

Determinants of dietary practices among Arab youth: A cross-sectional study based on a social cognitive theory perspective

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Abstract

Background

Unhealthy dietary practices among young(er) individuals are a growing public health concern in the Arab region; however, the factors shaping these behaviors remain underexplored. As such, this study investigated how behavioral capability and self-efficacy influence dietary actions among Arab youth within a social cognitive theory framework.

Methods

This cross-sectional study included Arab males and females, 15–25 years of age, using a previously validated Arabic questionnaire. Non-Arabic speakers and individuals with reported health conditions were excluded. The questionnaire assessed sociodemographic characteristics, behavioral capabilities, self-efficacy, and dietary actions. Arab countries were categorized according to the World Bank Income Classification as follows: high, upper-middle, lower-middle, and low.

Results

Data from 2750 participants (62% female) were analyzed, distributed as follows: 43.2% from upper-middle, 23.1% from high-income, 19.7% from lower-middle, and 15% from low-income countries. The highest mean ($\pm$ SD) behavioral capability scores were observed in high-income (7.23 ± 1.89) compared with low-income (5.80 ± 1.81) countries ($p < 0.001$). Self-efficacy was the highest in upper-middle and lowest in lower-middle income countries. Dietary action scores were highest among participants from upper-middle income countries (13.23 ± 3.28), whereas lowest scores were observed in high-income countries (11.86 ± 3.43). A significant positive correlation was found between behavioral capability and self-efficacy and between self-efficacy and dietary actions ($p < 0.001$). Age, sex, residence, and self-efficacy were significant predictors of dietary action ($p < 0.001$).

Conclusions

Findings of the present study support the social cognitive theory framework, suggesting that knowledge and skills alone may not be sufficient to promote healthy dietary behaviors among Arab youth. This highlights the need for integrated interventions that strengthen nutritional knowledge and self-efficacy to support healthier dietary behaviors.

Background

Unhealthy dietary practices among young adults represent a growing public health concern globally and across the Arab region [1, 2]. Young adulthood is a critical life stage because dietary habits adopted in

early adulthood tend to persist into later life and contribute to health [3, 4]. Therefore, understanding the determinants of dietary practices during this transitional phase is essential for developing effective health promotion strategies [5].

Evidence from the Arab region indicates that many young adults do not meet dietary recommendations [1, 6]. These patterns are shaped by the complex interplay among individual, social, and environmental influences. Regarding individual factors, age was found to significantly affect dietary choices, with younger adults exhibiting higher consumption of processed foods and sugar-sweetened beverages [7]. Sex differences were also pronounced; males generally exhibited better adherence to healthy eating patterns, while females demonstrated lower physical activity achievement [8]. Educational attainment is strongly correlated with dietary quality, as high-income and higher education is associated with adherence to healthy dietary patterns [9].

Regarding social factors, marital status influences dietary behaviors, with unmarried individuals demonstrating lower adherence to dietary guidelines [10]. Traditional dietary patterns are more common among married individuals [9]. Employment status is also important because those who are unemployed demonstrate poor dietary adherence [10]. In terms of environmental factors, the country of residence creates significant variations in dietary patterns across Arab nations [1].

Nutrition education initiatives in the Arab region have traditionally focused on improving knowledge about food groups, nutrients, and dietary guidelines [11]. Although nutritional knowledge is a foundational component of healthy eating, evidence suggests that increased nutritional knowledge does not consistently translate into healthy dietary practices [12]. Many young adults demonstrate an adequate understanding of basic nutrition concepts yet continue to engage in suboptimal eating behaviors [13]. This knowledge–behavior gap highlights the limitations of approaches that assume that information alone is sufficient to drive behavior change, and the need to examine additional determinants that facilitate or hinder the translation of knowledge into action.

Behavior change theories provide a useful framework for understanding the mechanisms underlying dietary practices. Among these, social cognitive theory offers a comprehensive model for examining how cognitive, personal, and behavioral factors interact to shape health behaviors. According to this theory, behavior is not solely the result of individual knowledge or intention, but emerges from the dynamic interaction among behavioral capability, self-efficacy, and actual performance of behaviors [14]. This framework is particularly well-suited to the study of dietary behavior, which requires not only understanding what constitutes healthy eating but also confidence in one's ability to implement and sustain dietary changes within real-life contexts [15, 16] .

