PERSPECTIVE ON HEALTHY EATING PRACTICES DURING 1000 DAYS OF LIFE DEVELOPMENT: A QUALITATIVE STUDY AMONG FEMALE UNIVERSITY STUDENTS

Farah Raihana Mohd Fauzi, Rasyidah Ghazalli & Wan Azdie Mohd Abu Bakar *

Department of Nutrition Sciences, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Jln Sultan Ahmad Shah Bandar Indera Mahkota 25200 Kuantan, Pahang, Malaysia

Corresponding author: wazdie@iium.edu.my

Abstract

Introduction: Early life development is utmost important to ensure optimal growth and wellbeing. The main objective for this qualitative study is to explore the perspectives of female university students on the healthy eating practice for maternal health and child development during the first 1000 days of life. **Method:** The study was conducted by using focused group discussion (FGD) with a total of 24 participants in which there were 4 groups of students consisting of 5-7 participants in a group. **Result:** This study found that there are various factors that took a role as barriers and/or knowledge in the perspectives of female university students toward healthy eating practice. The barriers include behaviour of parents and child, economic status, lifestyle, physiological aspects of mother and child, and time constriction. Family and social media influences served as both barriers and source of knowledge while other sources of information were television and formal education. The participants also characterized the importance of food intake into three themes namely the macronutrients, micronutrients, and types of food. **Conclusion:** This study indicates that the female university students have some good understanding on the barriers and facts on nutrition for maternal health and child development. For future research, the study can be extended to the male population of university students to get the perspectives of future fathers.

Keywords: Maternal Health, Child Development, Nutrition

Introduction

Healthy and balanced diet is important for all women at reproductive age, because healthy human development begins as early as during the conception. A well-nourished mother will supply enough nutrients for a healthy development of the baby in the womb. Various complications may occur if a mother experienced undernourishment, which include stunting of the child. The World Health Organization (WHO) stated that stunting or linear growth failure as a condition in which children's growth and development are stunted due to poor nutrition, frequent infections, and insufficient psychosocial stimulation. If a child's height-for-age is more than two standard deviations below the WHO Child Growth Standards median, they are considered stunted. Stunting is generally irreversible (WHO, 2015).

Stunting in childhood is one of the most serious barriers to child growth, impacting roughly 162 million children under the age of five worldwide. Stunting can cause individuals and societies to suffer long-term consequences like impaired cognitive and physical development, decreased productive capacity, poor health, and an increased risk of degenerative diseases like diabetes. (Prendergast & Humphrey, 2014). Prendergast and Humphrey (2014) elaborated that children who were stunting but not yet stunted had an increased risk of respiratory infections and diarrhea while severely stunted children had three times the risk of infections like sepsis, meningitis, tuberculosis, hepatitis, and cellulitis which affects morbidity and mortality.

Stunting is also a growing concern in Malaysia. Based on the National Health and Morbidity Survey (NHMS) 2019 report, the prevalence of stunting has increased 4.1%, from 17.7% in 2015 to 21.8% in 2019. This means that 1 in 5 children in Malaysia is stunted. Researchers recommended focusing on the first 1000 days of life, including intensifying, and strengthening maternal nutrition programmes before and during gestation, as well as strengthening nutrition knowledge and practices among mothers and caregivers. Furthermore, they suggested increasing the capacity of health care personnel to monitor and manage the nutritional status of children under the age of five (IPH, 2020).

Hence, to combat this problem, policy makers need to identify the best approaches in enforcing maternal nutrition programs and expanding the work forces in health care. One of the ways to identify them is by exploring the perspectives and knowledge of women in aspects of maternal nutrition and healthy children feeding practice. By discovering the perspectives of women in Malaysia especially those in higher education, policies can be structured to focus and cater towards the most prominent obstacles, thus improving maternal knowledge and feeding practice and lastly, fighting stunting in Malaysia overall. Therefore, this study aims to explore the perspectives of female university students in terms of maternal nutrition knowledge and child feeding practice.

Materials and Methods

Study Area

The study was conducted in International Islamic University Malaysia (IIUM) Kuantan Campus. The campus mainly offers science and health-based courses. Thus, it is to be expected that the students have at least basic knowledge on maternal health.

