Exploring quality of life as a determinant of eating behaviors among youth: A preliminary study

Dynatalie Delicious[1], Chemah Tamby Chik[2#], Lovelyna Benedict Jipiu[2]
1 Community Nutrition and Health, Faculty of Food Science and Nutrition, Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah, MALAYSIA.
2 Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, MALAYSIA.
Corresponding author. E-Mail: chemah@uitm.edu.my; Tel: +6013-3963611.

ABSTRACT Youths often exhibit poor eating behavior, including high fast-food intake and low fruit and vegetable consumption. This poor eating behavior undermines quality of life, which may subsequently contribute to the continuation of unhealthy dietary habits. In Malaysia, 53.5% of the population is overweight or obese, making obesity a major problem. This preliminary study aims to examine the underlying factor structure of the Quality of Life (QoL) and Eating Behavior (EB) scales. A sample size of n = 50 and participants aged 18 to 30 years completed a structured questionnaire that incorporated the WHOQoL and Three-Factor Eating Questionnaire (TFEQ). The data were then analyzed using exploratory factor analysis (EFA) to validate the factor structure of the instruments between observed variables and factors. The results of the EFA showed all items exhibited acceptable communalities, ranging from 0.536 to 0.599, above the recommended threshold of 0.50, and Cronbach's Alpha values were above 0.8, indicating that all variables had satisfactory internal reliability and construct validity. The study validated constructs from this analysis that offer a sound foundation for future research involving larger samples.

KEYWORDS: Quality of life; Eating behaviour; Youth; Mental health; Exploratory factor analysis
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Original Article

INTRODUCTION

One major issue in early quality of life (QoL) research is the decrease in quality of life among the public due to mental health issues, including depression and anxiety, which has affected many stages of the population (Cuijpers *et al*., 2023; Samsudin *et al*., 2024). The quality of society's life is closely related to sustainable development; specifically, it concerns whether the social, environmental, and economic systems that support the community can provide a meaningful and healthy existence for both the present and future generations (Yusoff, 2020). Besides that, in assessing people's health conditions, the quality of life is a crucial factor that focuses on both physical and mental health (Liu *et al*., 2024). Quality of life can be evaluated and create awareness of how a person perceives their place in life concerning their goals, expectations, standards, and concerns, through the study conducted by researchers and can be an easier pathway to attract youth to participate in health promotion programmes targeting healthier eating and improved mental well-being (Pequeno *et al*., 2020). Nevertheless, there have been few studies that have focused on the relationship between quality of life and dietary habits that are linked to significant enhancements in overall physical and mental health, longevity, and lower levels of obesity (Lanuza *et al*., 2020). Meanwhile, good eating habits will help an individual to have healthier physical and mental health, hence improving the quality of life (Lee *et al*., 2019). Maintaining a healthy diet, such as the Dietary Approach to Stop Hypertension (DASH) diet or the Mediterranean diet, without experiencing hunger or deprivation may help people maintain their quality of life (Daley & Vadakekut, 2025).

On the other hand, uncontrollable eating may lead to obesity, which has been linked to an increased risk of noncommunicable diseases and mortality (Ejigu & Tiruneh, 2023). It also has a lower quality of life as well as poor physical and mental health (Defar *et al*., 2023). Even though

TRANSACTIONS ON SCIENCE AND TECHNOLOGY

eating behaviour is one's responsibility and something that should be under one's control, people were only partially in control of their eating behaviour due to time and money constraints, social influences, measuring up to desired identities, and a desire to maintain traditions (Van-der-Heijden *et al*., 2021). In line with this notion, food can have an impact on our mood and mental health. Given that eating has contributed to the development of depression in a considerable percentage of people (Eaton *et al*., 2020; Firth *et al*., 2020). Food diet patterns are adjustable and involved in individual psychological disorders; however, it is also associated with other chronic diseases, for example, obesity, metabolic syndrome, diabetes, and mortality (Shams-Rad *et al*., 2022). For example, consuming some food groups based on fruits and vegetables, including low dietary intakes of B vitamins and omega-3 fats, have been linked with an increased risk of psychological disorders (Sadeghi *et al*., 2021).

