**The Association Of Culture Perception With Chronic Energy Malnutrition In Women Of Childbearing Age In Terbanggi Besar, District of Central Lampung.**

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**Background :** Prevalence of chronic energy malnutrition (CEM) among women of childbearing age (WCA) in Indonesia and Lampung Province in 2013 were 20,8% and 17,6%. CEM in WCA describe poor nutrition status in the past and increase risk of complications in pregnancy and childbirth. Purpose of this study is to determine the association of culture perception with CEM in WCA.

**Materials and methods:** This was an observational analytic study using cross sectional design. The study was conducted in Terbanggi Besar subdistrict district of Central Lampung from August to November 2016. Samples were 183 WCA aged 20- to 45-years-old, taken with sampling cluster techniques. Chronic energy malnutrition data were assessed by measurement of mid-arm circumference, and the culture perception (married young, parity, race, food taboo) using questionnaire. Data were analyzed using chi square test.

**Results:** The results showed that 44,3% respondent suffered CEM, 15,8% lampungnese, 71% married at young age, 38,8% multipara and 71,6% had food taboo. Married young and multipara were significantly associatiated (p = 0.00) with CEM, while race and food taboo were not significantly (p = 0.13; p=0,87).

**Conclusions:** There were a significant relationship between married young and multipara with CEM in WCA.

Keywords: CEM, culture perception

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1. **Introduction**

Maternal Mortality Rate (MMR) in Indonesia has decreased between the timespan 1991 and 2007, from 390 to 228 per 100,000 live births. But, Survei Demografi Kesehatan Indonesia (SDKI) noted that there is a significant increase of MMR in 2012, from 228 to 359 maternal deaths per 100,000 live births. Besides, there has been a decrease in Infant Mortality Rate (IMR) within 1991 till 2007, from 68 to 34 per 1,000 live births, while in 2012, the rate reached 32 per 1,000 live births [1]. Either MMR or IMR couldnt manage to reach the target of Millenium Development Goals (MDGs) in 2015, reaching 102 per 100,000 live births and 23 per 1,000 live births respectively [2].

There are many factors causing maternal deaths, either direct or indirect causes. Direct causes of maternal deaths happen 90% in labor and right after labor. Those are hemorrhage (28%), eclampsia (24%), and infection (11%). Indirect causes of deaths are due to chronic energy malnutrition (CEM) (37%) and anemia (40%) during pregnancy [3].

Women at child-bearing age are at risk whose health should be taken care of, especially the nutritional status. The quality of children is determined by the previous mother condition, both before and during pregnancy. Praconception health becomes an important thing related to the pregnancy outcome. A cohort study of women in China shows that low body mass index (BMI) (≤ 18,5 kg/m2) in women during praconception has an impact on the fetal growth during pregnancy and is a risk factor of the incidence of low birth weight (LBW) infants which is twice as much as women with normal BMI (> 18,5 kg/m2) during praconception [4]. Pregnant women who suffer CEM and anemia are at high risk to give birth LBW infants of 4,7 and 3,7 times respectively compared to women without CEM and anemia [5].

Indonesian basic health research (Riskesdas) in 2013 stated that the prevalence of CEM in 15-49 aged pregnant women reached 24,2% and the prevalence only reached 20,8% in unpregnant women of the same ages. In a total, the prevalence of CEM at risk in all groups of ages and women conditions (pregnant and unpregnant) has increased from 2007 to 2013. The prevalence of CEM in 15-49 aged pregnant women and 15-49 aged women of childbearing age in Lampung Province are 21,3% and 17,6% respectively and the biggest prevalence is found in Lampung Tengah Regency reaching the figure of 52,6% [6].

The factors of CEM in women of childbearing age are divided into two, the internal and external factors. The internal (individual/family) factors are genetic, obstetric, and sex, while the external factors are nutrition, medicines, environment, and diseases [7]. Race in genetic, one of the internal factors, is characteristics inherited genetically and has a strong influence in society [8]. Meanwhile, external factor has larger scoop including culture. Cultural perceptions are thoughts that through the stages of selection, organization, and interpretation including values, beliefs, strategies, and expectations in a comprehensive manner that determine actions, attitudes and habits of a person [9].

Indonesia is known as a nation that has diversity of cultures lying from Sabang to Merauke with different ethnic, race, and social lives background one another. Many sociologists and nutrionists found that cultural factors play a role in the process of eating habit and the food menu, so that it often causes nutritional problems if the food factor is not well considered by the community. Cultures relate to ones’ religions and beliefs that affect types of food to consume. As examples, Islam and Orthodox Jews forbid eating porsl, Roman Catholicism forbids eating any types of meat everyday, and Protestants forbid consuming tea, coffee, or alcohol [10].

