



## Evaluating the Contribution of Free Meal Programs to Student Happiness and Policy Implications for Well-being in Indonesia

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### Abstract

The newly elected president of Indonesia has proposed a free meals program to address the nutritional needs of the poor. This study examines whether the program aligns with public happiness. Using data from the Indonesia Family Life Survey 5 (IFLS 5) this study analyzes the impact of daily meal consumption on self-reported happiness across different expenditure levels. Additionally, the effects of food variety and socio-economic characteristics, such as health, marital status, education, poverty, religiosity, residential safety, and depression, are also considered. Ordered logit regression results show significant correlations between daily meals and happiness generally, especially in the lowest expenditure levels. Control variables like marital status, health status, residential safety, religiosity and experience in economic disaster have stronger significant impact on individuals' happiness. The findings suggest that while the free meals program has benefits, the government should also take into account the variety of the food provided, as well other factors that significantly influence happiness particularly for the poor.

## Evaluasi Kontribusi Program Makan Gratis terhadap Kebahagiaan Siswa dan Implikasi Kebijakan untuk Kesejahteraan di Indonesia

### Abstrak

Presiden terpilih di Indonesia yang baru telah mengusulkan program makan gratis dalam rangka memenuhi kebutuhan nutrisi terutama masyarakat miskin. Penelitian ini mengkaji apakah program tersebut dapat memengaruhi dengan kebahagiaan individu sebagai responden. Menggunakan data dari Indonesia Family Life Survey 5 (IFLS 5) studi ini menguji apakah jumlah makan per hari memberikan dampak terhadap kebahagiaan individu pada berbagai tingkat pengeluaran. Sebagai tambahan, variasi jenis makanan yang dikonsumsi dan karakteristik sosial-ekonomi seperti kesehatan, status pernikahan, pendidikan, kemiskinan, religiusitas, keamanan tempat tinggal, dan depresi, juga dipertimbangkan. Hasil regresi logit ordinal menunjukkan korelasi signifikan antara jumlah makan harian dengan tingkat kebahagiaan individu secara umum, terutama pada keluarga dengan tingkat pengeluaran terendah. Variabel kontrol seperti, status pernikahan, status Kesehatan, keamanan tempat tinggal, tingkat religiusitas, dan pengalaman terhadap petaka yang berkaitan dengan ekonomi memiliki korelasi signifikan yang lebih kuat dengan kebahagiaan. Temuan ini menunjukkan bahwa meskipun program makanan gratis memiliki manfaat, pemerintah juga harus memperhatikan jenis makanan yang disajikan dan faktor-faktor lain yang secara signifikan mempengaruhi kebahagiaan, terutama bagi orang miskin.

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In developing nations like Indonesia, addressing food insecurity and malnutrition is a critical concern. The recently elected president's plan to implement a free lunch program is a calculated move to address these issues by focusing on the dietary requirements of the underprivileged. Such programs might ease financial pressures on poorer families, enabling them to direct their meagre income towards other necessary requirements, as malnutrition is strongly linked to poverty (Andreyeva & Sun, 2021; Siddiqui *et al.*, 2020). Studies have also demonstrated how free lunch programs benefit students' attendance, academic performance, and general well-being, among other results (Cohen *et al.*, 2021). To make sure a program achieves its objectives and promotes the welfare of its participants, it is imperative to evaluate its efficacy and conformity with public preferences prior to implementation.

Free lunches and other social welfare programs are beneficial in ways beyond just ensuring food security. According to Siddiqui *et al.* (2020), it also includes improving one's total quality of life, which includes psychological well-being, or happiness. Previous studies (Alegría *et al.*, 2018; Guardiola *et al.*, 2013; Jayawardana *et al.*, 2023; Ni *et al.*, 2020; Phulkerd *et al.*, 2023) have demonstrated the significance of a number of socioeconomic factors in determining happiness, including health status, marital status, education level, poverty, religiosity, residential safety, and experiences of difficulties. There is, however, a lack of research on the precise relationship between daily meal intake and happiness, especially when examining varying monthly per capita expenditure levels. Thus, assessing the program's potential benefit requires an understanding of the relationship between meal consumption and happiness, particularly across different expenditure levels, particularly for the lower ones.

This study explores whether the suggested free lunch program is in line with public priorities

and enhances personal wellbeing using data from the Indonesia Family Life Survey 5 (IFLS 5). Our specific objective is to examine how daily meal consumption affects various socioeconomic groups' self-reported levels of happiness. Our research aims to provide a thorough analysis of the factors influencing well-being by taking into account a variety of food options as well as a range of socio-economic characteristics as control variables, such as health status, marital status, education level, poverty, religiosity, residential safety, and experiences of depression.

