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# Assessment of the usefulness and satisfaction of a mixed nutritional intervention: face-to-face and telematic one in patients with grade 2 and 3 obesity

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## Abstract

Obesity is a public health problem, with a high prevalence. In our country about 8.5 million people live with this disease. The Covid pandemic has forced us to seek different care therapies and follow-up alternatives for our patients, with telematic consultation being an additional opportunity to provide care continuity to end users. With the aim of evaluating the usefulness and satisfaction of a mixed intervention, face-to-face and telematics, in users with obesity, a longitudinal study was carried out evaluating changes in lifestyle, anthropometry, analytical data and satisfaction with the intervention. The results showed, with a follow-up of 6 months on average, that the users tended to improve their eating habits, there was an improvement in their perception of quality of life, they also lost weight and improved their lipid profile. In addition, the assessment of the sessions was highly satisfactory in most individuals. The study verified the usefulness of a mixed, face - to - face and telematic follow - up in patients with obesity and was also valued very positively by most of the participants.

## Keywords:

- Obesity
- Telemedicine
- Group
- Satisfaction

## Introduction

Obesity is a chronic disease that has become a major public health problem and it has reached epidemic proportions in well developed countries. It is considered the greatest pandemic of the 21st century and only a few chronic diseases have advanced so alarmingly in most countries in recent decades like the obesity. Since 1975, obesity has almost tripled worldwide, reaching 20% of the world's population and a prevalence close to 25% in Spain [(1)]. Education in groups is a useful tool to provide continuity of care in a highly prevalent disease such as obesity [(2)]. On the other hand, the COVID 19 pandemic has interrupted the traditional way of visiting users and it has forced us to look for useful alternatives to offer them a follow-up of their disease. In this sense, group and telematic visits have emerged as a suitable option for training and influencing the lifestyle of individuals suffering from obesity [(3,4)]. The objectives of the present study were the evaluation of the benefit of using a mixed intervention, with telematic and group sessions to educate and promote lifestyle changes, as well as assessing the degree of user satisfaction with this modality of care.

## Methods

20 users were selected after the first visit with Endocrinology at the Martorell Hospital in Barcelona and fourteen of them agreed to attend the 6 bi-weekly telematic group sessions. The initial intervention consisted of two face-to-face visits by Endocrinology and the Nutritionist at the beginning and at the end of the intervention. In the consultation with Endocrinology, a clinical history and a physical examination were taken and analytical values were collected. Subsequently, during the visit with the

Nutritionist, anthropometric data, questionnaires on eating habits and physical activity were obtained, as well as a quality of life test. Specifically, during the visits with the nutritionist, the Mediterranean Diet Adherence Test, the Baros Quality of Life Test, food intake frequency and physical activity questionnaires, as well as weight, height, body mass index, hip circumference and dynamometry were used. All the data obtained was compared before and after the telematic educational intervention, with a mean follow-up of six +/- two months. The bi-weekly online sessions were carried out by the nutritionist via the Teams platform and lasted 1 hour. These sessions provided information on lifestyle: nutrition, physical exercise and basic tools for emotional control to improve habits. At the end of the program, an evaluation was made of the satisfaction with the intervention, specifically evaluating 4 aspects: overall satisfaction with the program, telematic modality, group modality and the perception of usefulness in improving habits, on a scale of 1 to 10, where 1 is not at all satisfactory and 10 is very satisfactory. The study was approved by the ethics committee of our hospital and the users signed an informed consent form in which they agreed to have this data collected anonymously for group analysis.

Data analysis was performed by using the R program.

## Results

Fourteen users were included, of whom 13 completed the intervention. Most of the participants were women, of Caucasian ethnicity, married and with primary education. The most frequent comorbidity was arterial hypertension (Table 1). Comparing the characteristics of the group before and after the group education sessions, there was a tendency to improve eating habits, with an increase in fish consumption (p=0.091). In addition, there was a reduction of 4.8 kg of weight on average (p=0.030). The analytical data showed an increase of 6.8 mg/dl in HDL cholesterol level (p=0.011) (Table 2). The analysis also showed an improvement in the self-assessment of quality of life (p=0.010). Finally, 75% of the users rated the intervention as highly satisfactory and 70% highlighted positively the fact that it was telematic and group-based (Figure 1)

*Table 1. Baseline characteristics*

| N= 13 | |
|---|---|
| **Baseline characteristics** | |
| Age (years) | 45,23±9,93 |
| Gender man.(%) | 3 (23,1) |
| Ethnicity. N (%) | |
| Caucasian | 11(84,6) |
| Americanlatin | 2(15,4) |
| Marital status | |
| Married | 8(61,5) |
| Single | 3(23,1) |
| Divorced | 1(7,7) |
| Widower | 1(7,7) |
| Educational level. N (%) | |
| Primary studies | 6(46,2) |
| Vocational training | 4(30,8) |
| College | 3(23,1) |
| **Comorbility** | |
| High blood pressure. Si (%) | 7(53,8) |
| Dyslipidemia. Si (%) | 2(15,4) |
| Type 2 diabetes. Si (%) | 2(15,4) |
| Obstructive sleep apnea. Si (%) | 1(7,7) |

