English

Telehealth and information/communication technologies in the care of overweight and obese adults: A rapid review

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Abstract

Objective: *To evaluate the efficacy and safety of strategies that use telehealth, telemedicine, mobile applications, and text messages for overweight and obese adult health care.* **Methods**: *In this rapid review of systematic reviews (SRs), nine databases were searched in November 2020 and again in February 2022. Methodological quality of the SRs was assessed using Assessment of Multiple Systematic Reviews (AMSTAR 2).* **Results**: *19 SRs were included, classified as high-confidence (one), low-confidence (six), and critically low-confidence (twelve). Weight loss most often showed favorable results, followed by changes in body mass index (BMI), while for the reduction in waist circumference, the results were similar between interventions and comparators. Studies on eating habits and physical activities changes showed nonsignificant results or an advantage of face-to-face activities over electronic applications. The reduction in body fat and treatment adherence presented favorable results with cell phone applications. There is no reporting regarding the safety of the interventions.* **Conclusions**: *Interventions through computer applications, online tools, text messages, and telehealth can have positive effects on weight reduction, BMI, and body fat. Conclusions should be interpreted with caution, due to the methodological quality of the included SRs and the other limitations of this rapid review.*
Keywords: *Obesity; Overweight; Telehealth; Health Promotion*

Resumen

Telesalud y tecnologías de la información y la comunicación en el cuidado de adultos con sobrepeso y obesidad: una revisión rápida

Objetivo: *Evaluar la eficacia y seguridad de estrategias en telesalud, telemedicina, aplicaciones móviles y mensajes de texto para adultos con sobrepeso y obesidad.* **Métodos**: *En esta revisión rápida de revisiones sistemáticas (RS), se realizaron búsquedas en nueve bases de datos en noviembre/2020 y febrero/2022. La calidad metodológica se evaluó mediante Assessment of Multiple Systematic Reviews (AMSTAR 2).* **Resultados**: *Se incluyeron 19 RS, una con alta confianza, seis con baja confianza y doce con críticamente baja confianza. La pérdida de peso y el índice de masa corporal (IMC) mostraron resultados favorables, aunque para la reducción de la circunferencia de la cintura fueron similares entre los comparadores. Hábitos alimentarios y actividades físicas no fueron significativos o una ventaja de las actividades presenciales sobre las aplicaciones electrónicas. La reducción de la grasa corporal y la adherencia al tratamiento fueron favorables con aplicaciones para celulares. No hay informes sobre la seguridad de las intervenciones.* **Conclusiones**: *Las intervenciones de aplicaciones informáticas, herramientas en línea, mensajes de texto y telesalud pueden tener efectos positivos en la reducción de peso, IMC y grasa corporal. Las conclusiones deben interpretarse con cautela, debido a la calidad metodológica de las limitaciones de las RS de esta revisión rápida.*
Palabras clave: *Obesidad; Exceso de peso; telesalud; Promoción de la salud*

Resumo

Telessaúde e tecnologias de informação/comunicação no cuidado de adultos com sobrepeso e obesidade: uma revisão rápida

Objetivo: *Avaliar a eficácia e segurança de estratégias de telessaúde, telemedicina, aplicativos móveis e mensagens de texto para adultos com sobrepeso e obesidade.* **Métodos**: *Nesta revisão rápida de revisões sistemáticas (RS), nove bases de dados foram pesquisada em novembro de 2020 e fevereiro de 2022. A qualidade metodológica das RS foi avaliada pela ferramenta AMSTAR 2.* **Resultados**: *Foram incluídas 19 RS, uma de alta confiança, seis de baixa confiança e doze de confiança criticamente baixa. A perda de peso apresentou resultados mais favoráveis, seguida de alterações no Índice de Massa Corporal (IMC), enquanto a redução da circunferência da cintura apresentou resultados semelhantes entre as comparações. A mudança de hábitos alimentares e atividades físicas mostraram resultados não significativos ou vantagem das atividades presenciais em relação aos aplicativos eletrônicos. A redução da gordura corporal e a adesão ao tratamento foram melhores com os aplicativos do celular. Não há relatos da segurança das intervenções.* **Conclusões**: *Intervenções por meio de aplicativos de computador, ferramentas online, mensagens de texto e telessaúde podem ter efeitos positivos na redução de peso, IMC e gordura corporal. As conclusões devem ser interpretadas com cautela, devido à qualidade metodológica das RS e limitações desta revisão rápida.*
Palavras-chave: *Obesidade; Sobrepeso; Telessaúde; Promoção de saúde*

Introduction

Obesity continues to grow as the most common health problem worldwide and is closely related to conditions such as cardiovascular disease, diabetes, and various kinds of malignancy.[1] Data analyzed between 1980 and 2015 show a continuous increase in obesity, especially in low- and middle-income countries.[2] In these countries, it is estimated that by 2025, around 268 million children and adolescents will be overweight, and 124 million will be obese. Approximately four million people worldwide die each year due to diseases related to excess weight or obesity, and it is possible that in 2025, most diseases and deaths related to chronic non-communicable diseases will occur in low-income countries.[3]

As a public health problem, overweight (body mass index, BMI greater than or equal to 25) and obesity (BMI greater than or equal to 30), defined as abnormal or excessive fat accumulation that may impair health, as well as the related non communicable diseases, are largely preventable.4 Therefore, support in various environments and communities is essential to shaping the healthy lifestyle choices of people and in the implementation of comprehensive programs that promote new strategies and tools to fight obesity on a large scale.[1,4] Health care approach for people with excess weight and obesity include changes in diet, physical activity, and psychological therapy based on goal setting and self-monitoring.[5,6] New technologies

can support health care,[7] and the results have been positive.[8-10] Perrault and Delahanty[11] point out that some people prefer to follow a diet strategy by their own, based on self-help books, mobile applications or web programs. In general, they also seek out lifestyle intervention programs that provide education on nutrition, activities, and behavioral topics that include group support and information exchange through face-to-face meetings or virtual meetings (teleconference or telehealth).

Telehealth seeks to expand and improve health services with the use of Information and Communication Technology (ICT), which are integrated with each other.[12] In this way, it is mediated by a set of techniques, such as telemedicine, use of mobile devices, cell phone applications, and text messaging, which are configured at primary, secondary, and tertiary levels that facilitate assistance, information exchange, education, and research. in health.[12,13] Despite this potential, the use of technologies in the health field still faces several technical, legal, ethical, regulatory, and cultural challenges.[12]

In this context, telehealth and your information/communication technologies can be important elements of health systems to minimize regional inequalities in the distribution of health resources, refer patients to specialists, facilitate second opinions for specialized clinical cases, and establish continued training of health professionals.[12,13] Thus, the objective of this study was to evaluate the efficacy and safety of interventions offered through telehealth and information/communication technologies in the care of adults with overweight or obesity.

Methods

This rapid review of systematic reviews (SRs) was carried out, following a protocol established a priori and registered in the platform Open Science Framework - OSF (10.17605/OSF.IO/5USY3). This review was carried out according to the PRISMA 2020 expanded checklist.[14] However, as it is a rapid review, some methodological shortcuts were adopted.[15,16]

Search

Searches were carried out on November 2020, and updated on February 2022, in the indexed databases: PubMed, Embase, Latin American and Caribbean Literature in Health Sciences (LILACS via BVS), Cochrane Library, Epistemonikos, PDQ Evidence, Health Systems Evidence (HSE), Health Evidence (HE), and Social Systems Evidence (SSE). Search strategies used a combination of keywords structured from the acronym PICOS: Population (people aged 18-59 years with BMI ≥ 25); Intervention (via telehealth and information/communication technologies); Comparator (traditional face-to-face care); Outcomes: primary (anthropometric measures of overweight or obesity; adverse events) and secondary (improved lifestyle and health); Study (SRs). Details on search strategies are available in https://osf.io/7ed6z.

Eligibility criteria

We searched for systematic reviews that met the PICOS criterias, with or without meta-analysis, published in English, Spanish, or Portuguese, with no restriction of the year of publication or methodological quality.

Study selection, data extraction, and data analysis

The retrieved registers were uploaded to Rayyan QCRI reference management web application.[17] Two reviewers screened independently titles and abstracts, and disagreements were resolved by consensus or by a third reviewer.