BACKGROUND THEORY

Quality of Life Model (QoL)

This study is grounded in the World Health Organization Quality of Life (WHOQoL) model, a widely recognized framework for assessing quality of life (QoL) across multiple domains (World Health Organization, 1997). The WHOQoL model defines QoL as individuals' perceptions of their position in life within the context of their culture, value systems, goals, expectations, standards, and concerns. This model, Figure 1, exhibits the study's conceptual framework, demonstrating the direct influence of the four qualities of life domains, such as physical, psychological, social, and environmental, on youth eating behavior. Each domain is depicted by arrows that point to eating behavior, indicating the hypothesized direct relationships.

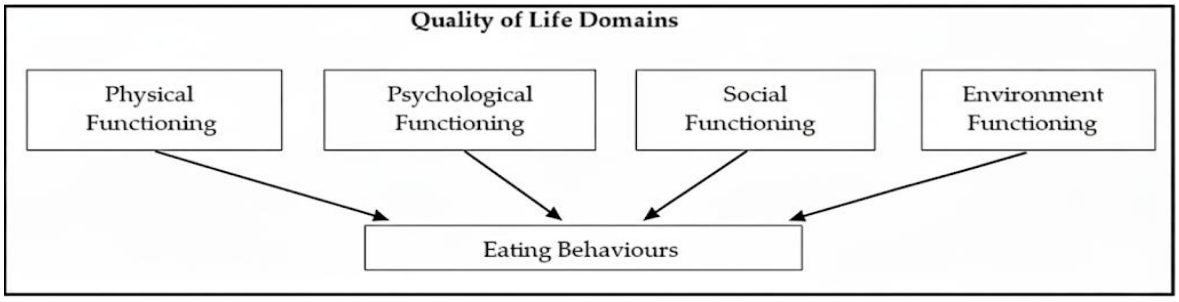

Figure 1. Quality of life and eating behavior framework.

Physical health can influence eating behaviors by affecting appetite and energy expenditure. Psychological health impacts emotional eating patterns, where stress or anxiety may lead to overeating or unhealthy food choices. Social relationships play a role in dietary habits through peer influence or communal meals. Environmental factors determine access to nutritious foods and opportunities for dietary education. By analyzing these domains, this study hypothesis a positive association between higher QoL scores and healthier eating behavior. The WHOQoL-BREF, a shorter version of the WHOQoL questionnaire, is utilized to measure QoL domains (The Whoqol, 1998; Young *et al*., 2020). Each domain is assessed using a likert scale ranging from 1 (very poor/never) to 5 (very good/always). This formula is used for calculating a domain score, which is a defined way for transforming raw data into an easily interpretable scale (usually ranging from 0 to 100), with higher scores indicating better QoL (The Whoqol, 1998). This theoretical framework provides a robust foundation for investigating the interplay between quality of life and eating behaviors in youth populations. The domain scores are calculated using Equation (1).

$$\text{Domain score} = \left(\frac{\text{Mean of raw scores in domain - Min possible score}}{\text{Max possible scores - Min possible scores}}\right) \text{x } 100 \quad (1)$$

METHODOLOGY

Sampling Technique and Measurements

This preliminary study determined its sample size using Roscoe's guidelines, which recommend a minimum of 30–50 participants for pilot or exploratory research (Roscoe, 1975). Accordingly, a total of 50 questionnaires were distributed to youths aged 18–30 years in Kota Kinabalu, Sabah. This study used convenience sampling in which participants were chosen based on their availability and desire to participate, allowing the researchers to access participants efficiently and gather initial insights to refine the main study design (Etikan *et al*., 2016). Because the survey link was distributed openly via social media, the exact number of people reached could not be determined; thus, no formal response rate could be calculated (Andrade, 2020). However, this study uses Roscoe's guidelines to determine the sample size. Roscoe indicated that for most behavioural investigations, a sample size larger than 30 and less than 500 is appropriate (Roscoe, 1971). Furthermore, as stated by (Cooper et al., 2011; Hill, 1998; Johanson & Brooks, 2010), to evaluate the internal consistency dependability of the measures, the coefficient alpha is calculated. Therefore, a sample size of 50 people is typically sufficient to do a pilot test.