Subjects

In total, 24 participants from International Islamic University Malaysia (IIUM) Kuantan campus were recruited. The inclusion criteria were undergraduate female students. Informed consent was obtained from the volunteers.

Study Design

The design of the study was qualitative research using focused group discussion. The data collection was collected from beginning of March until the end of April of 2022.

Sample Size

The sample size was of 24 female students studying in IIUM. Thorogood (2009) affirmed that according to most experienced qualitative researchers, after interviewing 20 people, no new information is gathered or in other words, has achieved saturation of data (Thorogood, 2009, as cited in Vasileiou et al., 2018). After conducted 4 FGD consisting of 5-7 people in a group, the saturation data has reached as there are no new themes that emerged.

Sampling Method

The sampling method that was used is purposive sampling which was done by spreading invitation text message on WhatsApp to different groups according to targeted Kulliyyah in IIUM Kuantan. Other than that, a word-of-mouth method was also used to recruit participants. Recruitment strategy was done by promoting the text message with a link to the Google Form where potential participants will fill in their demographic and contact information. The participants were then contacted via WhatsApp, with consent form.

Data Collection

Data collection was done by conducting focused group discussion using semi-structured questions led by the researcher and facilitated by experienced personnel which was a doctorate student. Note taking and audio recording was also done during the discussion by the researcher of the study. The discussion was done online using Microsoft Teams video conference platform. The discussion was held in Malay language to help ease the discussion as it is the first language of the moderator and the participants. Each discussion took about 40
– 85 minutes.

Data Analysis

In this study, the thematic analysis was used. The thematic analysis is defined as a descriptive analysis method that condense the data in an adjustable way that merges with other data analysis procedures. (Castleberry & Nolen, 2018). The analysis was done by first transcribing the audio recording of the discussion. The transcript was examined line by line, coded and categorised according to the themes that emerged. To find significant messages to group into main themes and minor themes, the inductive coding method was applied. Steps in analysing the data was according to the following steps: 1) reviewing each item in the data set; 2) construct codes from the data; 3) detect themes and classify codes into detected themes; 4) describe and polish the identified themes and lastly; 5) making conclusions from the analysis.

Results

Characteristics of the Participants

Referring to table 1, the participants were all female, age between 21 to 26 years old and they were enrolled in a variety of academic programmes. Most of them were third year students (n=21) and from Biomedical sciences programme (n=6).

Table 1: Sociodemographic characteristics of the participants (N=24)

Characteristics	Responses	N
Field of Study	Applied Chemistry	1
	Applied Plant Science	3
	Audiology	2
	Biomedical Sciences	6
	Biotechnology	4
	Dentistry	1
	Radiology	3
	Speech	2
	Pharmacy	1
	Physics	1
Year of Study	Year 1	0
	Year 2	2
	Year 3	21
	Year 4	1
Age	21	3
	22	16
	23	3
	24	1
	25	0
	26	1

Barriers and Knowledge towards Healthy Eating Practice for 1000 Days of Life Development

Figure 1 shows the main levels of analysis developed: individual, social, and external components. The results revealed two elements defining the causes and knowledge of healthy eating practices for mother's health and child development based on the theme analysis undertaken.

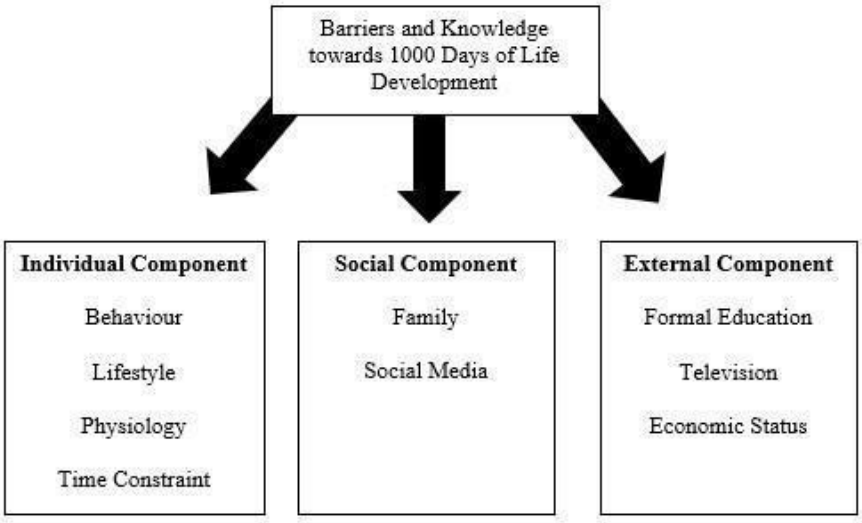

Figure 1: Barriers and Knowledge towards 1000 Days of Life

Each of the themes were further divided into sub-themes. The majority of students believed that behaviour, lifestyle, time constraints, and financial circumstances were the main barriers to healthy eating practices in mother and child development. Social media and family influence can operate as both obstacles and sources of knowledge when it comes to healthy eating. Formal education and television were the other sources of knowledge.

Individual Components

Behaviour

The behaviour of parents and children are both mentioned as barriers to healthy eating practice. Parent's lack of interest in knowing what nutritious food for their children lead them to just giving their children any kinds of food.

> *"I think because the parents themselves don't care much about the child's nutrition, so they provide less healthy food for children. Like we know, if the parents are poor, they just give their child to drink coffee, drink canned milk or something (else),"* (3rd year, Biotechnology 1)

Time Constraint

When asked on why the stunting trend increased, majority of the participants answered that the parents have lack of time due to commitments like work and house chores to be able to give their children healthy meals.

> *"Sometimes because the parents are busy, o nly the unhealthy food is easily obtainable. Then, when the children are used to eating the food and found them to be delicious, they do not want healthy food,"* (3rd year, Speech)

Social Components

Social Media

Social media has become a daily activity for both adults and children nowadays. One participant said that the food trends on social media could influence parents to give their children unhealthy food like fast food. Moreover, food delivery services had improved the food accessibility.

> *"I think starting from few years back, food hunting has been gaining popularity at social media and to add on due to the Covid (pandemic) and all that, the food delivery has become more popular. So, I think, maybe the children who are actively growing up are exposed to a lot of fast food,"* (3rd year, Radiology 2)

External Components

Economic Status

When the participants were asked about breastfeeding and complementary feeding are hard to do for some people, financial situation was mentioned a couple of times. The participants mentioned that the rising costs of living is a major reason for the inability of parents to provide healthy food for their children. They said that healthy foods are generally more expensive, thus parents turned to foods that are assumed to be less nutritious, just so that they can feed their child.

> "*In my opinion, the cost of living is getting higher. So, when the cost of living gets higher, the parents will try to buy foods that are lower in price, in which when the price is lower maybe the nutrients will be lower."* (3rd year, Biomedical Sciences 1)

Nutrition for the First 1000 Days of Life

The discussion also had asked for the participants understanding on the nutrition aspects of maternal health and children development. From there, themes of macronutrients, micronutrients and types of food that needed to be consumed emerged.

Macronutrients

Macronutrients are an integral part of a person's diet; thus, it is to be expected that they are mentioned. The macronutrient that became a focus for the participants is protein. Protein is important for both mother and child as it is crucial for cell repair and healthy growth. This was understood by the participants as they expressed the importance of the macronutrient.

> "*But from what I know, as there are a lot of blood loss after giving birth, we have to take a lot of protein and iron. Protein is for repairing our reproduction system,"* (3rd year, Physics)

Micronutrients

Micronutrients are also important for nourishing the body of mothers and children. The essential micronutrients that were talked about by the participants were iron, calcium, vitamins and folic acid which is the most vital micronutrient for pregnant mothers. Almost every participant knew that pregnant mothers need to be supplemented with folic acid.

> *"Even before the mother plans to get pregnant, she already needs to consume folic acid for the development of the baby,"* (3rd year, Applied Plant Science)

Types of food

Complementary Food

For children who are ready for their first food, it is important that the type of food they eat is tolerable to them. When asked about what type of food is suitable for complementary feeding, generally, the participants commented that foods that are soft, and mushy like porridge, purees, and mashed potatoes are best suited for introductory foods. They understood that the food given must be easily swallowed and digested.

