Original Article

Association between Socio-Demographic Characteristics and Drivers of Food Choice among Women of Reproductive Age

Christine Wairimu Muturi[1], Prof. Judith Waudo, PhD[1] & Dr. Eunice Njogu, PhD[1]*

[1] Kenyatta University, P. O. Box 43844-00100, Nairobi, Kenya.
*Author for Correspondence ORCID ID: https://orcid.org/0000-0001-9793-1730; Email: christinewmuturi@gmail.com

ABSTRACT

Food choices are influenced by a variety of factors, including sociodemographic characteristics and play a critical role in shaping dietary patterns. Among women of reproductive age, these decisions have significant implications for both individual health and public health outcomes. This study examined the association between socio-demographic factors and drivers of food choice among women aged 18-59 years in Kiambu County, Kenya. Understanding this relationship is crucial for informing nutrition policies and interventions aimed at improving dietary diversity and health outcomes in this population. A cross-sectional analytical design was employed, with a sample size of 383. Data was collected using questionnaires and a focus group discussion (FDG), assessing drivers of food choice such as health, convenience, sensory appeal, price, mood, religion, and ethical concerns. Socio-demographic variables, including age, marital status, education level, and income, were also collected to assess their influence on food choices. Data analysis was conducted using SPSS version 23.0 and data was presented using means and frequencies. Chi-square tests were used to determine associations between the variables, and a significance level was set at p<0.05. The results indicated that convenience and sensory appeal were the most influential drivers of food choice. Significant associations were observed between marital status and convenience (p=0.000), as well as income and access to food (p=0.031). Age also influenced ethical concerns, particularly regarding food packaging, with older women showing a greater preference for environmentally friendly packaging. Religion played a notable role in mood and health-related food choices, while women in lower-income brackets prioritized affordability over nutritional quality. The study highlights the need for targeted nutrition education and policy interventions tailored to the socio-demographic diversity of women in Kiambu County. Specifically, there is a need for programs focusing on promoting the affordability of healthy foods among younger and lower-income women.

INTRODUCTION

Drivers of food choice are a set of individual factors that influence what foods an individual is drawn to (Magano et al., 2023). Food choices are influenced by a variety of factors, including personal preferences, cultural norms, and socio-demographic characteristics. These drivers of food choice play a critical role in shaping dietary diversity and, consequently, overall health outcomes. These include convenience, ethical concern, risk perception, familiarity, natural content, health, mood, price, religion, sensory appeal, and weight control (Ogundele et al., 2023).

In women of reproductive age, the choice of food can be particularly significant, as it impacts not only their own health but also that of their offspring. Among the factors influencing food choices are convenience, sensory appeal, health concerns, and price. Food choice drivers are especially influenced by an individual's broader Socio-demographic and economic characteristics (age, marital status, religion, income, level of education) (Gesessew Kibr, 2020).

Socio-demographic variables play a crucial role in shaping food choices, which in turn influence dietary patterns and overall health. Age is one of the most significant factors affecting food selection. Younger adults typically prioritize convenience and foods that boost mood, often due to busy lifestyles. They tend to select meals that are easy to prepare and consume on the go (Sogari et al., 2018). On the other hand, older adults place a higher emphasis on health-related factors and are more conscious of price (Van Dyke et al., 2024). Familiarity with certain foods is also more important to older populations, who may prefer traditional meals over trying new or unfamiliar foods. This contrast suggests that as individuals age, their food choices are driven more by health and economic considerations rather than convenience or sensory appeal (Konttinen et al., 2021)

Income and socioeconomic status also have a profound effect on food choices. Individuals in lower-income brackets often prioritize price and value for money when purchasing food, which can lead them to opt for cheaper, calorie-dense, and less nutritious options. This focus on affordability over health can result in lower dietary quality and increased consumption of processed and fast foods (French et al., 2019). Conversely, people with higher incomes are more likely to consider the nutritional quality of their food and may invest in healthier, more expensive options such as organic

produce, lean meats, and whole grains. This socioeconomic divide highlights how financial constraints can lead to disparities in diet quality and health outcomes (Vadiveloo et al., 2020)

Education is another key determinant of food choices. Individuals with higher levels of education are often more knowledgeable about nutrition and are better equipped to make informed food choices. This group tends to consume a more balanced diet, including greater quantities of fruits, vegetables, and whole grains, and they are generally more aware of the health benefits associated with these foods. (Silva et al., 2023) In contrast, those with lower levels of education may have limited nutritional knowledge, which can lead to poor food choices and a reliance on less healthy, more convenient options. Thus, education not only influences food choices but also has broader implications for public health (Guiné et al., 2023).