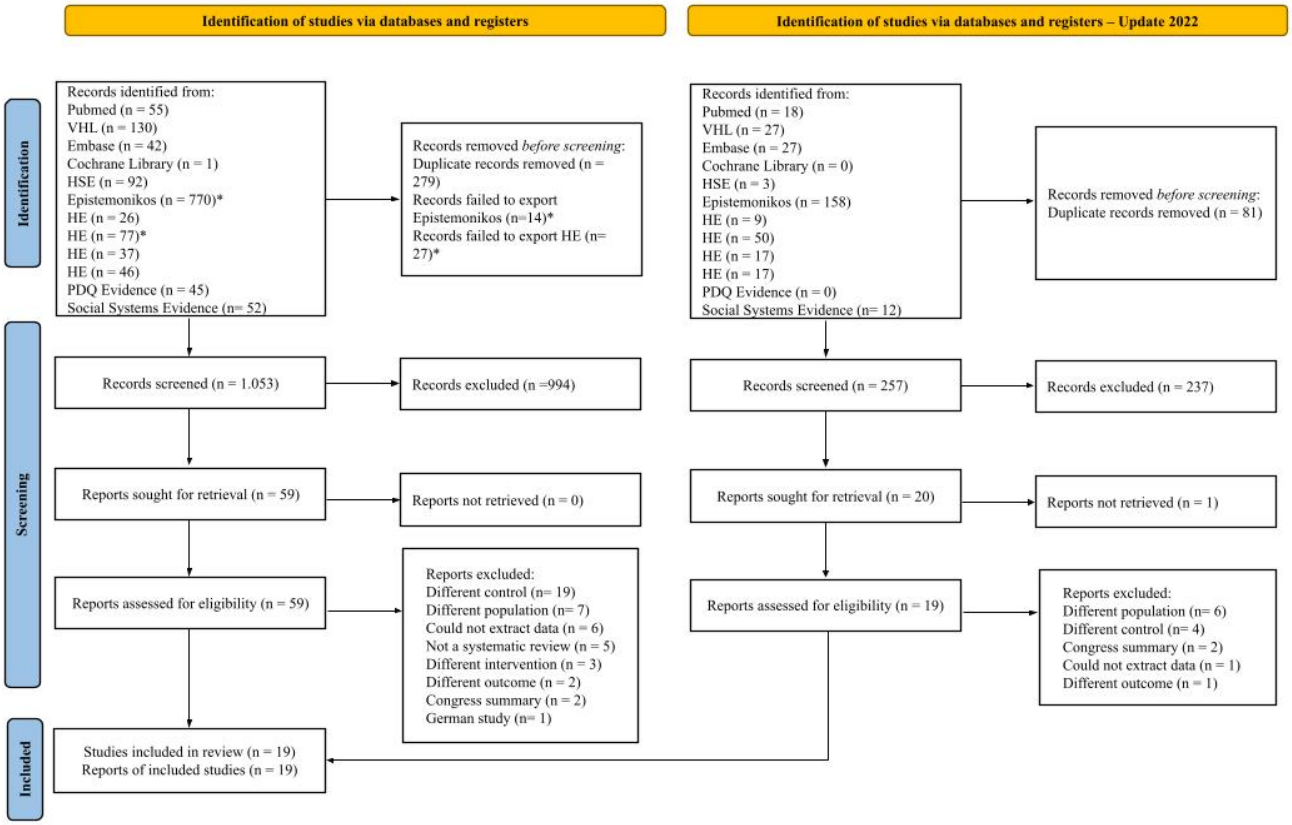
Methodological quality of the included SRs was assessed using the Assessment of Multiple Systematic Reviews (AMSTAR 2). To classify the overall confidence in the results of the systematic reviews, the "critical domains" considered were the same suggested by the authors of AMSTAR 2, which we used to categorize the SRs into high, moderate, low, and critically low confidence.[18] Full reading of eligible reviews, evaluation of methodological quality, and data extraction was performed by five reviewers, another reviewer checked the methodological quality assessment of the included SRs.

Results were analyzed based on the effect measures reported in the systematic reviews included (ES = Effect size; MD = means difference; g = pooled effect size; 95% CI = 95% confidence interval; I2 = heterogeneity measure; P = P value). The findings were reported as narrative synthesis stratified by type of intervention: telehealth, mobile application, text message, website or computer-mediated and multicomponent intervention.

