



SUPPLEMENTARY DATA

Nutrition, Education, and Dietetics

The Moderating Role of Nutrition Knowledge in an Extended Theory of Planned Behavior Model of Ultra-Processed Food Consumption Among University Students in Saudi Arabia

Abeer Bahathig

Department of Community Health, College of Applied Medical Sciences, Northern Border University, Arar, Saudi Arabia. Abeer.Bahatheq@nbu.edu.sa

Questionnaire

Exploring the ultra-processed food consumption patterns among NBU Saudi Students: A Theory of Planned Behavior Perspective

General information

1. **Gender**
 - ☐ Male
 - ☐ Female
2. **Age (in years):**
3. **Marital status**
 - ☐ Married
 - ☐ Unmarried
4. **Current academic level**
 - ☐ 1-2
 - ☐ 3-4
 - ☐ 5-6
 - ☐ 7-8
 - ☐ Master's
 - ☐ Ph.D. candidate
5. **Studies specialty**
 - ☐ Health-related
 - ☐ Non-health-related
6. **Monthly income of the family**
 - ☐ <1000 SAR
 - ☐ 1000-2999 SAR
 - ☐ 3000-4999 SAR
 - ☐ 5000-10000
 - ☐ More than 10000 SAR
7. **Weight (Kg)**
 - ☐
8. **Height (cm)**
 - ☐
9. **Suffering from any chronic disease?**
 - ☐ No
 - ☐ Yes

If yes, what disease?

Knowledge related to ultra-processed foods (Minimum 0- Maximum 33)

1. Have you ever heard the term “Ultra-processed foods”?
 - ☐ No, I don't know it at all
 - ☐ I have heard something about it
 - ☐ I am not sure
 - ☐ I know it well
2. Do you feel like you have received sufficient information about “Ultra-processed foods”?
 - ☐ Yes
 - ☐ No
 - ☐ May be
3. Ultra-processed foods consumption is associated with negative health outcomes (obesity, diabetes, cancer.)
 - ☐ False
 - ☐ True
 - ☐ I don't know
 - ☐ May be
4. What is a common characteristic of ultra-processed foods?
 - ☐ They are typically made with whole, natural ingredients.
 - ☐ They often contain additives like emulsifiers, artificial colors, and flavor enhancers.
 - ☐ They are always low in calories and sugar.
 - ☐ They have a short shelf life and spoil quickly.
5. How would you categorize the following food items?

Food categories	Unprocessed / minimally processed	Processed culinary ingredients	Processed	Ultra-processed	I don't know
Packaged bread	0	0	2	0	1
Salted nuts	0	0	2	0	1
Pasteurized milk	2	0	0	0	1
Ready-to-eat meals (burger, pizza, breasted, etc.)	0	0	0	2	1
Condiments (ketchup, mayonnaise, etc.)	0	0	0	2	1
Liquide cheese	0	0	2	0	1
Carbonated drinks (with sugar)	0	0	0	2	1
Chocolate	0	0	0	2	1
Butter	0	2	0	0	1
Sweet cakes (tiramisu, cheesecake, saffron cake, etc.)	0	0	0	2	1
Canned tuna	0	0	2	0	1
Table sugar	0	2	0	0	1
Energy drinks	0	0	0	2	1

Patterns of consumption of ultra-processed foods

1. How frequent do you consume the following food items? (Minimum 0 – Max 65)

	Everyday	6-4 times/week	2-3 times/week	2-3 times/month	< 1 time/month	Never
Regular or Diet soda	5	4	3	2	1	0
Fruit juice or fruit drink in can or box	5	4	3	2	1	0
Fruit drink prepared from a powdered mix	5	4	3	2	1	0
Instant noodles (such as Indomie noodles)	5	4	3	2	1	0
Potato chips, crackers or any other type of packaged salty snacks	5	4	3	2	1	0
Instant coffee	5	4	3	2	1	0
Any type of flavored yogurt	5	4	3	2	1	0
Sausage, hamburger or nuggets	5	4	3	2	1	0
Sweet cakes (tiramisu, cheesecake, saffron cake, etc.)	5	4	3	2	1	0
Spaghetti, Macaroni, any types of pasta	5	4	3	2	1	0
Margarine (butter)	5	4	3	2	1	0
Branded salad dressing, Branded mayonnaise, ketchup, or mustard	5	4	3	2	1	0
Fast-food such as burger, pizza, breasted, etc.)	5	4	3	2	1	0

2. Place of purchasing processed foods

- Supermarkets
- Grocery stores
- Convenience stores
- Internet
- Food court / restaurants

3. Important attributes when purchasing processed foods

- Taste
- Price
- Nutritional value
- Convenience
- Food additives
- Brands of company
- Advertisement
- Others

Constructs of the Theory of Planned Behavior

Targeted behavior: ultra-processed foods consumption

Attitude (minimum 4, maximum 20)

1. Consuming ultra-processed foods is a right choice:

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

2. Consuming ultra-processed foods is safe:

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

3. Consuming ultra-processed foods fits with my dietary preferences

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

4. Consuming ultra-processed foods suits my lifestyle

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Subjective norms (minimum 4, maximum 20)

1. My friends think that consuming ultra-processed foods is acceptable:

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

2. My family thinks that consuming ultra-processed foods is acceptable:

- Strongly disagree
- Disagree

- Neutral
- Agree
- Strongly agree
- 3. Social media encourages the consumption of ultra-processed foods**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 4. In my community, it is common for people to consume ultra-processed foods during social gatherings**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree

Perceived behavior control (minimum 3, maximum 15)

- 1. I think that consumption of ultra-processed foods is under my control:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 2. Whether I consume ultra-processed foods is a decision that depends entirely on me:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 3. I am confident that I can consume ultra-processed foods safely:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree

Behavioral intention (minimum 3, maximum 15)

- 1. I intend to consume ultra-processed foods less than other foods:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 2. I intend to consume ultra-processed foods that are advertised:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
- 3. I intend to consume ultra-processed foods regardless of their safety:**
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree