

# Iranian Dietitians' Viewpoints on Virtual Nutritional Consultation on the Instagram Platform: A Descriptive, Cross-sectional Study

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## Abstract

**Background:** Today, the use of social media for health care advice has become more popular. The present study aimed to evaluate the opinions of Iranian dietitians on virtual nutritional counseling on the Instagram platform.

**Methods:** The present descriptive, cross-sectional study enrolled Iranian dietitians working in the field of nutrition counseling using Instagram. The link to an online questionnaire including questions on their activity in virtual counseling on Instagram and the challenges of virtual counseling was sent to the 131 participants. Descriptive statistics were used to analyze and interpret the data.

**Results:** Out of 163 dietitians, 131 participated in the study. 47.3% started virtual counseling during COVID-19, and 35.2% had more virtual clients. 58.8% preferred face-to-face counseling for concept transfer, and 43.5% found it more effective. Text and voice messaging were the most practical methods for virtual counseling, with weight loss being the most common topic.

**Conclusion:** During the COVID-19 pandemic, virtual nutritional counseling became more widespread. However, it is believed that face-to-face counseling is more effective in conveying concepts. For virtual platforms, text messaging is the most practical method for nutrition counseling, followed by voice messaging. It has been observed that the elderly have been the least likely people to seek virtual nutrition counseling, while weight loss counseling has been the most frequently requested topic.

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**Keywords:** Nutrition consulting, Coronavirus disease 2019 (COVID-19), Social media, Nutritionist, Dietitian

## Introduction

Using social media to deliver health-related information and provide counseling has been developed with the popular use of social media. However, it was not widely used before the pandemic, due to the limitations such as lack of advanced communication technologies.<sup>1</sup> Today, with the advancements of science and technology in the field of communication software and virtual platforms, many of the previous limitations no longer exist. Within the outbreak of the COVID-19, measures

such as the implementation of social distancing policies and guidelines related to staying at home were taken to prevent the outbreak of this disease in all countries.<sup>2</sup> These restrictions have affected the provision of health care in health centers.<sup>1,2</sup> To overcome this limited access to health-related services, healthcare centers developed strategies to continue their services while ensuring the safety of staff and clients.<sup>3</sup> Meanwhile, the activity of nutrition consultants also faced challenges in providing nutrition counseling services to clients.<sup>4</sup> In this situation, turning to virtual counseling, as an alternative method to

the traditional face-to-face consulting method, seemed inevitable. Even after the lockdowns, telemedicine and virtual nutrition counseling were shown to improve the clients' access to healthcare, and also save money and time.<sup>5</sup>

Through the expansion of health-oriented activities in the virtual space, a large amount of non-scientific information related to food, vitamins, or certain plants has been disseminated by social media, which can affect social health.<sup>6</sup> This issue demonstrates the importance of the presence of dietitians in virtual space and the provision of reliable and evidence-based nutritional information, especially during the COVID-19 pandemic.<sup>4</sup>

According to the studies, Instagram social medium is one of the most popular platforms for businesses in Iran,<sup>7,8</sup> and pieces of evidence show that virtual nutrition counseling on virtual platforms has increased,<sup>9</sup> but there remains little information on the dimensions, effectiveness, and challenges of these virtual activities. To address this information gap, the present study was designed to evaluate the opinions of Iranian dietitians on virtual nutritional counseling on the Instagram platform.

## Methods

This descriptive, cross-sectional study was approved by the Research Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.SCHEANUT.REC.1402.115). As there was no statistical data from nutritionists on Instagram to establish the sample size, the census sampling method was utilized. Participants were informed of the purpose and data collection process of the study; in case

they were willing, they were included in the study.

The study population included active nutrition consultants on Instagram. A thorough search on Instagram using keywords such as “nutritionist”, “master nutritionist”, “PhD in nutrition”, “diet therapist”, “nutrition consultant”, “diet”, “nutrition and diet therapy”, and “diet therapy” was conducted. From the 163 identified Instagram pages, an online questionnaire link was sent to all eligible nutrition consultants. Out of these, 9 pages were managed by the admin some consultants were unwilling to cooperate, and 23 of them did not have enough time or willingness to complete the questionnaire or did not answer all the questions. Finally, 131 participants completed the questionnaire voluntarily (Figure 1).

The inclusion criteria included having a degree in nutrition science, having a medical council number or being a member of a legal association in the field of nutrition, and having an active page on Instagram for nutrition counseling. The aim and methods of the study were explained to the participants. In case of acceptance to participate, a link to an online questionnaire was sent to them. The questions were designed based on the researcher's experience and input from nutrition experts on Instagram.

