



## Article

# Women's Concerns about Dietary Recommendations Relate to Taste, Affordability, Convenience, Aesthetics, and Self-Confidence: A Qualitative Evaluation in Egypt

Chloé M. C. Brouzes <sup>1</sup>, Marwa Tawfik Ahmed Farid <sup>2</sup>, Farah Emad El Sayed <sup>2</sup>, Daniel Tomé <sup>1</sup>, Nicolas Darcel <sup>1</sup> , Anne Lluch <sup>3</sup> and Mila Lebrun <sup>3,\*</sup>

<sup>1</sup> Université Paris-Saclay, AgroParisTech, INRAE, UMR PNCA, 75005 Paris, France; chloe.brouzes@gmail.com (C.M.C.B.); daniel.tome@agroparistech.fr (D.T.); nicolas.darcel@agroparistech.fr (N.D.)

<sup>2</sup> PHI Market Research, Villa 108, Banafseg 7, New Cairo 11835, Egypt; marwa.farid@phi-group.co (M.T.A.F.); farahemadkhalil@hotmail.com (F.E.E.S.)

<sup>3</sup> Danone Nutricia Research, Centre Daniel Carasso, RD 128, 91767 Palaiseau, France; anne.lluch@danone.com

\* Correspondence: mila.lebrun@danone.com

**Abstract:** Young women from urban Egypt are in a context of nutrition transition with a high prevalence of being overweight, excessive energy and sodium intakes, and insufficient iron, vitamin D, and folate intakes. This study, funded by Danone Nutricia Research, investigated the acceptability of dietary recommendations in young urban Egyptian women that have the potential to improve iron intake and nutrient adequacy. Individual interviews and focus groups were conducted in Cairo with 80 middle-class women aged 18–35 years (students, active women, and housewives). Perceived benefits and drawbacks for each recommended food were examined. Motivations and barriers to improving dietary practices were classified into major emerging themes. Analysis of the interviews showed that promoting the recommended foods would be met with both positive and negative feedback (e.g., a positive impact of fruit, vegetables, milk, or yogurt consumption on hair, nails, and skin appearance, and bad taste of vegetables). Motivations for improving dietary practices included the pursuit of aesthetical (e.g., attaining/maintaining body shape, clear skin, bright teeth, strong nails, silky and thick hair) and psychological (e.g., improved self-confidence and self-esteem) benefits. However, the “curative behavior” of the population targeted (i.e., changing dietary practices only when they face a serious issue), some life-stage-related factors (e.g., students and active women consuming most of their meals out-of-home), and sociocultural and economic factors (e.g., social gatherings, the high price of red meat) can constitute barriers for implementing a set of dietary recommendations. This work highlighted that, beyond socio-cultural and economic factors or curative or life-stage-motivated dieting, the pursuit of aesthetical and psychological benefits are essential factors that shape the acceptability of dietary changes.

**Keywords:** Egyptian women; dietary practices; dietary recommendations; iron-deficiency anemia; acceptability



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## 1. Introduction

Young women from urban Egypt are in a context of nutrition transition with a high prevalence of being overweight, excessive energy and sodium intakes, and insufficient iron, vitamin D, and folate intakes [1]. Half of the women in Egypt are iron-deficient [2], 72% are vitamin D-deficient [3], and 15% are folate-deficient [4]. Women are more affected than men by overweightness and obesity (42.5% of women are obese versus 23.5% of men) [5]. The urban female population has a particularly high prevalence of being overweight and obese (88%) [6], and their body mass index (BMI) increases with age, with values of 26.2 kg/m<sup>2</sup> and 32.4 kg/m<sup>2</sup> for women aged 15–19 and 40–49, respectively [6].

Important changes in lifestyle and dietary patterns occurred during the last decades in the Eastern Mediterranean region. Consumption of sweet products (and to a certain extent, animal products) increased while fruit, vegetables, and whole grain cereal consumption decreased [7]. Therefore, lipid, saturated fatty acid, and sugar intakes increased while fiber intakes decreased [7,8]. More sedentary lifestyles, fast food consumption, and increasing exposure to advertising for processed foods are also potential factors explaining recent dietary changes and the increase in the prevalence of overweightness [7]. Several economic crises have affected Egypt and recent changes in subsidizing policies have contributed to an increase in the cost of non-subsidized food, such as fruit and vegetables [9].