Results

The search retrieved 1.373 records, and 1.053 records were screened after the duplicates were removed. This screen yielded 59 eligible reports that were read in full, 45 of which were excluded because they did not meet the criteria of this rapid review, and 14 SR were included. The updated search identified 338 publications, and 19 reviews were read in full to check eligibility, 14 were excluded because they did not meet the eligibility criteria and 5 SR were included. Thus, 19 SRs were included [9,19-36] (Figure 1). A list of excluded articles, with the reasons for exclusion are available in https://osf.io/s5ft7.

Figure 1. Study selection flow diagram, adapted from PRISMA 2020.



Quality assessment

The confidence in the results, according to the criteria of the AMSTAR 2 tool, was considered high in one SR[36], low quality in six[20,22,24,29,33,35] and critically low quality in twelve[9,19,21,23,25–28,30,31,33,34] (Figure 2).

Study characteristics

Primary studies included in the systematic reviews were conducted in the Germany,[20,31] Saudi Arabia,[25] Australia,[24,35] Austria,[34] China,[29,31] South Korea,[22,34] Spain,[22,25,34] the United States,[20-29,31,33-36] Finland,[20,34] Greece,[22] the Netherlands,[25] England,[34] Iran,[35] Ireland,[25] Israel,[24] Italy,[25] Latvia,[35] and the United Kingdom.[20,33] Four reviews did not present this information.[9,19,30,32]

The interventions were delivered by telehealth,[19-22,28] cell phone applications,[9,22,24,25,27,28,33] text messages (SMS),[19,20,22,24,34,35] websites or computers,[9,19,24,28,31-33,36] and as multicomponent interventions. Because these are remotely applied strategies, the studies did not make it clear which professionals were responsible for delivering the interventions.

The duration of interventions ranged from 1 month[36] to 30 months,[21] with duration around 12 months being more frequent.[9,22,31-33,35] The comparators were especially composed of counseling, face-to-face care, weight loss programs, usual care combined or not with other strategies.

The outcomes reported in the SR refer to weight loss change or maintenance,[9,22-24,26-36] reduction of BMI,[9,20,23,27-29,32,34,36] reduction of waist circumference,[9,32,36] changes in eating habits or physical activity,[9,25,27] proportion of body fat,[20] and adherence to treatment.[33] No SR brought reports of adverse events.

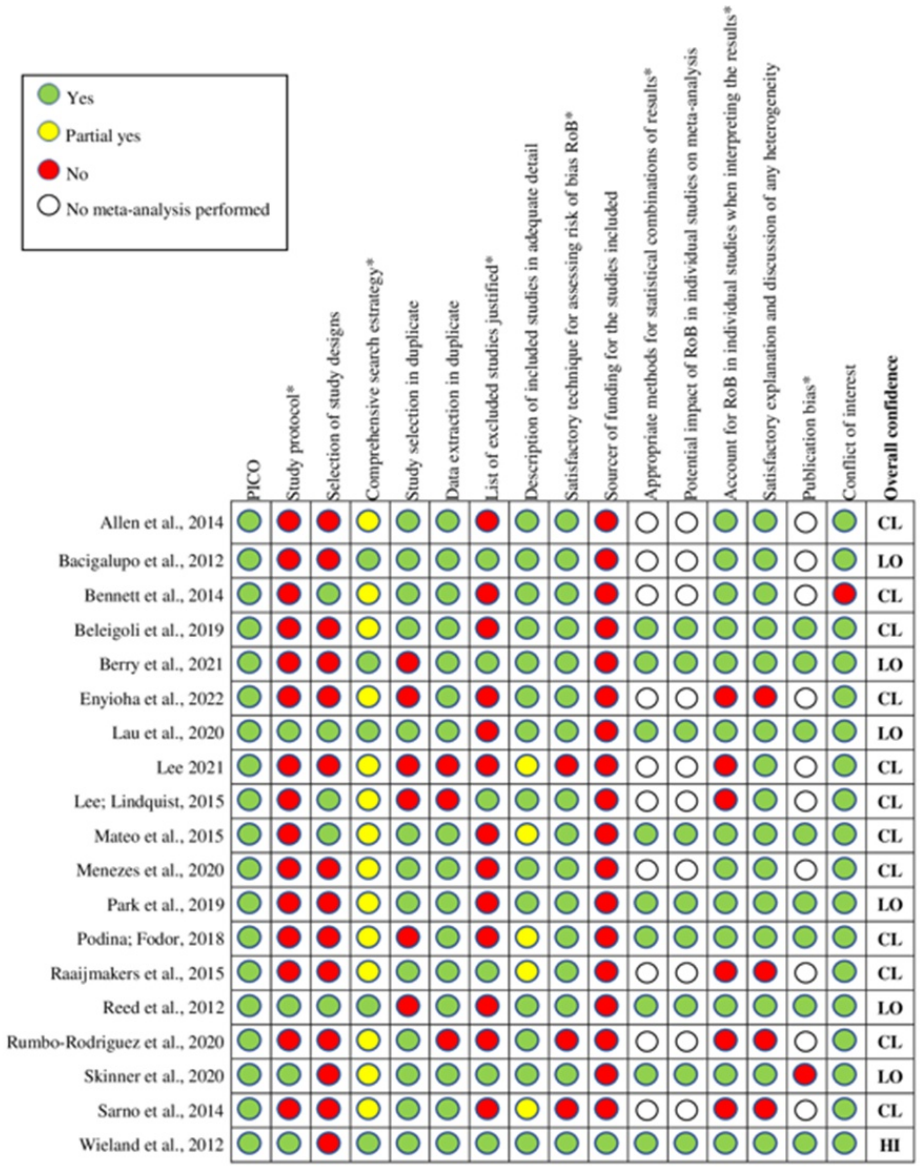
Outcomes were assessed through self-report on the participants' general health[26] and physical activity,[25] calibrated scale with the participant wearing light clothes and without shoes[26] number of steps per day, time spent on the practice of vigorous and/or moderate physical activity, time of sedentary behavior and energy expenditure in kilocalories per day.[30] The frequency and amount of food intake was measured by kilocalories consumed per day[30] or through food frequency questionnaires (Block Food Frequency Questionnaire).[26] The practice of physical activity was evaluated with the Paffenbarger Physical Activity Questionnaire.[25,26] Most studies did not report assessment instruments to measure outcomes.[9,19-24,27-29,31-34]

