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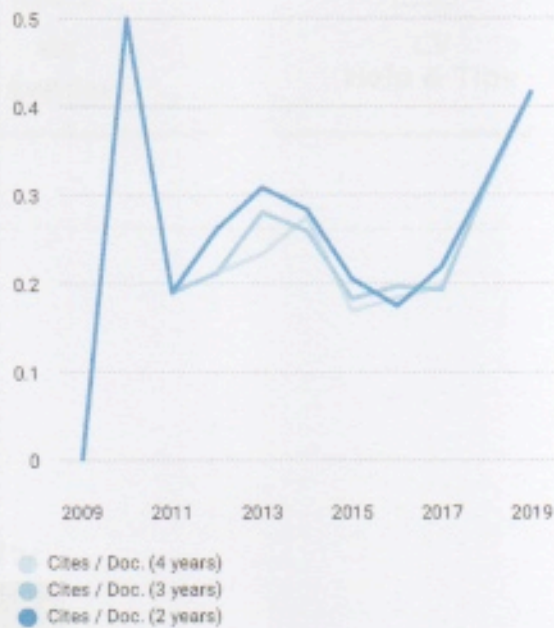
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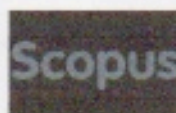| CV Templates	CV Examples	CV Builder	CV Help & Tips

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Relationship between Ultra High-Temperature Milk Consumption and High Glycemic Index Food with Acne Vulgaris at Medicine Faculty *Universitas Kristen Indonesia*

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Abstract

Although Acne Vulgaris is not a serious skin disease, it can generate psychological issues for the sufferers. Because Acne Vulgaris could cause a lack of self-confidence to the sufferers. The cause of Acne Vulgaris is multifactorial such as genetic, stress, cosmetic, and food. The Food that could cause Acne Vulgaris are biscuits, French fries, and a doughnut. The purpose of this research is to observe the relation of Ultra High Temperature (UHT) milk consumption and high glycemic index food with Acne Vulgaris in FK UKI students. The research uses a case-control approach. The population of this research case is the Acne Vulgaris sufferers in pre-clinical active students of FK UKI, while the population of research control is the Acne Vulgaris non-sufferers in pre-clinical active students of FK UKI. The research sample is 56 cases and 56 controls. The research instrument is questionnaire and photograph evident of front, right and left side look. The normality evaluation analysis is conducted using Kolmogorov – Smirnov. There are no normal distribution results found, therefore bivariate analysis uses Mann Whitney U evaluation. Moreover, the multivariate analysis is conducted using logistic regression evaluation. The research result in the bivariate analysis found a relation between consumption of UHT milk (p=0,000), French fries (p=0,016) and doughnut (p=0,000) to Acne Vulgaris. In multivariate analysis found that UHT milk has the highest risk for the occurrence of Acne Vulgaris (p=0,000). The summary of this research found there is a relation between UHT Milk, French fries, and doughnut consumption with Acne Vulgaris in students of FK UKI.

Keywords: *Acne Vulgaris, UHT milk, Biscuit, French Fries, Doughnut.*

I.   INTRODUCTION

Acne Vulgaris is a chronic inflammation of the pilosebaceous follicles caused by several factors with a typical clinical picture [1]. Generally, it occurs at the age of pre-puberty ie 12-15 years of age, with a peak severity at the age of 17-21 years [2;3;4]. Although it is not a dangerous skin disease, it can cause psychological problems for sufferers such as anxiety and lack of confidence [5;6]. The prevalence of Acne Vulgaris in African, American and Hispanic women has a high prevalence of Acne Vulgaris, which is 37% and 32%. While 30% of Asian racial women, Caucasian 24%, and Indian 23% [7;8]. In Asian races, inflammatory lesions are more frequent than comedonal lesions (non-inflammatory lesions), which are 20% inflammatory lesions and 10% comedonal lesions [9;10]. According to the records of the Indonesian Cosmetics Dermatology Study, 60% of patients with Acne Vulgaris in 2006, 80% occurred in 2007, and 90% in 2009. The highest prevalence was at the age of 14-17 years, where, in women ranged from 83-85% and at that is, men at the age of 16-19 years range from 95-100%. However, sometimes in women will settle into their 30s, in men it is rare but when it comes to men it will be more severe [11].