Sampling site and duration

According to national data (Institute for Public Health, 2020), Sabah ranks fourth in the prevalence of depression, with a rate of 4% among adults aged 18 and above. Given the study's aim to examine quality of life in relation to eating behavior among Malaysian youth, whose dietary patterns reflect a blend of traditional and modern influences in Kota Kinabalu, Sabah, was selected as the sampling site. The overall study was conducted over a period of 3 months, which included preparation, data collection, analysis, and reporting. Youth aged 18–30 years were recruited as respondents. The detailed protocol for questionnaire administration, including response time and retrieval procedures, is described in the data collection section.

Sample collection

Ethical approval obtained from Universiti Teknologi MARA (UITM) Ethics Committee, ethics no REC/04/2023 (PG/MR/129). Next, interested individuals were first screened for eligibility through a qualifier question assessing age (18 - 30 years) and residency in Kota Kinabalu. Those who met the inclusion criteria and agreed to participate were provided with an informed consent form outlining the study purpose, confidentiality, and voluntary participation. Eligible participants then completed the full set of questionnaires, which comprised the WHOQOL-BREF and the Three-Factor Eating Questionnaire (TFEQ). A structured questionnaire with open-ended questions is distributed, following that, data is collected from the relevant online distribution channels such as Google Form Survey, WhatsApp's application, Facebook, Instagram and TikTok. Afterwards, the data is evaluated and analysed.

Instrumentation Data Analysis

The World Health Organization Quality of Life Questionnaire–Short Form (WHOQOL-BREF), designed to assess overall quality of life (The Whoqol, 1998; Nazali *et al*., 2021), was used to collect data on youths' perceptions of their physical, psychological, social, and environmental well-being. The Malaysian version validated by Hasanah *et al*. (2003) was adopted in this study, comprising 26 items rated using a 5-point Likert scale.

To measure eating behavior, the study employed the revised Three-Factor Eating Questionnaire (TFEQ), which consists of 12 items assessing cognitive restraint and emotional eating (Stunkard & Messick, 1985; Duarte *et al*., 2020). The version is a shortened adaptation of the original TFEQ -R18

items; nevertheless, for this study, it will use only two specific dimensions (cognitive restraint and emotional eating) to assess the eating behavior dimension (de Medeiros *et al*., 2017). All items were rated on a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree.

The data collected were analysed using Exploratory Factor Analysis (EFA) and utilising the Varimax Rotation with Principal Component (PC) extraction method and were deployed to all thirty-eight (38) items (Hair *et al*., 2019; Williams *et al*., 2010). The underlying structure and reliability of the study constructs were examined with an emphasis on confirming the factor structure of the instruments of quality of life (QoL) dimensions and eating behaviour. This step was essential in ensuring that the latent constructs used in the subsequent analysis accurately represented the targeted variables, thereby supporting the study's objective: to identify the direct effect of quality of life on youth eating behaviour (Hair *et al*., 2014).

RESULT AND DISCUSSION

Demographic Profiles of Respondents

Sabah's prevalence of depression among adults aged 18 years is 4%, placing the state fourth in terms of depression occurrence (Institute for Public Health, 2020). As a result, the preliminary test will be undertaken in Kota Kinabalu, Sabah, among people aged 18 to 30. The pre-test survey included 50 respondents. The majority were young adults, with 50% aged 22-25, 40% aged 26-30, and 10% aged 18-21. The sample was primarily made up of women (76%), with men accounting for 24%. The majority of respondents (84%) were single, with only 16% reporting marriage. In terms of educational background, the majority (92% of respondents) had completed secondary education, with the remaining 8% having completed secondary school. The religious composition of the sample revealed that Christian respondents were the majority (82%), followed by Muslims (8%), Buddhists (8%), and Hindus (2%). Reflecting Sabah's diverse population, 76% of respondents identified as "Other," with Chinese (16%), Malay (6%), and Indian (2%) ethnicities represented. In terms of occupation, over half of the participants were students (44%), followed by those working in the government (16%) and self-employed (16%). Other responders were jobless (14%), private-sector workers (10%), and housewives (2%). Figure 2 shows the demographics of the respondent profile.