This research has two goals: first, it will determine whether eating a daily meal correlates with happiness at various spending levels; second, it will investigate how different socioeconomic characteristics interact with meal consumption to influence the outcomes of individual well-being. We also investigate which meal type has the strongest relationship with people's happiness in order to enhance the analysis. The research's conclusions have a big impact on how policies are made. They contend that although free meal programs can be beneficial, other elements—like marital status, residential safety, and health—have a greater impact on happiness, particularly for the impoverished. These realizations can help direct the creation of more all-encompassing social welfare programs that take into account many aspects of wellbeing.

## LITERATURE REVIEW

### Well-being & Happiness

Subjective well-being, an alternative measurement of individual's welfare beyond material wealth is composed by happiness and life satisfaction. Happiness is in the affective field and life satisfaction is in the cognitive field of self-evaluation (Diener *et al.*, 1995). The Organization for Economic Cooperation and Development (OECD) later recognizes the importance of subjective well-being in assessing progress and social development internationally as being

considered that quality of life extends beyond material wealth including subjective aspects of life (Fitch *et al.*, 2017). However, according to what Maslow have already stated back in the middle of 20<sup>th</sup> century, individuals must first fulfill their physiological needs before progressing to higher-level needs like safety, love, esteem, and self-actualization (Omodan & Abejide, 2022) as physiological needs such as food and water are at the base of the pyramid (Zhang *et al.*, 2016). Thus, the fulfillment of basic need is important to enhance one's overall happiness and life satisfaction.

In economics, a foundational concept that refers to the satisfaction or pleasure individuals derive from consuming goods and services is called utility theory. The main idea is that consumers always make choices on consuming the combination of good and services to maximize their utility, yet the combination is tied to their budget constraints. The higher budget constrain means more combination of food and services they can consume. The budget constraint concept is similar to individual's disposable or after-tax income. The increasing of income may lead to the flexibility of consuming combination of goods and services that maximize their utility (Meyer & Sullivan, 2023).

### **Free meals program**

Free meals program, similar to other social support program will lead to increase the disposable income. This implies money that would have been spent on food or meals can now be used for other goods and services. The new combination of goods and services consumed can now be made and that eventually will increase overall utility and well-being (Creedy & Herault, 2011). Other theoretical perspective, such as Becker's theory of household production, explain that a household is considered not only as a consumer, but as producers. Yet, they produce 'commodities' that directly provide utility and maximize well-being. Time and market-

purchased goods are used to produce that 'commodities' such as good health that maximize their utility. Hence, free meals, especially the nutritious one will contribute to the production of a vital commodity for individual—good health—that directly impacts individuals' utility and overall welfare (Heckman, 2014). Meals of high quality and variety, can provide higher marginal utility compared to a monotonous diet (Hong & Peltzer, 2017).

However, interpreting the free meals program in theoretical framework should be done conscientiously. It can be described as the increasing in individuals' disposable income, or can be described as increasing in individual consumption since both have really strong relationship (Ying-ai *et al.*, 2023). In the relationship to happiness or life satisfaction, previous studies have demonstrated that increasing in income may lead to increasing in happiness (Aknin *et al.*, 2018; Guardiola *et al.*, 2013). The result is similar in consumption, that means increasing in total consumption expenditure indeed has a significant and positive impact on happiness (Wang *et al.*, 2015). In other hand, some studies suggest that income have weak or even insignificant relationship to happiness (Jachimowicz *et al.*, 2020; Kushlev *et al.*, 2015; Tan *et al.*, 2020). This also has meaning that income will have significant effect on happiness until some points, then it will not significantly (Cooper & Layard, 2005; Veenhoven, 1991). Thus, this leads that the factors influencing happiness are multifaceted and not only determined by income or expenditure. The investments in education, healthcare, and social security are some other variables outside income that may lead to better happiness (Hu & Liu, 2023). Other social economic determinants that also takes into account to individuals' happiness are poverty level, religiosity, residential safety, experiences of depression (Alegría *et al.*, 2018; Millgram *et al.*, 2020; Ni *et al.*, 2020; Phulkard *et al.*, 2023). In some

studies, researcher uses happiness, life satisfaction and subjective well-being interchangeable in order to simplify the analysis (Guardiola *et al.*, 2013).

The consumption of food itself, in the relationship to mental health presents various findings. Good dietary food is highly correlated to high life satisfaction and happiness (Kashdan, 2004; Warner *et al.*, 2017) while excessive consumption of ultra-processed foods (UPF) poses health risks to consumers and impacts in higher bad mental condition especially during critical conditions such as the Covid-19 pandemic (Coletro *et al.*, 2022). Furthermore, the consumption of certain types of food, such as high-calorie sweetened beverages and fast food, will lead to a decline in mental health in adolescent sample (Ra, 2022). Proper food intake is also identified as a key component related to overall health and quality of life in the elderly (Kwak & Kim, 2018). Other study explains the relationship between dietary patterns and mental disorders in pregnant women (Paskulin *et al.*, 2017).