Understanding the relationship between these socio-demographic factors and food choice drivers is essential for creating interventions that promote healthier diets. In Kenya, where both rural and urban influences shape food availability and preferences, investigating these associations can provide insights into the challenges and opportunities for improving dietary diversity among women. This study focuses on women in Kiambu County, aiming to assess how socio-demographic characteristics influence their food choices and dietary patterns and to identify key drivers that could inform future health and nutrition policies.

MATERIALS AND METHODS

This study used a cross-sectional analytical design to assess dietary diversity, drivers of food choice, and nutritional status among women aged 18-59 years in Kiambu County, Kenya. The dependent variables were the drivers of food choice (health, weight management, risk perceptions, mood, sensory appeal convenience, price, natural contents, familiarity, religion, and ethical concerns) while socio-demographic characteristics (age, marital status, religion, level of education and income levels) were the independent variable. The study took place in Kiambu County, known for its mix of rural and urban influences. A sample size of 383 women participated in the study. A multistage sampling method was used to select participants, and data were collected using a semi-structured questionnaire and a focus group discussion. Pre-testing was conducted in a nearby constituency to ensure the clarity and accuracy of the tools. Research assistants, familiar with the local area, were trained to assist with data collection. Ethical approval was obtained, and participants gave informed consent. The data was analyzed using Statistical Package for Social Sciences, (SPSS) version 23.0. Descriptive statistics, and means, were used in the analysis of data on drivers of food choice and socio-demographic characteristics. Additionally, the association between socio-demographic characteristics and drivers of food choice was analyzed using chi-square to determine the difference between means. A P-value less than 0.05% was considered statistically significant.

RESULTS AND DISCUSSION

Socio-demographic characteristics of women aged 18- 59 years in Kiambu county

With a mean age of 32.69 ±8.029, the majority (43.9%) of research participants were between the 25–24-year age range. The majority (63.7%) were married, followed by single people (27.5%) and widowed or divorced people (8.9%). The majority of participants (82.1%) indicated that they were Christians, with Protestants making up the majority of them (60.1%). Just 1.8% of people identified as Muslims, and 11.2% adhered to other faiths. Just 11.7% of people in the population made more than Ksh. 30,000 a month throughout the survey period. In contrast, 14.6% of the population made less than Ksh 5,000 a month. Only 19.6% of the study participants were in formal employment, with 42.2% combined being housewives and peasant farmers (Table 1).

Table 1: Socio-demographic data of women of reproductive age in Kiambu County

N=383 Variable	N	%
Age groups		
18-24 years	66	17.2
25-34 years	168	43.9
35-44 years	118	30.8
45-59 years	31	8.1
Marital status		
Married	244	63.7
Single	105	27.4
Divorced	24	6.3
Widowed	10	2.6
Religion		
Catholic	60	15.7
Protestant	230	60.1
SDA	43	11.2
Muslim	7	1.8
Other religion	43	11.2
Income		
<5000	56	14.6
5000-10000	54	14.1
10000-15000	62	16.2
15000-20000	56	14.6
20000-25000	47	12.3
25000-30000	63	16.4
>30000	45	11.7
Occupation		
Self-employed/ business person	71	18.5
peasant farmer	77	20.1
formal employment	75	19.6
Casual labourer	83	21.7
Housewife	77	20.1
Education level		
secondary school	66	17.2
tertiary education	79	20.6
University	79	20.6
primary school	81	21.1

Drivers of food choice

All study participants (100%) indicated that it was important to them that the food they ate could be bought close by while 94.3% felt that it was important to them that the food was easy to prepare. Most of the study population felt that food being free from GMOs was an important factor. Additionally, 93.7% felt that it was free from food scare was important to them. Additionally, the majority of the population (98.4%) also reported that "is what I usually eat" was an important factor (Table 3). Seventy-five percent (76.2%) of the population felt that religion was an important factor driving food choice while 100% considered food taste as a driver of food choice as an important part of the sensory appeal of food. When the food choice driver factors were aggregated across all the drivers studied as shown in Figure 1, where sensory appeal had the highest aggregated percentage mean

(84.0%), while mood had the lowest aggregated mean (47.9%).