> "*If by 6 months we know the baby's intestines are very sensitive, still new so unable to digest. Baby doesn't even have teeth. So, we should give the food that has been mashed or semi solid food so that the baby doesn't have to chew, just swallow. For example, we can give mashed potatoes, porridge, soft food (in general),*" (3rd year, Biotechnology 2)

Antenatal and Postnatal Food

For foods that are suggested to be taken by mothers, they are foods that increase energy and promote breast milk production. The participants emphasised that these types of food are essential as they help mothers regain their health and strength so that they can breastfeed their children.

> *"There are mothers that drinks something like supplement, for example milk for mothers that have children so they can increase milk production,"* (3rd year, Physics)

DISCUSSION

This study discovered perceived components that influence healthy eating practices of women at reproductive age from the perspective of university students. Regarding behaviour, participants mentioned that the lack of parents' interest and awareness to nutritious food for their children is one of the barriers to healthy eating practice. This is in accordance to the research by Romanos-Nanclares et al. (2018) which reported that there is a link between parental healthy-eating attitudes with nutritional sufficiency and diet quality in a group of Spanish pre-schoolers. A study in Portugal also reported similar findings, with notes that higher education relates to better health awareness and healthier practices adoption (Almeida

et al., 2021). This means that if the parents are aware of and adopt healthy eating practices, their children will have sufficient nutrition and better dietary intake and vice versa.

Time constraint is a recurring theme that appears in the research in which participants commented that work and house commitments took a huge portion of time in parents' lives, especially affecting mothers' ability to breastfeed exclusively. Research in India agreed with this finding as they reported that the prevalence of child malnutrition is also linked to mothers' heavy workload and consequent time constraints (Chaturvedi et al., 2016).

For barriers to healthy eating practice, there are no research found that correlates social media influence with the nutritional intake of mothers and children. However, there is one research that perceived social media as having negative effect on the subjects who consists of university students (Wongprawmas, Sogari, Menozzi, & Mora, 2022). Nonetheless, an intervention study using social media to improve nutrition knowledge among pregnant adolescents and adult women showed that they enjoyed getting knowledge in this form of sharing (Vander Wyst et al., 2019). Thus, further development of using social media as source of knowledge can be done.

Participants also mentioned that economic status can hinder parents from implementing healthy eating practice in their life, including for their own children. This conformed to numerous studies that agree food costs affect the ability of parents from choosing fresher produce and better-quality ingredients (Francis-Granderson & McDonald, 2018). A review conducted by Kavle and Landry (2018) also found research in 11 countries, mainly developing ones, agreed that economic constraints is a major obstacle in obtaining healthy and nutritious food.

Regarding macronutrients, the participants showed good understanding of importance of protein for maternal health and child development. They mentioned that protein was crucial in mothers to promote repair of reproductive system, blood synthesis and growth of foetus. However, the participants did not mention how many a women should consume during her pregnancy.

For knowledge related to micronutrients, most participants knew that expectant and pregnant mothers are required to consume folic acid for proper growth of baby and prevention of neural tube defects. They also mentioned that iron and vitamins like vitamins A and C are important to be taken. Again, the participants seem to understand the significance of micronutrients for pregnant mothers. However, they did not mention other important micronutrients like complex B vitamins, zinc, iodine, copper, and selenium. It can be observed that the participants knowledge is in line with the research from Bangladesh, where the pregnant women's knowledge level was found significantly associated with the level of their education (Azad et al., 2021).

Lastly, for the types of food consumed for complementary, antenatal, and postnatal feedings, the participants recounted the types mainly according to their knowledge. For complementary feeding, participants know that the feeding starts at 6 months of age with foods that have soft texture like porridge, puree, and mashed potatoes and be mild tasting. The types of food that the participants mentioned was consistent with WHO recommendations for complementary feeding (WHO, 2000). While for antenatal and postnatal feedings, the participants claimed that the mothers need to eat food that can replenish energy and increase milk production, or galactagogues.

CONCLUSION(S)

This study displayed that the female university students somehow have good understanding on the nutrition for maternal health and child development. The results showed that time constraint and economic status were the main factors to become barriers for maternal health and child development while social media and family contributed the most as sources of information. In the future, perspectives from the male population of university students should be explored too as fathers are also known to have influence upon nutritional status and health of mothers and children.