In a previous work, on the basis of a modeling analysis, we suggested dietary modifications that increase the consumption of fruit, vegetables, milk/yogurt, and tahini (a sesame paste), specific food choices in the meat–fish–eggs category (e.g., red meat, tilapia fish), and iron-fortified products [10]. However, eating behavior is driven by a multitude of factors [11–15], and the acceptability of adopting these recommendations needs to be evaluated by the target population [16].

Interestingly, Middle Eastern beauty standards have evolved in younger generations, potentially paving the way to guide food choices. Female plumpness is traditionally perceived as “a sign of social status and [ . . . ] a cultural symbol of beauty, fertility and prosperity” [17]; however, women today aspire to have a thinner physique. Studies conducted in the 2000s showed that school girls (aged 11 to 19 years) from Egypt [18] and women (aged 18–52 years) from Tunisia [19] prefer thin-to-normal body sizes compared with plumpness [18]. Similarly, young women from the United Arab Emirates expressed that they received social pressure from their friends, families, and husbands to have a thin figure, while their grandparents still idealize female fatness [20]. In Egypt, numerous advertisements promote weight loss, plastic surgery, skin treatments, and cosmetics to transform women’s bodies (more than men’s) so that they may “become responsible for their own happiness, marital happiness, and family harmony” [21].

Aside from the aforementioned, the aesthetic motivations related to body weight, the life stage of young urban Egyptian women, as well as economic constraints possibly affect their willingness to improve their dietary practices and adopt the proposed set of dietary recommendations. Recent food price inflation in Egypt has resulted in a larger share of household income (about 40%) being allocated to food [22]. Additionally, young adulthood is a period of increased risk for weight gain due to the major lifestyle changes that occur at this life stage [23–26].

This work investigated the acceptability of our modeled dietary recommendations in young urban middle-class Egyptian women (from students to young mothers) with a qualitative approach.

## 2. Methods

### 2.1. Design of the Study

The study design consisted of recruiting and interviewing 80 participants corresponding to the targeted age and socio-professional category (young urban middle class) to examine motivations and barriers for improving dietary practices, as well as perceived benefits and drawbacks for each recommended food. The combination of individual interviews and focus groups made it possible to obtain varied responses on the food issues addressed. The focus groups made it possible to obtain more answers but the interviews made it possible to obtain more personal answers.

### 2.2. Recruitment and Study Population

Middle-class women living in Cairo were randomly contacted by phone by a private research agency (PHI Market Research) through their database and recruiters’ networks. Women of the target age (18–35 years) were asked if they were interested and available to participate in the study and questioned about their socio-economic background. Exclusion criteria included any involvement of their relatives in the health or marketing sectors or par-

ticipation in another group discussion or interview in the same field in the past six months. Socioeconomic class was assessed based on both the participant's (and her head of household's) educational attainment level, and her lifestyle (traveling habits inside Egypt and abroad, gym or club membership, brands usually bought, shops visited for groceries . . . ) using an index developed by PHI Market Research (unpublished) and adapted to the Egyptian context. Based on the answers, the selected participants were classified into two socioeconomic sub-classes: lower- and upper-middle classes, to account for the wide diversity of the Egyptian middle class. Vouchers from one of the biggest supermarkets in Egypt were provided as incentives. Focus groups and individual interviews were chosen as complementary approaches since the first methodology enables collective discussions between participants, and the second one enables obtaining more personal insights in a familiar environment. Participants were informed that a "food company" funded the study, and vouchers from one of the biggest supermarkets in Egypt were provided as incentives to the participants.

Age range was chosen to fit previous nutritional analyses (dietary intakes and diet modeling), which were performed on 19–30 year old women living in urban Egypt. For this study, the age range was extended to include women up to 35 years old to include insights from young mothers. The sample size was initially divided according to socioeconomic class since, in the previous years, inflation had strongly impacted household budgets, the increases thereof mainly being dedicated to food in the low-to-middle-class population (40.8% of the budget allocated to food according to recent works [22]). A difference was expected. We focused on young women as a follow-up to a previous study [10].

### 2.3. Focus Groups and Individual Interviews

To investigate the acceptability of the modeled dietary recommendations, a total of 80 middle-class women, who were either university students, working women, or housewives, with or without children, were recruited for focus group discussions ( $n = 62$ ) and individual interviews ( $n = 18$ ), as presented in Table 1. All studies were conducted in Egyptian Arabic by study moderators with experience in qualitative methods using the following techniques: spontaneous associations, projective scenarios, and life narrative methods [27,28].

