MRER
MALTA REVIEW OF EDUCATIONAL RESEARCH

Volume 20, No. 1, 110-133
Faculty of Education©, UM, 2026

Childhood Experience in Meal Planning and Preparation: The Impact on Maltese Adolescents' Eating Habits

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Abstract: Research indicates that children's involvement in meal preparation is linked to healthier dietary patterns; however, evidence on its long-term impact on adolescence remains limited. This article addresses this gap by adopting a retrospective mixed-methods design to examine the association between childhood involvement in meal planning and preparation (MPP) and later dietary habits and food appreciation among Maltese adolescents aged 13–15 years. Data were collected through a structured questionnaire administered to 100 adolescents, followed by a focus group interview (FGI) with seven adolescents to further explore emerging themes. Findings show that early involvement in MPP is positively associated with healthier eating behaviours in adolescence. Over half of participants (53.5%) reported a positive influence on their eating habits, including increased vegetable and fruit consumption (63.9%), greater food and health awareness (58.3%) and improved kitchen confidence (47.2%). Qualitative findings supported these results, highlighting enhanced food appreciation, enjoyment and confidence. Overall, sustained engagement in MPP, supported by food and nutrition knowledge, appears to foster self-efficacy and healthier dietary choices. These findings highlight the importance of introducing Home Economics (HE) education at the primary level and making it compulsory throughout secondary schooling to promote long-term healthy eating behaviours.

Keywords: Meal planning and preparation, Dietary habits, Food appreciation, Self-efficacy, Children, Adolescents

Introduction

Adolescents' dietary habits have become a growing public health concern both in Malta and internationally. Globally, most adolescents fail to meet current dietary recommendations, with rising trends of breakfast skipping, low vegetable and fruit consumption, and frequent intake of processed foods posing a significant public health challenge (Rakić et al., 2024; Sridevi et al., 2025). In Malta the situation is similar, with certain patterns being particularly evident: high intake of

animal products and processed foods, alongside low plant food consumption (Borg Mifsud, 2011; Bugeja, 2015; Busuttil, 2011; Cauchi et al., 2025; Mifsud, 2017; Ministry for Education and Employment, 2015). These dietary habits have contributed to Malta ranking first in adolescent overweight and obesity among 11- and 13-year-olds in the WHO European region (Rakić et al., 2024); specifically, 31.2 and 8.9 per cent of Maltese adolescents were categorised as overweight and obese.

Unsurprisingly, the incidence of diet-related non-communicable diseases among adolescents is rising, with conditions such as Type 2 diabetes and hypertension increasingly diagnosed in younger age groups (Biswas et al., 2022; Mizia et al., 2021). Dietary habits formed during adolescence often track into adulthood with long-term implications for health (Craigie et al., 2011; Hamulka et al., 2018; Winpenny et al., 2018), making early intervention critical for reducing the long-term burden of non-communicable diseases (Chrissini & Panagiotakos, 2022).

Adolescents' food choices are shaped by sensory, social and environmental factors. Taste is the most dominant driver (Bugeja, 2015; Daly et al., 2022; Kumar et al., 2016), with healthier foods frequently rejected based on assumptions about flavour (Fleming et al., 2020; Kebbe et al., 2017), and sweet options generally preferred over more nutritious alternatives (Bawajeeh et al., 2020). Crucially, nutritional knowledge alone does not reliably translate into healthier eating behaviour (Contento & Koch, 2025; Kumar et al., 2016). However, when practical cooking skills are combined with nutritional knowledge, self-efficacy is strengthened, and healthier food choices become more likely (Onyenweaku et al., 2023; Rabiei et al., 2013; Scalvedi et al., 2021; Sharma et al., 2019; Xazela et al., 2021). Notably, Mifsud (2017) reported that adolescents perceive specific Home Economics (HE) topics, such as “Recipe Engineering” and “Factors Affecting Food Choice”, along with their accompanying practical sessions, as a significantly influencing their nutritional behaviours.

Alongside personal factors, the social and family environment plays a central role. As adolescents gain independence, peer influence shapes food choices, often encouraging fast-food consumption to fit in with social groups (Daly et al., 2022; Kelly et al., 2021; Lam et al., 2014). Parental control over meal planning and food availability limits adolescents' food autonomy (Fleming et al., 2020; Ziegler et al., 2021), while shared family meals are consistently associated with healthier dietary patterns compared to solitary eating (Berge et al., 2016; Bugeja, 2015). Parental modelling of eating habits plays an important role (Fleary & Ettienne, 2019), though limited nutrition knowledge or rigid food rules can restrict adolescents’ autonomy (Fleming et al., 2020). Actively involving children and adolescents in meal planning and preparation (MPP) has been shown to promote healthier

behaviours and a growing sense of independence (Bryan et al., 2016; Scerri, 2018; Ziegler et al., 2021).

Early childhood is a critical period for the formation of food-related knowledge, attitudes, and behaviours (Freedman et al., 2021). Food practices rooted in the home environment, including patterns of family meals and involvement in food preparation, shape children's dietary habits in ways that frequently persist across the life course (Finnane et al., 2017; Montaño et al., 2015). When healthy eating behaviours are established early, adolescents are more likely to sustain these patterns into adulthood (Wu et al., 2023). In Malta, Food and Nutrition Education (FNE) is embedded in the primary curriculum (Piscopo, 2020), and additional programmes, including those delivered through the Home Economics Seminar Centre (HECS) (Directorate for Learning and Assessment Programmes, 2016), *We Eat Responsibly* through *Eko Skola* (EkoSkola Malta, 2025), *Let's Talk Farming Programme* (Government of Malta, 2023b) and *King's Trust International* (Government of Malta, 2023a), provide further food-related learning opportunities during childhood. These initiatives complement home-based experiences, reinforcing the knowledge and skills children need to develop positive food habits.

The present study focuses specifically on hands-on MPP, defined here as the whole process of preparing a meal: from choosing recipes and menu planning, through to grocery shopping, assembling ingredients, cooking, serving and clearing up. Multiple studies confirm that childhood involvement in MPP yields short-term dietary benefits, including reduced food fussiness, greater vegetable and fruit consumption, decreased fast food intake and higher self-efficacy for cooking and healthy food choice (Broad et al., 2021; DeJesus et al., 2019; Metcalfe & Fiese, 2018; Quelly, 2019; Van der Horst et al., 2014). Despite this growing body of evidence, research examining the long-term impact of childhood MPP experience on dietary habits, particularly during adolescence, remains very limited.

In light of this gap, the present study aimed to explore the association between childhood involvement in MPP and dietary habits and food appreciation in subsequent years during adolescence. Using a retrospective mixed-methods approach, the study examined whether culinary skills and eating habits acquired during childhood were sustained in adolescence and also compared outcomes between adolescents with frequent childhood MPP involvement and those with minimal or no experience. Ultimately, it sought to provide insights into how childhood MPP experiences contribute to food appreciation among Maltese adolescents aged 13 to 15 years.