*Table 2. Anthoprometric and analytical data before and after intervention*

| N=13 | Basaline | 6months | p |
|---|---|---|---|
| **Anthropometry** | | | |
| Weight(kg) | 110,62±14,11 | 105.77±17,72 | 0,03 |
| BMI((kg/m²) | 33,56±3,4 | 32,12±4,43 | 0,034 |
| WHI(cm) | 0,86±0,071 | 0,88±0,071 | 0,07 |
| **Analytical data** | | | |
| Glucose (mg/dl) | 98,31±39,89 | 97,86±19,56 | 0,96 |
| HbA1c(%) | 5,63±0,69 | 5,66±0,79 | 0,65 |
| Total cholesterol (mg/dl) | 186,88±30,35 | 194,53±31,22 | 0,47 |
| HDL cholesterol (mg/dl) | 41,55±7,33 | 48,41±9,82 | 0,011 |
| LDL cholesterol (mg/dl) | 119,13±24 | 122,97±24,26 | 0,68 |
| Triglycerides(mg/dl) | 131,18±44,45 | 115,77±40,05 | 0,32 |
| Ferritin (ng/ml) | 176,70±165,35 | 161,90±109,92 | 0,53 |
| C-RP(mg/L) | 4,14±2,76 | 3,76±2,67 | 0,59 |

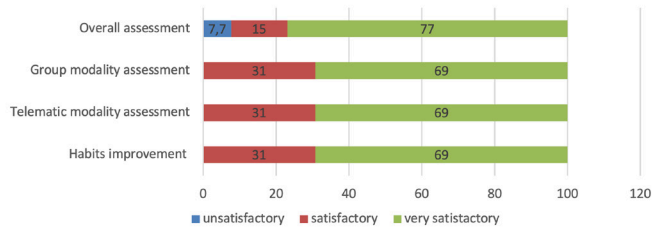
*BMI: body : low-density lipoprotein; C-RP:C- reactive protein*

## Discussion

Our results are aligned with those previously described regarding the fact that a hybrid program, with face-to-face and telematic visits, is highly satisfactory [5], with more than 75% of the participants considering that they had acquired new tools to improve their lifestyle habits. Like the group of Salom et al. [5], the fact that the sessions were conducted in groups was also very positively valued, highlighting that this modality of care allows them to feel supported, sharing experiences and strengthening the adherence to the sessions. In this line, the work of Minniti et al shows a higher dropout rate from therapy when it is carried out individually. They found that after 6 months of follow-up, 37 % of the users dropped out of the proposed obesity education program. Of these, 54% belonged to the group receiving individual therapy compared to 15.8% of the group receiving group education[6].

On the other hand, before the appearance of COVID, the use of new technologies had already proven to be useful in providing continuity of care for people with chronic pathologies such as diabetes and obesity [7-9]. In our centre, the program was initially designed to be carried out in person, both in group and individual sessions. Coinciding with other publications, the situation of confinement promoted this modality of care with very positive evaluations, both by professionals and users [5]. The use of telemedicine is recommended because it can favor commitment and compliance in users [2,8] and some papers describe that videoconference visits could provide greater retention of knowledge and greater adherence to the use of monitoring tools based on new technology to control their disease [7,9]. Furthermore, in other documents, including the latest consensus of the Spanish Society of Endocrinology, it appears that the use of new technologies favors the relationship between the patient and the team, obtaining good results in the maintenance of modified habits [2, 10].

*Figure 1. Satisfaction assessment*




Despite the clear benefits, it should also be taken into account that the use of telemedicine has limitations. On the one hand, it is necessary to draw up action guidelines to ensure adequate care in this modality of care and also to take into account the fact that users have knowledge, resources and access to telematic tools [11,12], and finally that the operation of the Internet allows maintaining a successful connection, both on the part of the professional and the user, is a challenge [4].

Although the results obtained are interesting, it should be noted that is a work with a small sample of only 13 patients.

## Conclusions

The results showed that a mixed type of nutritional intervention with individual face-to-face visits and group training sessions helped to improve adherence to healthy habits and anthropometric parameters. In addition, this type of care also proved to be useful in improving the lipid profile.

The participants in the program highlight and value very positively the group sessions because of the support received among the users by sharing their experiences, which favors adherence to the intervention by the group.

Although we are aware that the group studied only consisted of 13 patients, the results obtained in terms of the evolution of the variables collected and also the satisfaction of the participants support the usefulness of carrying out not only face-to-face group sessions, but it could be an alternative in selected groups of patients to carry out telematic training sessions in our usual practice, at least in specific situations, such as difficulty in accessing health centers or due to their preference.

The authors have no conflicts of interest.

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