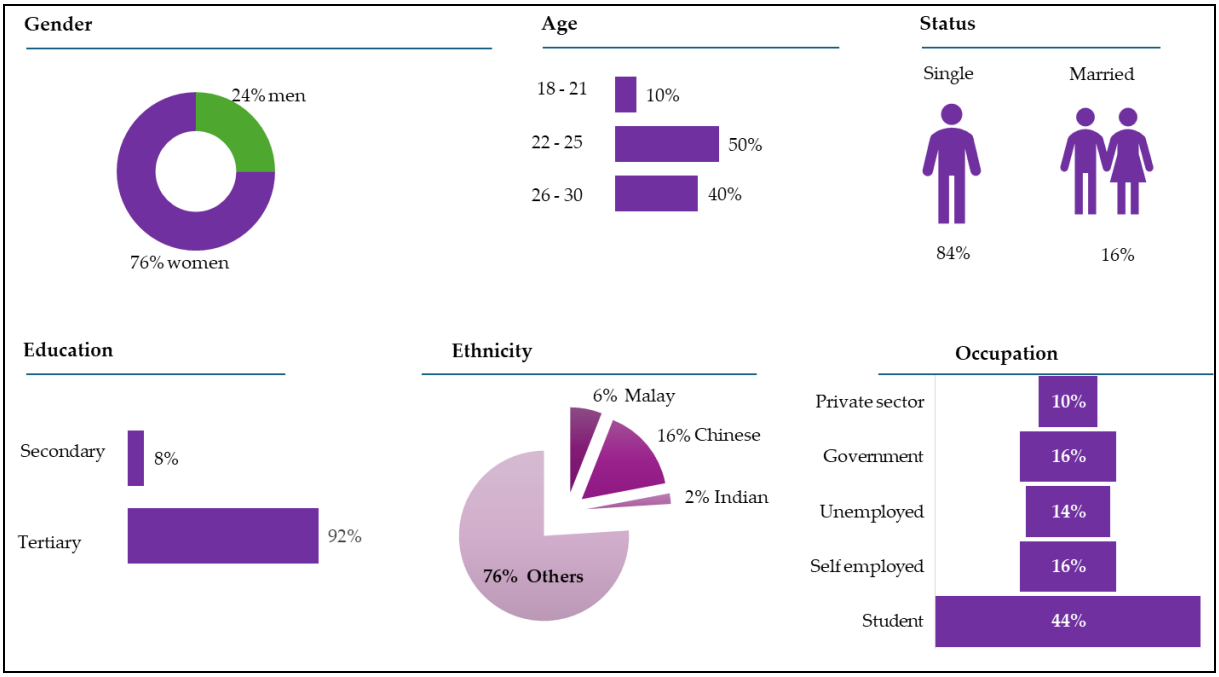

Figure 2. Demographic profiles for the pre-test survey

Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) confirmed that all measurement constructs demonstrated strong psychometric properties (Table 1). The physical functioning domain showed factor loadings ranging from 0.669 to 0.881, communalities from 0.702 to 0.791, and a Cronbach's alpha of 0.802 (Table 2), indicating good internal consistency. Psychological functioning items loaded between 0.675 and 0.910, with communalities from 0.536 to 0.931. Social functioning demonstrated acceptable loadings between 0.577 and 0.916, while environmental functioning demonstrated factor loadings from 0.699 to 0.908, both reflecting satisfactory validity indicators. The eating behaviour construct, the study's primary dependent variable, exhibited high factor loadings (0.774–0.886), communalities (0.599–0.784), and a Cronbach's alpha of 0.856 (Table 2). These results indicate that the items effectively captured youth eating behaviour patterns. Exploratory Factor Analysis (EFA) analysis indicates strong item representation within each domain and supports the construct validity of all four quality-of-life domains and eating behaviour scales in this pre-test sample (Table 1). Together, these findings validate that the factor structure provides a strong foundation for further analysis using Structural Equation Modelling (SEM) to evaluate these direct effects, as outlined in the research framework in future studies.