Methods

This study employed a mixed-methods, retrospective design, integrating quantitative and qualitative approaches to examine past events and identify correlations between early experiences and later outcomes (Song, 2010), thereby leveraging the strengths of both methods while minimising their limitations (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2010). The two-stage research design involved an online survey to seek a breadth of data from adolescents, followed by a more restricted Focus group interview (FGI) seeking depth of insights. Data collection was carried out between March and April 2023.

Study sample

The study targeted Maltese adolescents aged 13–15 years, a developmental stage characterised by increasing independence, peer influence and growing food autonomy, all of which significantly shape dietary behaviours during this transitional period (Daly et al., 2022; Viner et al., 2012).

Questionnaire participants were recruited through purposeful, convenience and snowball sampling, whilst FGI participants were recruited through purposeful sampling (Creswell & Creswell, 2018). Purposeful sampling criteria required participants to be Maltese adolescents, aged between 13 and 15 years, and willing to reflect on childhood food experiences retrospectively. Participation was voluntarily for both the questionnaire and the FGI.

For the survey, participants were recruited through four local youth organisations in Malta. Recruitment posters containing a QR code linked to the questionnaire were distributed to members through the organisations and shared on their social media. A target of 100 respondents was set. For the FGI, participants were randomly selected from the pool of volunteers from the same organisations who had indicated their willingness to participate by contacting the researcher after completing and submitting the survey (to preserve its anonymity). The final FGI members was settled based on the volunteers' availability on the proposed date and comprised seven adolescents.

Data collection tools

An original online questionnaire, administered via Google Forms, served as the baseline instrument to identify patterns and enable comparisons across participants (Cohen et al., 2007). Key domains of the questionnaire focused on: Choosing recipes and dishes for mealtimes; writing grocery lists; grocery shopping; growing simple crops at home; helping in a family field/farm;

preparation of ingredients; actual cooking; table laying and serving of food; and washing up. The questionnaire items were informed by the local and international literature; however, the potential for bias in content and emphasis has to be acknowledged given that the tool was developed by the researcher and only received face and content validity by an expert in the field.

The tool included closed and open-ended questions, designed to reveal patterns, allow comparisons and increase flexibility, leading to more reliable and accurate data (Cohen et al., 2007; Dillman et al., 2014). It was piloted with three adolescents, ages 13–15 years, to refine clarity and structure (Creswell & Creswell, 2018). The questionnaire also invited participation in a second stage – the FGI mentioned above. In fact, the baseline results from the questionnaire informed the development of the FGI questions, ensuring a deeper exploration of emerging themes.

Data analysis

Quantitative data were analysed using descriptive statistics (Cooksey, 2020) generated via Google Forms, with results presented graphically and examined in relation to the study objectives. Observed associations between childhood MPP involvement and current dietary habits informed subsequent qualitative exploration.

Audio-recorded qualitative data from the FGI were transcribed and systematically coded, with responses grouped into emerging themes (Braun & Clarke, 2019) aligned with the research objectives and guided by relevant literature. This also allowed for comparison and integration with the quantitative results (Creswell & Creswell, 2018).

Ethical issues

This study's research plan was reviewed and deemed ethically appropriate by the Board of Studies of the Department of Health, Physical Education and Consumer Studies of the Faculty of Education at the University of Malta (June, 2022). Questionnaires were anonymous and data were used solely for this study. In the written introduction to the online questionnaire, participants were invited to complete the questionnaire and by choosing to do so this was considered as assent to participation.

For the FGI, written parental consent covering the study's aims and audio recording was obtained for all minors involved. Similarly, prior to participation, adolescents were informed about the purpose and procedures of the study, their

permission to audio-record the FGI was obtained, and assent was secured from all participants. Participants were reminded of confidentiality and encouraged to respect one another throughout the session. The transcript of the FGI was kept free of any identifying names and when summarising the findings pseudonyms were used to protect participant anonymity.

Limitations

A number of limitations warrant noting. The online questionnaire format lacked personal interaction, which may have led participants to underestimate its significance (Jaeger & Cardello, 2022), while the absence of a Maltese-language version and the questionnaire's length may have deterred some respondents, potentially compromising result accuracy. Eventually, initial low response rates, likely attributable to random and snowball sampling, were mitigated through purposeful sampling and targeted outreach strategies.

The questionnaires relied on self-report and not physical measures of any behaviours. Thus, the reliability of responses which involved recall and potential romanticising of one's childhood may have impacted accuracy of responses. Furthermore, the absence of SPSS software usage constrained the depth of statistical analysis (Field, 2024); however, questions were deliberately designed to surface potential associations (Dillman et al., 2014).

Most critically, the small sample size precludes generalisation of the findings, thereby limiting the study's external validity (Creswell & Creswell, 2018). Internal reliability may have similarly been affected, as a limited sample reduces the consistency and representativeness of results (Bryman, 2016).

Regarding the FGI, time constraints may have restricted the depth of discussion, and the inclusion of different adolescents with varying experiences, perspectives and social backgrounds could have led to widely divergent opinions and experiences, rather than pointing to particular trends.

Results

The survey sample consisted of 101 Maltese adolescents aged between 13 and 15 years (33.7% aged 13, 21.8% aged 14, and 44.6% aged 15), the majority of whom were female (59.4%). The FGI was conducted with seven adolescents of the same age range, comprising four females and three males. The findings of both tools will be presented thematically across four areas directly linked to the research question.

Theme 1: Childhood involvement in MPP

The findings indicate that the majority of adolescents had some level of involvement in MPP during childhood, with approximately three quarters (75.2%) of questionnaire respondents reporting such engagement. This involvement predominantly took place within the home environment (94.7%), followed by grandparents' homes (52.5%) and school (47.4%). Across all settings, parents or guardians (93.4%) were most commonly identified as the adults who facilitated this involvement, followed by close relatives (46%) and teachers (38.2%).

As can be seen in table 1, in terms of specific tasks, childhood involvement was most common in preparing ingredients such as chopping (53.5%), grocery shopping (52.5%) and recipe selection (51.5%); all practised occasionally by approximately half the participants. Activities involving direct contact with the farm to fork concept, such as helping in a family field or farm and growing one's own crops were rarely or never practised by the majority (No involvement in family or field: 72.2% in childhood and 74.3% in adolescence; no involvement in growing crops: 61.4% in childhood and 59.4% in adolescence).

FGI participants similarly described participating in tasks ranging from choosing recipes and grocery shopping to hands-on work in family gardens and kitchens. Culinary skills were acquired through direct involvement, observation of adults, television programmes and school learning.

A key theme across both the survey and the FGI was that parental attitudes shaped the nature and extent of childhood involvement. FGI participants noted that their participation in the kitchen was often limited by parental concerns about injuries, though adults generally provided guidance and demonstrated techniques. Despite this, most FGI participants reported feeling relaxed during childhood cooking experiences, with stress arising mainly when multiple family members were present simultaneously.