Sometimes cultural factors also play a role in the cause of CEM in women of childbearing age. Those are obstetric factors such as gestational age, parity, interval of pregnancy, and number of children due to some beliefs, like it is a taboo to eat certain kinds of food by certain age groups that are actually nutritious for them, like it is a taboo eating fish by pregnant women [11]. Food taboo which is wrong but common in community is like consuming milk, coffee, or fasting. This is all wrong, because milk is one of food that should be consumed to fulfill essential nutrients, such as folic acid, iron, calcium, and vitamins. In addition, coffee or other food containing caffeine (tea and chocolate) may be consumed after 12 months pregnancy and limited to two cups per day to prevent side effects [12].

Ignorance of food and health relations, prejudice against certain food items, adverse habits, excessive preoccupation with certain types of food, limited family incomes, and tight birth interval also have an effect on nutritional knowledges in Indonesian society [13]. Cultural change is one of the factors that lead to weight gaining in different parts of the world, such as increased consumption of fast food, high rate business, using of practical tools such as remote control, car driving tendencies, watching TV, and others [14].

Race is genetically inherited traits and characteristics from generation to generation that are believed to be important and have a strong influence in society [8]. The role of race towards food preferences will vary from one nation to another, and from region to region, or race to another. The food in the tropics will be different from the food in the four seasons countries, as well as in Europe, the more southerly the more spicy the food is. Similarly in Indonesia, food preferences between regions / races are very diverse. It is well known that the food of Sumatra (especially West Sumatra) is more spicy than Java (especially Central Java) which food tend to be sweeter. In the contrary, the Timor region always likes the salty [10,15].

1. **Materials And Methods**

This study was observational research with cross sectional design study approach. The study location was in Terbanggi Besar District, Lampung Tengah Regency from August to November 2016. The population consisted of all women of child-bearing age in Lampung Tengah Regency. Based on the calculation using independent analytic categorical variable with confidence interval (CI) of 95% and power of the test of 80%, the minimum samples were 166 subjects with 10% additional samples, so that the total samples to obtain were 183 subjects. The study samples were obtained by using cluster sampling method from 8 countries in Terbanggi Besar, District of Central Lampung. The inclusion criterias were 20-45 aged women of childbearing age which were registered as citizens of the region and willing to participate in the study. The exclusion criterias were those who were suffering from chronic infection diseases or carcinomas, on diet program, pregnant, and menopause. The independent variables in the study included culture perception which incuding of married at young age, multiparities (giving birthh to 2 or more babies), and food taboo; while the dependent variable consisted of CEM.

Culture perception datas were gained by using questionnaires. Race, married at young age, and multiparities datas were obtained from interviews in the questionnaire forms filled by the respondents. Race variable is divided into 2 categories, Lampungnese and non-Lampungnese. Married at young age variable is divided into 2 categories, young age marriage and not young age marriage. Food taboo datas were from the questionnaires made by the researcher and had been through validity and reliabilty tests. Food taboo variable is divided into two categories, food taboo and non-food taboo.

Datas of CEM were obtained from antropometry measurement of mid upper arm circumference (MUAC) by using MUAC tape meter. The MUAC value of <24,9 cm is included into CEM, while the value of ≥24,9 cm is included into non-CEM. Data collection was done by the researcher with 4 trained enumerators. Those collected datas were tested statiscally by using Chi Square Test and Fisher Exact Test with significance value of 95% (p<0,05). The study was done with ethical clearance of 1913/UN26/8/DL/2016 from Komite Etika Fakultas Kedokteran Universitas Lampung.

1. **Result**

**Table 1. The association of culture perception with chronic energy malnutrition (CEM) in women of childbearing age**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | CEM | | | | Total | | X2 | OR | *p value* |  |
| Yes | | No | | 95% CI |
| n | % | n | % | n | % |  |  |  |  |
| Ethnic |  |  |  |  |  |  |  |  |  |  |
| 1. Lampung | 17 | 9,2 | 12 | 6,6 | 29 | 15,8 | 2,23 | 1,9 | 0,13 | 0,89-4,45 |
| 1. Non-Lampung | 64 | 35 | 90 | 49,2 | 154 | 84,2 |  |  |  |  |
| Married at Young Age |  |  |  |  |  |  |  |  |  |  |
| 1. Yes | 69 | 37,7 | 61 | 33,3 | 130 | 71 | 12,93 | 3,86 | 0,00\* | 1,86-8,01 |
| 1. No | 12 | 6,6 | 41 | 22,4 | 53 | 29 |  |  |  |  |
| Multiparities |  |  |  |  |  |  |  |  |  |  |
| 1. Yes | 14 | 7,7 | 57 | 31,1 | 71 | 38,8 | 26,7 | 0,16 | 0,00\* | 0,08-0,33 |
| 1. No | 67 | 36,6 | 45 | 24,6 | 112 | 61,2 |  |  |  |  |
| Food Taboo |  |  |  |  |  |  |  |  |  |  |
| 1. Yes | 57 | 31,2 | 74 | 40,4 | 131 | 71,6 | 0,02 | 0,89 | 0,87 | 0,47-1,71 |
| 1. No | 24 | 13,1 | 28 | 15,3 | 52 | 28,4 |  |  |  |  |