**Table 1.** The number of participants recruited for interviews and focus groups. The codes in brackets refer to the interview ("I", from 1 to 18) and focus group ("FG", from 1 to 9) numbers. The symbol "-" refers to the lower-middle socio-economic class and the symbol "+" to the upper-middle class.

Participants' Profile	Activity	Socioeconomic Class	Number of Participants Interviewed Individually	Number of Participants in Focus Groups
Female students, not married, no child	First and second year of college	-	2 (I4, I12)	7 (FG1)
Female students, not married, no child	First and second year of college	+	2 (I9, I10)	7 (FG2)
Female students, not married, no child	Third and fourth year of college	-	1 (I11)	7 (FG3)
Female students, not married, no child	Third and fourth year of college	+	1 (I1)	7 (FG4)
Women not married, with no child	Working	-	1 (I5)	0
Women not married, with no child	Working	+	2 (I3, I8)	0

Table 1. Cont.

Participants' Profile	Activity	Socioeconomic Class	Number of Participants Interviewed Individually	Number of Participants in Focus Groups
Women not married, with no child	Unemployed	-	2 (I7, I13)	0
Women not married, with no child	Unemployed	+	1 (I6)	0
Married women, with no child	Working	-	2 (I14, I16)	0
Married women, with no child	Working	+	1 (I18)	7 (FG9)
Married women, with no child	Unemployed	-	1 (I15)	5 (FG6)
Married women, with no child	Unemployed	+	2 (I2, I17)	0
Mothers	Working	-	0	8 (FG8)
Mothers	Unemployed	+	0	14 (FG5, FG7)
Total			18	62

### 2.3.1. Focus Groups

Focus groups were used to encourage discussions and collective reactions rather than single opinions [27,28]. They were conducted with women of comparable life stages in groups of 5 to 8 women. The discussions took place in a room in PHI Market Research premises with an untinted glass to allow researchers to attend the discussions without disturbing the exchanges. Participants were seated in a circle, while the moderator was standing and annotating a board. Two focus groups were held with students in their 1st or 2nd year of college, two with students in their 3rd or 4th year, two with married women, and three were mothers; focus groups run with non-student women were conducted among both unemployed and employed women (Table 1). Moderators used a discussion guide (available in Supplementary Material 1) to orientate the conversation; they investigated the factors that encouraged or discouraged participants to mind what they eat with probing questions on the physical and psychological characteristics of peers that do not pay attention to what they eat. After this, the set of modeled dietary recommendations was presented to the group as a diet plan created for a woman who would like to pay closer attention to what she eats. It was presented as a one-page illustration with pictures of recommended portion sizes, including at least daily portions of vegetables (3 servings), grain or grain products (at least 1 serving), legumes (1 serving), tahini (1 spoon), fruit (2 servings), milk and/or yogurt (2 servings), and weekly portions of local fish (tilapia, twice per week), red meat (twice per week), liver (once per week), and eggs (4 times per week). Then, the factors that encouraged and discouraged participants to follow this set of recommendations were collectively discussed. Participants' awareness of the signs and symptoms of iron-deficiency anemia was also assessed using easily recognizable images showing the possible consequences of iron-deficiency anemia, such as fatigue, altered work performance, dizziness, pale skin, coldness in hands or feet, pain in the chest, hair loss, and brittle nails [29,30]. Finally, the acceptability of introducing existing and theoretical iron-fortified products into the diet was discussed, since these products would help to increase iron intake [10].

### 2.3.2. Individual Interviews

Eighteen individual semi-structured interviews were conducted to explore participants' dietary practices and social representations (i.e., a form of knowledge, socially developed and shared, contributing to the construction of a reality common to a social whole) of their diet, body, and health, with open-ended questions; this type of survey allows researchers to pursue the emergent themes of the interviewees' discussion [27,28]. Interviews were held at each participant's home, lasted about two hours, and were conducted following the discussion guide presented in Supplementary Material 2. Women were asked to narrate their typical eating habits throughout the day, to answer reflective questions (e.g., how would they define themselves based on what they eat, what would they give thumbs up and down for . . . ), and to describe their lifestyles, habits, personality traits, and the appearance of a woman who they consider "very healthy" as well as a woman they consider "less healthy".