Table 1. Summary results of EFA analysis.

Extracted Variable	No. of items	Factor Loading[a]	Communalities[a]
Physical functioning	6	0.669 - 0.881	0.702 - 0.791
Psychological functioning	9	0.675 - 0.910	0.536 - 0.931
Social functioning	5	0.577 - 0.916	0.577 - 0.874
Environmental functioning	6	0.699 - 0.908	0.532 - 0.841
Eating behavior	12	0.774 - 0.886	0.599 - 0.784

[a] Values represent factor loadings and communalities after varimax rotation.

Table 2. Cronbach's Alpha Coefficient of internal reliability

Construct	No. of items	Cronbach's Alpha (α)
Part A: Quality of life	26	0.802
Part B: Eating Behaviour	12	0.856
Overall Alpha Coefficient	66	0.811
No of respondents (n) = 50		

This finding aligns with previous literature showing that improved quality of life contributes to better dietary choices and reduced risk of disordered eating (Liu *et al*., 2024; Wickman *et al*., 2021; Romero-Blanco *et al*., 2021). Physically active individuals tend to be more conscious of their health, make better dietary choices, and participate in more regular physical activities. Emotional management skills are typically better in those with higher psychological functioning. This implies that individuals are more likely to make thoughtful, healthy meal choices and less likely to overeat emotionally. On the social influence, healthy eating habits are frequently the outcome of sharing meals with loved ones or friends. Meanwhile, social isolation and loneliness might result from poor social functioning, and these conditions might increase the likelihood of disordered eating behaviors and emotional eating. The result also indicates that young people who live in places and surroundings that offer greater access to wholesome foods like fresh vegetables, lean meats, and whole grains are encouraged to develop improved eating habits. While these preliminary findings provide valuable insights, the study is limited by its small sample size and the use of convenience sampling. These limitations were addressed by employing validated measurement tools, ensuring reliability and structural soundness. Future studies with larger, more representative samples are recommended to test the proposed model using SEM, as planned in the main research phase.

CONCLUSION

Overall, it can be concluded that based on the Exploratory Factor Analysis (EFA) with substantial factor loadings, communalities, and acceptable internal consistency values, the results validated the validity and reliability of the main constructs: eating behavior, physical, psychological, social, and environmental functioning. The validated construction provides a robust measurement framework to proceed with further analysis. The idea that various aspects of quality of life may have an impact on eating behaviors in young people by defining the dimensional structure of eating behavior and QoL. Validating these conceptions is a crucial first step in accomplishing the study's objective of determining the direct relationship between eating behavior and QoL. Because this is a preliminary study, non-probability sampling techniques and sample size limit the results. Nonetheless, the result provides insightful information that can guide more extensive studies.

REFERENCES

[1] Andrade, C. 2020. The limitations of online surveys. *Indian Journal of Psychological Medicine*, 42(6), 575-576.

[2] Cooper, W.W., Seiford, L.M. & Zhu, J. 2011. Data Envelopment Analysis: History, Models, and Interpretations. *In:* Cooper, W., Seiford, L. & Zhu, J. (eds). *Handbook on Data Envelopment Analysis. International Series in Operations Research & Management Science, vol 164.* Boston: Springer.

[3] Cuijpers, P., Miguel, C., Harrer, M., Plessen, C. Y., Ciharova, M., Ebert, D., & Karyotaki, E. 2023. Cognitive behaviour therapy vs. control conditions, other psychotherapies, pharmacotherapies and combined treatment for depression: a comprehensive meta-analysis including 409 trials with 52,702 patients. *World Psychiatry*, *22*(1), 105-115.