Acne Vulgaris can be caused by several factors, including genetic factors, racial factors, dietary factors, climate factors, skin type factors, hygiene factors, cosmetic use factors, stress factors, infectious factors and occupational factors [12]. Food (intake) is a primary need for humans. Some foods can trigger Acne Vulgaris, which contain 5 α reductase (a precursor of dihydrotestosterone) which can trigger an increase in insulin thereby triggering an increase in sebum production [13;14]. Foods that have these contents can be found one of them in milk [15]. UHT (Ultra High Temperature) milk is a milk product obtained by sterilizing milk at a minimum temperature of 135 oC for 2 seconds, with or without the addition of food ingredients and food additives that are allowed, then cooled aseptically. Milk consumption with Acne Vulgaris in adolescent boys, it was stated that the highest prevalence of Acne Vulgaris based on milk intake was found in adolescent boys with food habit consuming milk as much as 2-6 times weekly [16].

According to research conducted in 2008, high milk consumption increases the risk of Acne Vulgaris in men and women [17]. A finding of research conducted says that that 44.2% of respondents who suffer from acne consume foods that contain a high glycemic index, and the other finding of a research says that 80% of samples who suffer from acne consume high glycemic index foods [18;19].

II. RESEARCH METHODS

This type of research is a cross-sectional study, with a retrospective case-control design to determine risk factors that can trigger Acne Vulgaris, namely the frequency of Ultra High Temperature (UHT) milk consumption and high glycemic index foods (sweet biscuits, French fries and sweet doughnuts) at FK UKI Cawang, East Jakarta. The time of the study was conducted from September to November 2017. The sample selection technique in this study was purposive sampling from the 2014-2017 class of students who were considered to fit the inclusion criteria. In this study using control, respondents amounted to 56 people (50%) and case respondents numbered 56 people (50%). The control respondents were students who did not suffer from Acne Vulgaris. Whereas case respondents were students who were suffering from Acne Vulgaris. The data source of this study uses primary data through filling out questionnaires with research samples and clinical examination of Acne Vulgaris (to distinguish those who do not suffer from Acne Vulgaris from those with Acne Vulgaris, those who have 10 or more pustules, papules or blackheads), and photos of 3-sided respondents i.e. front, left and right.

III. RESULTS AND DISCUSSION

A. Univariate Analysis
Based on the results of the study obtained an overview of the frequency of respondents consuming UHT milk during the past week.

Table 1. Distribution of Case and Control Respondents on the Frequency of UHT Milk Consumption

No.	Frequency	Total	%
1.	0	50	44.6
2.	1	14	12.5
3.	2	17	15.2
4.	3	14	12.5
5.	4	8	7.1
6.	5	3	2.7
7.	6	3	2.7
8.	7	3	2.7
Total		**112**	**100.0**

Based on the results of the study obtained a description of the frequency of respondents consuming sweet biscuits during the past 1 week.

Table 2. Distribution of Case and Control Respondents on the Frequency of Consumption of Sweet Biscuits in the past 1 week

No.	Frequency	Total	%
1.	0	37	33.0
2.	1	32	28.6
3.	2	18	16.1
4.	3	17	15.2
5.	4	4	3.6
6.	5	3	2.7
7.	7	1	0.9
Total		**148**	**100.0**

Based on the results of the study obtained a description of the frequency of respondents consuming French fries during the last 1 week.

Table 3. Distribution of Case and Control Respondents on Frequency of Consumption of French Fries

No.	Frequency	Total	%
1.	0	33	29.5
2.	1	45	40.2
3.	2	19	17.0
4.	3	19	10.7
5.	4	2	1.8
6.	7	1	0.9
Total		**138**	**100.0**

Based on the results of the study obtained an overview of the frequency of respondents consuming sweet doughnuts during the past week.