Regarding continuity of involvement, more nearly one half of the questionnaire respondents (43.6%) who were engaged in MPP during childhood, remained involved during adolescence. Notably, a substantial proportion (36.6%) who reported little or no childhood involvement were engaged in MPP by adolescence, suggesting that other motivators indicated in the questionnaire, such as increasing independence (75.7%) and appreciation for food (37.8%), can stimulate later participation. Only a small minority (8.9%) reported dropping out of MPP during adolescence despite childhood involvement. Enjoyment of cooking (72.7%), love of food (50%), and family encouragement (43.2%) were the most frequently cited reasons for sustained involvement, while lack of time (77.8%) and other commitments (66.7%) were the primary barriers.

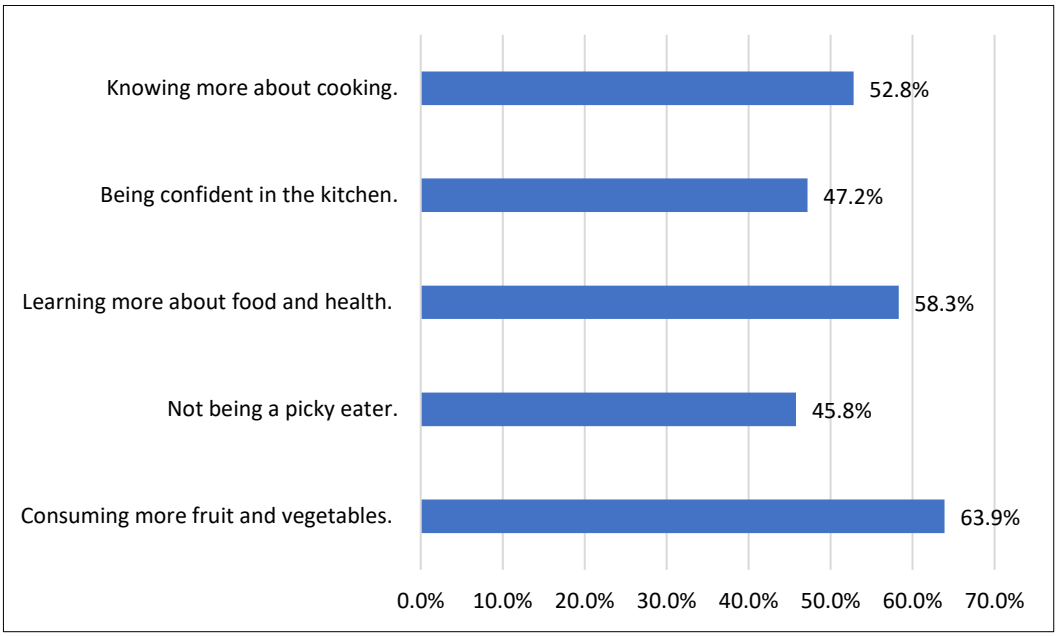
Table 1 *Frequency of Childhood and Adolescent (Current) Involvement in MPP (N = 101)*

Tasks	Childhood				Adolescence			
	Never (0 times a week)	**Occasionally (1-2 times a week)**	**Often (3-5 times a week)**	**Always (7 times a week or more)**	**Never (0 times a week)**	**Occasionally (1-2 times a week)**	**Often (3-5 times a week)**	**Always (7 times a week or more)**
	%				%			
Choosing recipes and dishes for mealtime.	36.6	51.5	8.9	3.0	25.7	47.5	23.8	3.0
Helping with writing the grocery list.	47.5	34.7	16.8	1.0	31.7	42.6	21.8	4.0
Helping with grocery shopping e.g. online or going directly to the supermarket/greengrocer, etc.	20.8	52.5	24.8	2.0	18.8	55.5	23.8	2.0
Growing own simple crops at home e.g. strawberries, herbs.	61.4	31.7	5.0	2.0	59.4	31.7	7.9	1.0
Helping in a family field/farm e.g. harvesting potatoes.	72.2	21.8	5.9	0.0	74.3	15.8	9.9	0.0
Preparation of ingredients e.g. chopping.	23.8	53.5	20.8	2.0	20.8	45.5	29.7	4.0
Cooking dishes.	34.7	47.5	15.9	2.0	22.8	46.5	28.7	2.0
Table laying and serving food.	10.9	49.5	20.8	18.8	10.9	40.6	26.8	21.8
Washing dishes.	24.8	47.5	17.8	9.9	14.9	45.5	18.8	20.8

Theme 2: Influence of Childhood MPP on Eating Habits

Over half of the survey participants (53.5%) believed their childhood MPP experiences had positively influenced their eating habits, either during childhood (10.9%), or adolescence (19.8%), or both (22.8%). Among those reporting a positive impact, the most frequently cited benefits were higher vegetable and fruit consumption (63.9%), greater food and health awareness (58.3%), improved knowledge of cooking (52.8%), increased kitchen confidence (47.2%) and a reduction in picky eating (45.8%) (figure 1).

Figure 1 *How Childhood Involvement in MPP Resulted in Self-Reported Healthier Eating Habits and Confidence in Food Preparation in Adolescence (n=72)*



FGI participants reinforced these findings, describing how childhood MPP experiences contributed to food acceptance, the development of culinary skills, reduced food fussiness and a deeper appreciation of the effort required to prepare meals (table 2). Participants recalled specific experiences, such as planting and harvesting vegetables in family gardens, as directly influencing their current willingness to eat and appreciate fresh produce. Interestingly, when comparing themselves to peers with no MPP experience, adolescents highlighted differences mainly in culinary skills, rather than differences in dietary habits. They emphasised that discrepancies in these skills were particularly evident during HE practical lessons.

Table 2 *Impact of Childhood Involvement in MPP on Childhood and Adolescent (Current) Eating Habits and Culinary Skills*

Task	Impact in Childhood
Planting and harvesting crops (e.g., peppers, apples, carrots, cherry tomatoes, strawberries) in family fields, friends' fields, or home gardens	• Encouraged acceptance and consumption of certain vegetables and fruit. • Developed understanding of how crops grow and how to care for them. • Provided enjoyable family bonding experiences.
Harvesting fruits (e.g., oranges) at relatives' homes	• Created positive associations with food-related activities and strengthened family relationships.
Chopping and preparing food in the kitchen	• Developed basic culinary and safety skills, including washing and handling produce correctly.
Attitude	**Impact in Adolescence**
Experimentation with food	Greater willingness to try new combinations, such as mixing various spices and ingredients while cooking.
Appreciation of food	Increased awareness of the value of food and the effort that goes into it, influencing current eating habits. *"(li tkun involut) jurik il-valur ta' vera (tal-ikel)" ["(being involved) shows you the true value (of food)"]*
Preference for fresh produce	Early experiences purchasing vegetables and fruit from local markets encouraged a lasting preference for fresh, local produce over imported or processed options.
Awareness of food preparation effort	Understanding of the time and effort required to prepare food, leading to greater appreciation. *"Aħna ċerti drabi neħduhom 'for granted' l-affarijiet... illi taf li hemm ħafna ħafna preparazzjoni warajh, tkun taf kemm idum biex isir, mhux tipo trid ħaġa dak il-ħin, dak il-mument." ["Sometimes we take things for granted... (the fact that) you know that there is a lot of preparation behind it (the food), you would know how much it takes for it to cook, not like I want something there and then."]*

Sensory factors also played a role in shaping long-term habits. Foods avoided in childhood due to smell or texture, such as raw meat, fish or capers, often remained avoided in adolescence, suggesting that early sensory experiences exert a lasting influence on dietary preferences. Parental strategies for

managing picky eating were mixed in their effectiveness: while offering food alternatives was relatively common (56.7%), forcing children to eat the food (45%) was also identified by questionnaire respondents.