Figure 1: Aggregated % means for the drivers of food choices among women of reproductive age in Kiambu County
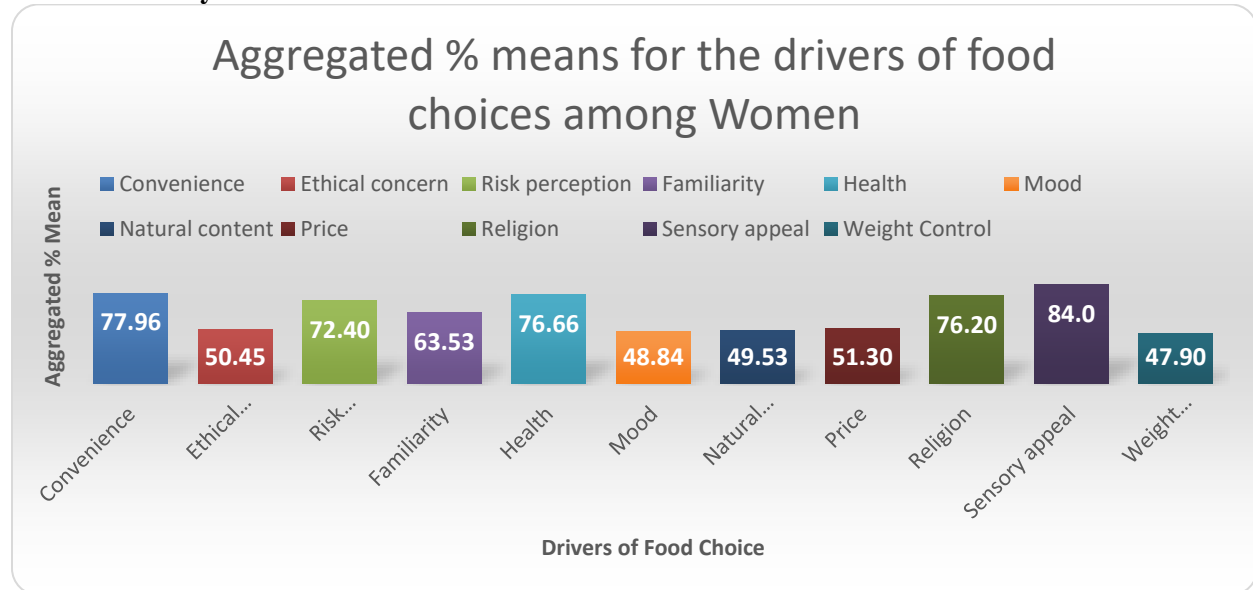
Table 2: Drivers of Food Choice (convenience, ethical concern, risk perception, familiarity and health) among women of reproductive age in Kiambu County

Variable (N=383)	Response	n	%
Mood			
Cheers me up	Yes	177	46.2
helps me cope with life	Yes	191	**49.9**
keeps me awake	Yes	199	52.0
helps me relax	Yes	187	48.8
makes me feel good	Yes	181	47.3
Natural content			
Contains natural ingredients	Yes	198	51.7
Contains no additives	Yes	180	47.0
contains no artificial ingredients	Yes	191	49.9
Price			
Is not expensive	Yes	191	49.9
Is cheap	Yes	191	49.9
Is good value for money	Yes	207	54.0
Religion			
is permissible by religion	Yes	292	76.2
Sensory appeal			
smells nice	Yes	338	88.3
has a pleasant structure	Yes	189	49.3
looks nice	Yes	377	98.4
Taste good	Yes	**383**	**100.0**
Weight Control			
Is low in fat	Yes	189	49.3
helps me control my weight	Yes	178	46.5

Association between drivers of food Choice and sociodemographic characteristics of women aged 18-59 years

In this study, there was a strong association between marital status and factors of convenience as a driver of food choice (p= 0.000). Married women (100%) considered the ease of preparation followed by single women (99.0%) as a factor in their food choices. One hundred percent (100%) of married women also felt that it was important to them that food was easily available in shops (p=0.000). In addition, there was also a strong association between food being easily available in shops and income levels (p= 0.031). The factor "can be bought close by" was reiterated by between 96.4% - 84.1% of the participants across the income levels studied. Only Seventy-seven percent (77%) of those who earned over Ksh. 30,000 felt that food being close by was an important factor (Table 4).