[4] Daley, S. F., Vadakekut, E. S. 2025. The DASH Diet: A Guide to Managing Hypertension Through Nutrition. 2025 Dec 1. *In:* StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. PMID: 29494120.

[5] de Medeiros, A. C. Q., Yamamoto, M. E., Pedrosa, L. F. C. & Hutz, C. S. 2017. The Brazilian version of the three-factor eating questionnaire-R21: Psychometric evaluation and scoring pattern. *Eating and Weight Disorders*, 22(1), 169–175.

[6] Defar, S., Abraham, Y., Reta, Y., Deribe, B., Jisso, M., Yeheyis, T. & Ayalew, M. 2023. Health-related quality of life among people with mental illness: The role of socio-clinical characteristics and level of functional disability. *Frontiers in Public Health*, 11, 1134032.

[7] Duarte, P. A. S., Palmeira, L. & Pinto-Gouveia, J. 2020. The three-factor eating questionnaire-R21: A confirmatory factor analysis in a Portuguese sample. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, 25(1), 247–256.

[8] Eaton, M., Firth, J. & Sarris, J. 2020. *Nutrition and Mental Health—How the Food We Eat Can Affect Our Mood* (https://kids.frontiersin.org/articles/10.3389/frym.2020.00115). Last accessed on 23 December 2025

[9] Ejigu, B. A. & Tiruneh, F. N. 2023. The link between overweight/obesity and noncommunicable diseases in Ethiopia: Evidence from the WHO STEPS survey 2015. *International Journal of Hypertension*, 2023(1), 2199853.

[10] Etikan, I., Musa, S. A. & Alkassim, R. S. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1 - 4.

[11] Firth, J., Gangwisch, J. E., Borsini, A., Wootton, R. E. & Mayer, E. A. 2020. Food and mood: How do diet and nutrition affect mental wellbeing? *BMJ*, 369, m2382.

[12] Hair, J. F., L.D.S. Gabriel, M., da Silva, D. & Braga Junior, S. 2019. Development and Validation of Attitudes Measurement Scales: Fundamental and Practical Aspects. *RAUSP Management Journal*, 54(4), 490–507.

[13] Hair, J. F., Sarstedt, M., Hopkins, L. & Kuppelwieser, V. G. 2014. Partial least squares structural equation modelling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121.

[14] Hasanah, C. I., Naing, L. & Rahman, A. R. 2003. World Health organisation quality of life assessment: Brief version in Bahasa Malaysia. *The Medical Journal of Malaysia*, 58(1), 79–88.

[15] Hill, R. 1998. What Sample Size Is Enough in Internet Survey Research. *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6, 1-10.

[16] Institute for Public Health (IPH). 2020. *National Health and Morbidity Survey (NHMS) 2019: Vol. I: NCDs – Non-Communicable Diseases: Risk Factors and other Health Problems*. National Institutes of Health, Ministry of Health Malaysia. (https://iku.nih.gov.my/images/IKU/Document/REPORT/NHMS2019/Report_NHMS2019-NCD_v2.pdf). Last accessed on 29 December 2025.

[17] Johanson, G. A. & Brooks, G. P. 2010. Initial scale development: sample size for pilot studies. *Educational and Psychological Measurement*, 70(3), 394-400.

[18] Lanuza, F., Morales, G., Hidalgo-Rasmussen, C., Balboa-Castillo, T., Ortiz, M. S., Belmar, C. & Muñoz, S. 2020. Association between eating habits and quality of life among Chilean university students. *Journal of American College Health*, *70*(1), 280-286.

[19] Lee, J. E., Kim, Y. J., Park, H. J., Park, S., Kim, H. & Kwon, O. 2019. Association of recommended food score with depression, anxiety, and quality of life in Korean adults: The 2014-2015 national fitness award project. *BMC Public Health*, 19(1), 956.

[20] Liu, R., Menhas, R. & Saqib, Z. A. 2024. Does physical activity influence health behaviour, mental health, and psychological resilience under the moderating role of quality of life?. *Frontiers in Psychology*, 15, 1349880.