Theme 3: Current eating habits and behaviours in adolescence

Adolescent eating habits generally reflected positive patterns, with the majority of questionnaire respondents reporting that family meals were eaten together as much as possible (78.2%) and that school lunches were typically prepared at home (72.3%). Over one third (37.6%) sometimes prepared healthy snacks independently, though a similar proportion (36.6%) admitted to choosing unhealthy snacks while using technological devices. Social context strongly shaped eating behaviour. Consuming less healthy fast food, such as deep-fried food (91.1%), pizza with high fat toppings (89.1%) and ready-made burgers (86.1%), was common when eating out with peers; while home-consumed meals were generally healthier, such as pasta (91.1%), soups (90.1%) and salads (88.1%).

When presented with a scenario of limited available ingredients, more than half of the survey participants (53.5%) indicated they would prepare a healthy meal, with having the necessary skills, time and patience cited as the main motivator (51.5%). Barriers included lack of ideas (19.8%), insufficient time (14.9%), reluctance to cook (16.8%) and low confidence (10.9%). However, the latter was not identified as a barrier to sustained MPP involvement for those who had dropped out, suggesting other factors were at play.

FGI participants described greater independence in their current MPP involvement compared to childhood, with tasks progressing to include the use of hobs and ovens, and cooking meals for themselves when parental meals were perceived as unhealthy. One participant illustrated this self-directed healthful behaviour:" *Kemm il-darba ommi ssajjar xi ħaġa... imbagħad jien insajjar xi ħaġa oħra… għax tkun unhealthy u jien inkun irrid inkun healthy… kelli nadatta." ["Multiple times my mother cooks something… then I cook something else… because it would be unhealthy, and I would want to be healthy… I had to adapt."]*

Theme 4: Food and nutrition knowledge

The majority of questionnaire respondents demonstrated good food and nutrition knowledge, with most of them able to identify healthy eating habits (83.2%), distinguish between healthy and unhealthy foods and link a balanced

diet to reduced disease risk. When asked about the school's role in developing this knowledge, the large majority (67.3%) highlighted the positive impact of compulsory HE lessons in Years 7 and 8, followed by school healthy eating policies (48.5%) and talks by professional speakers (34.7%).
FGI participants similarly demonstrated sound knowledge of food labels, additives, preservatives and recipe modification. When participating in MPP at home, recipes were often modified based on ingredient availability or equipment rather than health considerations, suggesting that practical constraints remain influential even among nutritionally knowledgeable adolescents. A notable finding was that adolescents appeared capable of translating nutritional knowledge into practice, including recipe modifications and the identification of healthier food options. Also, digital trends, such as TikTok recipes, inspired them to try new recipes.

Discussion

The results have shown that there are multiple factors influencing MPP in childhood and that, in turn, this practice has both short-term and long-term implications for childhood and adolescent eating habits and valuation of food.

Theme 1: Childhood involvement in meal planning and preparation
Findings confirmed that the majority of participants were involved in MPP during childhood, primarily within the home environment and under adult supervision. Parental attitudes, however, created various barriers. In particular, limited encouragement, alongside concerns about potential injury, often resulted in children being excluded from the kitchen. This aligns with Zammit (2011), who found that negative Maltese maternal attitudes towards children's participation in MPP tend to discourage involvement. In line with this, the present study suggests that such parental control may have hindered the development of confidence, culinary skills and food autonomy during childhood. As concluded in other studies as well, if these foundations are not established early, developing and sustaining them later in life becomes more challenging (Fleming et al., 2020; Mifsud, 2017; Ziegler et al., 2021).

Parental control also manifested through forcing children to eat less preferred foods, which, according to Zarychta et al. (2016), may contribute to picky eating due to the association between forced consumption and food avoidance. The study further found that persistent forced eating perpetuated picky behaviours, confirming Zarychta et al's (2016) conclusion that these strategies should be avoided as they encourage negative food relationships. In contrast,

findings from this study suggest that early MPP involvement needs to be accompanied by practices that foster independence and autonomy, such as allowing children to choose and adapt recipes, as these are more likely to encourage lifelong skills.

In this study, occasional involvement in MPP during childhood was mostly attributed to low confidence in cooking, potentially reflecting limited independence and reduced food autonomy in earlier years. However, Daly et al. (2022) argue that adolescents' eating habits typically diverge from those of childhood as independence, skills and self-confidence evolve. This implies that limited early opportunities may delay, but not necessarily hinder, the development of autonomy; a notion supported by the FGI results, which showed that adolescents demonstrated confidence and competence despite earlier childhood hesitations.

Baseline results indicated that when MPP involvement occurred among peers, the children experienced increased enjoyment and satisfaction in food creation. All participants who had engaged in peer-based MPP recalled these experiences vividly, suggesting that group preparation enhances skill development and supports continued engagement. These findings align with Piscopo (2020), Formosa (2004) and (Mifsud, 2017), who similarly reported that shared food-related activities, including HE practical lessons, promoted motivation and sustained practice.

Theme 2: Influence of childhood MPP on eating habits

Similar to other international findings, this study confirmed that childhood involvement in MPP positively influences dietary behaviours (Broad et al., 2021; DeJesus et al., 2019), in particular for increased vegetable and fruit intake and enhanced self-efficacy (Woodruff & Kirby, 2013). FGI participants reported that culinary experiences involving specific foods during childhood, especially helping to harvest vegetables and fruit, shaped their current eating habits; with many maintaining consumption of these foods and sustaining healthier dietary practices into adolescence.

Childhood MPP contributed to food acceptance, confidence in the kitchen, the development of culinary skills, an appreciation of the effort required in cooking and reduced picky eating. The findings revealed that direct food experiences, particularly growing and harvesting fresh produce, enhanced children's and adolescents' understanding of the farm-to-fork process. This further supports

the value of programmes such as *Let's Talk Farming* (Government of Malta, 2023b), which provide experiential learning opportunities to local students. Such experiences appear to cultivate positive relationships with food, willingness to try new foods, greater appreciation for seasonality, and increased engagement in MPP tasks. These traits align well with a main goal of the Malta's Strategy for Resilient Food Systems (Ministry for Agriculture, Fisheries and Animal Rights, 2025) which seeks to promote experiential learning and increased valuation of local and seasonal foods among school-aged children.

