januari 2018 : 08-14.

[28] Hardiano, R., Nurul Huda, & Jumaini. (2016). "Gambaran Indeks Massa Tubuh Pada Pasien Kanker Yang Menjalani Kemoterapi." *Jurnal Online Mahasiswa Perpustakaan Fakultas Keperawatan Universitas Riau.* Vol 2(2).

[29] Hasanah, Musrifatul., MA Hamid, dan Sofia Rhosma Dewi. (2020). "Analisis Faktor Dominan yang Berpengaruh Terhadap Kejadian Carcinoma Mammae di Rumah Sakit Tingkat III Baladhika Husada Jember". *Skripsi. UM Jember.*

[30] Hasdianah, & Suprapto, S. I. (2014). *Patologi & Patofisiologi Penyakit.* Yogyakarta: Nuha Medika.

[31] Humaera R & Mustofa S. (2017). "Diagnosis dan Penatalaksanaan Karsinoma Mammae Stadium 2." *J Medula UNILA.* 2017;7(2):103-7.

[32] Iqmy, LO., Setiawati, & Easter Yanti, D. (2021). "FAKTOR RISIKO YANG BERHUBUNGAN DENGAN KANKER PAYUDARA". *Jurnal Kebidanan*, Vol 7(1), 32–36.

[33] Irena, Ria. (2018) "Hubungan Obesitas Dengan Kejadian Kanker Payudara di RSUD Bangkinang." *PREPOTIF Jurnal Kesehatan Masyarakat.* Volume 2, Nomor 1, April 2018

[34] Ismail, H. (2018). "SYARIAT MENYUSUI DALAM ALQURAN (Kajian Surat AlBaqarah Ayat 233)." *JURNAL At-Tibyan: Jurnal Ilmu Alquran Dan Tafsir*, 3(1), 69. https://doi.org/10.32505/tibyan. v3i1.478

[35] Julaecha, J. (2021). "Pendidikan Kesehatan tentang Deteksi Dini Kanker Payudara melalui Pemeriksaan Payudara Sendiri (SADARI)." *Jurnal Abdimas Kesehatan(JAK)*,3(2),115–119.

[36] Kemenkes RI. (2015). "Peraturan Menteri Kesehatan Republik Indonesia Nomor 34 Tahun 2015 Tentang Penanggulangan Kanker Payudara dan Kanker Leher Rahim."

[37] Kemenkes RI. (2016). *PEDOMAN TEKNIS PENGENDALIAN KANKER PAYUDARA DAN KANKER*. Jakarta: Depkes RI.

[38] Kemenkes RI. (2018). *Hasil utama RISKESDAS 2018*. Jakarta: Kementerian Kesehatan Badan Penelitian dan Pengembangan Kesehatan.

[39] Kementerian Kesehatan RI. (2018). *Infodatin : Situasi Kesehatan Reproduksi Remaja.* Pusat Data dan Informasi Kementerian Kesehatan RI.

[40] Kementerian Kesehatan RI. (2018). "Klasifikasi Obesitas Setelah Pengukuran IMT." https://p2ptm.kemkes.go.id/infographic-p2ptm/obesitas/klasifikasi-obesitas-setelah-pengukuran-imt diakses tanggal 1 Desember 2023

[41] Kolb, R., dan Weizhou Zhang. (2020). "Obesity and Breast Cancer: A Case of Inflamed Adipose Tissue." MDPI Journal Cancers.Vol 12, 1686; doi:10.3390/cancers12061686

[42] Lim JU, Lee JH, Kim JS, Hwang YI, Kim TH, Lim SY, *et al.* (2017). "Comparison of world health organization and asia-pasific body mass index classifications in COPD Patients." *International journal of COPD*. 2017;12: 2465-475.

[43] Maria, I. L., Sainal, A. A., & Nyorong, M. (2017). "Risiko Gaya Hidup Terhadap Kejadian Kanker Payudar Pada Wanita." 13(2), 157–166.

[44] Mehejabin, F., and Md. Sahidur Rahman. (2022). "Knowledge and perception of breast cancer among women of reproductive age in Chattogram, Bangladesh: A cross-sectional survey." *Health Sci Rep*. 2022 Sep; 5(5): e840. doi: 10.1002/hsr2.840

[45] Ningsih, A. Nadia Sulistia., dkk. (2021). "Faktor Resiko Kejadian Kanker Payudara Pada Pasien Ca Mammae di RS. Ibnu Sina Makassar pada Tahun 2018." *Fakumi Medical Journal: Jurnal Mahasiswa Kedokteran.* Vol.1 No.3: E-ISSN: 2808-9146

[46] Novitasary, MD., Mayulu N & Kawengian SES. (2013). "Hubungan antara Aktivitas Fisik dan Obesitas pada wanita Usia Subur Peserta JAMKESMAS di Puskesmas Wawonasa Kecamatan Singkil Manado." *Jurnal e-Biomedik (eBM)*. Vol 1 no 2 Juli 2013

[47] Nuttall FQ. (2015). "Body Mass Index: Obesity, BMI, and Health: A Critical Review." *Nutrition Research*. 2015;50(3):117-28.