The data collection tool was an online questionnaire consisting of 29 questions in four sections. The first part included demographic questions such as age, gender, level of education, and place of residence. The second part contained questions related to the activity of nutrition consultants, the objectives of the activities of consultants on the Instagram platform, impact of COVID-19 on the activities of consultants, and amount of their use of different virtual platforms.

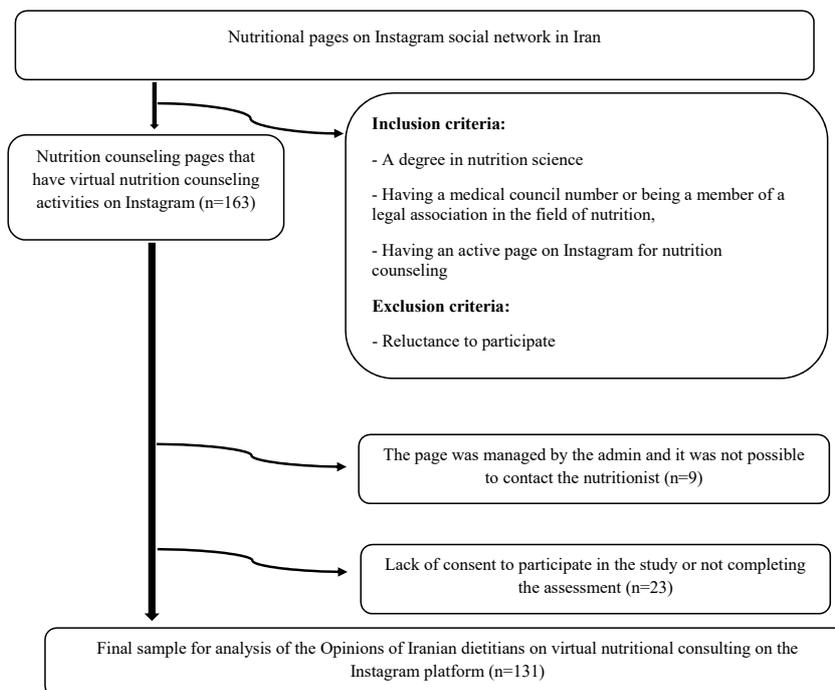


Figure 1: Flow diagram of the study

In the third part, there were questions about the methods used for counseling on Instagram, methods of advertisement in virtual space, information on their virtual clients such as age groups and the like, and most topics of nutrition counseling. The last part of the questions was about the methods and references used to produce scientific content for their pages. The online questionnaire was made available using the Porsline platform (www.porsline.com).

Data were analyzed and interpreted using Statistical Package for Social Sciences (SPSS) software (version 22.0, SPSS Inc., Chicago, IL, USA). Qualitative variables were reported as numbers and percentages and quantitative variables as mean and standard deviation. Due to the descriptive design of the study, analytical tests were not used.

## Results

Out of 163 active dietitians on the Instagram platform for nutrition counseling, 131 volunteers completed the questionnaire. The mean age of the participants was 30.8±6.7 years, and women constituted 87.8% of them. Most participants had a bachelor’s degree (47.3%) in nutrition sciences. More than half of them (55%) had been engaged in virtual counseling for 6-24 months. Most of these nutrition consultants (84%) had less than 5000 followers on their Instagram pages, and more than half of their followers (58.8%) were from the province where the consultant resided. Most of the followers of nutrition consultants’ Instagram pages were from Tehran, Fars, and Khorasan Razavi provinces based on priority. Also, 32.1% of the consultants had a history of providing nutritional counseling to foreign users (Table 1).

Approximately, one-third of the participants who had consulted in virtual media reported this way as

their sole source of income, and 37.4% stated that their leading purpose of virtual consulting was to be recognized to have more clients for their offices. Some participants (29.8%) also expressed that providing a complete and comprehensive service portfolio for their clients caused them to be active on Instagram. Of the participants, 30.5% were only engaged in nutrition counseling on Instagram, but 42.7% were working in clinics or their offices as well, 9.9% in health centers and 8.4% in hospitals.

Out of all the consultants, 47.3% had started their consulting activities in virtual space during the COVID-19 pandemic, and 35.2% of them believed that since the beginning of this pandemic, their virtual clients had increased. Almost 35% of the participants used social media other than Instagram, such as WhatsApp, Telegram, etc., and 11.5% were also active in medical consulting applications besides Instagram.

### *The Methods of Nutritional Counseling in Virtual Space*

The methods of nutrition counseling in virtual space were reported by the participants based on priority to four methods: text message, voice message, phone call (or internet call), and video call. According to the findings, 66.4% of the participants used text and voice messaging for nutrition counseling for their clients. The use of the telephone (or internet calls) and video calls was reported 16.8% and 7.6%, respectively. Even though 67.9% reported voice messages and 44.3% of text messages as effective methods for counseling, after these two, the use of video calls was 30.5%, and the use of phone or Internet calls accounted for the lowest percentage.

### *The Method of Advertisement in Virtual Space*

The extensive methods used by dietitians to

**Table 1:** Characteristics of the study participants

Variable		N=131	
		n	%
Gender	Female	115	87.8
	Male	16	12.2
Education level	BSc student	3	2.3
	Bachelor	62	47.3
	MSc student	23	17.6
	Master	32	26.7
	PhD student	5	3.8
	PhD	3	2.3
Duration of activity of nutritionists on Instagram	Less than 6 months	30	22.9
	6 months–1 year	36	27.5
	1–2 years	36	27.5
	2–4 years	18	13.7
	More than 4 years	11	8.4
The number of followers on Instagram	Less than 2000	79	60.3
	2000-5000	31	23.7
	5000-10000	13	9.9
	10000-20000	3	2.3
	More than 20000	5	3.8

introduce themselves on Instagram included being introduced by clients to others (74%), advertising on other pages (41.2%), and being introduced or followed by the pages of other colleagues active in the field of nutrition counseling (7%) (Table 2).

#### *Comparison of the Results of Virtual Counseling Versus Face-to-Face Counseling*

More than half (58.8%) of nutrition counselors believed that transferring concepts to clients was better in face-to-face counseling compared to virtual counseling. Meanwhile, 32.1% of the counselors also believed that there was no difference between virtual and face-to-face methods for conveying concepts to clients. As to achieving the desired results following nutrition counseling, 49.6% of the counselors pointed out no difference between face-to-face and virtual methods. Nevertheless, 43.5% of the participants stated that face-to-face clients achieved better results than virtual clients, and only 6.9% of them believed that the feedback from virtual consulting was better than the results of face-to-face consulting.

Although most dietitians (59.5%) did not express any difference between the nutritional and health information of virtual space users and in-person clients, 20.6% of the consultants considered the information of virtual space users to be higher.

Given the gender differences in face-to-face counseling versus virtual counseling, 52.7% of the counselors did not have an opinion on this matter, but 42% of them stated that the majority of applicants for virtual counseling were women.

#### *Fields of Nutrition Counseling on Virtual Media*

According to the report of nutrition consultants, the largest age group that received virtual nutrition counseling was young people, and the smallest age

group was the elderly. Besides, the most to least frequently consulted topics were weight loss, weight gain, and nutritional counseling for various diseases, respectively (Table 3). Based on the participants' experiences, content related to "weight loss" was more favorable to Instagram users than other topics. Topics such as "the caloric content of different foods", "healthy cooking for dieters", and "weight gain" were placed in the following priorities.

#### *The Content of Nutritional Pages on Instagram*

Many participants (70.2%) believed that the amount of unreliable content and pages on nutrition and diet therapy was very high on Instagram. Also, a significant number of nutrition consultants (45.8%) claimed that much of the content produced by them were copied on other pages without permission.

The amount of time that the dietitians spent preparing posts and stories on Instagram was 62.6% for less than 2 hours, 26% for approximately 2 to 4 hours, 8.4% for between 4 and 6 hours, and 1.3% for more than 6 hours a day. More than 75% of the content and design of page posts and stories in 61.4% of consultants were entirely prepared by their own. Nonetheless, in only 1.5% of the pages, less than 25% of the content and design of the posts and stories belonged to them.

The priority of most dietitians (64.1%) for creating content for their pages on Instagram was textbooks. Other authentic books, articles, and other authentic pages on Instagram are shown in Table 4.