Beyond knowledge, sensory properties, particularly taste, dominated food choice. This was amply evidenced in the FGI which revealed that texture, smell and the "feel" of foods were the major reasons participants refused to engage in food preparation during childhood; with many persisting in avoiding the handling of such foods in adolescence. In line with previous literature (Bugeja, 2015; Fleming et al., 2020; Mifsud, 2017), foods rejected in childhood because of sensory characteristics were less likely to be incorporated into the diet later on, suggesting a long-lasting influence of early sensory experiences.

Findings from both the survey and the FGI indicated that the home environment significantly influenced MPP involvement and eating habits across both life stages. Literature suggests that, at home, adolescents follow parental eating habits, reducing food autonomy and food choice control (Fleming et al., 2020; Ziegler et al., 2021). In contrast, the present study showed that adolescents demonstrated resilience. When unhealthy meals were prepared at home, health-conscious adolescents who were confident in the kitchen opted to cook alternative healthy meals. This behaviour suggests a high level of self-efficacy, likely resulting from their knowledge about food and nutrition, food autonomy and personal control over eating habits. Overall, the findings support the view that when the right values and knowledge are instilled in childhood, possibly through involvement in MPP, they are more likely to be sustained in adolescence (Finnane et al., 2017).

Results further showed that although childhood involvement in MPP is positively linked to healthy eating habits in children, which research has shown is often sustained in adolescence (Finnane et al., 2017; Montaño et al., 2015), a lack of early involvement does not necessarily result in poor eating habits. This suggests that even if adolescents' involvement in childhood is limited, exposure to food and nutrition education, role-modelling by others

and the internalisation of positive values throughout the teenage years remain crucial. This exposure is also key to increasing awareness of the importance of preparing homemade, healthy food, rather than relying solely on ready-made or takeout options (Scalvedi et al., 2021; Sharma et al., 2019).

Theme 3: Current eating habits and behaviours in adolescence

Survey results showed that many adolescents demonstrated independence, confidence in the kitchen and strong food autonomy, which findings were reinforced during the FGI where participants expressed having clear control over their eating habits. This supports the notion that increased control over one's dietary habits, combined with independence and food-related knowledge, enhances self-efficacy and increases the likelihood of adopting and maintaining healthier eating practices (Borg Mifsud, 2011; Onyenweaku et al., 2023; Scalvedi et al., 2021; Xazela et al., 2021).

Many adolescents reported enjoying cooking and the satisfaction that followed; however, they preferred engaging in MPP independently at home rather than under parental supervision, which they found stressful. This may explain why the survey participants did not perceive MPP as a family bonding opportunity, potentially reflecting their growing independence and greater control over food choices (Daly et al., 2022; Viner et al., 2012). Moreover, adolescent picky eating was minimal in the present study, possibly due to a shift in dietary control from parents to adolescents (Daly et al., 2022; Viner et al., 2012).

Fleming et al. (2020) found that adolescents tend to choose less healthy foods when eating out with friends, even when healthier options are available. Similarly, FGI results showed that participants often selected less healthy options when with peers. However, in contrast to Fleming et al.'s (2020) findings, some adolescents in this study did not report feeling awkward or embarrassed when choosing healthy foods; though they preferred to eat foods similar to those chosen by their friends. This indicates that the social factor is predominant in influencing food choices, a pattern previously highlighted by Borg Mifsud (2011) and Kelly et al. (2021); but individualistic personality traits may also come into play allowing for eating 'differently' from peers.

Social media, particularly TikTok and short video reels, emerged as a positive influence in encouraging healthier food trends among the adolescent study participants; a finding that aligns with Wang et al. (2024), who similarly

reported that teenagers used TikTok food content to adopt healthier eating habits over time. This contrasts with the literature that typically associates social media with unhealthy food marketing (Castronuovo et al., 2021; Fleming et al., 2020), and suggests that the relationship between social media and adolescent dietary behaviour may be more complex than previously reported. As such, the potential positive role of social media on adolescent health behaviours in the Maltese context remains an area for further exploration as has been suggested for other countries (Laranjo et al., 2015).

Theme 4: Food and nutrition knowledge

Similar to other studies conducted in Malta (Bugeja, 2015; Formosa, 2004; Mifsud, 2017), this study confirms that adolescents possess good knowledge on food and nutrition. Although participants struggled to define 'convenience foods,' they emphasised choosing healthier versions, reflecting accurate knowledge about healthy eating despite their limited use of technical terms. Moreover, adolescents not only identified healthy and unhealthy foods, but also suggested recipe modifications, demonstrating a good level of self-efficacy. This contrasts with some literature suggesting that adolescents often lack the capacity to translate knowledge into practice (Azevedo Perry et al., 2017). Instead, the participants in the present study demonstrated the ability to apply nutritional knowledge in meaningful ways.

This ability may be attributable to the reinforcement of food literacy across multiple learning contexts, including HE as a school subject and extracurricular programmes, such as *Eko-Skola* (EkoSkola Malta, 2025) and *King's Trust International* (Government of Malta, 2023a). This confirms that when key concepts are emphasised across different subjects and learning activities, the impact is more effective. In fact, schools, at both primary and secondary levels, emerged as key settings for promoting food knowledge and MPP involvement. HE, taught as a compulsory subject in Years 7 and 8, was seen as most effective for building nutrition knowledge and practical skills. This is consistent with various local studies (Bugeja, 2015; Formosa, 2004; Mifsud, 2017; Piscopo, 2020), which emphasise the central role of HE in enhancing food and nutrition education and equipping students with skills that support healthier eating habits. The Healthy Eating Policy (Ministry for Education and Employment, 2015) also contributed positively to ensuring healthier school nutrition environments, though inconsistent implementation across schools may limit its overall impact, as similarly highlighted by Browne et al. (2020) and Fleming et al. (2020). The present findings therefore underscore the need for more

consistent and comprehensive enforcement of school-based nutrition policies to effectively support adolescents' food practices.

Nonetheless, despite their knowledge of fast food and awareness of the detrimental effects of certain additives, FGI participants still reported consuming unhealthy foods occasionally, mainly due to taste preferences. This parallels findings from Daly et al. (2022) and Formosa (2004), who emphasise that nutritional knowledge alone does not guarantee adherence to healthy eating practices. However, participants in the present study clearly stated that such foods were not consumed daily, demonstrating their overall sense of self-efficacy and food autonomy.

Given that adolescents with strong self-efficacy are more likely to sustain positive dietary behaviours (Rabiei et al., 2013; Woodruff & Kirby, 2013), the present findings reinforce the importance of supporting the development of self-efficacy from an early age. Childhood exposure to nutritional knowledge, therefore, appears to contribute significantly to later self-efficacy and to fostering food appreciation (Sharma et al., 2019).