Notes: chi square analysis

\*=significant (p<0,05)

This study shows that 81 people (44,3%) were currently in CEM condition and 12 people (55,7%) have a good nutritional status. About 29 people (15,8%) are Lampungnese and 154 people (84,2%) are not Lampungnese. The study result shows that 130 people (71%) are married at young age around < 17 years old and the rest, about 53 people (29%) are married at around 18 years old and up. About 71 people (38,8%) are multiparities or having more than or equal to two children and 112 people (61,2%) are having less than two children. The reasearch also shows that 131 people (71,6%) had food abstinence meanwhile the rest, around 52 (28.4%) people did not have any food abstinence.

Based on chi square analysis, this study shows that race has a significant association with CEM in women of child-bearing age (*p*=0,13; CI 95% : 0,89-4,45). The study shows that getting married at young age has significant association related to CEM in women of child-bearing age (*p*=0,00; CI 95% : 1,86-8,01). The research also shows that multiparities significantly associated to CEM in women of child-bearing age (*p*=0,00; CI 95% : 0,08-0,33). This study also shows that food taboo has not significant association with CEM in women of child-bearing age (*p*=0,89; CI 95% : 0,47-1,71).

The result of this study shows that the respondents who got married in young age have 3,86 times greater risk to be in CEM condition rather that the respondents who got married at 18 years old or over (OR=3,86). Meanwhile, based on the statistic test, the result shows that respondents who has two or more children (multiparities) is a protective factor of CEM condition in women of child-bearing age.

The study result shows that 81 respondents (44,3%) were suffering from CEM. The prevalence of CEM in women age 20-45 years old in this study is higher than the basic health research’s data in Central Lampung in 2013 around 21,3% [6]. The prevalence of CEM in women of child-bearing age in Terbanggi Besar is greater than the basic health research’s data. It is probably because the number of samples in this research is more representative of the actual population. On the other side, the family food condition in the rural area is not so good, the farmer’s income is classified as low that can only afford two meals a day for the family consist of salted fish as side dishes or sauce and extra side dishes as in vegetables that they pick from their own yard.

The study shows that 131 respondents (71,6%) have food taboo. Matching the result of questionnaire item’s average value analysis, found that the question item with the highest average value reveals the women of child-bearing age’s belief in perception of different taste in each district affects the food type that they consume, meanwhile the question item with the lowest average value reveals the women of child-bearing age’s distrust in perception of pregnant/lactating women to have food abstinence of high protein food like fish/milk/seafood/chicken/egg/meat because of the fear that their children will be disabled/spit up/sick, etc. This result shows that there are a lot of women of child-bearing age who believe in the myths of food abstinence and this can directly caused the high numeber of CEM at risk in that area.

The study result shows that 130 respondents (71%) are married in young age because it is a tradition in Kabupaten Sampang, so that the girls won’t be a spinster. There is a tradition that the parents to wed their daughter in young age (< 16 years old). This tradition happened because the parents will feel ashamed if their daughter did not married soon with reason the fear of being a spinster. This opinion become one of the reinforcing factors for the parents to wed their daughter in a very young age, causing early-age marriage to happen. This is also the same as what the author found in the interview with the respondent who states that this kind of belief does exist causing a great number of early-age marriage to happen.

About 71 respondents (38,8%) are multipara or have two or more children. The newly married young mothers and did not manage the distance/space in each pregnancy well so there are more than 25% of them have children with the average of 3 children.

About 29 respondents (15,8%) are Lampungnese and the rest are the other ethnics. The highest race in the sample is Javanese. The resident in Central Lampung are consist of 2 elements, namely indigenous people and immigrants. Central Lampung District were expanded (transmigrants) in 1999. Since than, Central Lampung is mostly inhabited by various ethnics/tribes such as Javanese, Balinese, Sundanese, Palembang, Padang, and Batak. The village in Central Lampung is mostly inhabited by Javanese people. The majority of religion is Islam. This transmigration triggers the assimilation between the indigenous people and the immigrants.