Younger participants, such as the students and job seekers, tended to prioritize convenience and quick meals due to their busy schedules as reiterated in the FDG; "*I'm always looking for something quick, even if it's not the healthiest. I tend to eat the foods that I can get closest to my classes.*". This was in contrast to the study results where there was no significant association between age and convenience. The results further contrasted a study by Dhir et Al. where working women, were more likely to spend more money on convenience foods than non-working women (B. Dhir et al., 2020). These differences are possibly due to the variety afforded to women of higher incomes, where they are able to access more diverse diets, outside the small-scale economy where lower income earners purchase only small amounts of repackaged foods, also known as the "Kadogo economy" (Musembi & Scott-Villiers, 2014). In the FDG, those who were employed reported that they were more likely to have more nutrient-dense foods as snacks and lunch such as meat, vegetables and fish at the beginning of the month or "luxury foods" such as pizza and fried chicken at the beginning of the month. *"At the beginning of the month, there is a lot of money, even in business. That's the time I go out with friends and my children for pizza and treats. Toward the middle and end of the month, there is not so much money. I stay indoors or if I have to go out, I eat at cheaper hotels"* FGD$_3$ participant, Kiambu, 2020. They were more likely to have carbohydrate-only meals and snacks for example just mandazi or chapatti accompanied with tea towards the end of the month before the next pay date.

Age was also found to have a significant association with concern about packaging in environmentally friendly issues as a factor of ethical consideration (p=0.041). This implied that there was a concern about how food was packaged, especially against the backdrop of the polythene paper ban in Kenya. Women aged 35 – 44 years were more likely to consider packaging as a driver of food choice than all other age groups studied. A study in a low-income settlement in Kenya Downs et al. Found that Income and food price are key factors influencing food choices among women in informal settlements, with individual preference and quality being more important for younger women and household preferences for older women (S. Downs et al., 2021). They also found that older women tended to prioritise health more in comparison to younger women (S. Downs et al., 2021).

In this study, no such association was found quantitatively, though it was brought across during the FDG. Marital status had a strong association with both "is free from food scare" and "is free from genetically modified products" p < 0.05), This was possibly due to the scare surrounding the Sars-Cov2 pandemic and the risk of infection during the data collection period. Married women were most likely to consider these factors when making food choices (100%). Almost all members of the religions and denominations represented in this study felt that it was important to them that the food they ate kept them healthy, with proportions ranging from 81.4% among the other religions to 100% among Muslims (p=0.023). One of the women reminisced that her

mother (86 years old) considered traditional vegetables animal feed and only cabbage as a vegetable. She reported that she ensured that she had dark green traditional vegetables several times a week. "*My mother thought of traditional veggies animal fodder and weeds, unlike me. I ensure I have them regularly.*" FGD participant$_1$, Kiambu, 2020.The women expressed their willingness to change their food choices under desirable conditions, such as access to fresh and nutritious ingredients, more time for meal preparation, and a higher budget. This reflects the dynamic nature of food preferences and the potential for individuals to adjust their choices based on favourable circumstances.

Age was found to have an association with "cheers me up" as a factor of mood (p=0.048). The highest proportion that reported that important to them that food cheers them up was in the 18-24 years age group (56.1%). There was also an association between "makes me feel good" and religion (p = 0.017) (Table 4). This is possible because mood significantly influences food choices, with low mood often leading to unhealthy food consumption and improved mood associated with healthier eating habits. The impact of food consumption on moods was shown to be influenced by a variety of internal and environmental factors, according to women. Mood affected food choice, and food choice influenced mood. Overeating, apparent food addiction, and poor food consumption have all been linked to low mood. Eating in social and familial contexts as well as eating healthier food has been linked to happier moods (J. Leeds et al., 2020).

"Has a pleasant structure" as a factor of convenience was associated with occupation was associated with occupation (p=0.015) Those who were formally employed were more likely to choose food based on the perceived structure (60.0%). These findings were echoed in the FDG where most of the women revealed that they were apprehensive about trying new ingredients that they considered foreign, especially if the texture was new. For example, they considered okra and Jute Mallow (Mrenda) strange and slimy and were not willing to try them. *"I am not going to eat anything that feels like mucus"* FGD$_1$ participant, Kiambu, 2020. In a study by Chakona & Shackleton (Chakona & Shackleton, 2019), examining food taboos and cultural beliefs among pregnant women in the Eastern Cape of South Africa, it was found that cultural beliefs and taboos affect food consumption. Research shows that certain foods, including meat products, fish, potatoes, fruits, beans, eggs, squash and pumpkins, are often avoided due to cultural beliefs and taboos. These results are consistent with the results of this study, in which participants expressed a preference for foods that were familiar to them (98.4%) and considered taste as an important factor in their diet in their choice of food (100%)