The studies mentioned above, examine the link between food consumption and happiness or mental health, specifically on the variety and quality of food. However, the general number of daily meals linked to happiness remains underexplored, especially among low-expenditure families. Poor families often face challenges in affording nutritious food, which can have significant implications for their overall happiness and well-being. This gap in research urges the need for further investigation into how meal frequency and accessibility to nutritious options impact the happiness of low-income households.

## RESEARCH METHOD

This study uses data from the Indonesia Family Life Survey wave 5 (IFLS 5). IFLS 5 itself is actually a longitudinal survey that represents 83% of the population of Indonesia spread across 27 provinces. After cleaning the data and dropping the missing values, 30,230 individuals from 24

provinces are utilized in this study. This study uses several variables from the data. This includes the happiness level as the dependent variable that measured by asking each individual with “according to your life as whole, how happy are you?” the answer scales from 1 to 4 that reflect respondents’ overall happiness. 1 is representing “very unhappy”, the lowest level of happiness and 4 representing “very happy” the highest. 2 and 3 are representing “unhappy” and “happy” state, respectively. The Meal Frequency variable indicates the number of meals consumed daily by each respondent.

This meal data also includes the type of food that consumed in the last 7 days. Expenditure data represents household spending levels. We divided total household monthly expenditure by number of household members to gain per capita household monthly expenditure or each individual’s monthly expenditure inside the household. The individual monthly expenditure then will be classified to 4 quantile level and 10 quantile level to achieve better understanding whether the program will increase happiness for the lowest level of expenditure.

Other variables employed in this study are the socioeconomic characteristics. This includes health status, age, gender, marital status, education level, poverty, religiosity level, residential safety, and experiences of depression. Health status is assessed through a self-reported health score ranging from 1 (very unhealthy) to 4 (very healthy). The education variable represents the highest degree achieved by respondents that has score 0 (no degree), 1 (primary), 2 (junior secondary), 3 (senior secondary) and 4 (tertiary level). Religiosity level is measured from 1 (very unreligious) to 4 (very religious). Residential safety is scored from 1 (very unsafe) to 4 (very safe). Marital status, gender, poverty, and experiences of depression are represented as dummy variables (0 and 1). Age data is measured by respondents’ age years at survey time (continuous).

Before running the regression analysis,

descriptive analysis will be employed to summarize the central tendencies, variations, and distributions of the primary variables (happiness level, meal frequency, expenditure) and the control variable (socio-economic characteristics) used in this study. It then analyzes the table distribution of happiness in each level of meal consumption (1-5) as well as the distribution of happiness in each level of individual expenditure. Furthermore, we employed ordered logit regression to analyze the impact of meal frequency on happiness. This statistical method is particularly suitable for our study due to the ordinal nature of the dependent variable (happiness levels 1 to 4 indicates a ranked order without precise distances between levels). The model used in this study denotes below.

$$Happy_i = \beta_1 MealFreq_i + \beta_2 Expend_i + \sum_{j=3}^{10} \beta_j CVariable_{ij} + \epsilon_i$$

*Happy<sub>i</sub>* is a notation for self-reported happiness level of individual *I* as the dependent variable. The independent variables are *MealFreq<sub>i</sub>* as the number of meals consumed daily by individual *I*, *Expend<sub>i</sub>* as the monthly total expenditure of individual *I* in logarithmic form. *CVariable<sub>ij</sub>* represents the socio-economic characteristics of individual *i* as the control variable.  $\beta_j$  represents the odds ratio of each variable that have relationship to happiness level in each individual *i*.

We then employ ordered logit regression on each level of expenditure. In order to capture gain information whether the program is suitable for the poor. The "expenditure\_group" variable, that will catch later in regression result, divides the sample into four quantiles based on expenditure per capita level. The 1st quantile represents the lowest 25%. The 2nd quantile covers the next 25%, representing the lower-middle. The 3rd quantile includes the third 25%, but not the highest. The 4th quantile comprises the top 25%, representing the highest level of expenditure group. To achieve another explanation to the lowest level, we also

divide the expenditure level into 10 groups using same methods that divide expenditure level by 10% from lowest to highest.