Conclusions and recommendations

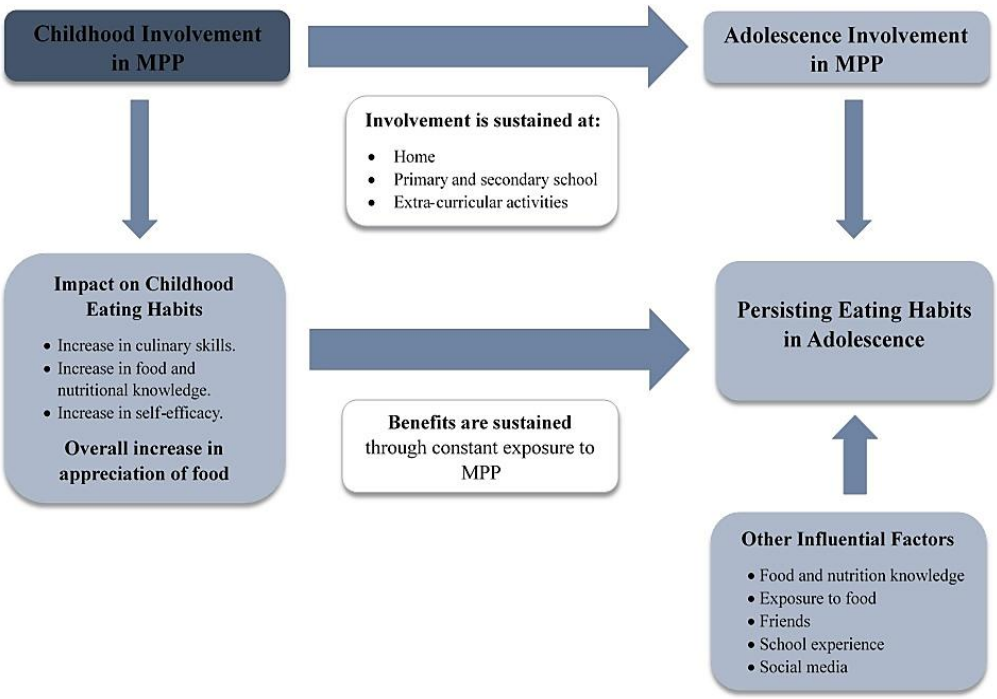
Based on the findings of this study, figure 32 is being proposed as an integrative model showing the multiple factors and pathways involved in childhood MPP and the outcomes and implications with respect to adolescent dietary behaviours. This study has demonstrated that involving a child in MPP is likely to result in improved eating habits in adolescents, particularly if their active role in the kitchen and food sourcing is sustained over the years. However, due to other persistent external influential factors, participating in MPP on its own may not necessarily lead to positive results. It is evident that adolescents are likely to remain active in MPP and, ultimately, make wise food choices when a holistic MPP experience is provided from a young age. Results are more promising when this experience incorporates role-modelling by adults, adequate food and nutrition education, and exposure to values that promote a better appreciation for food.

Based on the study results a number of key recommendations are proposed:

- A basic HE curriculum should be implemented across all primary schools to build food and nutrition knowledge from an early age;

- Practical HE cooking should be compulsory throughout secondary education, aligned to contemporary food trends;
- Community programmes should raise awareness among parents of the benefits of involving children in MPP;
- Intergenerational community kitchen initiatives, facilitated through schools or local councils, can provide meaningful cooking opportunities across age groups.

Figure 2 An Integrative Multi-factorial Pathways Model of Childhood Involvement in MPP and Impact on Adolescent Dietary Habits



There is an ongoing global movement to encourage the formal integration of food literacy into school curricula from a young age (Vargas et al., 2025). Should this be implemented in Malta and then further complemented by opportunities at home for guided or autonomous meal preparation and production by children, this can be seen as an investment in children's wellbeing with short- and long-term individual, societal and national benefits.

References

Azevedo Perry, E., Thomas, H., Samra, H. R., Edmonstone, S., Davidson, L., Faulkner, A., Petermann L., Manafò E., & Kirkpatrick, S. I. (2017). Identifying attributes of food literacy: a scoping review. Public Health Nutrition, 20(13), 2406–2415. doi:10.1017/S1368980017001276

Bawajeeh, A. O., Albar, S. A., Zhang, H., Zulyniak, M. A., Evans, C. E. L., & Cade, J. E. (2020). Impact of Taste on Food Choices in Adolescence—Systematic Review and Meta-Analysis. *Nutrients*, *12*(7), Article 7. https://doi.org/10.3390/nu12071985

Berge, J. M., MacLehose, R. F., Larson, N., Laska, M., & Neumark-Sztainer, D. (2016). Family Food Preparation and Its Effects on Adolescent Dietary Quality and Eating Patterns. *Journal of Adolescent Health*, *59*(5), 530–536. https://doi.org/10.1016/j.jadohealth.2016.06.007

Biswas, T., Townsend, N., Huda, M. M., Maravilla, J., Begum, T., Pervin, S., Ghosh, A., Mahumud, R. A., Islam, S., Anwar, N., Rifhat, R., Munir, K., Gupta, R. D., Renzaho, A. M. N., Khusun., H., Wiradnyani, L. A. A., Radel, T., Baxter, J., Rawal., L. B., … & Mamun, A. (2022). Prevalence of multiple non-communicable diseases risk factors among adolescents in 140 countries: A population-based study. *EClinicalMedicine*, *52*. https://doi.org/10.1016/j.eclinm.2022.101591

Borg Mifsud, T. (2011). *Maltese adolescents' barriers and motivators to healthy eating: A constructivist grounded theory* [Unpublished Master's Dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar/handle/123456789/71343

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Broad, J., Forbes, L., Darlington, G., Ma, D. W. L., & Haines, J. (2021). Child involvement in meal preparation and grocery shopping is associated with lower levels of food fussiness among young children. *Applied Physiology, Nutrition, and Metabolism*, *46*(12), 1559–1562. https://doi.org/10.1139/apnm-2021-0390

Browne, S., Barron, C., Staines, A., & Sweeney, M. R. (2020). 'We know what we should eat but we don't …': A qualitative study in Irish secondary schools. *Health Promotion International*, *35*(5), 984–993. https://doi.org/10.1093/heapro/daz087

Bryan, C. J., Yeager, D. S., Hinojosa, C. P., Chabot, A., Bergen, H., Kawamura, M., & Steubing, F. (2016). Harnessing adolescent values to motivate healthier eating. *Proceedings of the National Academy of Sciences - PNAS*, *113*(39), 10830–10835. https://doi.org/10.1073/pnas.1604586113

Bryman, A. (2016). *Social Research Methods*. Oxford University Press.

Bugeja, E. (2015). *The importance of the Mediterranean diet and its implications for young Maltese adolescents: An exploratory study* [Unpublished bachelor's dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar//handle/123456789/12603

Busuttil, D. (2011). *Food consumption patterns in Maltese students aged 12 to 14 years* [Unpublished master's dissertation, University of Malta, Faculty of Medicine and Surgery]. https://www.um.edu.mt/library/oar//handle/123456789/34266

Castronuovo, L., Link to external site, this link will open in a new window, Guarnieri, L., Tiscornia, M. V., & Allemandi, L. (2021). Food marketing and gender among children and adolescents: A scoping review. *Nutrition Journal*, *20*, 1–16. https://doi.org/10.1186/s12937-021-00706-4

Cauchi, D., Rutter, H., & Knai, C. (2015). An obesogenic island in the Mediterranean: mapping potential drivers of obesity in Malta. *Public health nutrition*, 18(17), 3211–3223. https://doi.org/10.1017/S1368980015000476

Chrissini, M. K., & Panagiotakos, D. B. (2022). Public health interventions tackling childhood obesity at European level: A literature review. *Preventive Medicine Reports*, 30, 102068. https://doi.org/10.1016/j.pmedr.2022.102068

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed). Routledge.