Table 3: Impact of Marital Status, Income, and Age on Convenience and Ethical concerns of food choice in women of reproductive age in Kiambu County

Variables (N=383)	Yes	Df	Chi-square
CONVENIENCE			
Is easy to prepare *Marital status			
Married	100.0%	3	**0.000**
Single	99.0%		
Divorced	41.7%		
Widowed	30.0%		
Easily available in shops* marital status			
Married	100.0%	3	**0.000**
Single	78.1%		
Divorced	54.2%		
Widowed	20.0%		

Variables (N=383)	Yes	Df	Chi-square
Income*is easily available in shops			
<5000	96.4%	6	**0.031**
5000-10000	92.6%		
10000-15000	95.2%		
15000-20000	87.5%		
20000-25000	87.2%		
25000-30000	84.1%		
>30000	77.8%		
ETHICAL CONCERN			
Age (Years)*packaged in an environmentally friendly way			
18-24	40.9%	3	0.041
25-34	41.7%		
35-44	57.6%		
45-59	48.4%		
FAMILIARITY	Yes	df	Chi-square
Marital status * is what I usually eat.			
Married	100.0	3	0.000
Single	97.1		
Divorced	87.5		
Widowed	100.0		
Marital status*made from ingredients I know			
Married	50.0	3	0.043
Single	63.8		
Divorced	37.5		
Widowed	50.0		

Table 4: Familiarity, Risk Perception, and mood as drivers of food of women of reproductive age in Kiambu County

Variables (N=383)	Yes	Df	Chi-square
FAMILIARITY			
Income*Is what I usually eat			
<5000	64.3	6	0.000
5000-10000	61.1		
10000-15000	77.4		
15000-20000	60.7		
20000-25000	46.8		
25000-30000	36.5		
>30000	48.9		
RISK PERCEPTION			
Marital status *free from food scare			
Married	100.0%	3	0.000
Single	81.9%		
Divorced	79.2%		
Widowed	100.0%		
marital status*Is free from genetically modified products			

Variables (N=383)	Yes	Df	Chi-square
Married	100.0%	3	0.000
Single	100.0%		
Divorced	66.7%		
Widowed	60.0%		
MOOD			
Age groups (Yrs) *cheers me up.			
18-24	56.1%	3	0.048
25-34	45.2%		
35-44	47.5%		
45-59	25.8%		
Religion * makes me feel good.			
Catholic	66.7%	4	0.017
Protestant	43.0%		
SDA	39.5%		
Muslim	57.1%		
Other religion	48.8%		
PRICE			
Education * Is good value for money.			
secondary school	66.7%	3	0.003
tertiary education	41.8%		
University	50.6%		
primary school	46.9%		

Table 5: Influence of religion and occupation on health concern and sensory appeal among women of reproductive age in Kiambu County

Variables (N=383)	Yes	Df	Chi-square
HEALTH CONCERN			
Religion*keeps me healthy			
Catholic	98.3%	4	0.023
Protestant	91.7%		
SDA	95.3%		
Muslim	100.0%		
Other religion	81.4%		
SENSORY APPEAL			
Occupation*has a pleasant structure			
Self-employed/ business person	35.2%	4	0.015
peasant farmer	42.9%		
formal employment	60.0%		
Casual labourer	50.6%		
Housewife	57.1%		

CONCLUSION AND RECOMMENDATION FOR DEVELOPMENT

This study highlighted the influence of sociodemographic factors such as Marital status, age, income, religion and education on the drivers of food choices of women aged 18-59 years in Kiambu County. Marital status was also strongly correlated with food being easy to prepare, easily available in shops and familiarity with food, where married women were most likely to choose foods that were familiar, easy to prepare and easily available. Additionally, income was co-related with

ease of availability in shops and familiarity while religion was strongly correlated with mood (makes me feel good). The findings from this study highlight the importance of developing tailored nutrition education and policy interventions that take into account the diverse sociodemographic backgrounds of these women to promote healthier dietary behaviours. There is a need for targeted nutrition education programs that are customized to meet the specific dietary concerns of different sociodemographic groups. Furthermore, in order to enhance access to convenient healthy foods, particularly for working and married women, for whom convenience is a major driver of food choice, efforts should be made to increase the availability of ready-to-eat nutritious meals and to promote the establishment of healthy food vendors, especially in areas where access to fresh produce is limited. Encouraging food vendors to stock affordable, healthy, pre-packaged foods could also help women make better food choices without compromising on convenience.