Table 4. Distribution of Case and Control Respondents on Frequency of Consumption of Sweet Doughnuts

No.	Frequency	Total	%
1.	0	33	29.5
2.	1	41	36.6
3.	2	23	20.5
4.	3	9	8.0
5.	4	2	1.8
6.	5	4	3.6
	Total	**112**	**100.0**

B. Bivariate Analysis

Relationship between UHT Milk Consumption, Sweet Biscuits, French fries, and Sweet Donuts with Acne Vulgaris

Table 5. Relationship between UHT Milk Consumption, Sweet Biscuits, French fries, and Sweet Doughnuts with Acne Vulgaris

Test	Sig. (p)	Description
UHT milk	0,000	significant
Sweet Biscuits	0,442	insignificant
French fries	0,016	significant
Sweet Doughnuts	0,000	significant

Mann Whitney U.

Based on table 5, it can be concluded that there is a significant relationship between UHT milk consumption, French fries, and sweet doughnuts with Acne Vulgaris. There is no relationship between sweet biscuits with Acne Vulgaris.

C. Multivariate Analysis
Table 6. Multivariate Modeling

Variable	P(Value)
UHT milk	0,000
French fries	0,011
Sweet Doughnuts	0,002

From the table above, sorted from the most dominant variable, the UHT milk variable then the sweet doughnut variable and finally the French fries variable. So it can be concluded that the UHT milk variable is the most dominant variable for the occurrence of Acne Vulgaris.

Based on the results of this study, it was found that several types of food trigger Acne Vulgaris. Some types of food in this study include UHT milk and high glycemic index foods (sweet biscuits, French fries, and sweet doughnuts). The relationship between UHT Milk Consumption on the occurrence of Acne Vulgaris in this study, it was found a significant relationship between UHT milk consumption with Acne Vulgaris, this is in line with a research which says that wherein the group of cases that had consumed low-fat UHT milk for 2 weeks on

the 6th day, Acne Vulgaris began to appear, whereas, in the control group, there were no changes [20;21;22]. This is also supported by a research finding that demonstrating the high consumption of milk increases the risk of Acne Vulgaris in men and women [23;24]. A research also supports this, where respondents who consume milk every day are the most likely to experience Acne Vulgaris [25]. Milk contains androgens, the enzyme 5a reductase (a direct precursor of dihydrotestosterone) and other growth factors that affect the pilosebasea unit which is then linked to cosmogenesis [26;27]. One of the growth factors contained in milk is IGF-1, IGF-1 will also induce an increase in the enzyme 5a reductase. It is believed that consuming milk can cause Acne Vulgaris [28;29]. In a study conducted by Edward in Mongolian children in 2007, who had never consumed milk, after consuming 710 ml Ultra High Temperature (UHT) milk every day for one month, had higher and also higher IGF-1 - average plasma from IGF -1.

Relationship between high glycemic index consumption of foods with Acne Vulgaris, the pathogenesis of Acne Vulgaris increased the sebum production, *keratinocyte* hyperproliferation, increased *propionibacterium* acnes colonization, and inflammatory processes occur [30]. If someone consumes high glycemic index foods routinely can cause hyperinsulinemia. Hyperinsulinemia will cause hormonal increase which will then cause an increase in IGF -1 [31]. Increased IGF-1 can trigger keratinocyte hyperproliferation which is one of the pathogenesis of Acne Vulgaris. This is also supported by a research result that says that a high GI (glycemic index) diet can influence the development of Acne Vulgaris through *hyperinsulinemia* [32]. Research also showed that the low GI diet group could significantly reduce the number of acne lesions and improve insulin sensitivity compared to the control group [33]. In Hans Christian's study, by giving 3 types of high glycemic index foods namely sweet biscuits, French fries and also sweet doughnuts, the results stated that the frequency of consuming French fries and also sweet doughnuts was related to the incidence of Acne Vulgaris. Whereas in sweet biscuits there is no relationship to Acne Vulgaris [34;35] This can occur because of differences in the levels contained in the biscuits [36].