[21] Nazali, M. I. M., Razali, S., Ariaratnam, S., Ahmad, Y. & Nawawi, H. 2021. The 2019 Universiti Teknologi MARA, Malaysia staff survey: Determining the level and predictors of quality of life. *Frontiers in Psychiatry*, 12, 705018.

[22] Pequeno, N. P. F., Cabral, N. L. de A., Marchioni, D. M., Lima, S. C. V. C. & Lyra, C. de O. 2020. Quality of life assessment instruments for adults: A systematic review of population-based studies. *Health and Quality of Life Outcomes*, 18(1), 208.

[23] Romero-Blanco, C., Hernández-Martínez, A., Parra-Fernández, M. L., Onieva-Zafra, M. D., Prado-Laguna, M. D. C., & Rodríguez-Almagro, J. 2021. Food addiction and lifestyle habits among university students. *Nutrients*, *13*(4), 1352.

[24] Roscoe, J. T. 1975. *Fundamental Research Statistics for the Behavioural Science Volume 2*, *International Series in Decision Process*. Holt, Rinehart and Winston. (https://books.google.com.my/books/about/Fundamental_Research_Statistics_for_the.html?id=Fe8vAAAAMAAJ&redir_esc=y). Last accessed on 29 December 2025.

[25] Sadeghi, O., Keshteli, A. H., Afshar, H., Esmaillzadeh, A. & Adibi, P. 2021. Adherence to the Mediterranean dietary pattern is inversely associated with depression, anxiety and psychological distress. *Nutritional Neuroscience*, 24(4), 248–259.

[26] Samsudin, S., Ismail, R., Daud, S. N. M., & Yahya, S. 2024. The prevalence and underlying factors of mental health disorders in Malaysian youth. *Journal of Affective Disorders Reports*, 15, 100706.

[27] Shams-Rad, S., Bidaki, R., Nadjarzadeh, A., Salehi-Abargouei, A., de Courten, B. & Mirzaei, M. 2022. The association between major dietary patterns and severe mental disorders symptoms among a large sample of adults living in Central Iran: Baseline data of YaHS-TAMYZ cohort study. *BMC Public Health*, 22(1), 1121.

[28] Stunkard, A. J. & Messick, S. 1985. The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research*, 29(1), 71-83.

[29] The Whoqol, G. 1998. Development of the World Health Organisation WHOQOL-BREF quality of life assessment: The WHOQOL group. *Psychological Medicine*, 28(3), 551–558.

[30] Van-der-Heijden, A., te Molder, H., Jager, G. & Mulder, B. C. 2021. Healthy eating beliefs and the meaning of food in populations with a low socioeconomic position: A scoping review. *Appetite*, 161, 105135.

[31] Wickman, B. E., Enkhmaa, B., Ridberg, R., Romero, E., Cadeiras, M., Meyers, F. & Steinberg, F. 2021. Dietary management of heart failure: DASH diet and precision nutrition perspectives. *Nutrients*, *13*(12), 4424.

[32] Williams, B., Onsman, A., & Brown, T. 2010. Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, 8, 1-13.

[33] World Health Organization (WHO). 1997. *WHOQOL: Measuring quality of life.* World Health Organization. (https://iris.who.int/items/8c03c936-698c-43ca-b172-cc66c423833a). Last accessed on 29 December 2029.

[34] Young, C. A., Mills, R., Al-Chalabi, A., Burke, G., Chandran, S., Dick, D. J., Ealing, J., Hanemann, C. O., Harrower, T., Mcdermott, C. J., Majeed, T., Pinto, A., Talbot, K., Walsh, J., Williams, T. L. & Tennant, A. 2020. Measuring quality of life in ALS/MND: Validation of the WHOQOL-BREF. *Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration*, 21(5–6), 364–372.

[35] Yusoff, M. M. 2020. Improving the quality of life for sustainable development. *IOP Conference Series*: *Earth and Environmental Science,* 561(1), 012020.