Cooksey, R. W. (2020). Descriptive Statistics for Summarising Data. *Illustrating Statistical Procedures: Finding Meaning in Quantitative Data*, 61–139. https://doi.org/10.1007/978-981-15-2537-7_5

Craigie, A. M., Lake, A. A., Kelly, S. A., Adamson, A. J., & Mathers, J. C. (2011). Tracking of obesity-related behaviours from childhood to adulthood: A systematic review. *Maturitas*, *70*(3), 266–284. https://doi.org/10.1016/j.maturitas.2011.08.005

Contento, I. R., & Koch, P. A. (2025). *Nutrition education: Linking research, theory, and practice* (5th ed.). Jones & Bartlett Learning.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.

Daly, A. N., O'Sullivan, E. J., & Kearney, J. M. (2022). Considerations for health and food choice in adolescents. *Proceedings of the Nutrition Society*, *81*(1), 75–86. https://doi.org/10.1017/S0029665121003827

DeJesus, J. M., Gelman, S. A., Herold, I., & Lumeng, J. C. (2019). Children eat more food when they prepare it themselves. *Appetite*, *133*, 305–312. https://doi.org/10.1016/j.appet.2018.11.006

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.

Directorate for Learning and Assessment Programmes. (2016, May 2). *Literacies – Home Economics Seminar Centre*. https://www.hesc.org.mt/

EkoSkola Malta. (2025). We Eat Responsibly! - Nieklu b'Responsabbiltà! *EkoSkola*. https://ekoskola.org.mt/partners/we-eat-responsibly-nieklu-bresponsabbilta/

Field, A. (2024). *Discovering statistics using IBM SPSS statistics* (6th ed.). Sage.

Finnane, J. M., Jansen, E., Mallan, K. M., & Daniels, L. A. (2017). Mealtime Structure and Responsive Feeding Practices Are Associated With Less Food Fussiness and More Food Enjoyment in Children. *Journal of Nutrition Education and Behavior*, *49*(1), 11-18.e1. https://doi.org/10.1016/j.jneb.2016.08.007

Fleary, S. A., & Ettienne, R. (2019). The relationship between food parenting practices, parental diet and their adolescents' diet. *Appetite*, *135*, 79-85. https://doi.org/10.1016/j.appet.2019.01.008

Fleming, C. A., De Oliveira, J. D., Hockey, K., Lala, G., Schmied, V., Theakstone, G., & Third, A. (2020). *Food and Me. How Adolescents Experience Nutrition Across the World. A Companion Report to The State of the World's Children 2019*. https://doi.org/10.26183/26f6-ec12

Formosa, E. (2004). *The impact of Home Economics on female pupils and their families: Focus on diet-related and social health issues* [Unpublished bachelor's dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar/handle/123456789/71414

Freedman, I., Eilam, B., & Gesser-Edelsburg, A. (2021). Young Children's Food-Related Knowledge: Kindergartners' Free Categorization of Food Items. *Journal of Nutrition Education and Behavior*, *53*(6), 524–530. https://doi.org/10.1016/j.jneb.2020.12.007

Government of Malta. (2023a). King's Trust International Achieve. *The Department*. https://curriculum.gov.mt/kings-trust-international-achieve/

Government of Malta. (2023b). *Let's talk Farming*. https://letstalkfarmingmalta.com/

Hamulka, J., Wadolowska, L., Hoffmann, M., Kowalkowska, J., & Gutkowska, K. (2018). Effect of an Education Program on Nutrition Knowledge, Attitudes toward Nutrition, Diet Quality, Lifestyle, and Body Composition in Polish Teenagers. The ABC of Healthy Eating Project: Design, Protocol, and Methodology. *Nutrients*, *10*(10), Article 10. https://doi.org/10.3390/nu10101439

Jaeger, S. R., & Cardello, A. V. (2022). Factors affecting data quality of online questionnaires: Issues and metrics for sensory and consumer research. *Food Quality and Preference*, *102*, 104676. https://doi.org/10.1016/j.foodqual.2022.104676

Kebbe, M., Damanhoury, S., Browne, N., Dyson, M. P., McHugh, T.-L. F., & Ball, G. D. C. (2017). Barriers to and enablers of healthy lifestyle behaviours in adolescents with obesity: A scoping review and stakeholder consultation. *Obesity Reviews*, *18*(12), 1439–1453. https://doi.org/10.1111/obr.12602

Kelly, C., Callaghan, M., & Gabhainn, S. N. (2021). 'It's Hard to Make Good Choices and It Costs More': Adolescents' Perception of the External School Food Environment. *Nutrients*, *13*(4), Article 4. https://doi.org/10.3390/nu13041043

Kumar, J., Adhikari, K., Li, Y., Lindshield, E., Muturi, N., & Kidd, T. (2016). Identifying barriers, perceptions and motivations related to healthy eating and physical activity among 6th to 8th grade, rural, limited-resource adolescents. *Health Education*, *116*(2), 123–137. https://doi.org/10.1108/HE-03-2014-0035

Lam, C. B., McHale, S. M., & Crouter, A. C. (2014). Time with Peers from Middle Childhood to Late Adolescence: Developmental Course and Adjustment Correlates. *Child Development*, *85*(4), 1677–1693. https://doi.org/10.1111/cdev.12235

Laranjo, L., Arguel, A., Neves, A. L., Gallagher, A. M., Kaplan, R., Mortimer, N., Mendes, G. A., & Lau, A. Y. S. (2015). The influence of social networking sites on health behavior change: A systematic review and meta-analysis. *Journal of the American Medical Informatics Association*, *22*(1), 243–256. https://doi.org/10.1136/amiajnl-2014-002841

Metcalfe, J. J., & Fiese, B. H. (2018). Family food involvement is related to healthier dietary intake in preschool-aged children. *Appetite*, *126*, 195–200. https://doi.org/10.1016/j.appet.2018.03.021

Mifsud, T. (2017). *The determinants of adolescents' obesity: A study based on Malta's senior school students* [Unpublished bachelor's dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar//handle/123456789/39729

Ministry for Agriculture, Fisheries and Animal Rights. (2025). *Malta's Strategy for Resilient Food Systems.* Ministry for Agriculture, Fisheries and Animal Rights. https://agriculture.gov.mt/wp-content/uploads/2025/07/national-food-strategy-for-resilient-food-systems.pdf