The relationship between consumption of sweet biscuits with Acne Vulgaris, in this study there was no significant relationship between consumption of sweet biscuits with Acne Vulgaris [37]. Although biscuits have a high glycemic index, variations in the content of biscuits that can affect the response of different blood glucose in the body, this is supported a research result that compares two variants of cookie-type biscuits between biscuits filled with flour from flour (SLO) with biscuits wheat made from wheat flour (RSG), although SLO with RSG has an equally high glycemic index, however, SLO has a higher glucose response than RSG [38]. Besides biscuits are classified into 4 types namely cookies, crackers, wafers, and hard biscuits, these four types of biscuits are determined by the type of flour used, the proportion of sugar and fat, the mixing method, the handling of the dough, and the roasting method. This can affect the content of the biscuits themselves [39].

Relationship between consumption of french-fries with Acne Vulgaris, in this study, found a significant relationship between consumption of French fries/Acne Vulgaris [40]. One factor that affects the glycemic index of a food is the way it is processed. Processing methods in the form of heating such as frying, boiling and steaming or grinding using flouring to make food into smaller particles can change the physiochemistry of food such as fat and protein content, digestibility, and the size of starch or other nutrients [41]. The method of cooking that is fried and submerged in hot oil and cut into pieces, influences the glycemic index of French fries to be high which is confirmed by a study in 2009 which found the relationship between fried food and the incidence of Acne Vulgaris [42]

The relationship between consumption of sweet doughnuts and Acne Vulgaris in this study it was found that there is a relationship between the consumption of sweet doughnuts with Acne Vulgaris. According to The American Journal, sweet doughnuts have a glycemic index of 76 so sweet doughnuts are included in high glycemic index foods [43]. In a previous study it is said that high glycemic index foods such as soda, candy, chips and doughnuts increased the incidence of Acne Vulgaris [44]. If you consume high glycemic index foods regularly it will result in increased insulin concentration which can stimulate sebocyte proliferation and sebum production and increase the concentration of androgen hormones that play a role in Acne Vulgaris [45].

From the results of multivariate modelling, the most dominant or most at risk of Acne Vulgaris occur. The variable is said to be the most dominant if the p-value obtained is the smallest among the other variables. The most dominant variable on the incidence of Acne Vulgaris in this study is the consumption of UHT milk compared to other variables, namely the consumption of sweet doughnuts and consumption of French fries. This can happen because UHT milk has more content such as IGF-1, androgen hormone and enzyme 5a reductase which can trigger the pathogenesis of Acne Vulgaris.

D. CONCLUSION

There is a significant relationship between the frequency of UHT milk consumption, consumption of French fries, and consumption of sweet doughnuts on the incidence of Acne Vulgaris. There is no significant relationship between the frequencies of consumption of sweet biscuits on the incidence of Acne Vulgaris. For future researchers, this research can be the basis for further research; this research needs to be explored further by looking at the frequency that can affect the incidence of Acne Vulgaris. For the public, this research can provide information about risk factors from UHT milk consumption and high glycemic index foods such as biscuits, French fries and sweet doughnuts on the incidence of Acne Vulgaris.

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Abstract

Although Acne Vulgaris is not a serious skin disease, it can generate psychological issues for the sufferers. Because Acne Vulgaris could cause a lack of self-confidence to the sufferers. The cause of Acne Vulgaris is multifactorial such as genetic, stress, cosmetic, and food. The Food that could cause Acne Vulgaris are biscuits, French fries, and a doughnut. The purpose of this research is to observe the relation of Ultra High Temperature (UHT) milk consumption and high glycemic index food with Acne Vulgaris in FK UKI students. The research uses a case-control approach. The population of this research case is the Acne Vulgaris sufferers in pre-clinical active students of FK UKI, while the population of research control is the Acne Vulgaris non-sufferers in pre-clinical active students of FK UKI. The research sample is 56 cases and 56 controls. The research instrument is questionnaire and photograph evident of front, right and left side look. The normality evaluation analysis is conducted using Kolmogorov – Smirnov. There are no normal distribution results found, therefore bivariate analysis uses Mann Whitney U evaluation. Moreover, the multivariate analysis is conducted using logistic regression evaluation. The research result in the bivariate analysis found a relation between consumption of UHT milk (p=0,000), French fries (p=0,016) and doughnut (p=0,000) to Acne Vulgaris. In multivariate analysis found that UHT milk has the highest risk for the occurrence of Acne Vulgaris (p=0,000). The summary of this research found there is a relation between UHT Milk, French fries, and doughnut consumption with Acne Vulgaris in students of FK UKI.

Keywords: Acne Vulgaris, UHT milk, Biscuit, French Fries, Doughnut.

I.   INTRODUCTION

Acne Vulgaris is a chronic inflammation of the pilosebaceous follicles caused by several factors with a typical clinical picture [1]. Generally, it occurs at the age of pre-puberty ie 12-15 years of age, with a peak severity at the age of 17-21 years [2;3;4]. Although it is not a dangerous skin disease, it can cause psychological problems for sufferers such as anxiety and lack of confidence [5;6]. The prevalence of Acne Vulgaris in African, American and Hispanic women has a high prevalence of Acne Vulgaris, which is 37% and 32%. While 30% of Asian racial women, Caucasian 24%, and Indian 23% [7;8]. In Asian races, inflammatory lesions are more frequent than comedonal lesions (non-inflammatory lesions), which are 20% inflammatory lesions and 10% comedonal lesions [9;10]. According to the records of the Indonesian Cosmetics Dermatology Study, 60% of patients with Acne Vulgaris in 2006, 80% occurred in 2007, and 90% in 2009. The highest prevalence was at the age of 14-17 years, where, in women ranged from 83-85% and at that is, men at the age of 16-19 years range from 95-100%. However, sometimes in women will settle into their 30s, in men it is rare but when it comes to men it will be more severe [11].

Acne Vulgaris can be caused by several factors, including genetic factors, racial factors, dietary factors, climate factors, skin type factors, hygiene factors, cosmetic use factors, stress factors, infectious factors and occupational factors [12]. Food (intake) is a primary need for humans. Some foods can trigger Acne Vulgaris, which contain 5 α reductase (a precursor of dihydrotestosterone) which can trigger an increase in insulin thereby triggering an increase in sebum production [13;14]. Foods that have these contents can be found one of them in milk [15]. UHT (Ultra High Temperature) milk is a milk product obtained by sterilizing milk at a minimum temperature of 135 oC for 2 seconds, with or without the addition of food ingredients and food additives that are allowed, then cooled aseptically. Milk consumption with Acne Vulgaris in adolescent boys, it was stated that the highest prevalence of Acne Vulgaris based on milk intake was found in adolescent boys with food habit consuming milk as much as 2-6 times weekly [16].

According to research conducted in 2008, high milk consumption increases the risk of Acne Vulgaris in men and women [17]. A finding of research conducted says that that 44.2% of respondents who suffer from acne consume foods that contain a high glycemic index, and the other finding of a research says that 80% of samples who suffer from acne consume high glycemic index foods [18;19].

II. RESEARCH METHODS

This type of research is a cross-sectional study, with a retrospective case-control design to determine risk factors that can trigger Acne Vulgaris, namely the frequency of Ultra High Temperature (UHT) milk consumption and high glycemic index foods (sweet biscuits, French fries and sweet doughnuts) at FK UKI Cawang, East Jakarta. The time of the study was conducted from September to November 2017. The sample selection technique in this study was purposive sampling from the 2014-2017 class of students who were considered to fit the inclusion criteria. In this study using control, respondents amounted to 56 people (50%) and case respondents numbered 56 people (50%). The control respondents were students who did not suffer from Acne Vulgaris. Whereas case respondents were students who were suffering from Acne Vulgaris. The data source of this study uses primary data through filling out questionnaires with research samples and clinical examination of Acne Vulgaris (to distinguish those who do not suffer from Acne Vulgaris from those with Acne Vulgaris, those who have 10 or more pustules, papules or blackheads), and photos of 3-sided respondents i.e. front, left and right.

III. RESULTS AND DISCUSSION

A. Univariate Analysis
Based on the results of the study obtained an overview of the frequency of respondents consuming UHT milk during the past week.

Table 1. Distribution of Case and Control Respondents on the Frequency of UHT Milk Consumption

No.	Frequency	Total	%
1.	0	50	44.6
2.	1	14	12.5
3.	2	17	15.2
4.	3	14	12.5
5.	4	8	7.1
6.	5	3	2.7
7.	6	3	2.7
8.	7	3	2.7
	Total	**112**	**100.0**

Based on the results of the study obtained a description of the frequency of respondents consuming sweet biscuits during the past 1 week.