[48] Pane, M.SR., Andayani, LS., & Syahrial, DE. (2014). "Gambaran Pengetahuan, Sikap, dan Tindakan Remaja Puteri dalam melakukan pemeriksaan payudara sendiri (SADARI) di SMA Katolik Budi Murni 1 Medan."

[49] Philip W, James T, Jackson-leach R, Mhurchu CN, Kalamara E, Shayeghi M, *et al*. (2021). "Overweight and Obesity (High Body Mass Index)." *Comparative Quantification of Health Risks*. 2021;8:497-596.

[50] Putra, Made Sukma., Djuari, Lilik. & Yudiwati, R. (2021). "Correlation Between Gender, Physical Activity, Family Obesity History and Consumption of Fruit or Vegetable with Obesity in Medical Students in Surabaya."*Indonesian Andrology and Biomedical Journal*. Vol 3 No 1. https://doi.org/10.20473/iabj.v3i1.36157

[51] Putra, Rahmat NY., Ermawati & Amir, A. (2014). "Hubungan Indeks Massa Tubuh (IMT) dengan Usia Menarche pada Siswi SMP Negeri 1 Padang." *Jurnal Kesehatan Andalas*, 5(3), 551–557.

[52] Putra, S. R. (2015). *Buku Lengkap Kanker Payudara*. Yogyakarta: Laksana.

[53] Rizwani, Achmad Ilham., Ahyandi, SS., Naimatuningsih, N., Ridwan, EN., Nurvita, R., Nujum, N., Mahrus, MH., dan Djuari, Lilik. 2021. "Systematic Review With Meta-Analysis Of Obesity As Risk Factor Of Covid-19 Related Mortality". *Journal of Community Medicine and Public Health Research*. Vol 2 (2). https://doi.org/10.20473/jcmphr.v2i2.26038

[54] Santoso, Budi., Susanto, Lunardhi., Tunjungseto, Arif., Widjayanti, Yhenti., Fernandus, Euvanggelia D., & Devianti Putri, Berliana. (2024). "The Effectiveness, Changes in Body Weight, and Menstrual Cycle Between 2 Rods and 1 Rod Contraceptive Implants after 12 Months of Insertion." *Current Women's Health Reviews*. Volume 20. Number 2. 2024. pp. 113-119(7). DOI: https://doi.org/10.2174/1573404820666230317095152

[55] Savitri, A. (2015). *Kupas Tuntas Kanker Payudara, Leher Rahim, dan Rahim*. Yogyakarta: Pustaka Baru Press.

[56] Sembiring, Dewi K., Yulis S., Dwi Linda Hastuti. (2023). "Hubungan Karakteristik Wanita Usia Subur (WUS) Terhadap Pengetahuan Tentang Periksa Payudara Sendiri (Sadari) Di PMB S Periode Oktober Tahun 2022." *Jurnal Ilmiah Obsgin*. Vol.15 No.3 (2023).

[57] Shafrir, A. L. dkk. (2018). "Risk for and consequences of endometriosis: A critical epidemiologic review." *Best Practice and Research: Clinical Obstetrics and Gynaecology*. doi:10.1016/j.bpobgyn.2018.06.001.

[58] Sianturi, E., M Pardosi, E Surbakti. (2019). *Kesehatan Masyarakat.* Sidoarjo: Zifatama Jawara

[59] Sukmayenti, dan Nirmala Sari. (2019). "Hubungan Faktor Reproduksi Dengan Kejadian Kanker Payudara Pada Wanita di RSUP Dr. M.Djamil Padang." 58-63.

[60] Suyatno & Pasaribu, E. T. (2014). *Bedah Onkologi diagnostik Dan Terapi*. Edisi 2. Jakarta: Sagung Seto.

[61] Uswatun, A., dan Yuliyani, T. (2016). "Hubungan Usia Menarche Dengan Kejadian Kanker Payudara di RSUD Dr. Moewardi Surakarta Tahun 2015." Jurnal *Kebidanan*, 8(01), 61–71. https://doi.org/10.35872/jurkeb. v8i01.200

[62] Wijaya, A. S., & Putri, Y. M. (2013). *KMB 2 Keperawatan Medikal Bedah (Keperawatan Dewasa)*. Yogyakarta: Nuha Medika.

[63] Yanti, M. (2016). "Faktor Risiko Kanker Payudara Pada Wanita Di Poliklinik Bedah RSUP DR. M. Djamil Padang Tahun 2016."

[64] Yulianti, I., Setyawan, H., Sutiningsih, D. (2016). "FAKTOR-FAKTOR RISIKO KANKER PAYUDARA (Studi Kasus Pada Rumah Sakit Ken Saras Semarang)." *E Journals Undip*. Vol. 4. http://ejournals1.undip.ac.id/index.php/jkm