Finally, to ensure the robustness of our ordered logit regression results we re-estimated the model using life satisfaction as the dependent variable instead of happiness. Life satisfaction, like happiness, is an ordinal variable that reflects overall well-being. This variable ranges from 1 to 5 as the answer to question How satisfied are you with your life as a whole. 1 represents "not satisfied at all", 4 represents "not very satisfied", 3,4,5 represents "somewhat satisfied", "very satisfied" and "completely satisfied" respectively. This check will provide distinct perspective on the impact of meal frequency and other socioeconomic factors to different measurement of overall well-being

## RESULTS

### Descriptive Analysis

Table 1 shows the characteristics of 30,230 sample providing a comprehensive overview of the key variables involved in our study. The happiness level, measured on a scale from 1 to 4, has a mean of 3.04. It indicates that self-reported happiness among respondents is generally high. In other hand, individuals that participated in the study generally feels happy about their life as a whole. The meal frequency in the sample ranged from 1 to 5, with a mean of 2.674, indicating that the majority of individuals consume slightly fewer than three meals per day. When analyzing meal frequency within the subset of poor families, the mean is 2.670, and within the lowest ten quantiles of expenditure levels, the mean is 2.680. Conversely, in the highest ten quantiles of expenditure levels, the mean is 2.631. These means tend to be similar or consistent with the overall level of expenditure. It suggests that even among poorer households and wealthier households, meal frequency remains close to the general average of approximately 2 to 3 meals per day. The monthly expenditure per capita in the sample exhibits a

mean of 1,139,501 IDR, with a standard deviation of 1,645,441 IDR. The minimum value recorded is 52,472.22 IDR, while the maximum value reaches 61,200,000 IDR. These statistics indicate substantial variability in monthly expenditure per

capita across the sample. In the log form it varies from 10.868 to 17.929 with the mean of 13.574 and standard deviation of 0.875. The log form indicates more normal distribution compared to non-log form.

**Table 1. Overview of Observed Data Characteristics**

Variables	Obs	Average	Sd.	Min	Max
happiness	30,230	3.039	0.49558	1	4
mealfreq	30,230	2.674	0.508816	1	5
totalexpe~a	30,230	1139501	1645441	52472.22	6.12E+07
logmonthly~a	30,230	13.57518	0.785261	10.86804	17.92985
expenditu~10	30,230	5.493186	2.872827	1	10
age	30,230	36.79266	14.30578	14	94
male	30,230	0.468	0.498952	0	1
education	30,230	2.09259	1.151667	0	4
married	30,230	0.7301025	0.443914	0	1
vigorous	30,230	0.8480648	1.928295	0	7
healthscore	30,230	2.972808	0.656782	1	4
community	30,230	0.752	0.43182	0	1
religious	30,230	2.902349	0.684506	1	4
howsafe	30,230	3.150579	0.514585	1	4
poor	30,230	0.0932187	0.290743	0	1
familynumber	30,230	4.256732	1.868732	1	17
urban	30,230	0.586	0.492509	0	1
proppertoilet	30,230	0.9170691	0.275782	0	1
ecodisruption	30,230	0.1939464	0.395394	0	1
varietymeal	30,230	34.14036	12.11812	2	101

Source: Data processed by the authors

Other socio-economic variables that likely impact to individual's happinesses are summarized as well. The mean value of variable "male" is 0.467 indicates that approximately 46.8% of the sample population is male and the remaining 53.2% of the sample population is female. In the variable age, the mean age of the sample is 36.803 years or we can say that the average age of the sample is approximately 37 years. The ages range from 14 to 94 years. This implies that the sample includes a diverse group of individuals from adolescents to elderly individual that covers a broad spectrum of life stages. It potentially allows for further analysis of age-related trends and differences within the population. It might make it possible to examine demographic differences and trends related to aging in more detail. Additionally, the typical sample member has completed somewhat more than junior secondary school, according to the

mean education level of 2.092. With a mean value of 0.730, the variable "married" indicates that most of the sample's members are married. Variable "vigorous" indicates the number of days individuals engaged in vigorous activity over the past week that range from 1 to 7 with a mean of 0.848 and a standard deviation of 1.928. Thus, we can say that the sample population are involved in low average activity and high variability with some individuals engaging in vigorous activities for many days and others not at all. This may lead to further implementation of public health interventions to encourage more consistent physical activity across the population or reducing over vigorous activity that may influence overall well-being.

The self-reported health level in variable "healthscore" has a mean of 2.973 on a scale from 1 to 4, where 1 indicates very unhealthy, 2 unhealthy, 3 healthy, and 4 very healthy. From this, we can say

that the individuals in the sample generally have almost good health in average. The average self-report health is slightly below feeling healthy among those respondents. From the variable community, it shows that approximately 75.2% of total respondents in the sample are members of at least one community. If we see the religiosity of the respondents, with a mean of 2.902, it suggests individuals in the sample consider themselves moderately religious. It is almost hit the average of religious category. This might also have implication to the high level of happiness that the respondents have reported. However, the respondents on average consider their environment as safe place as variable “safe” which measures self-reported safety of the village on a scale from 1 (very unsafe) to 4 (very safe). It has a mean of 3.150 and a standard deviation of 0.514. It also means that while the overall perception is positive, there is some variation in how safe individuals feel about the safety. Furthermore, the variable “poor” has a mean of 0.093. It shows that approximately 9.3% of individuals in the sample are classified as poor. The overall proportion of poor individuals is relatively close to the national poverty level in 2014 which is 10,96 %. In the variable “familynumber”, the mean of 4.25 shows that on average, household