Table 2. Distribution of Case and Control Respondents on the Frequency of Consumption of Sweet Biscuits in the past 1 week

No.	Frequency	Total	%
1.	0	37	33.0
2.	1	32	28.6
3.	2	18	16.1
4.	3	17	15.2
5.	4	4	3.6
6.	5	3	2.7
7.	7	1	0.9
	Total	**148**	**100.0**

Based on the results of the study obtained a description of the frequency of respondents consuming French fries during the last 1 week.

Table 3. Distribution of Case and Control Respondents on Frequency of Consumption of French Fries

No.	Frequency	Total	%
1.	0	33	29.5
2.	1	45	40.2
3.	2	19	17.0
4.	3	19	10.7
5.	4	2	1.8
6.	7	1	0.9
	Total	**138**	**100.0**

Based on the results of the study obtained an overview of the frequency of respondents consuming sweet doughnuts during the past week.

Table 4. Distribution of Case and Control Respondents on Frequency of Consumption of Sweet Doughnuts

No.	Frequency	Total	%
1.	0	33	29.5
2.	1	41	36.6
3.	2	23	20.5
4.	3	9	8.0
5.	4	2	1.8
6.	5	4	3.6
Total		**112**	**100.0**

B. Bivariate Analysis

Relationship between UHT Milk Consumption, Sweet Biscuits, French fries, and Sweet Donuts with Acne Vulgaris

Table 5. Relationship between UHT Milk Consumption, Sweet Biscuits, French fries, and Sweet Doughnuts with Acne Vulgaris

Test	Sig. (p)	Description
UHT milk	0,000	significant
Sweet Biscuits	0,442	insignificant
French fries	0,016	significant
Sweet Doughnuts	0,000	significant

Mann Whitney U.

Based on table 5, it can be concluded that there is a significant relationship between UHT milk consumption, French fries, and sweet doughnuts with Acne Vulgaris. There is no relationship between sweet biscuits with Acne Vulgaris.

C. Multivariate Analysis
Table 6. Multivariate Modeling

Variable	P(Value)
UHT milk	0,000
French fries	0,011
Sweet Doughnuts	0,002

From the table above, sorted from the most dominant variable, the UHT milk variable then the sweet doughnut variable and finally the French fries variable. So it can be concluded that the UHT milk variable is the most dominant variable for the occurrence of Acne Vulgaris.

Based on the results of this study, it was found that several types of food trigger Acne Vulgaris. Some types of food in this study include UHT milk and high glycemic index foods (sweet biscuits, French fries, and sweet doughnuts). The relationship between UHT Milk Consumption on the occurrence of Acne Vulgaris in this study, it was found a significant relationship between UHT milk consumption with Acne Vulgaris, this is in line with a research which says that wherein the group of cases that had consumed low-fat UHT milk for 2 weeks on

the 6th day, Acne Vulgaris began to appear, whereas, in the control group, there were no changes [20;21;22]. This is also supported by a research finding that demonstrating the high consumption of milk increases the risk of Acne Vulgaris in men and women [23;24]. A research also supports this, where respondents who consume milk every day are the most likely to experience Acne Vulgaris [25]. Milk contains androgens, the enzyme 5a reductase (a direct precursor of dihydrotestosterone) and other growth factors that affect the pilosebasea unit which is then linked to cosmogenesis [26;27]. One of the growth factors contained in milk is IGF-1, IGF-1 will also induce an increase in the enzyme 5a reductase. It is believed that consuming milk can cause Acne Vulgaris [28;29]. In a study conducted by Edward in Mongolian children in 2007, who had never consumed milk, after consuming 710 ml Ultra High Temperature (UHT) milk every day for one month, had higher and also higher IGF-1 - average plasma from IGF -1.