REFERENCES

B. Dhir, Neerja Singla, & Rohini Jain. (2020). Relationship between Consumption of Convenience Foods and Health Status of the Working Women. *Current Journal of Applied Science and Technology*, 87–94. https://doi.org/10.9734/CJAST/2020/V39I330 518

Chakona, G., & Shackleton, C. (2019). Food Taboos and Cultural Beliefs Influence Food Choice and Dietary Preferences among Pregnant Women in the Eastern Cape, South Africa. *Nutrients*, *11*(11), 2668. https://doi.org/10.3390/nu11112668

French, S. A., Tangney, C. C., Crane, M. M., Wang, Y., & Appelhans, B. M. (2019). Nutrition quality of food purchases varies by household income: The SHoPPER study. *BMC Public Health*, *19*(1), 231. https://doi.org/10.1186/s12889-019-6546-2

Gesessew Kibr. (2020). *Nutritional status and associated drivers of food choice among lactating women in Debre Birhan Town, North Shoa Zone, Amhara Region, Ethiopia: A community based cross-sectional study*. *12*, 16–24. https://doi.org/10.5897/ijnam2020.0268

Guiné, R. P. F., Florença, S. G., Aparício, M. G., Cardoso, A. P., & Ferreira, M. (2023). Food Knowledge for Better Nutrition and Health: A Study among University Students in Portugal. *Healthcare*, *11*(11), 1597. https://doi.org/10.3390/healthcare11111597

J. Leeds, R. Keith, & M. Woloshynowych. (2020). Food and Mood: Exploring the determinants of food choices and the effects of food consumption on mood among women in Inner London. *World Nutrition*. https://doi.org/10.26596/wn.202011168-96

Konttinen, H., Halmesvaara, O., Fogelholm, M., Saarijärvi, H., Nevalainen, J., & Erkkola, M. (2021). Sociodemographic differences in motives for food selection: Results from the LoCard cross-sectional survey. *International Journal of Behavioral Nutrition and Physical Activity*, *18*(1), 71. https://doi.org/10.1186/s12966-021-01139-2

Magano, N. N., Tuorila, H., & De Kock, H. L. (2023). Food choice drivers at varying income levels in an emerging economy. *Appetite*, *189*, 107001. https://doi.org/10.1016/j.appet.2023.107001

Musembi, C., & Scott-Villiers, P. (2014). *"'The Constitution Lies to Us': Securing Accountability for the Right to Food in Kenya." Food Riots and Food Rights project report*. Brighton/Nairobi: Institute of Development Studies/University of Nairobi. www.foodriots.org

Ogundele, A. E., Aleru, E., Bodunde, I., & Gbenro, O. (2023). Drivers of food choice, meal pattern, and lifestyle habits among undergraduate

students in Lead City University, Ibadan, Oyo State, Nigeria. *World Nutrition*. https://doi.org/10.26596/wn.202314266-78

S. Downs, Elizabeth L. Fox, Alexandra Zivkovic, Theodora Mavros, Minna Sabbahi, Emily V. Merchant, Vincent Mutuku, Kedeen Okumu-Camerra, & S. Kimenju. (2021). Drivers of food choice among women living in informal settlements in Nairobi, Kenya. *Appetite*, *168*. https://doi.org/10.1016/j.appet.2021.105748

Silva, P., Araújo, R., Lopes, F., & Ray, S. (2023). Nutrition and Food Literacy: Framing the Challenges to Health Communication. *Nutrients*, *15*(22), 4708. https://doi.org/10.3390/nu15224708

Sogari, G., Velez-Argumedo, C., Gómez, M. I., & Mora, C. (2018). College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. *Nutrients*, *10*(12), 1823. https://doi.org/10.3390/nu10121823

Vadiveloo, M. K., Parker, H. W., Juul, F., & Parekh, N. (2020). Sociodemographic Differences in the Dietary Quality of Food-at-Home Acquisitions and Purchases among Participants in the U.S. Nationally Representative Food Acquisition and Purchase Survey (FoodAPS). *Nutrients*, *12*(8), 2354. https://doi.org/10.3390/nu12082354

Van Dyke, N., Murphy, M., & Drinkwater, E. J. (2024). "We know what we should be eating, but we don't always do that." How and why people eat the way they do: A qualitative study with rural Australians. *BMC Public Health*, *24*(1), 1240. https://doi.org/10.1186/s12889-024-18432-x