in the sample approximately has 4 family members. However, the values ranging from 1 to 17, indicating variety of family size among the sample. Furthermore, from the table we can see that the sample is relatively evenly split between urban and non-urban areas with 58% sample live in urban area (variable “urban”), approximately 91.7% of the sample has access to a proper toilet. About 19.4% of the sample has experienced economic disruption in the last 5 years, as we can see in the variable “ecodisruption”. The last variable observed is "varietymeal". It measures the variety of food types consumed by the respondents in the last week. The values of the variety ranging from 2 to 101 types. Higher value means respondents had eaten higher variety of food type in the last week. The variable has a mean of 34.140 and a standard deviation of 12.118. On average, individuals consumed approximately 34 different food types over the past week, yet the standard deviation seems to be high. It indicates some individuals consuming a very broad array of food types with 46 on average and others consuming fewer with only 22 on average. This range of food variety might be reflecting the dietary patterns within the sample but in other hand it also reflects a deprivation of food of some respondents.

**Table 2. Distribution of Happiness Categories by Meal Frequencies**

Happiness Level	Meal Frequencies Daily					Total
	1	2	3	4	5	
Very Unhappy	16	119	184	0	0	319
Unhappy	62	765	1,356	1	0	2,184
Happy	406	6,844	16,456	6	4	23,716
Very Happy	79	1,034	2,892	5	1	4,011
Total	563	8,762	20,888	12	5	30,230

Source: Data processed by the authors

The diversity of happiness levels across different meal frequencies is presented in Table 2. Most among the individuals whose consume only one meal a day or 406 individuals (57.66%) report a happiness level of 3 (“happy”), with 79 individuals reporting greater levels (“very happy”) Only 16 and

62 individuals reporting “very unhappy” and “unhappy” respectively. Those with two meals per day exhibit similar distribution, with 6,844 individuals or approximately 62.15% of respondents report happiness level 3 (“happy”) following with 1,034 achieving level 4, 765

individuals report level 2 and 119 individuals report level 1. In the group of those who consuming three meals per day, that is the highest distribution also report similar distribution. 16,456 individuals or 69.22% report happiness level 3 (“happy”), following with 2,892 individuals reporting level 4, 1,356 individuals reporting level 2 and 184 reporting level 1. The remaining 4 and 5 meal frequency groups only include a small number of people—12 and 5, respectively—that will not be

further examined due to insignificance. In each group, the highest percentage of respondent report being at level 3 of happiness. On the other hand, the group's proportion of happiness level 3 increased with the frequency of meals. It implies that there is a general correlation between a wider and more positive distribution of happiness levels and higher meal frequencies. In total, 30,230 people were included in the study, and the majority (69.09%) said they were "happy."

**Table 3. Distribution of Happiness Categories by Quantiles of Monthly Expenditure Per Capita**

Happiness Level	Monthly Expenditure Quantiles				Total
	1	2	3	4	
Very Unhappy	122	76	65	56	319
Unhappy	830	542	460	352	2,184
Happy	5,845	6045	5,991	5,835	23,716
Very Happy	787	897	1,036	1,291	4,011
Total	7,584	7,560	7,552	7,534	30,230

Source: Data processed by the author

Table 3 above shows the happiness level distribution across four quantiles of per capita expenditure. The lowest quantile (quantile 1) refers to the 25% of the lowest level of expenditure distribution in the sample, while the highest quantile (quantile 4) refers to the 25% of the highest level of expenditure distribution in the sample. In Quantile 1, which contains 7,584 respondents, 5,845 respondents (77.06%) claim to be “happy” or report their happiness level 3. 122 respondents reported to be “very unhappy” or levels 1 (1.61%), 830 respondents (10.95%) reported to be in happiness level 2 or "unhappy," and 787 respondents (10.38%) reported to be “very happy” or happiness level 4. If we move to Quantile 2, there is a similar pattern, with a high proportion of respondents reporting to be “happy” or happiness level 3 (79.84%), followed by 76 respondents (1.00%) reporting to be “very unhappy”, 542 respondents (7.16%) reporting to be “unhappy”, and 897 respondents (11.99%) reporting to be “very happy." From these two quantiles, we can see that the proportion of

unhappy respondents is lower in the highest quantile, while the proportion of happy respondents tends to be higher. In Quantile 3, which represents a higher level of expenditure, there is a higher proportion of happier respondents. 5,991 respondents, or 79.40% of individuals, claimed to be happy or reported level 3 happiness. This is higher than the previous quantile. The number of respondents reporting happiness at level 1 is 65 (0.86%), level 2 is 460 (6.10%), and level 4 is 1036 (13.65%). This also means that at a higher expenditure level, the proportion of unhappy respondents is getting lower, while the proportion of happy respondents is getting higher. In the highest expenditure quantile, the tendency is continuous. The proportion of individuals reporting happiness level 3 is getting lower (77.54%), but the proportion of happiness level 4 is highest in this group of expenditures (17.09%). Moreover, the proportion of unhappy respondents is getting lower than in the in the previous group, with 0.71% of respondents reporting level 1 happiness and 4.67% reporting

level 2 happiness. This cross-variable table shows that, overall, the data indicates that as per capita expenditure increases from the lowest to the highest, the distribution of happiness levels shifts positively as well.