Relationship between high glycemic index consumption of foods with Acne Vulgaris, the pathogenesis of Acne Vulgaris increased the sebum production, *keratinocyte* hyperproliferation, increased *propionibacterium* acnes colonization, and inflammatory processes occur [30]. If someone consumes high glycemic index foods routinely can cause hyperinsulinemia. Hyperinsulinemia will cause hormonal increase which will then cause an increase in IGF -1 [31]. Increased IGF-1 can trigger keratinocyte hyperproliferation which is one of the pathogenesis of Acne Vulgaris. This is also supported by a research result that says that a high GI (glycemic index) diet can influence the development of Acne Vulgaris through *hyperinsulinemia* [32]. Research also showed that the low GI diet group could significantly reduce the number of acne lesions and improve insulin sensitivity compared to the control group [33]. In Hans Christian's study, by giving 3 types of high glycemic index foods namely sweet biscuits, French fries and also sweet doughnuts, the results stated that the frequency of consuming French fries and also sweet doughnuts was related to the incidence of Acne Vulgaris. Whereas in sweet biscuits there is no relationship to Acne Vulgaris [34;35] This can occur because of differences in the levels contained in the biscuits [36].

The relationship between consumption of sweet biscuits with Acne Vulgaris, in this study there was no significant relationship between consumption of sweet biscuits with Acne Vulgaris [37]. Although biscuits have a high glycemic index, variations in the content of biscuits that can affect the response of different blood glucose in the body, this is supported a research result that compares two variants of cookie-type biscuits between biscuits filled with flour from flour (SLO) with biscuits wheat made from wheat flour (RSG), although SLO with RSG has an equally high glycemic index, however, SLO has a higher glucose response than RSG [38]. Besides biscuits are classified into 4 types namely cookies, crackers, wafers, and hard biscuits, these four types of biscuits are determined by the type of flour used, the proportion of sugar and fat, the mixing method, the handling of the dough, and the roasting method. This can affect the content of the biscuits themselves [39].

Relationship between consumption of french-fries with Acne Vulgaris, in this study, found a significant relationship between consumption of French fries/Acne Vulgaris [40]. One factor that affects the glycemic index of a food is the way it is processed. Processing methods in the form of heating such as frying, boiling and steaming or grinding using flouring to make food into smaller particles can change the physiochemistry of food such as fat and protein content, digestibility, and the size of starch or other nutrients [41]. The method of cooking that is fried and submerged in hot oil and cut into pieces, influences the glycemic index of French fries to be high which is confirmed by a study in 2009 which found the relationship between fried food and the incidence of Acne Vulgaris [42]

The relationship between consumption of sweet doughnuts and Acne Vulgaris in this study it was found that there is a relationship between the consumption of sweet doughnuts with Acne Vulgaris. According to The American Journal, sweet doughnuts have a glycemic index of 76 so sweet doughnuts are included in high glycemic index foods [43]. In a previous study it is said that high glycemic index foods such as soda, candy, chips and doughnuts increased the incidence of Acne Vulgaris [44]. If you consume high glycemic index foods regularly it will result in increased insulin concentration which can stimulate sebocyte proliferation and sebum production and increase the concentration of androgen hormones that play a role in Acne Vulgaris [45].

From the results of multivariate modelling, the most dominant or most at risk of Acne Vulgaris occur. The variable is said to be the most dominant if the value obtained is the smallest among the other variables. The most dominant variable on the incidence of Acne Vulgaris in this study is the consumption of UHT milk compared to other variables, namely the consumption of sweet doughnuts and consumption of French fries. This can happen because UHT milk has more content such as IGF-1, androgen hormone and enzyme 5a reductase which can trigger the pathogenesis of Acne Vulgaris.

D.   CONCLUSION

There is a significant relationship between the frequency of UHT milk consumption, consumption of French fries, and consumption of sweet doughnuts on the incidence of Acne Vulgaris. There is no significant relationship between the frequencies of consumption of sweet biscuits on the incidence of Acne Vulgaris. For future researchers, this research can be the basis for further research; this research needs to be explored further by looking at the frequency that can affect the incidence of Acne Vulgaris. For the public, this research can provide information about risk factors from UHT milk consumption and high glycemic index foods such as biscuits, French fries and sweet doughnuts on the incidence of Acne Vulgaris.

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