In social cognitive theory, behavioral capability refers to the knowledge and skills necessary to perform a specific behavior [14]. In the context of nutrition, this may include understanding food composition, energy content, nutrient functions, and the principles of a balanced diet. Behavioral capability is considered to be an important determinant of action because individuals must be able to distinguish between healthier and less healthy choices to engage in appropriate dietary behaviors [17]. However,

possessing this knowledge does not necessarily guarantee applicability. Empirical findings across diverse populations suggest that the relationship between nutritional knowledge and dietary practices is often weak or inconsistent [12], indicating that additional psychosocial factors influence the translation of knowledge into behavior.

Self-efficacy is a central construct in social cognitive theory and refers to an individual's confidence in their ability to perform a behavior under various circumstances [14]. In the context of dietary behavior, self-efficacy encompasses confidence in making healthy dietary choices, such as choosing healthy foods, maintaining regular meal consumption, and applying nutritional advice to improve health. Self-efficacy influences both the initiation and maintenance of behavior by shaping individuals' willingness to attempt change, persist in the face of challenges, and recover from setbacks [18].

Despite the recognized importance of behavioral capability and self-efficacy, the literature in the Arab region reflects two related but insufficiently integrated lines of evidence. An accumulating body of intervention research has demonstrated that programs targeting nutritional knowledge and self-efficacy can lead to meaningful improvements in dietary behaviors [19]. In contrast, much of the non-interventional literature has examined behavioral capabilities and self-efficacy descriptively or in isolation, offering limited insight into their relative and combined contributions to dietary practices [17]. Although recent studies have begun to assess the associations between these constructs [1], to our knowledge, no studies have explicitly applied social cognitive theory to examine how behavioral capability and self-efficacy interact to shape observable dietary actions among Arab youth.

A determinant-focused approach grounded in social cognitive theory addresses this gap by simultaneously examining behavioral capability, self-efficacy, and dietary actions within a unified analytical framework. Clarifying the relative influence of these constructs can complement existing intervention evidence and guide the design of more targeted and effective nutritional strategies for Arab youth, informing them on whether interventions should prioritize confidence building, knowledge reinforcement, or an integrated approach.

Accordingly, the present study aimed to examine the determinants of dietary actions among Arab youth from a perspective based on social cognitive theory. More specifically, this study focused on the role of behavioral capability and self-efficacy in shaping dietary actions. By integrating these constructs, this study aimed to contribute to a more nuanced understanding of dietary behavior among young adults in the Arab region and provide evidence that can guide future health promotion and intervention efforts.

Methods

The present investigation was a cross-sectional study that included young Arab adults [20]. Before the questionnaire was administered, participants provided consent by choosing "I agree to participate to the study" before responding to questions. Institutional Review Board (IRB) approval was obtained (IRB Approval number: 22-0406).

The questionnaire was distributed through different social media channels (*WhatsApp*, X, and Email) [21]. Participants were recruited using convenience sampling. This study included Arab males and females between 15 and 25 years of age residing in the region. Individuals who could not read and understand Arabic and those with any health conditions that affect dietary intake, for example, chronic diseases, such as diabetes and liver or renal conditions, were excluded.

Arab countries were categorized based on the World Bank Income Classification as follows: high (Saudi Arabia, United Arab Emirates, Qatar, Kuwait, Bahrain, and Oman); upper-middle (Jordan, Lebanon, Iraq, Libya, and Algeria); lower-middle (Egypt, Morocco, Tunisia, and Palestine); and low (Yemen, Sudan, Syria) [22].

Study tools

A previously validated questionnaire was administered in the Arabic language [20]. The questionnaire consisted of four sections: sociodemographics, behavioral capability, self-efficacy, and dietary actions. Sociodemographic information included country, age, sex, marital status, and educational level. In accordance with social cognitive theory, behavioral capability was operationalized as nutritional knowledge, reflecting participants' understanding of food composition, nutrient functions, energy content, and the principles of a balanced diet. The second section is the behavioral capability section, which consists of 10 questions. Each question had four possible responses, one of which was correct. Each correct response was awarded 1 point, resulting in a total possible score ranging from 0 to 10. Self-efficacy was assessed using seven questions, with responses scored as follows: no = 0; not sure = 1; and yes = 2. Overall self-efficacy score was calculated by summing the scores of all seven items, yielding a maximum possible score of 14. Fourth, dietary actions served as the dependent variable and were evaluated using seven questions designed to assess participants' eating behaviors, including the number of daily meals and consumption of water, dairy products, fruits, vegetables, and snacks. The response options included always, often, sometimes, and never. Scores were assigned according to the "healthfulness" of each response, with the healthiest response receiving the highest score and the least healthy receiving the lowest score, as described previously [20]. The maximum total score for the dietary actions section was 21.