### The Regression results

As mentioned above, the independent variable happiness contains value from 1 to 4 that represents happiness level from low to high (from “very unhappy” to “very happy”). Thus, to analyze factors influencing happiness which has ordinal scale, it is best using ordered logit regression. The ordered logit regression analysis will examine the relationship between happiness level and various independent variables, including meal frequency (“freqmeal”) and monthly expenditure per capita in log form (“logexpenditurepercapita”). It also includes several control variables to make the predictor better. The relationship between happiness and meal frequency will be tested in different level of expenditure, especially in the lowest one to capture whether additional meal frequency impact the happiness of the poor.

The result of ordered logit regression analysis is shown in table 4. Variable “freqmeal” that denotes daily meal frequency has 1.14134 odds ratio with p value below 0.01 ( $p < 0.001$ ). This means that an increase in meal frequency is associated with a higher probability of higher happiness level significantly. Additional meal frequency will enhance the probability to be happier among individuals. To this point, it seems that what the winning president candidate offered --free meals program—is in line with the regression result that additional meal will increase people’s happiness significantly. However, we must take into account that based on the utility theory, as the increase of goods and services consumed, it will eventually increase the level of satisfaction. This also means that other type of goods and services consumed by individuals might also lead to higher level of happiness, not only food consumption or

additional meal (Barua & Banerjee, 2020; J. Wang *et al.*, 2022). Further exploration considering combination of other goods and services thus might be led to achieve better understanding. Other possible explanation is from Maslow theoretical framework that the Indonesian respondents are generally still in the base of the pyramids since the increasing in meal consumption as one of the basic needs will significantly increase happiness. This also can be a lead for further analysis. However, some studies suggest that food consumption is typically linked to individuals’ life satisfaction or happiness even in the individuals with higher average income (Schnettler *et al.*, 2011). As higher income individuals tend to shift the variety and quality of food consumed that lead to higher life satisfaction and happiness (Holder, 2019; Schnettler *et al.*, 2011; Stage *et al.*, 2010).

The type of food mentioned before may influence the level of happiness. Our results in Table 4 show that the variety of food in the variable “variety” doesn’t show a significant impact ( $p$  value = 0.198) on happiness, despite the positive odds ratio of 1.002418. Thus, it indicates that the higher variety of food types consumed by respondents does not significantly influence happiness. This makes sense because the variable only measures the number of types of food consumed during the last week, including food from inferior categories. An individual may consume a wide range of foods, yet if those foods are from inferior categories, it may not lead to a higher level of happiness. However, if the type of food consumed is divided into several categories, it shows a different result. For example, if individuals consume vegetables at least three times a week, they will tend to be happier. As it is explained in the variable “veggies3times,” that is significantly associated with happiness (an odds ratio of 1.095602 and a p-value of 0.006). Similarly, if individuals eat fish and meat more often, they will likely to be happier. It is shown in the number of days individuals eat fish (“dayeatingfish”) and meat

("dayeatingmeat") that both show significant positive impacts on happiness, with odds ratios of 1.02259 and 1.043461, respectively, and p-values below 0.001.

Dairy consumption frequency ("daydairy") also positively correlates with happiness, with an odds ratio of 1.030838 and a p-value of 0.000. In contrast, daily egg consumption ("dayeatingeggs") has an odds ratio of 0.983226 and a p-value of 0.176, indicating that there is no significant effect of eating eggs on happiness. From those results, we can conclude that it is important to incorporate a variety of nutritious foods, especially vegetables, fish, meat, and dairy, into the diet to enhance happiness and overall well-being. We can also conclude that those types of food are not considered inferior goods. This result is in line with what Hong & Peltzer (2017) suggested: a variety of foods can provide higher marginal utility compared to a monotonous diet. This is also similar to previous results from Kwak & Kim (2018), Kashdan (2004), and Warner *et al.*, (2017) suggesting that a nutritious food diet will lead to better mental health as well as happiness and life satisfaction. Thus, the upcoming free meal programme should take into account the types of food that may enhance people's happiness.