### 2.4. Data Transcription and Analysis

All focus group discussions and individual interviews were blindly transcribed in Arabic and then translated into English by nine research assistants from PHI Market Research, so that both Arabic and non-Arabic-speaking researchers could thoroughly read the transcripts. The quality of the Arabic and English-translated transcripts was checked by the research coordinator from PHI Market Research, who speaks both English and Arabic. Interviewees were not asked for additional information afterward. Data were analyzed thematically. Key topics were identified by the research agency (PHI Market Research) based on Arabic transcripts, in relation to perceptions of food recommendations, and determinants of eating. Analyses began by splitting Arabic transcripts into pre-established themes in an Excel file for each of the recommended foods from the set of dietary recommendations, including the motivations and barriers for improving eating habits. Results were compared across individual profiles. Emerging themes were noted and explored throughout the analyses. The same task was concurrently conducted by non-Arabic speaking researchers, based on the English transcripts. The findings were checked with the interviewers and the other researchers involved, and supported with illustrative quotations (translated from Arabic to English for non-Arabic speakers). Emerging themes from both teams were discussed collectively in an effort to jointly analyze participants' perceptions of our recommended foods, and the motivations and barriers that arose from the conversations. The analysis of the content of the interviews was carried out qualitatively without recourse to analysis software.

## 3. Results

The results did not differ across the middle-class category selected for this study (lower- and upper-middle classes) and are therefore presented together.

### 3.1. Perceived Benefits and Drawbacks for the Recommended Foods

All foods from the set of modeled dietary recommendations were perceived both positively and negatively by interviewees (Supplementary Material 1). Perception is related to either the consequences of consuming the food (taste or effect on the body) or the characteristics of the food (convenience and price).

#### 3.1.1. Perceived Benefits

Positive perceptions were related to: (i) taste and satiating properties, (ii) nutritional value, (iii) perceived physical or physiological (i.e., health) benefits, and (iv) convenience and affordability.

For taste and satiating properties, women described that they enjoy consuming several of the recommended foods, in particular fruit, grains, tahini, and liver. Legumes ("*It lasts in the stomach for a long time.*" (FG4)) and grains ("*I don't feel full without it.*" (FG1)) were appreciated for their satiating properties.

The vitamin and mineral content of several of the recommended foods were cited as beneficial, although women sometimes had only approximate knowledge about their nutrient content. Fruit and vegetables were perceived as sources of vitamins and iron (and sometimes calcium) (*"Bananas have iron it is a source of antioxidants, kiwi, it decreases the amount of salt in the body, lemon as well contains vitamin C, cantaloupe it's good for the memory"* (I3), *"Tomato has iron. And also eggplant."* (FG1)) while legumes, eggs, and red meat were cited as sources of protein (*"Beans contain protein which is very important to body."* (I7)). Milk and yogurt were cited as a source of calcium (*"Yogurt like milk are very important and full of calcium"* (I1)) and fish was described to be rich in *"phosphorus"* (FG7) and *"omega 3"* (I1).

Participants repeatedly mentioned the benefits of some of the recommended foods on external physical aspects. A participant stated that consuming *"anything green [ . . . ] gives you a good complexion"* (I7) while another mentioned that red meat *"builds muscles"* (FG9). Participants linked the physical benefits that they would get from some foods to certain nutrients that they thought these foods contained. For example, a student stated that milk and yogurt *"include calcium"*, and *"are beneficial for teeth and nails. For hair also [ . . . ]."* (FG1), while another linked the vitamin content of vegetables to strengthening hair: *"vitamins will help improve the hair follicle itself. It will make it healthier and make it grow more."* (ID6).

Several of the recommended foods were perceived to have physiological and health benefits. Fish consumption, for example, was thought to improve cognitive capacity (*"If the pregnant woman eats fish, the baby will have sharp intelligence."* (FG7)), while milk and yogurt would *"strengthen the bones"* (FG4). Interestingly, the physiological benefits of fortified products were highlighted for children, but not for adults. For example, a mother mentioned that *"kids get so active before swimming training"* (FG5) when consuming fortified products and a student explained that children *"get teeth so fast"* when consuming fortified milk (FG2). Among the recommended foods, fruit and yogurt were perceived as *"full of good effects and benefits"* (I6), even if the precise effects were not always clear (they *"impact [the] body internally"* (I6)). Some foods were also readily associated with improving anemia, such as liver, red meat, or vegetables (*"Anybody who has anemia or lack of blood should eat liver."* (FG3), *"Meat contains protein and fix anemia."* (I1), *"[ . . . ] strengthen our body and protect us from anemia"* (I5)).

Participants highlighted the ease of use/preparation for several of the recommended foods, particularly liver (*"You could just cook it so quickly and make sandwiches for kids [ . . . ]."* (FG5)), fruit (*"I eat fruit as a snack and for dinner."* (FG6)) and yogurt (*"We can eat it [yogurt] as an alternative for the dinner."* (FG4)). Finally, women also stressed the affordability of several recommended foods, including grains (*"Price is reasonable and it is varied."* (FG8)), legumes (*"a cheap alternative for protein"* (FG3)), liver, and eggs (*"the cheapest animal protein we can buy."* (FG3)).

### 3.1.2. Perceived Drawbacks

Reluctance to consume certain foods included in the dietary recommendations were largely linked to (i) poor palatability and digestibility, (ii) fear of weight gain or of health issues related to fat content, and (iii) safety concerns and affordability.

Women had negative opinions about the taste of vegetables: *"Bad taste."*, *"Boring."*, *"Not many people love them."* (FG2). The smell and taste of eggs were also mentioned as deterrents (*"I don't like its taste."* (FG3), *"It stinks as well."* (FG5)). Difficulties in digesting some of the recommended foods were also mentioned. According to some participants, the consumption of beans *"harms the colon"* (FG1), red meat is *"hard to be digested"* (FG2), and *"many people have allergies against lactose"* (FG7). Participants also expressed their worry about weight gain when consuming grain products (*"They make people fat, as my friends who want to gain weight, they keep eating carbs."* (FG6)) and tahini (*"It causes extra weight."* (FG5)). The negative impact of red meat on the cardiovascular system was also mentioned by participants, who feared that it *"forms fats on the heart"* (FG2) or *"makes cholesterol"* (FG9).

Food safety concerns were raised for red meat, liver, fish, and vegetables. For example, mothers were apprehensive about the origin of meat: *“it might not be beef at all. It is easy for fraud makers.”* (FG7). Liver was perceived as *“a center of poisons in the body”* containing *“bad blood”* (FG4). Students raised concern over fish sourced from the contaminated water of the Nile River: *“Because the Nile is polluted, and it might harm the fish itself.”* (FG2). Some participants were worried that vegetables were sprayed with chemicals (*“For me I am so worried about vegetables which are processed with insecticides and so on, which is really harmful”* (FG6)). Processed foods such as pasteurized milk and iron-fortified foods were also negatively perceived. Women believed, for example, that *“preservatives are added [to pasteurized milk] through machines to last longer”* (FG7), and that iron-fortified products are *“not beneficial like the natural one”* (FG4). Finally, fruit, milk, yogurt, and red meat were said to be too costly. Mothers explained that they would reduce the quantity of fruit purchased because of price: *“You may be obliged to get only 1 kilo instead of more because it is expensive”* (FG5).

### 3.2. Motivations and Barriers for Improving Dietary Practices

The factors that encouraged or discouraged participants to improve their dietary practices were classified into four major emerging themes: aesthetic, psychological, life-stage, and sociocultural and economic factors (Supplementary Material 2).

#### 3.2.1. Aesthetic Factors

Women repeatedly mentioned following a diet or consuming specific foods in the pursuit of aesthetic benefits.

Aesthetic benefits refer to all positive effects on the external physical appearance, such as attaining or maintaining an ideal body shape, clear skin, bright teeth, strong nails, or silky and thick hair. For example, a woman recounted starting a diet because she wanted her *“appearance to look good, to look just right”* (I3). Another participant stated: *“I eat a lot of cucumber, rocca and parsley as they are making me have a fresher skin”* (I7). Statements linking specific foods with notable effects on skin, hair, nails, and teeth were frequent. Supplementary Material 1 reports that eight out of 12 of the recommended foods were perceived to have aesthetic benefits (fruit, vegetables, tahini, fish, eggs, fortified foods, milk, and yogurt). Yet, a lack of quick and tangible effects after changing dietary practices was cited as discouraging (*“I don’t find a result in the first days”* (FG9)). Participants declared they would rather use cosmetic masks and creams to transform their appearance, rather than change their eating habits. For example, one woman explained: *“I eat a lot of fats, so my face will not look healthy, so I will try to compensate that with masks and creams and medicines”* (I6). Other women who were satisfied with their current physique would not change their dietary practices.

#### 3.2.2. Psychological Factors

Several psychological factors (i.e., mental state and/or motivations) were identified as drivers for better dietary practices. Participants expressed their wish to improve their self-confidence and physical appearance. For example, a participant recounted: *“I did lose much weight. I liked myself so much. I had very high self-confidence. I was able to wear anything I want.”* (I17). This increased self-confidence was recognized in interactions with others—as one participant explained when describing a *“very healthy”* woman: *“this is reflected on how she deals with people.”* (I6). Participants described feelings of self-guilt regarding their current dietary practices, that encouraged them to eat healthier foods, in addition to the food they usually consumed: *“Because I eat snacks and fried food and stuff that could be not very good, I make sure to eat something good and healthy every day”* (I6)). Fear of disease was said to motivate healthier eating habits in some participants: *“Eating healthy will make the body organs survive more.”* (I2)).

Conversely, the discussions revealed several psychological barriers to adopting the proposed set of dietary recommendations. First, participants explicitly mentioned difficulty resisting tempting foods (which are often energy-dense, and high in sugar, fat, and salt): *“Because of the weak willingness [ . . . ], loving a type of food makes us violate the nutrition system.”* (FG2). Food cravings seemed difficult to control for some participants: *“Sometimes I crave for it and I like to try many things like waffles, like Nutella, like brownies, I like to try new things this in addition to the regular Konaffa (Konaffa is a traditional dessert from the Middle East made of thin noodles and cream cheese, soaked in a sweet syrup) and the regular pastries.”* (I3). Moreover, participants clearly described “curative behavior”—i.e., a tendency to rarely (or never) take preventative action to reduce the risk of disease in the future. For example, a participant explained that she would wait to face a problem before considering changing her dietary practices: *“This is how I deal with everything, I wait till it is totally damaged and then go fix it. In my teeth or health or anything.”* (I3). Finally, participants reported distaste for healthier food choices as a barrier to their uptake: *“The healthy food [ . . . ] like vegetables will not taste as good as the fast food.”* (FG2).

### 3.2.3. Life-Stage Related Factors

Factors related to the life stage of participants (i.e., time and access to healthy food choices) were reported to encourage participants to improve their eating habits.

Having a target related to a wedding or a job opportunity reportedly motivated participants to change dietary practices and lose weight: *“She started a nutrition system and gym as her wedding day is coming.”* (FG4); *“She needs to lose weight because there is a target like applying for a job.”* (FG4). Getting married also seemed to have dietary implications. According to participants, spending more time in the household and learning to cook for their husbands reduced fast food consumption. For example, a participant stated: *“Before getting married I was eating outdoors all the time and eating fast food, however after marriage, I am keen to prepare food at home.”* (FG5). Family planning and getting pregnant were reported to positively impact dietary choices; participants mentioned they *“will need vitamins and calcium”* (I13) during this specific life stage. Dietary guidance from a physician aimed to address a medical issue was reported to encourage participants to pay closer attention to what they ate: *“The doctor advised me to eat a lot of food that contain iron and taking vitamins to increase the hemoglobin in my body”* (FG8).

Several barriers were linked to the life stage of the participants. Students and working women often consumed their meals out-of-home, where healthy meals are not readily available (see paragraph on sociocultural and economic factors below). Our dietary recommendations were seen as time-consuming, could be only homemade, and were unrealistic for some students and working women: *“She may be working and doesn’t have much time to eat healthy food. She is eating outdoors mostly.”* (FG5). Participants who were not solely responsible for shopping for and preparing food reported this lack of responsibility as a barrier to implementing the dietary recommendations in their daily routine: *“My mother is the one responsible for cooking so I eat what she cooks as she can’t cook for the family plus an additional meal for me every day”* (I4). Similarly, participants responsible for preparing meals for their husbands (who preferred “tasty” meals) also reported difficulty: *“My husband eats tasty food and since we are together, I can’t stay on a diet for a long time because I can’t resist what he’s eating everyday”* (I2). Finally, motherhood was reported to discourage participants from following the dietary recommendations; working mothers explained that children are the main priority for many women, who consequently have little time to dedicate to themselves: *“She cares for her children more than herself. She is busy with life.”* (FG8).



### 3.2.4. Sociocultural and Economic Factors

Egypt's environment and cultural norms (grouped in this paper as "sociocultural and economic factors") can act as both motivations and barriers to improving dietary practices.

First, the positive social perception of the thin body type in younger generations seemed to motivate participants to adopt healthier eating habits. One participant described discrimination that young, overweight women can face in Egypt: "All people criticize her as she is still young. All her friends seem so slim and she is so obese." (FG5). Some participants mentioned turning to social media for advice on how to live up to these beauty standards: "I'm following some influencers and models. I try to do what they are doing hoping to achieve anything" (I13). Issues around food safety in Egypt were reported to encourage participants to eat fewer meals out-of-home: "My mom [ . . . ] gets scared from food outside. She thinks it is untrusted [ . . . ], unclean, not cooked the way she does it." (I6). "Healthy" foods were seen as synonymous with "home-made" foods by some participants: "Healthy food means homemade food because it's guaranteed and we know how it's cooked and what does it include" (I7).

Yet, other socio-cultural and economic factors specific to Egypt discourage healthier dietary practices. First, social gatherings with family and friends often entail eating large food quantities of poor nutritional value: "Most of the time I'm with my friends outside so we like to eat chips or chocolate as entertainment" (I6). Second, the recent inflation in food prices in Egypt has caused economic barriers to access, as explained by a group of mothers: "You know that in last 10 days of the month we have no money, and you are finding out how to make your meal! [laughing]" (FG5). Some foods from our set of dietary recommendations were perceived as expensive. Finally, the limited places in Egypt serving healthy food options were reported as another barrier: "It takes me time to find a good place that offers healthy food when outside with friends" (I3).

## 4. Discussion

This study revealed that life-stage, socio-cultural, and economic factors, as well as a general lack of proactive behavior to prevent health issues were barriers to adopting healthier dietary recommendations for young urban women in Egypt. However, conversely, the aesthetic and psychological benefits of such recommendations seemed to encourage them to adopt healthier eating habits.

Food choices for Egyptian women seem to be driven by palatability, lifestyle, and socio-economic factors, and by expected benefits to health (e.g., strong teeth and bones), functional abilities (e.g., memory, muscular strength), and beauty (such as hair and nails). The participants' reactions to our dietary recommendations showed that, even when these recommendations are based on local foods, and robust modeling analysis that considers local dietary patterns, its acceptability is not guaranteed. Our results confirm that implementing dietary recommendations is far from easy [31,32] and that food choices are driven not only by taste, nutritional value, and healthfulness, but also cost [33–35] and other socio-cultural factors [36–39].

Our results demonstrated that young women from urban Egypt have a number of misconceptions about food groups' nutrient content (e.g., fruit and vegetables were repeatedly perceived as a source of iron). Some specific foods were perceived as having unsubstantiated benefits for the body, especially in aesthetic features, functional abilities, and health. Future policies should acknowledge these misconceptions and adapt communication and interventions accordingly.

Following our dietary recommendations was seen as a means to lose weight or to improve the appearance of hair, nails, or skin, which would therefore improve self-esteem, mood, and social interactions. The importance of physical appearance in this population is apparent in advertising especially targeting women, which indicates that taking care of one's body is a way to reach "happiness" and "harmony" [21]. These results suggest that behavior change communication oriented around aesthetic benefits could motivate women to initiate recommended dietary changes, at least in the short term. However, the risk of misinforming consumers (who have little nutritional knowledge) with this type of

communication needs to be considered. Besides, potential benefits on hair [40], nails [41] skin [42], or other physical attributes must be clearly proven. The increasing appeal of the thin body type to young Middle Eastern women [18–21] confirms that dietary practices and lifestyle are topics of interest for young Egyptian women. Yet, the development of eating disorders in Northern countries shows the potential extremes of encouraging weight loss [43,44] and communication campaigns addressing these issues must be conducted with caution.

Several barriers preventing the adoption of healthier dietary practices were mentioned by participants and must be overcome. The palatability of vegetables was criticized by many participants; in contrast, fast food restaurants were depicted as providing appealing and tasty items, although unhealthy. This association between “unhealthy” and “tasty” has already been highlighted [45] and underlines the importance of making healthy food choices as appealing as “unhealthy” ones. Other identified disadvantages were linked to the fattening potential of some of the recommended foods (grain products and tahini) or to the poor digestibility of others (legumes, red meat, and dairy products). Improving awareness of adequate portion size and providing practical tips for improving digestibility when preparing legumes, could help address these concerns. The life stage of women appeared to play a determining role in the adoption of healthier dietary practices. As an example, students and working women reported having little time to prepare meals and eating most of their meals out-of-home. Given the rising availability of cheap and ultra-processed foods in Egypt’s streets (as in many other low-to-middle-income countries [46] and the struggle for finding healthy options out-of-home, following a set of dietary recommendations requires anticipating what is needed to prepare home-made meals and extra time.

Food safety concerns over animal products (red meat, liver, and fish) and skepticism about processed foods (iron-fortified foods and dairy products) were barriers to consuming these items. This sanitary context in Egypt could provide an opportunity to promote homemade and healthy recipes from the recommended foods, since “homemade” is readily associated with being “healthy” by some participants. Iron adequacy could be enhanced by the consumption of iron-fortified products and/or red meat, which contain primarily heme iron, a more bioavailable form than non-heme iron [8,10,47,48]. Despite the described benefits of red meat for treating anemia and building muscle mass, the participants complained about its high price, its potential for causing weight gain, and difficulty in digesting it. Similarly, women underlined the direct health benefits of enriched, commercialized products by trustworthy brands (especially for children) but expressed doubts about their real iron content and synthetic nature, confirming the general distrust in ultra-processed foods [49,50]. Strategies to improve the acceptability of these iron-rich foods are needed to reduce the risks of iron deficiency in this population.

Our study was conducted with a relatively limited number of participants ( $n = 80$ ), from a specific socio-economic class, and therefore our results should be confirmed. It would be interesting in the future to complete this analysis either with a larger number of people to carry out a representative quantitative study of the population concerned or, conversely, by investigating more finely on very thorough qualitative interviews allowing precise sociotypes to emerge in order to understand the determinants and origins of these representations. Qualitative analysis programs could be used to analyze larger datasets and compare conclusions.

In conclusion, this study sheds new light on eating behaviors in young women in urban Egypt—a population that is rarely studied, despite the important nutritional issues they face [1,9]. This study helped to identify perceptions about the recommended foods and elucidated the motivations and barriers to improving dietary habits in this population. This work highlighted that, beyond socio-cultural and economic factors or curative or life-stage motivated dieting, the pursuit of aesthetical and psychological benefits are essential factors that shape the acceptability of dietary changes. To promote sustainable behavior changes and improve health outcomes, the next step could be to conceive and design multi-component interventions communicating beyond health and economic considerations and

highlighting aesthetic and well-being benefits [51,52]. Such an intervention could be held in universities, in medical centers, and potentially use mobile applications, and aim to positively impact the diet quality of young women in urban Egypt. The intervention could promote an adjusted set of food recommendations (to take into consideration the perceived drawbacks of some of the recommended foods) and communicate positively about the benefits of healthy dietary habits.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/women3020021/s1>, Supplemental Material 1: Discussion guide for focus groups; Supplemental Material 2: Discussion guide for individual interviews, in home visits.

**Author Contributions:** C.M.C.B.: conceptualization, methodology, supervision, project administration, formal analysis (in English), writing—reviewing and editing. M.T.A.F.: methodology, investigation, formal analysis (in Arabic). F.E.E.S.: methodology, validation, resources, formal analysis (in Arabic). D.T.: conceptualization, writing—reviewing and editing. N.D.: conceptualization, writing—reviewing and editing. A.L.: conceptualization, methodology, formal analysis (in English), writing—reviewing and editing. M.L.: conceptualization, methodology, formal analysis (in English), writing—reviewing and editing. All authors have read and agreed to the published version of the manuscript.

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**Institutional Review Board Statement:** The topics covered (perceived benefits and drawbacks of the consumption of particular foods) do not fall within the scope of what would require ethics approval. Nevertheless, all methods were carried out in accordance with relevant guidelines and regulations under Ethics approval and consent to participate. Written informed consent for participation in the study was obtained from all subjects. All recruited subjects had the capacity to consent on their own behalf. The study was designed in conformity with the European general data protection regulation and all participants were informed of the objectives of the study. Compliance with ethical requirements was approved by PHI Market Research's internal ethics board (New Cairo, Egypt), University Ethics Board clearance was not required for this survey. Multiple scientists independently analyzed the results to reduce potential biases.

**Informed Consent Statement:** Not applicable, all subjects gave their consent to the processing of their personal data, and answers were de-identified by pseudonymization.

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