Statistical analysis

Statistical analyses were performed using R version 4.4.0 (R Core Team; R Foundation for Statistical Computing, Vienna, Austria). Continuous variables are expressed as mean $\pm$ standard deviation (SD) and were analyzed using one-way analysis of variance. The Tukey honestly significant difference test was performed for post hoc multiple comparisons. Categorical variables are expressed as frequency (percentage). Pearson's correlation was performed to assess the relationship(s) among behavioral capability, self-efficacy, and dietary action scores. Multivariate linear regression analysis was performed to assess the potential predictors of dietary actions among Arab youth. The outcome variable was the dietary action score, and predictors included sociodemographic characteristics (age group, sex, marital status, educational level, and residential income area), behavioral capability, and self-efficacy. Models 2

and 3 were built with a sequential reduction in non-significant predictors. A series of diagnostic tests were performed to verify the model's assumptions. Heteroscedasticity was consistently present, and heteroscedasticity-consistent standard errors (HC3) were applied to all models to correct for non-constant residual variance. All statistical tests were two-sided and differences with $p < 0.05$ were considered to be significant.

Results

Sociodemographic information

Sociodemographic information regarding Arab countries is summarized in Table 1. Data from 2750 individuals were analyzed. Most participants were female, single, and had attained a university-level education, distributed as follows: 635 (23.1%) from high-income, 1188 (43.2%) from upper-middle, 541 (19.7%) from lower-middle, and 386 (15%) from low-income countries.

Table 1
Sociodemographic Information across different Arab Countries (n = 2750)

Age (year)	High-Income Countries (n = 635)	Upper-Middle-Income (n = 1188)	Lower-Middle-Income Countries (n = 541)	Low-Income Countries (n = 386)	Total (n = 2750)
18–21	324 (51.0%)	486 (40.9%)	311 (57.5%)	173 (44.8%)	1294 (47%)
22–25	311 (49.0%)	702 (59.1%)	230 (42.5%)	213 (55.2%)	1456 (53%)
Gender					
Female	547 (86.1%)	761 (64.1%)	158 (29.2%)	233 (60.4%)	1699 (62%)
Male	88 (13.9%)	427 (35.9%)	383 (70.8%)	153 (39.6%)	1051 (38%)
Marital status					
Single	524 (82.5%)	983 (82.7%)	513 (94.8%)	360 (93.3%)	2380 (87%)
Married	105 (16.5%)	184 (15.5%)	18 (3.3%)	23 (6.0%)	322 (12%)
Divorced/widower	6 (0.9%)	21 (1.8%)	10 (1.8%)	3 (0.8%)	30 (1%)
Level of education					
High school or less	144 (22.7%)	146 (12.3%)	28 (5.2%)	31 (8.0%)	349 (13%)
University	491 (77.3%)	1042 (87.7%)	513 (94.8%)	355 (92.0%)	2401 (87%)

Behavioral capability, self-efficacy, and dietary actions score

The behavioral capability, self-efficacy, and dietary action scores across Arab countries with different incomes are reported in Table 2. Participants from high-income countries exhibited the highest behavioral capability scores (7.23 ± 1.89), followed by those from upper-middle (6.76 ± 1.91), low- (5.80 ± 1.81), and lower-middle income countries (4.53 ± 2.31) ($p < 0.001$). Self-efficacy was the highest in upper-middle income (11.78 ± 2.65) and lowest in lower-middle income (8.05 ± 3.41) countries. Dietary action scores were highest among participants from upper-middle income countries (13.23 ± 3.28), while participants from high-income countries exhibited the lowest scores (11.86 ± 3.43).

