

# Diet Quality and Nutritional Status among Visually Impaired and Blind University Students

MONA MOHAMED ELSHAFIE, Ph.D.

Alghad International College for Applied Medical Sciences, Nursing Department, KSA

## Abstract

**Background:** Vision impairment affects the daily life activities of people. The impairment impacts their ability to choose food and prepare meals due to unavailability of Braille labeling on the food products and lack of reliable assistance while purchasing food, in turn, affecting their level of life satisfaction and nutrition status. Diet quality is one of the most important factors that affect nutritional status. The current cross-sectional observational.

**Aim of Study:** This study aimed to assess nutritional status, diet quality, nutrients intake, nutritional knowledge, and food handling practices for visually impaired female students.

**Material and Methods:** The data was collected from 75 visually impaired female students at The Disabilities Students Center for Girls, King Saud University (KSU) and the student housing at the female campus. A face-to-face questionnaire was used to evaluate the socio-economic characteristics, nutritional status, Diet Quality Index international, nutrients' intake, nutritional knowledge, and food handling practices, and assess the correlation between BMI and knowledge levels.

**Results:** The majority of participants were of average 25.81 years of age with a moderate monthly income. They were all single, at different education stages, and did not have chronic diseases. The mean BMI was  $26.57 \text{ kg/m}^2$ , with half of them having a normal weight. Eighty-eight per cent did not consume food supplement, 64% did not exercise daily, and 57.33% consumed 1-3 cups of water daily. The total score for diet quality index-international was approximately 54.12 out of 100. The daily intake of energy was 2892.25 Kcal/day, with carbohydrates, protein and fat consumption constituting 70.21%, 5.16%, and 23.63% of total calories. There was a significant inverse correlation between BMI categories and nutrition knowledge level. Most participants need help with food handling, shopping, preparing meals, and delivery services for meals and food products.

The visually impaired have a low nutritional knowledge level that affects their diet quality, nutritional status, and food

handling practices. More attention is needed concerning these factors to enhance their quality of life. Further studies to determine the relationship between progression of vision impairment and nutrition status are needed using larger sample size, including males and females, and nutrition screening to assess total body fat percentage.

**Conclusion,** the study revealed three key findings. Nutrition knowledge levels among participants were low. An inverse association between BMI and nutrition knowledge level was observed. The quality of diet and some food handling practices associated with BMI and nutritional knowledge levels in this population were also low. This study can not be generalized to a larger Saudi Arabian population since this study was carried out on a small sample size, only female subjects of a particular age group. Further studies on larger sample size, including both genders and different ages, need to be done to assess the visually impaired difficulties in regards to food and life quality.

**Key Words:** Diet quality – Visually impaired – Nutritional Status – Nutritional knowledge.

## Introduction

**VISION** impairment is a common health problem in children and adults globally. Around 253 million people have vision impairment; 36 million are blind, and 217 million have moderate to severe vision impairment. Visual impairment is defined as “a significant limitation of visual capability coming from either disease or trauma, without the ability to restore it by conventional means, such as refractive correction, medication or surgery” [1].

Many studies demonstrate vision and hearing impairments as that affect the quality of life. There is an association between vision impairments, low physical activity, quality of life, and social interaction.

The complex relationship between dietary consumption, diet composition, and population characteristics is affected by various factors, such as income, food price, personal choices and beliefs. Moreover, geographical choices and traditional, environmental, social and economic factors also

**Correspondence to:** Dr. Mona Mohamed Elshafie,  
Alghad International College for Applied Medical Sciences,  
Nursing Department, KSA

create our dietary consumption patterns [2]. Socio-demographic factors such as age, gender, attitude, and former nutrition education are important predictors of food choices use and behaviour [3,4]. Demographic characteristics can relatively affect food consumption. Other social factors include culture, family, peers and meal patterns, while psychological motivators include mood, stress and guilt. Attitudes, beliefs, and knowledge about food products' related health information can all be affective factors for food choices [5].

The global increase in malnutrition-related diseases such as obesity, diabetes, heart disease, and cancers has become a worldwide challenge for all communities. Food choice is an important factor influencing nutritional status, also considered as markers for health status. Vision impairment is one of the leading health problems among adults in the world associated with lowering the quality of life, cooking capability and restricting shopping [6,7].

Studies conducted regarding eating pattern and quality of life reported an association between healthy eating patterns and decreased risk of obesity and related chronic disease. Recent researches relied on recording food intake and food frequency in alignment with the recommended intake as an approach for determining diet quality [8,9].

The Dietary Guidelines are the most evident nutrition advice source Dietary Guidelines for Americans, [10] worldwide. The Saudi Dietary Guidelines provide information developed by nutritionist, dietitians and other health professionals for the public to promote healthy eating and physical activity. The aim is to achieve and maintain a healthy eating pattern for the Saudi population, the healthy food plan includes foods from each of the major food groups, and ensures adequate nutrient intake without exceeding energy needs. Saudi Diet consists of high energy density food with more saturated fat, sugar, and low complex carbohydrates, dietary fibre, fruit, and vegetables. Food plays an essential role in satisfying individuals' basic needs, although overconsumption of food may lead to adverse health outcomes.

People who lose their vision, especially in later life, face many challenges in food consumption. This is because of the limited information available to compare foods' varieties and make appropriate choices de Carvalho et al., [11].

Since nutrients are not consumed alone in the daily diet, the study of dietary patterns of food consumption offers a solution to disease prevention and treatment by addressing the health benefits of the complete diet and improving the practicality in public education and clinical application, Jacobs and Steffen, [12].

Among priori-defined dietary pattern approaches, also known as 'diet quality indices', including diet quality index International (DQI-I) and healthy eating index (HEI) are known to be cardio-protective. DQI-I is developed to clarify dietary variations among the population; whereas, HEI-2015, the most recently updated version is a nutrient density-based approach Toft et al., [13]; Schwingshackl and Hoffmann [14], Krebs-Smith et al., [15].

Lewis et al. [16], found that people who have chronic diseases were more concerned about nutritional label information and more conscious of national nutrition recommendations than those who did not have chronic diseases. Whereas, Carrillo, Varela & Fiszman, [17] reported that consumers with adequate nutritional education could take care of their diet by choosing healthier foods and preventing nutritional disorders.

There are not many studies regarding food consumption of the visually impaired. To gain more insight, we studied whether visual impairment can affect nutritional knowledge and food handling practices, thus influencing nutritional status and diet quality. This study also aimed to evaluate the correlation between BMI, nutrition knowledge and other socio-demographic parameters, diet quality, food handling practices.

## Material and Methods

### Study design:

A Cross-sectional observational study was designed for the visually impaired female participants. Seventy-five participants, aged between 18-35 yrs, were selected based on convenience sampling. Thirty-five participants were selected from The Disability Student Center for Girls, 20 from King Saud University and 20 from the students housing in the female campus and other disability centres. The review board approved the study proposal at Applied Medical Science, King Saud University during 2021, and personal approval was taken during a face-to-face interview.

The small sample size was a limitation of the study. However, this study's most important limitation was the lack of a similar study, which could be used to compare study methods, strategies, and results to add more strength to our study.

### Questionnaire:

A face-to-face questionnaire was first validated by pilot testing carried out with ten students to assess the suitability and relevance to the participants' nature and make changes to the questions if any to assess demographic characteristics of age marital status, monthly income, and educational level. Anthropometric measurements such as height and weight were measured for calculating BMI. A food frequency questionnaire (FFQ) was used for evalu-

ating the regular consumption of some foods. The 24-h recall (R24h) method was used for a more detailed assessment of short-term food intake of the five major food groups; starch & grains, meat & beans, dairy products, fruits, and vegetables, along with the consumption of mixed dishes, beverages, sweets, salt, sugar, and oils.

#### *Diet quality index-international:*

Diet Quality Index-International (DQI-I) is a useful tool to assess the overall dietary pattern and provides appropriate nutrition intake recommendations. It was developed to take in to account both undernutrition and overnutrition statuses. DQI-I evaluates diet quality in terms of nutritional variety, adequacy, moderation and balance together. Dietary variety scores for diversity in food groups and protein sources get 0-20 points. Adequacy score for adequate fruits, vegetables, grains intake obtains 0-40 points. Moderation scores include total fat, saturated fat, cholesterol, sodium while empty calorie foods get 0-30 points. The overall balance score that includes macronutrient balance and fatty acid ratios is 0-10 points. Scores for each component in four categories are summed to obtain the final DQI score (0-100). A higher DQI- score is considered a high-quality diet indicator [18].

#### *Nutrients' Intake:*

Participants' intake of selected nutrients; such as macronutrients including carbohydrate, fibre, protein and fat; micronutrients including selenium, manganese, zinc and vitamins A, C, E, was assessed using 24 hr recall and FFQ. Nutritional knowledge level towards food consumption was evaluated by asking the participants. The knowledge score was calculated based on answers and then classified into three categories: Low, moderate, and high knowledge level.

#### *Food handling practices:*

Food handling practices were assessed by asking questions about shopping, food preparation, delivery services and handling.

#### *Statistics analysis:*

Data were analyzed using (SPSS v.23) program: "Statistical Package for Social Sciences". Descriptive statistics were used for describing the basic features of the data, frequencies, percentage, Standard deviations, multinomial logistic regression analyses were used to examine associations between BMI, nutritional knowledge levels and other variables, with a significance set at  $p \leq 0.05$ .

## **Results**

#### *Socio-economic and health characteristics:*

Table (1) summarizes the socio-demographic characteristics of the participants. The current study enrolled 75 visually impaired female university students, with a mean age of  $25.81 \pm 7.6$ . Most partic-

ipants had a moderate monthly income (64%), and 88% were single, and 12% married. 78.67% of the participants were enrolled for a bachelor degree, and the majority did not have any chronic disease (85.33%). Regarding anthropometric parameters for participants, the mean height, weight and BMI, were  $156.30 \pm 4.32$  cm,  $74.19 \pm 25.42$  kg,  $26.57 \pm 4.06$  kg/m<sup>2</sup> respectively. Also, the distribution of participants according to BMI was 20% underweight, 50.67% normal weight, 25.33% overweight and 4% morbidly obese. Most participants (88%) did not consume food supplements, and 64% did not exercise daily. Almost half of all participant (57.33%) consumed 1-3 cups of water per day. The results show a significant correlation between BMI and nutrition knowledge levels; there are also insignificant correlations between other parameters and BMI and Nutrition knowledge.

Table (1): Socio-economic and health characteristics for participants.

Variables	(N=75)	p-value BMI Categories	p-value Level of knowledge
Age†	25.81±7.06	0.125	0.791
<i>Monthly Income:</i>			
Low	15 (20%)	0.098	0.143
Moderate	48 (64%)		
High	12 (16%)		
<i>Marital status:</i>			
Single	66 (88%)	0.576	0.953
Married	9 (12%)		
<i>Educational level:</i>			
During bachelor degree	59 (78.67%)	0.098	
Post bachelor	16 (21.33%)		
<i>Self-reported general health:</i>			
Healthy didn't have disease	64 (85.33%)	0.071	-0.003
Have chronic disease	11 (14.67%)		
Height (cm) †	156.30±4.32		0.827
Weight (kg) †	74.19±25.42		0.078
BMI (kg/m <sup>2</sup> ) †	26.57±4.06		0.047
<i>BMI categories:</i>			
Underweight	15 (20.00%)	0.047	
Normal weight	38 (50.67%)		
Over weight	19 (25.33%)		
Morbid obesity	3 (4.00%)		
<i>Consumption of food supplements:</i>			
No	66 (88%)	0.652	0.01
Yes	9 (12%)		
<i>Sports activity:</i>			
Yes	11 (14.67%)	0.804	0.301
No	48 (64%)		
Sometimes	16 (21.33%)		
<i>Water consumption:</i>			
1-3 cups / day	43 (57.33%)	0.684	0.357
4-6 cups / day	18 (24.00%)		
7->=8 cups / day	14 (18.67%)		

† Measures expressed as mean standard deviation.

\* Indicates statistical significance ( $p < 0.05$ ).

### Nutritional Status:

#### *Diet Quality Index-International (DQI-I):*

According to BMI categories, total score and component scores of the diet quality indices for all participants are shown in Table (2). The average score for all participants was 54.12, and the normal weight category was the highest (60.62), followed by overweight category (52.12), and then underweight category (49.61). The average data for all participants from the overall food group variety with the protein source group is 18.33; the normal weight category had 19.05; overweight had 18.25 and the underweight 17.69. Moderation score average was 9.37, with the normal weight category score being the highest and the underweight the lowest (11.25, and 7.62). The average values for each score for adequacy, moderation, and overall balance significantly correlated with BMI and nutrition knowledge levels.

#### *Nutrients intake:*

Table (3) illustrates the participants' average total intake of macronutrients and selected micronutrients compared to RDA references for USDA 2015. The average total calorie consumption for all participants was 2122.25 Kcal/day with significant correlation with nutrition knowledge levels. Carbohydrate consumption was 70% of total calories intake, which is the upper limit of the recommended intake (55%-77%) that accounts for 345.68g with a significant correlation between BMI and nutrition knowledge levels. As for protein, the average consumption was 37.33±53, accounting for 61g, which composed 5% of total calories. Total fats, saturated and unsaturated fat consumption amount to 75.95±29, 14, 20.61±9.70 and 12.12±5.7 respectively. That comprises a 23.63% significant correlation with nutrition knowledge levels. Fibre consumption was 11.43±3.01g, which equals 5.81% of total calories, significantly correlated with BMI categories and nutrition knowledge levels. Vitamins C, E, A (21.79±8.05, 5.02±2.92, and 698±96 respectively) consumption was lesser than the RDA, and only vitamin A significantly correlated with nutrition knowledge levels. Iron, calcium, zinc, sodium,

selenium and manganese intake were 13±11.02, 9753±264, 65.82±11.72, 2130±963, 14.63±6.33, and 2.64±1.80 respectively, and all minerals consumed were less than RDA except manganese which was more than RDA with a non-significant correlation with BMI and nutrition knowledge levels.

#### *Nutritional knowledge level:*

Nutrition knowledge levels were evaluated according to the recommendation of consuming healthy diets for Saudi population<sup>13</sup>. The correlation with BMI was calculated, and six questions significantly correlated with BMI levels, with a  $p < 0.05$ ; seen in Table (4). The six questions related to appropriate calorie intake for females (2200-2500 calories per day), intake of meals within the day, consumption of added sugars, consumption of saturated fats, the vegetable variety in the diet, fat-free or low-fat dairy consumption. Four questions relating to water intake, cholesterol source, sodium consumption, and grains consumption had a non-significant correlation with BMI levels.

Distribution of participants according to BMI categories and nutritional knowledge levels is shown in Table (5). Most participants had low nutrition knowledge (44%), followed by moderate (33.33%) and high knowledge level. The results indicate a significant correlation between BMI categories and Nutrition knowledge levels with  $p < 0.05$ .

#### *Food handling practices:*

The distribution of participants according to food handling practices and correlation with BMI and nutrition knowledge levels is stated in Table 6. The majority of the participants (69.33%) were shopping for food with someone's help, 66.67% were preparing meals alone, 82.67% did not ask about nutrition facts before buying, 84% preferred to have a meal with family, 81.33% used food delivery services, and 48% always preferred food delivery services. The asking about nutrition facts before buying significantly correlated with BMI categories and nutrition knowledge levels, using meal delivery services significantly correlated with nutrition knowledge levels.

Table (2): Diet Quality Index-International (DQI-I) and correlation with BMI Categories and nutritional Knowledge levels.

DQI-I	N=75 Average	Under- weight	Normal weight	Overweight & Morbid obesity	<i>p</i> -value Between BMI categories #	<i>p</i> -value BMI Categories	<i>p</i> -value Level of knowledge
Total score (0–100)	54.12	49.61	60.62	52.12	0.0981	0.001*	0.056*
<i>Component scores:</i>							
Variety (0–20)	18.33	17.69	19.05	18.25	0.652	0.460	0.622
Adequacy (0–40)	25.42	24.3	27.32	24.64	0.177	0.004*	0.054*
Moderation (0–30)	9.37	7.62	11.25	9.23	0.262	0.002*	0.483
Overall balance (0–10)	3.60	1.3	3	6.5	0.846	0.001*	0.012*

# The significant differences between BMI categories (between groups) for each component.

\* Indicates statistical significance between BMI or Nutritional Knowledge levels.

Table (3): Intake of selected nutrients and correlation with BMI Categories and nutrition Knowledge levels.

Energy & Nutrients	Mean $\pm$ Std. D	Reference# % of total cal.	p-value BMI Categories	p-value Level of knowledge
Energy (Kcal/day)	2892. 25 $\pm$ 433.22	100%	0.471	-0.006*
Carbohydrate (g)	507. 68 $\pm$ 109. 31	70.21%	0.032*	0.041*
Protein (g)	37.33 $\pm$ 53. 61	5.16%	0.844	-0.405
Fat (g)	75.95 $\pm$ 29. 14	23.63%	0.516	0.003*
SFA (g/d)	20.61 $\pm$ 9.70	6.41%	0.050*	-0.004*
USFA (g/d)	12.12 $\pm$ 5.7	3.77%	0.189	0.540
FIBER (g)	11.43 $\pm$ 3.01	1.58%	0.052*	0.036*
Vitamin C (mg/d)	21.79 $\pm$ 8.05	<75mg/d	0.507	0.429
Vitamin E (mg/d)	5.02 $\pm$ 2.92	<15mg/d	0.380	0.005*
Vitamin A (mg/d)	698 $\pm$ 96	700mg/d	0.324	0.241
Iron (mg/d)	13 $\pm$ 11.02	18 mg/d	0.231	0.175
Calcium (mg/d)	9753 $\pm$ 264	<1000mg/d	0.030	0.551
Zink (mg/d)	65.82 $\pm$ 11.72	<75mg/d	0.040	0.290
Sodium (mg/d)	2130 $\pm$ 963	2.300	0.088	0.357
Selenium ( $\mu$ g/d)	14.63 $\pm$ 6.33	<55mg/d	0.435	0.427
Manganese (mg/d)	2.64 $\pm$ 1.80	>1.8mg/d	0.108	0.540

Note: Data presented as mean  $\pm$  standard deviation.

# References according to the RDA the 2015 Dietary Guidelines USDA.

\* Indicates statistical significance between BMI or Nutritional Knowledge levels.

Table (4): Correlation between Nutritional Knowledge level and BMI.

Nutritional Knowledge	p-value*
1- An appropriate calorie for female count 2200-2500 calories per day.	0.003*
2- Intake of meals within the day should be not less than three meals.	0.02*
3- Consumption of water per day should be less than 2 litres.	0.125
4- All animal food considered a source of cholesterol.	0.397
5- Consumption of added sugars should be less than 10% of calories per day.	0.042*
6- Consumption of saturated fats less than 10% of calories per day.	0.001*
7- Consumption of sodium cane more than 2,300 milligrams (mg) per day.	0.644
8- The diets should not include a variety of vegetables.	0.006*
9- The diets should include grains, at least half of which are whole grains.	0.086
10- The diets should include fat-free or low-fat dairy, including milk, yoghurt, cheese, and/or fortified soy beverages.	0.005*

\* Indicates statistical significance between BMI.

Table (5): Distribution of participants according to BMI categories and nutritional knowledge levels.

BMI Categories	N=75 N (%)	Level of knowledge			p-value
		Low Knowledge	Moderate Knowledge	High Knowledge	
Underweight	15 (20.00%)	7 (21.21%)	3 (12.00%)	5 (29.41%)	-0.047
Normal weight	38 (50.67%)	10 (30.30%)	21 (84.00%)	7 (41.18%)	
Overweight & Morbid obesity	22 (29.33%)	16 (48.48%)	1 (4.00%)	5 (29.41%)	
		33 (44.00%)	25 (33.33%)	17 (22.67%)	

\* Indicates statistical significance between BMI.

Table (6): The distribution of participants according to Food Handling Practices and correlation with BMI and nutrition knowledge levels.

Food Handling Practices	(N=75) N, %	<i>p</i> -value BMI Categories	<i>p</i> -value Level of knowledge
Food Shopping alone	23 (30.67%)	0.303	0.066
Food Shopping with helping	52 (69.33%)		
Preparing meal alone	50 (66.67%)	0.189	0.0743
Preparing meals with helping	25 (33.33%)		
Asking for nutrition facts	13 (17.33%)	0.006*	0.005*
Did not ask nutrition facts	62 (82.67%)		
Having meal alone	12 (16.00%)	0.515	.0647
Having a meal with family	63 (84.00%)		
Using meal delivery services	61 (81.33%)	0.03*	0.324
Eating meals in a restaurant	14 (18.67%)		
<i>Preferring food delivery services:</i>			
Rarely	9 (12.00%)	0.764	0.051
Always	36 (48.00%)		
Sometimes	30 (40.00%)		

\* Indicates statistical significance between BMI or Nutritional Knowledge levels.

## Discussion

The current study is the first to evaluate the association between BMI, nutrition knowledge levels and other socio-demographic parameters, diet quality, and food handling practices among impaired vision female adults. Visually impaired individuals are a part of the community, facing difficulties to have a good quality of life [19,20]. Studying the eating pattern, food handling practices of individuals with an impaired vision disability have become increasingly prioritized. Diet quality is one of the factors that affect their nutrition status. The present study evaluated the relationship between BMI as an anthropometric indicator for nutritional status and quality of diet, nutrients' intake, food practices and nutrition knowledge level. The majority of participants were healthy and free of disease, while some had a chronic disease like diabetes, hypercholesterolemia, and asthma. Most chronic diseases were associated with eating habits, increasing BMI and obesity [21].

Our results indicate that most of the participants had normal weight, followed by overweight and obese. The vast majority of participants did not exercise regularly. They mentioned a lack of educational resources that provide them with suitable sports activity and a shortage of clubs to exercise safely. Physical education and rehabilitation professionals must pay attention to assessing these needs and developing educational sports programs customized for the visually impaired. Perkins et al., reported that teaching necessary foundational skills

for movement and sports is important to ensure children with visual impairments are involved in physical education activities later in life [22].

The consumption of water among participants was less than the recommended daily allowance, for an adult, Daily water consumption has been proposed to play a prominent role in the management of body weight, and water is known to constitute about 70% of body weight [23]. Low water intake is one of the leading causes of obesity and related problems.

The diet assessed using Diet quality DQI-I, and the intake of selected nutrients indicated that DQI-I evaluates diet quality in terms of nutritional variety, adequacy, moderation, and balance. The total dietary score represents nutritional variety, adequacy, moderation and balance together. Diet variety score for diversity in food groups, including protein sources, was 20 points. The average score for dietary variety was 18.33, a value, confirmed by total energy intake from the nutrients representing a proportional level of slightly more than 2,200-2,500 within the permissible limits. Despite the differences in body weight and body mass index, there were no significant differences among the components scores DQI-I. This adequacy score indicates adequate fruits, vegetables, grains intake; 40 points is the average score for participant lower than the moderate value that indicates a reduction of intake of fruits, vegetables, grains which can play a role in disease prevention [24].

The reduction of participants' DQI-I total score has been imputed to reduce moderation scores, including the consumption of total fat, saturated fat, cholesterol, and sodium. The empty calorie foods get 9.37 less than the total score of 30 points, meaning the high intake energy-rich foods correlates significantly with BMI and nutrition knowledge levels. This indicates that the participants did not have enough information related to the limitation of consuming fat-rich foods. Moreover, the nutrients intake also confirmed that the consumption of total fat represented 23.63% of total energy intake, and the acceptable macronutrient distribution ranges (AMDR) were 65–70% of the daily calories from carbohydrates, 15-25% from fats and 10-25% from protein [25]. There is a recent recommendation to limit saturated and trans fats also [26].

Lastly, overall balance score, which considers macronutrient balance and fatty acid ratios, scored 10 points. In contrast, the average for participants is 3.60 and is considered less than the proper percentage with significant differences between BMI categories and nutrition knowledge level.

The nutrition knowledge level was assessed by using selected information recommended for healthy food consumption. The primary cause associated with BMI was daily calorie intake, meals

consumed within a day, consumption of added sugars, saturated fats, various vegetables and fruits, and fat-free dairy products. All these foods were consumed inappropriately and can be seen in the results of Diet quality index-international.

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## الحالة الغذائية، جودة الوجبات، فيما بين الطالبات الجامعيات ضعاف البصر والكفيفات

**خلفية البحث:** ضعف وكف البصر يؤثر على أنشطة الحياة اليومية من خلال تأثيره على القدرة على اختيار الأطعمة وإعداد الوجبات وفقاً لمقارنة المنتجات لعدم توفر طريقة مناسبة لمعرفة بالمعلومات الغذائية للمنتجات والأطعمة المختلفة ونقص المساعدة الموثوقة أثناء شراء المنتجات الغذائية والتي تؤثر على مستوى الرضا عن الحياة وحالة التغذية، وجودة النظام الغذائي أحد أهم العوامل التي تؤثر على الحالة الغذائية.

**الهدف من البحث:** تهدف الدراسة الحالية المقطعية المستعرضة إلى تقييم الحالة التغذوية، وجودة الوجبات، والمتناول من العناصر الغذائية، والوعي الغذائي، وممارسات التعامل مع الأطعمة للطالبات ذوات الإعاقة البصرية.

**المواد والطرق:** أجريت هذه الدراسة على ٧٥ طالبة إعاقة بصرية في مركز طالبات الإعاقة بجامعة الملك سعود وسكن الطالبات بحرم الطالبات. تم استخدام استمارة استبيان عن طريق المقابلة الشخصية لتجميع البيانات وجهاً لوجه لتقييم الخصائص الاجتماعية والاقتصادية، والحالة التغذوية مؤشر جودة النظام الغذائي الدولي، وتناول العناصر الغذائية، والوعي الغذائي، وممارسات التعامل مع الطعام، وتقييم الارتباط بين مؤشر كتلة الجسم ومستويات المعرفة.

**النتائج:** أشارت النتائج إلى أن غالبية العظمى من المشاركات كانت أعمارهن تتراوح ٢٥، ٨١ سنة، ودخلهن الشهري متوسط، والغالبية غير متزوجات، وما زلن في دراسة درجة البكالوريوس ولم يكن لديهن أمراض مزمنة، وكان متوسط مؤشر كتلة الجسم ٢٦، ٥٧، وكان نصف المشاركون بوزن طبيعي، و٨٨٪ لا يعانون من أمراض مزمنة ولا يتناولن مكملات غذائية، ٦٤٪ لم يمارسن الرياضة يومياً، متوسط استهلاك اليومى لمياه الشرب من ١-٣ أكواب للمشاركات بنسبة (٥٧، ٣٣٪). كانت النتيجة الإجمالية لمؤشر جودة النظام الغذائي الدولي حوالى ١٢، ٥٤ من اجمالى ١٠٠، وكان الاستهلاك اليومى للطاقة ٢٨٩٢، ٢٥ كيلو كالورى / يوم، والكربوهيدرات، واستهلاك الدهون والبروتين ٢١، ٧٠٪، ١٦، ٥٪، و٢٣، ٦٣٪ من اجمالى السعرات الحرارية على الترتيب. هناك علاقة عكسية معنوية بين فئات مؤشر كتلة الجسم ومستويات الوعي الغذائي، تحتاج معظم المشاركات إلى المساعدة أثناء ممارسات تناول الطعام، التسوق وإعداد الطعام، وتناول الوجبات، واستخدام خدمات تقديم الوجبات والمنتجات الغذائية.

**الخلاصة:** يعاني ضعاف البصر والمكفوفات من انخفاض مستوى الوعي الغذائي التي أثرت على جودة الوجبات لهن والحالة التغذوية وممارسات التعامل مع الأغذية، وهناك حاجة إلى مزيد من الاهتمام لهذه الفئات لتحسين جودة الحياة، وهناك حاجة إلى مزيد من الدراسات الاستقصائية لتحديد العلاقة فيما بين درجة الرؤية والحالة التغذوية، ويكون لعينة أكبر من المكفوفين الذكور والإناث على حد سواء، وتقييم التغذية وقياس نسبة الدهون الكلية في الجسم.