Ministry for Education and Employment. (2015, March). *A Whole School Approach To a Healthy Lifestyle: Healthy Eating and Physical Activity Policy*. https://acrobat.adobe.com/id/urn:aaid:sc:EU:afefc4e3-8f65-4b26-b349-9661063a4a63

Mizia, S., Felińczak, A., Włodarek, D., & Syrkiewicz-Świtała, M. (2021). Evaluation of Eating Habits and Their Impact on Health among Adolescents and Young Adults: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, *18*(8), 3996. https://doi.org/10.3390/ijerph18083996

Montaño, Z., Smith, J. D., Dishion, T. J., Shaw, D. S., & Wilson, M. N. (2015). Longitudinal relations between observed parenting behaviors and dietary quality of meals from ages 2 to 5. *Appetite*, *87*, 324–329. https://doi.org/10.1016/j.appet.2014.12.219

Onyenweaku, E., Fila, W., Akpanukoh, A., Kalu, M., Tchuenchieu Kamgain, A., & Kesa, H. (2023). The role of nutrition knowledge in dietary adjustments during COVID-19 pandemic. *Heliyon*, *9*(4), e15044. https://doi.org/10.1016/j.heliyon.2023.e15044

Piscopo, S. (2020). Food and Nutrition Education in Malta: A Journey Across Time and Subject Boundaries. In *Food Education and Food Technology in School Curricula*

(pp. 97–122). Springer International Publishing. https://doi.org/10.1007/978-3-030-39339-7_7

Quelly, S. B. (2019). Helping With Meal Preparation and Children's Dietary Intake: A Literature Review. *The Journal of School Nursing*, *35*(1), 51–60. https://doi.org/10.1177/1059840518781235

Rabiei, L., Sharifirad, G. R., Azadbakht, L., & Hassanzadeh, A. (2013). Understanding the relationship between nutritional knowledge, self-efficacy, and self-concept of high-school students suffering from overweight. *Journal of Education and Health Promotion*, *2*, 39. https://doi.org/10.4103/2277-9531.115834

Rakić, Jelena Gudelj, Hamrik, Zdenek, Dzielska, Anna, Felder-Puig, Rosemarie, Oja, Leila et al. (2024). A focus on adolescent physical activity, eating behaviours, weight status and body image in Europe, central Asia and Canada: Health Behaviour in School-aged Children international report from the 2021/2022 survey. Volume 4.. World Health Organization. Regional Office for Europe. https://iris.who.int/handle/10665/376772. License: CC BY-NC-SA 3.0 IGO

Scalvedi, M. L., Gennaro, L., Saba, A., & Rossi, L. (2021). Relationship Between Nutrition Knowledge and Dietary Intake: An Assessment Among a Sample of Italian Adults. *Frontiers in Nutrition*, *8*. https://www.frontiersin.org/articles/10.3389/fnut.2021.714493

Scerri, J. (2018). *Adults vs adolescents: Who is the best food consumer? Does home economics assist in making smart consumers?* [Unpublished bachelor's dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar//handle/123456789/36004

Sharma, S., Akhtar, F., Singh, R. K., & Mehra, S. (2019). Relationships between nutrition-related knowledge, attitude, and self-efficacy among adolescents: A community-based survey. *Journal of Family Medicine and Primary Care*, *8*(6), 2012–2016. https://doi.org/10.4103/jfmpc.jfmpc_217_19

Song, D. (2010). *Encyclopedia of Research Design*. SAGE Publications, Inc. https://doi.org/10.4135/9781412961288

Sridevi, M., Panchanathan, S., Rao, R. R., & Chandrasekaran, M. M. (2025). Exploring eating patterns of adolescents: A narrative review. *The Journal of Medical Sciences*, *11*(1--4), 324-330. https://doi.org/10.5005/jp-journals-10045-00324

Tashakkori, A., & Teddlie, C. (2010). *SAGE Handbook of Mixed Methods in Social and Behavioral Research*. SAGE Publications, Inc. https://doi.org/10.4135/9781506335193

Van der Horst, K., Ferrage, A., & Rytz, A. (2014). Involving children in meal preparation. Effects on food intake. *Appetite*, *79*. https://doi.org/10.1016/j.appet.2014.03.030

Vargas, M., Sánchez, C. Á., Tyler, V., & Hachem, F. (2025). Putting food at the centre of learning: an evidence-based and practice-informed model of holistic food education in schools. *The Lancet Planetary Health*, *9*(11). https://doi.org/10.1016/S2542-5196(25)00033-6

Viner, R. M., Ozer, E. M., Denny, S., Marmot, M., Resnick, M., Fatusi, A., & Currie, C. (2012). Adolescence and the social determinants of health. *Lancet (London, England)*, *379*(9826), 1641–1652. https://doi.org/10.1016/S0140-6736(12)60149-4

Wang, C.-H. A., Sher, S. T.-H., & Chung, C.-F. (2024). From Viral Content to Real-Life Cuisine and Beyond: Examining Teenagers' Interactions with TikTok Food Videos and the Influence on their Food Practices. *Proceedings of the ACM on Human-Computer Interaction*, *8*(CSCW2), 1–30. https://doi.org/10.1145/3686928

Winpenny, E. M., van Sluijs, E. M. F., White, M., Klepp, K.-I., Wold, B., & Lien, N. (2018). Changes in diet through adolescence and early adulthood: Longitudinal trajectories and association with key life transitions. *International Journal of Behavioral Nutrition and Physical Activity*, *15*(1), 86. https://doi.org/10.1186/s12966-018-0719-8

Woodruff, S. J., & Kirby, A. R. (2013). The Associations Among Family Meal Frequency, Food Preparation Frequency, Self-efficacy for Cooking, and Food Preparation Techniques in Children and Adolescents. *Journal of Nutrition Education and Behavior*, *45*(4), 296–303. https://doi.org/10.1016/j.jneb.2012.11.006

Xazela, N., Chinyamurindi, W., & Shava, H. (2021). The link between self-efficacy and nutrition knowledge beliefs: Findings from South Africa. *The African Journal of Food, Agriculture, Nutrition and Development*, *21`*, 17330–17324. https://doi.org/10.18697/ajfand.96.19415

Zammit, S. (2011). *Exploring meals in Maltese families: A socio-ecological study* [Unpublished master's dissertation, University of Malta, Faculty of Education]. https://www.um.edu.mt/library/oar/handle/123456789/74946

Zarychta, K., Mullan, B., & Luszczynska, A. (2016). It doesn't matter what they say, it matters how they behave: Parental influences and changes in body mass among overweight and obese adolescents. *Appetite*, *96*, 47–55. https://doi.org/10.1016/j.appet.2015.08.040

Ziegler, A. M., Kasprzak, C. M., Mansouri, T. H., Gregory, A. M., Barich, R. A., Hatzinger, L. A., Leone, L. A., & Temple, J. L. (2021). An Ecological Perspective of Food Choice and Eating Autonomy Among Adolescents. *Frontiers in Psychology*, *12*. https://www.frontiersin.org/articles/10.3389/fpsyg.2021.654139