Table 2

Behavioral Capability, Self- Efficacy and Dietary Actions Score across different Income Arab Countries (n = 2750)

Behavioral Capability (0–10)	High-Income Countries (n = 635)*	Upper-Middle-Income (n = 1188)*	Lower-Middle-Income Countries (n = 541)*	Low-Income Countries (n = 386)*	Total (n = 2750)	One-way ANOVA (F)	P value
	7.23 ± 1.89^a	6.76 ± 1.91^b	4.53 ± 2.31^c	5.80 ± 1.81^d	6.29 ± 2.20	227.8	< 0.001*
Self-Efficacy (0–14)	11.47 ± 2.77 ^{ac}	11.78 ± 2.65 ^a	8.05 ± 3.41 ^b	11.11 ± 2.68 ^{ac}	10.88 ± 3.18	22.63	< 0.001*
Dietary Actions (0–21)	11.86 ± 3.43 ^a	13.23 ± 3.28 ^b	12.29 ± 2.93 ^{ac}	12.50 ± 2.84 ^c	12.62 ± 3.24	28.39	< 0.001*
*Different superscripts refer to significant difference between groups							

Association between behavioral capability, self-efficacy, and dietary actions score

The Pearson correlations among behavioral capability, self-efficacy, and dietary action scores are reported in Table 3. A positive correlation was found between behavioral capability and self-efficacy, and between self-efficacy and dietary actions ($p < 0.001$). Prediction of dietary action scores across the different Arab countries are summarized in Table 4, with age, sex, residency, and self-efficacy representing predictive factors for dietary actions ($p < 0.001$).

Table 3

Correlation between Behavioral Capability, Self- Efficacy and Dietary Actions Score across different Arab Countries (n = 2750)

Behavioral Capability	Behavioral Capability	Self-Efficacy	Dietary Actions
	1	0.300*	0.025
Self-Efficacy	-	1	0.280*
Dietary actions	-	-	1

*p-value < 0.001

Table 4
Prediction of Dietary Actions Score across different Arab Countries (n = 2750)

Predictor	Model 1		Model 2		Model 3	
	Coefficient β (robust SEs)	P value	Coefficient β (robust SEs)	P value	Coefficient β (robust SEs)	P value
Age group (22–25 vs 18–21)	0.602 (0.125)	< 0.001*	0.579 (0.120)	< 0.001*	0.550 (0.119)	< 0.001*
Gender (male vs female)	0.690 (0.132)	< 0.001*	0.713 (0.128)	< 0.001*	0.725 (0.128)	< 0.001*
Marital status (unmarried vs married)	0.100 (0.194)	0.608	Dropped		Dropped	
Education (high school or less vs university)	0.363 (0.185)	0.049*	0.350 (0.183)	0.056	Dropped	
Residency (vs high-income)						
Upper-middle income	1.077 (0.164)	< 0.001*	1.085 (0.164)	< 0.001*	1.050 (0.163)	< 0.001*
Lower-middle income	1.169 (0.218)	< 0.001*	1.218 (0.209)	< 0.001*	1.139 (0.204)	< 0.001*
Low income	0.548 (0.205)	0.007*	0.584 (0.201)	0.004*	0.531 (0.200)	0.009*
Self-efficacy	0.324 (0.021)	< 0.001*	0.321 (0.021)	< 0.001*	0.319 (0.020)	< 0.001*
Behavioral Capability	−0.023 (0.032)	0.463	Dropped		Dropped	
R ²	0.131		0.130		0.129	
Adjusted R ²	0.128		0.128		0.127	
F-statistic (p-value)	45.75 (p < 0.001)		58.73 (p < 0.001)		67.81 (p < 0.001)	

Discussion

The objective of the present study was to examine the determinants of dietary actions among Arab youth from a social cognitive theory perspective. Overall, participants from high-income countries demonstrated the highest behavioral capabilities, whereas dietary action scores were the lowest in this group. Self-efficacy and dietary action scores were highest among participants from upper-middle income countries. Behavioral capability was positively associated with self-efficacy, whereas self-efficacy was positively associated with dietary actions. In addition, age, sex, and place of residence were significant predictors of dietary actions, suggesting that dietary behaviors among Arab youth may be influenced by both individual characteristics and living environments. These findings support the social cognitive theory framework, suggesting that knowledge and skills alone may not be sufficient to promote healthy dietary behaviors. Instead, behavioral capabilities may contribute to dietary actions through increased self-efficacy. This highlights the importance of considering both knowledge-related and motivational factors when designing interventions to improve the dietary practices of Arab youth.