The other main independent variable examined in this regression is "logexpenditurepercapita," which represents individuals' monthly total expenditure in the log form. The result shows that the odds ratio of 1.266735 for the variable with a p value < 0.001 indicates a significant association between monthly expenditure per capita and levels of happiness. As expenditure per capita increases by 1%, their likelihood of reporting higher happiness levels also increases by 2.667%. This result is aligned with the common theory provided by both economists and psychologists. As mentioned in the utility theory above, individuals with higher expenditure capacity have the capability to have a wider variety of commodity bundles, which leads to a higher level

of happiness. However, in the concept of diminishing utility, the additional satisfaction obtained by consuming more bundles of goods will eventually fall at some points. The threshold concept of the relationship between income and happiness suggests that increasing expenditure or other material form will have a significantly positive impact on happiness until some stages. Later in those stages, the increase in material benefit won't significantly increase the level of happiness (Cooper & Layard, 2005; Veenhoven, 1991). A possible explanation of what we obtained in the result is that the respondents are at some stage below the income-happiness threshold that was mentioned before. However, this needs further exploration and comprehensive study.

However, as mentioned in the objective, we analyze the relationship between meal frequency and happiness levels on each level of expenditure. The "expenditure\_group" variable that divides the sample into four quantiles based on expenditure per capita shows an insignificant result despite the positive coefficient. The result is similar if we employ the variable "expenditure\_group10" instead. Both variables are statistically insignificant to the happiness variable. Therefore, if we employ the logit regression solely on the lowest level within each expenditure group, the results for both are significant, as summarized in Table 5 below. The odds ratio for the lowest 10 quantiles is 1.1724. It suggests a 17.2% increase in the odds of higher happiness per additional meal, but the result is marginally significant (below 0.10), as the p-value slightly exceeds the 0.05 threshold. The odds ratio for the lowest 4 quantiles is 1.1788 and a p-value of 0.003. This implies the same result with strong statistical significance. On the other hand, if we employ the higher level of expenditure group i.e., 2nd group of 4 quantiles, the results are not significant (with p value 0,25) as well as the 4th group of 10 quantiles (Table 6). Yet, the result is also statistically significant if we employ highest level of expenditure in the 4 quantiles of

expenditure group. This implies that the additional meal is very important to enhance happiness and overall well-being of the poor. To achieve better result, the upcoming free meals program should also consider about the types of food provided in the program. The nutritious food will surely fulfill the food security and boost also people happiness.

However, as mentioned above that consumption-based happiness is not solely influenced by food consumption, the upcoming program of free meals should adjoin with the other programs that have influence on other non-food consumption of the poor which can lead to achieve better overall well-being.

**Table 4. Ordered Logit Result Between Happiness Level, Independent Variables and Other Control Variables**

<i>Variables</i>	<i>Odds Ratio</i>	<i>Std. Error</i>	<i>z-value</i>	<i>p &gt;  z </i>
freqmeal	1.14134	0.032449	4.65	0.000***
logmonthlyexpenditurepercapita	1.266735	0.05411	5.54	0.000***
variety	1.002418	0.00188	1.29	0.198
veggies3times	1.095602	0.036642	2.73	0.006***
fruit3times	1.006557	0.034103	0.19	0.847
dayeatingfish	1.02259	0.006283	3.64	0.000***
dayeatingmeat	1.043461	0.009162	4.85	0.000***
daydairy	1.030838	0.007257	4.31	0.000***
dayeatingeggs	0.983226	0.012297	-1.35	0.176***
age	0.973411	0.001147	-22.87	0.000
male	1.043266	0.040506	1.09	0.275
education	1.074379	0.015082	5.11	0.000***
married	1.889311	0.064456	18.65	0.000***
smoking	0.833532	0.034821	-4.36	0.000***
normalweight	0.964682	0.027721	-1.25	0.211
healthscore	1.546082	0.034449	19.56	0.000***
vigorous	0.968258	0.007534	-4.15	0.000***
community	1.049783	0.035495	1.44	0.151
environmentsafety	1.538589	0.043293	15.31	0.000***
poor	0.89721	0.05094	-1.91	0.056
familynumber	1.047657	0.008491	5.74	0.000***
urban	1.106248	0.033513	3.33	0.001***
proppertoilet	1.17869	0.062772	3.09	0.002***
ecodisruption5years	0.746404	0.027309	-7.99	0.000***
religious	1.390045	0.030374	15.07	0.000***
expenditure_group	1.02577	0.029706	0.88	0.380

Ordered logit regression estimates \*\*\* p-value < 0.01, \*\* p-value < 0.05, \* p-value < 0.1

Source: Data processed by the author

**Table 5. Ordered Logit Result Between Happiness and Independent Variables in Lowest Quartile**

*Lowest 4 quantiles*

	<i>Odds Ratio</i>	<i>Std. Error</i>	<i>z</i>	<i>P &gt;  z </i>
Freqmkn	1.172402	0.100295	1.86	0.063*
logmonthlyexpenditurepercapita	1.601338	0.263118	2.87	0.004***

*Lowest 10 quantiles*

	<i>Odds Ratio</i>	<i>Std. Error</i>	<i>z</i>	<i>P &gt;  z </i>
Ωfreqmkn	1.178838	0.065297	2.97	0.003***
logmonthlyexpenditurepercapita	1.505186	0.191032	3.22	0.001***

Ordered logit regression estimates

\*\*\* p-value < 0.01, \*\* p-value < 0.05, \* p-value < 0.1

**Table 6. Ordered logit result between happiness and independent variables in higher low quartile**

*2nd of 4 quantiles*

	<i>Odds Ratio</i>	<i>Std. Error</i>	<i>z</i>	<i>P &gt;  z </i>
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freqmkn	1.069677	0.062796	1.15	0.251
logmonthlyexpenditurepercapita	1.799661	0.396105	2.67	0.0082***

4th of 10 quantiles

	Odds Ratio	Std.Error	$\tilde{z}$	$P >  \tilde{z} $
Freqmkn	1.140699	0.105589	1.42	0.155
Logmonthlyexpenditurepercapita	1.942298	1.632717	0.79	0.43

Ordered logit regression estimates

\*\*\* p-value < 0.01, \*\* p-value < 0.05, \* p-value < 0.1

After establishing that increasing the frequency of meals tends to enhance happiness among poor individuals, the analysis will be extended to include the variety of food consumed. It can further identify which dietary habits are most strongly associated with higher levels of happiness, providing valuable insights for public health interventions and policy-making.

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**Table 7. Ordered logit result between life satisfaction and independent variables**

	Odds Ratio	Std. Dev	$\tilde{z}$	$P >  \tilde{z} $
freqmkn	1.063375	0.023219	2.81	0.005***
logmonthlyexpenditurepercapita	1.216219	0.041914	5.68	0.000***

Ordered logit regression estimates

\*\*\* p-value < 0.01, \*\* p-value < 0.05, \* p-value < 0.1

## CONCLUSION

This study showed that individuals that consume more meal have tendency to be happier. This relationship is linear in the lowest level of expenditure. Moreover, our study also suggest that consuming vegetables, fish, meat, and dairy will significantly increase the opportunity to feel happier. Hence, the upcoming free meals program in addition to target the poor should also consider the nutritious value of the food. Other findings in this study are that higher expenditure levels tend to increase happiness and individuals experiencing economic disruption tend to be unhappy. It indicates that financial stability plays a crucial role in individual overall well-being. Financial support program during hard time will surely help people regain their well-being. Additionally, socio characteristics such as marital stability, health status, residential safety, and religiosity show higher impact on individuals' happiness. We can say that providing marriage counseling and education to

prevent divorce is important as well as providing universal healthcare access, enhance residential safety and foster religiosity engagement. Hence, carrying social welfare policies that done comprehensively and holistically can lead to more effective interventions for improving the well-being, especially for those with economically disadvantaged conditions

## IMPLICATION AND LIMITATION

This research makes a substantial contribution to theoretical discourse on subjective well-being and utility theory. It empirically illustrates the essential function of basic need satisfaction—specifically, daily meal frequency—in influencing reported happiness, hence corroborating Maslow's hierarchy of needs theory. Regrettably, this indicates that the sample group largely resides at the lowest tiers of Maslow's hierarchy, as an increase in meal availability significantly enhances their likelihood of experiencing higher happiness. Consequently,

public welfare efforts, such as the suggested complimentary meal programs, could significantly improve psychological well-being by prioritizing the fulfillment of these essential physiological demands. Nevertheless, it is important to point out that although these programs may function as crucial short-term safety nets, sustainable solutions calls for strengthening the capacity of impoverished families to create their own adequate income. This strategy offers sustainable access to daily nutritious meals, as they were decreasing governmental expenditures on other social services like both healthcare and education.

Secondly, the findings enhance Becker's home production theory by demonstrating that meal consumption functions as both a consumable good and a productive input in fostering psychological well-being. This study reveals a complex relationship, indicating that nutritional quality—particularly the consumption of vegetables, fish, meat, and dairy—may considerably surpass the benefits of mere food variety in contributing to happiness, contrary to traditional utility theory which associates increased variety with greater utility. This points to how important it is for welfare measures to incorporate specific nutritional criteria, regarding food inputs not merely as nourishment but as vital psychological resources that significantly affect total well-being.

Notwithstanding these insights, several limits must be recognized. The collected data works only as a proxy for the program, rather than reflecting actual program participation, and the cross-sectional structure of the data limits causal inference and the establishment of temporal or directional causality. Future research utilizing more consistent data from actual program participants and employing longitudinal or experimental approaches might facilitate more conclusive causal inferences. Secondly, self-reported happiness inevitably has reporting biases in its measurement. Third, unobserved variables affecting people'

happiness may not be considered in our research, despite the inclusion of several socio-economic elements. Finally, the Indonesian setting of the study constrains generalizability; hence, comparative research across many cultures or nations is advised for enhanced application and culturally responsive policy formulation.

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