## Discussion

The application of online counseling in the field of health and nutrition has rapidly developed in recent years, especially during the COVID-19 pandemic.<sup>3-5</sup> However, in the current situation, the status of nutritional

**Table 2:** The method of advertisement in virtual space

Methods	N=131	
	n	%
Advertising on other pages	43	32.8
Being introduced or followed by the pages of other active nutritionists	36	27.5
Introducing or being followed by the pages of other fields of medical sciences	31	23.7
Using the presence of celebrities on page	19	14.5
Introducing to other people by users	88	67.2
Other	13	9.9

**Table 3:** The content of nutritional pages on Instagram

Topics	First priority		Second priority		Third priority	
	n	%	n	%	n	%
Weight loss	91	69.5	4	3.1	0	0
Gain weight	3	2.3	63	48.1	14	10.4
Diseases	1	0.8	26	19.8	60	45.8
Pregnancy	1	0.8	2	1.5	12	9.2
Lactation	0	0	1	0.8	9	6.9
No opinion	35	26.7	34	26	34	26

**Table 4:** References used for content production for pages

References	First priority		Second priority		Third priority		Forth priority		Fifth priority		Sixth priority	
	n	%	n	%	n	%	n	%	n	%	n	%
Textbooks	84	64.1	25	19.1	8	6.1	9	6.9	5	3.8	0	0
Other books	2	1.5	44	33.6	27	20.6	10	7.6	24	18.3	22	16.8
Authentic articles	30	22.9	37	28.2	46	35.1	10	7.6	3	2.3	4	3.1
Own knowledge	9	6.9	12	9.2	24	18.3	66	55.4	12	9.2	7	5.3
Own experience	0	0	8	6.1	16	12.2	30	22.9	64	48.9	12	9.2
Authentic pages	6	4.6	4	3.1	10	7.6	6	4.6	19	14.5	79	60.3
Other	0	0	1	0.8	0	0	0	0	4	3.1	7	5.3

counseling services in virtual space is not clearly studied. In the current study, the opinions of Iranian dietitians on virtual nutritional counseling on the Instagram platform were evaluated. Results of the present study revealed that half of the nutrition consultants started virtual nutrition counseling activities during the COVID-19 pandemic, and more than one-third of dietitians believed that the number of their virtual clients had increased compared to before the pandemic. Though more than half of the nutrition counselors considered the transfer of concepts in face-to-face nutrition counseling to be better than virtual counseling, a significant percentage of counselors stated that the results in face-to-face clients led to better results. According to the participants, the most practical method for nutrition counseling on virtual platforms was using text and voice messages, and the most common topic of virtual nutrition counseling was related to weight loss.

During the COVID-19 pandemic, virtual nutrition counseling was developed in all countries. In a descriptive study conducted in the United States of America (USA) on 22 dietitians in 2021, an increase in non-attendance nutrition counseling during COVID-19 was reported.<sup>6</sup> Also, another cross-sectional study using an online 54-question questionnaire on 2198 nutrition consultants in the USA indicated that the activity of non-attendance nutrition counseling during COVID had increased.<sup>10</sup> Based on the results of the present study, half of the dietitians began their consulting activities during the COVID-19 pandemic, and more than one-third of them considered that the number of their virtual clients had augmented compared to before COVID-19. Due to the restrictions caused by the COVID-19 pandemic and healthcare professionals turning to alternative methods to access services, virtual counseling has been expanded and promoted in recent years.<sup>9,11</sup> Besides, clients welcome virtual nutrition counseling to reduce problems such as distance, in-person referral costs, and easier access.<sup>12</sup> However, the problems and limitations of providing telemedicine services, including the lack of public access to the infrastructure required for virtual services, protecting people’s privacy, problems related to financial payments, and issues related to

supervision must be considered in this field.<sup>13</sup>

In this study, more than half of the participants believed that face-to-face counseling worked better in conveying the concepts to clients, while one-third of them believed there was no difference between face-to-face and virtual methods. Even though a significant percentage of consultants stated that face-to-face clients achieved better results, only a few of them considered the outcomes of virtual clients to be better. There are few published studies in this regard, and their results are quite conflicting. Another study reported that dietitians could provide high-quality and effective services through virtual consultations, particularly the results that are comparable to the outcomes of face-to-face consultations.<sup>14</sup> Also, some researchers descriptively studied 200 dietitians in the USA and reported that due to the limitations of virtual nutrition counseling, such as the impossibility of anthropometric and malnutrition assessment, face-to-face nutrition counseling is more effective for initial nutritional screening and assessment. However, virtual counseling may be more appropriate for ongoing patient monitoring and evaluation.<sup>6</sup> The use of virtual platforms has potential advantages because it makes access to counseling and health care feasible, especially in epidemics; reduces the costs; and overcomes geographical distances.<sup>15, 16</sup> On the other hand, the dietitian can visualize the cooking style, the dishes used, and the amount and type of food served.<sup>17</sup> Despite all these advantages, the impossibility of measuring anthropometric factors and relying on subjective reports of weight, size, and some eating habits by clients were among the limitations of the virtual consultation method.<sup>18</sup> Otherwise, in face-to-face counseling, there is more motivation to continue the treatment process and positive behavioral changes for the clients. Besides, it seems that the physical presence of the therapist in face-to-face communication makes the client more compliant even for some time after the face-to-face session.<sup>19</sup> Considering that the results of nutrition counseling are highly dependent on positive behavioral changes in the client, the reason for better results in face-to-face