ACKNOWLEDMENT(S)

The authors would like to extend their gratitude to all the participants of the study for their time and commitment as well as those who were involved in this study, whether directly or indirectly.

REFERENCES

Almeida, C, Azevedo, J, Gregório, M.J, Barros, R., Severo, M., Padrão, P. (2021) Parental practices, preferences, skills and attitudes on food consumption of pre-school children: Results from Nutriscience Project. PLoS ONE 16(5): e0251620.

Azad M. A. M., Begum, I. A., Huda, M. S., A. B. M., Roby, M. H., Anwar, A., Jahan, N., and Rizwan, A. A. M. (2021) *Knowledge on Nutrition during Pregnancy among Mothers Attending Antenatal Care at a Secondary Level Hospital in Cox's Bazar, Bangladesh.*

Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? In *Currents in Pharmacy Teaching and Learning* (Vol. 10, Issue 6, pp. 807–815). Elsevier Inc.

Chaturvedi, S., Ramji, S., Arora, N. K., Rewal, S., Dasgupta, R., Deshmukh, V., & for INCLEN Study Group (2016). Time-constrained mother and expanding market: emerging model of under-nutrition in India. *BMC public health*, *16*, 632.

Institute for Public Health (IPH), National Institutes of Health, Ministry of Health Malaysia (2020).

National Health and Morbidity Survey (NHMS) 2019: Vol. 1: NCDs – Non- Communicable Diseases: Risk Factors and other Health Problems.

Institute of Medicine (US) Committee on Nutritional Status During Pregnancy and Lactation. (1990).*Nutrition During Pregnancy: Part I Weight Gain*. National Academies Press (US).

Francis-Granderson, I., & McDonald, A. (2018). Parents' perceptions of healthy eating practices in north-east Trinidad. Proceedings of Singapore Healthcare, 175–179.

Kavle J.A., Landry M. (2018) Addressing barriers to maternal nutrition in low- and middle-income countries: A review of the evidence and programme implications. *Matern Child Nutr*. 14(1):e12508.

Ministry of Health Malaysia (MOH) (2016). National Plan of Action for Nutrition of Malaysia (NPANM) III. MOH; 2016.12(10).

Prendergast, A. J., & Humphrey, J. H. (2014). The stunting syndrome in developing countries. *Paediatrics and International Child Health*, *34*(4), 250–265.

Romanos-Nanclares, A., Zazpe, I., Santiago, S., Marín, L., Rico-Campà, A., & Martín-Calvo, N. (2018). *Influence of Parental Healthy-Eating Attitudes and Nutritional Knowledge on Nutritional Adequacy and Diet Quality among Preschoolers*: The SENDO Project. *Nutrients*, *10*(12), 1875.

Rosen, J. G., Clermont, A., Kodish, S. R., Matar Seck, A., Salifou, A., Grais, R. F., & Isanaka, S. (2018). Determinants of dietary practices during pregnancy: A longitudinal qualitative study in Niger. *Maternal & child nutrition*, *14*(4), e12629.

Rungsaran W., Giovanni S., Davide M., Cristina M., (2022) Strategies to Promote Healthy Eating Among University Students: A Qualitative Study Using the Nominal Group Technique, Frontiers in Nutrition, VOL. 9, 2022.

Stephenson, J., Patel, D., Barrett, G., Howden, B., Copas, A., Ojukwu, O., Pandya, P., & Shawe, J. (2014). How do women prepare for pregnancy? Preconception experiences of women attending antenatal services and views of health professionals. *PLoS ONE*, *9*(7).

Vander Wyst KB, Vercelli ME, O'Brien KO, Cooper EM, Pressman EK, et al. (2019) A social media intervention to improve nutrition knowledge and behaviors of low income, pregnant adolescents and adult women. PLOS ONE 14(10): e0223120.

Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15year period. *BMC Medical Research Methodology*, *18*(1).

Wongprawmas, R., Sogari, G., Menozzi, D., & Mora, C. (2022). Strategies to Promote Healthy Eating Among University Students: A Qualitative Study Using the Nominal Group Technique. *Frontiers in nutrition*, *9*, 821016.

World Health Organization (WHO) (2015). Stunting in a nutshell.