The study found that behavioral capability scores were highest among participants residing in high-income countries and lowest among those living in low-income countries. In contrast, dietary action scores were highest among participants from upper-middle and low-income countries, and lowest among those from high-income countries. A recent review examining perceptions of food and healthy diets in high-income countries reported that, despite having greater nutritional knowledge and awareness, individuals do not always translate this knowledge into healthy dietary practices [23]. Similarly, a recent study conducted in two high-income countries found poor diet quality among participants and identified socioeconomic status, income, and occupation as factors associated with obesity [24]. These findings may explain why higher behavioral capability does not always translate into healthier dietary actions. Factors such as food availability, lifestyle patterns, and environmental influences may contribute to this discrepancy in high-income countries [25, 26]. In contrast, participants from lower-income countries may have fewer opportunities for the excessive consumption of energy-dense foods, which may contribute to healthier dietary actions [27]. Therefore, interventions should focus not only on improving nutrition knowledge but also on creating environments that support healthy food choices.

Furthermore, a previous study assessed dietary behavior among low-income Spanish-speaking adults in the United States using social cognitive theory and found that self-efficacy and health literacy jointly influenced dietary behaviors [17]. Similarly, a cross-sectional study among low-income adults in rural Southern Nigeria reported poor dietary habits and insufficient nutritional knowledge, with sex and occupation being significantly associated with nutritional status [28]. In addition to individual-level factors, dietary behaviors in low-income countries may be influenced by broader food system challenges. Previous research has shown that limitations in food production and supply, and trade dependency can reduce the availability and accessibility of nutritious foods in low- and middle-income countries [29, 30]. These contextual factors may influence how knowledge and self-efficacy translate into

dietary actions, highlighting the importance of considering both individual and environmental influences on dietary behavior.

The positive association observed among behavioral capability, self-efficacy, and dietary action further supports the importance of self-efficacy in translating knowledge and skills into healthy dietary behaviors. These findings suggest that individuals with greater nutrition-related knowledge and skills may be more confident in their ability to make healthier food choices, supporting the role of self-efficacy as a link between knowledge and behavior. Similar findings were reported in a systematic review of adolescents from high-income countries that identified nutrition knowledge, self-efficacy, and motivation as important determinants of vegetable intake [31]. Results from Türkiye indicated that greater weight management knowledge and higher dieting self-efficacy were associated with healthier dietary patterns [32]. The importance of self-efficacy was further supported by an intervention study among Iranian adults, where a 3-month educational program improved both self-efficacy and nutritional status compared with the control group [33]. Collectively, these findings highlight the value of strengthening both practical nutritional skills and confidence in applying them.

A strength of the present study is that the data were collected from a vulnerable age group (adolescents and young adults), during which health behaviors are established and may persist into adulthood. Accordingly, dietary actions at this stage have important implications for future health outcomes. The relatively large sample size also strengthened the findings. However, this study also had several limitations. The use of a convenience sampling approach may have introduced selection bias and limited the generalizability of the results. Additionally, factors that may influence dietary actions, such as household income, parental education, employment status, food security, access to healthy foods, and urban versus rural residence, were not assessed. Although this study was grounded in social cognitive theory, only behavioral capability and self-efficacy were examined; other relevant constructs, such as reinforcement, social support, and environmental influences, which may also contribute to dietary practices among Arab youth, were not measured.

Conclusions

Behavioral capability was highest among participants from high-income countries and lowest among those from low-income countries, whereas dietary action scores were lower in this group than in the upper-middle and low-income countries. Age, sex, place of residence, and self-efficacy were significant predictors of dietary actions in Arab adolescents and young adults. These findings highlight the importance of strengthening both nutrition-related factors and self-efficacy to support healthy dietary behaviors. Future interventions should combine nutrition education with strategies that build confidence and create supportive food environments, particularly in settings where dietary knowledge may not be reflected in actual behaviors.

Declarations

Ethics approval and consent to participate: Ethical approval for this study was obtained from the Institutional Review Board (IRB) of Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia (IRB No. 22-0406). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Prior to completing the questionnaire, all participants provided electronic informed consent by selecting the statement, “I agree to participate in this study,” before accessing the survey questions. Participation was entirely voluntary, and participants were informed that they could decline to answer any question or withdraw from the study at any time without penalty.

Consent for publication: Not applicable. This manuscript does not contain any individual person's identifiable data, images, or other information requiring consent for publication.

Availability of data and materials: All data generated during this study are included in this article and can be requested from the corresponding author.

Competing interests: The authors declare no potential conflicts of interest.

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