clients can be these better behavioral changes, more motivation, and more continuity of the treatment process in face-to-face counseling. However, to improve the success of virtual counseling, some solutions have been suggested for nutrition counselors, including minimizing environmental noises, speaking frankly and clearly, pausing while speaking to create an opportunity to ask questions by the client, answering their questions, placing the camera facing the consultant's face, and wearing official outfits in the use of video calls.<sup>15</sup> In addition, special attention should be paid to privacy when transmitting the patient information in a virtual method.<sup>12</sup>

Although the prevalence of overweight, obesity, and chronic diseases in the elderly is higher than in other ages,<sup>20</sup> they received virtual counseling less frequently than other age groups in the present study. Though no study has been conducted in Iran to investigate the level of access and use of virtual platforms in different age groups, it is predictable that the level of access and use of virtual platforms among the elderly is less than in other age groups. A cross-sectional study reported that limitations such as low education level and low income level, physical and mental disorders, and the lack of modern technology during the life of the elderly caused a more limited use of the Internet and virtual platforms compared to other age groups.<sup>21</sup> Also, another study reported that due to socio-economic factors, education, and income, the elderly have less access to the virtual space and use the Internet less frequently.<sup>22</sup> This limited access and less familiarity with virtual platforms among the elderly can be one of the shortcomings of virtual nutrition counseling using virtual media.

Based on the results of the present study, nutrition counselors have reported that the most practical and standard method of counseling and communication with clients is text messaging followed by voice messages. Also, based on the results of a review study, text messaging was introduced as an accessible, practical, and inexpensive method to change health-related behaviors.<sup>23</sup> Another review study mentioned text messaging as a quick, popular, and cheap method in virtual counseling for health-related issues.<sup>24</sup> Since text messaging is more accessible than other communication methods, such as video calls, voice messages, etc., and has fewer time and place restrictions, this method can be more acceptable and popular among clients in virtual consultations through virtual platforms.

According to the results of our study, the most common topic of virtual nutrition counseling was "weight loss." A cross-sectional study, conducted in Australia, stated that overweight and obesity are the most common reasons for referrals to dietitians.<sup>25</sup> This result is not far from expectations because the prevalence of overweight and obesity among adults is

increasing, and it has been estimated to be 59.3% in Iran.<sup>20</sup> Health-related issues of obesity and also issues related to beauty and fitness can be a reason for more concern about this problem and, as a result, increase referrals to dietitians for weight control.

One of the main strengths of this study was that it examined the virtual counseling activities of Iranian dietitians on a popular medium among Iranians and also compared it to face-to-face counseling. However, it had several limitations. First, in the present study, only the Instagram platform was considered, and other social media platforms were not evaluated, which might have led to missing some data. Second, it can be pointed out the fact that the study participants were inclined toward virtual counseling, and their opinions on the comparison between face-to-face and virtual counseling must be interpreted cautiously. Third, the participants of the study just reported their experiences regarding virtual nutritional counseling and its effectiveness and the like.

## Conclusion

The findings indicated that the virtual activity of dietitians has expanded during the COVID-19 pandemic, which can improve fairer access to nutrition counseling services and reduce the cost and travel time for clients. Of course, based on the results of the present study, the transfer of concepts and results obtained from nutritional counseling in face-to-face counseling will be more effective than in virtual counseling. According to the participants, the most practical method for nutrition counseling on virtual platforms is text messaging followed by voice messaging. Among the age groups, the elderly have taken the minimum action to receive virtual nutrition counseling, and weight loss counseling has been the most requested topic in virtual nutrition counseling. At last, to reach an evidence-based robust conclusion in this area, future prospective studies are required to compare the effectiveness of face-to-face and virtual nutrition counseling.

## Authors' Contribution

ML and MK conceived and designed the study. MA and GAF analyzed and interpreted the data. FM prepared the English manuscript. All the authors approved and revised the manuscript.

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