The study result shows that race is not significantly related to the CEM in women of child-bearing age. Lampung is one of the ethnic that holds a patrilineal familial system, it is a law society that the family derives from the father’s lineage; the descent is established by tracing descent exclusively through males from a founding male ancestor and so on. Because of the law that appear from this system, the wife, because of the marriage (usually marriage with *jujur* payment), is expelled from her family and automatically being a part of the husband’s family [16]. In this marriage, after the wife is in the hand of the husband, the wife have to do everything with the husband’s consent, or on behalf of the husband, or with the husband’s family’s consent. The wife can not act on her own, because of the assistant role they have in the household, either in kinship relationship or comunity relation [17].

From those explanation, it is clear that the menfolk play the role, so that the custom’s important positions are being controlled by the menfolk. This shows that the husband position is higher than the wife, the wife as a companion in the household, the wife follows the husband’s kinship after marriage and the husband is the head of the family [18]. This makes it possible that the wife (women in child-bearing age) from Lampung ethnic are suffering from CEM because of the eating habit to put the husband first, while the wife will eat later when her husband and children have done eating or just finishing the leftover.

The study result shows that getting married in young age is significantly related to CEM in women of child-bearing age. This matches the theory that states that marriage in teenage age will cause consequence as in pregnancy in teenage age. Women that are pregnant at <20 years old is the most susceptible group to the risk of CEM because of the nutrition competition between the pregnant women and the fetus, this is related to the growth process of pregnant women that still ongoing because of her age and the fetus needs in the womb itself [12].

The study result also shows that multipara is signifiantly related to CEM in women of child-bearing age. The high parity (more than three times) indicates the short gap time between each pregnancy, this is dangerous for the pregnant mother because of healing time for the womb to support the next fetus is not optimal and also the nutritional needs of the women in child-bearing age that is drained away during pregnancy and lactating period, so the recommended pregnancy gap time for the next pregnancy is when the previous child is at least two years old [12, 19].

This result also consistent with the previous study who reveals the factors that are related with the risk of CEM in pregnant women in Puskesmas Terbanggi Besar Central Lampung on Desember 2013 up to Januari 2014, it shows result that there is a significant relationship between the parity with CEM and the increased risk that occur in parity that is more than three time [20].

This research result shows that there is no significant relationship between food taboo and CEM in women of child-bearing age. This does not match the theory that says that the ignorance of the relationship between food and health, the prejudice against certain food ingredients, the existence/abstinence of bad habits, and an excessive liking over certain foods can affect the knowledge about nutrition in Indonesia [13]. Also the research about the relationship between consumption pattern, infectious disease, food abstinence and the risk of CEM in pregnant women in Puskesmas Ciputat, Tangerang Selatan in year 2011, found result that there is a significant relationship between food abstinence and the risk of CEM [21].

It was contrast, which food taboo is not one of the factors that can affect the CEM in pregnant women, because the food that they avoid doesn’t have any high nutrient that can affect the pregnant women’s nutritional status. So even when pregnant women avoid certain foods, they still can have a good nutitional status [22]. It was different in Kalimatan Timur or Papua that avoid certain food that has high nutriet yet it is hard to find any subtitutes such as fishes, meats, eggs, turtles, birds, milk, fruits, even the carbohydrate souces that generally can disturb the balance of nutritional needs [18, 23].

Cultural change is one of the factors that cause weight gain in various part of the world, such as the increased amount of fast food consumption, the high rush of bussyness, the use of practical tools like remote control, the tendency to drive car, the habit of watching TV, and so on. Furthermore, the abstinence of high nutritional food can be removed step by step, this is happened because of the counseling and the information outspread and also advice to give priority to eat nutritional food like the jargon “Empat Sehat, Lima Sempurna” or now is well known as “Gizi Seimbang” and there are so many families that have already carry out this jargon. With the existence of integrated service post (posyandu) even in remote places really helps to support improved feeding to children, pregnant women and lactating women [24].

**4. Conclusion**

Cultural perceptions are thoughts that through the stages of selection, organization, and interpretation including values, beliefs, strategies, and expectations in a comprehensive manner that determine actions, attitudes and habits of a person. Cultural factors play a role in the process of eating habit and the food menu, so that it often causes nutritional problems such as chronic energy malnutrition (CEM). CEM in women in childbearing age (WCA) describe poor nutrition status in the past and increase risk of complications in pregnancy and childbirth. We believe that to increase the quality of life in women of childbearing age, in facts they become pregnant women, we must reduce the chronic energy malnutrition with change lifestyle including culture perception (married at young age, food taboo and multiparities).

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