The main characteristics of SRs are presented in detail in https://osf.io/q9fbs.

Telehealth interventions

Seven SRs[19-22,28,31,36] evaluated the effect of

Figure 2. Study selection flow diagram, adapted from PRISMA 2020.



Source: The authors. Critical domains. HI = high; CL = critically low; LO = low; MO = moderate.

telehealth interventions compared to face-to-face appointments (Table 1).

Favorable results for weight-loss were observed in online chat rooms or self-monitoring mediated by smartphone/mobile devices and web-based devices,[19] telephone contact,[28] postal intervention or telephone intervention for class I obesity,[28] telemonitoring,[31] weight-loss programs (diet, physical activity, self-monitoring and independent monitoring, family participation, financial incentives) combined with telemonitoring,[20] and automated call centers to report their weekly blood pressure and weight readings and answer questions about lifestyle.[22]

There were no significant effects on weight loss for some online approaches, such as the use of online recordings associated with chat sessions,[36] online behavioral therapy,[31] online support groups,[31] contact only by telephone,[28] postal communication or telephone communication for obesity classes II and III,[28] remote support (learning modules with educational content and self-monitoring tools),[28] telephone or mail contact and printed materials[31], and online interactive intervention.[21] One SR[36] showed that there was also no effect on waist circumference measurements of an online interactive approach to weight loss accompanied by technical health support.

Three SRs reported that face-to-face interventions,[30] online recording and chat sessions,[36] and Internet support[36] led to better weight loss than e-health interventions.

Interventions mediated by mobile phone applications

Seven SRs[9,22,24,25,27,29,33] evaluated the effect of interventions mediated by mobile phone applications (Table 2).

Both Lose It![22] and SmartLoss[33] had effects on weight loss. Their combination with intensive counseling showed positive effects on weight loss

Table 1. Results of telehealth interventions and their comparators

Author	Intervention	Comparator	Direction of effect	Results
Allen et al. (2014)[19]	Self -monitoring with smartphone/mobile and web -based device	In-person educational sessions	(+)	17 RCTs showed better results for weight loss, 43% of these studies being on self-monitoring with smartphone/mobile device 48% online interventions; no numerical data was reported.
Allen et al. (2014)[19]	Online chat rooms	In-person educational sessions	(+)	20 RCTs showed better results for weight loss in the intervention group; no numerical data was reported.
Bacigalupo et al. (2013)[20]	Weight loss program + telemonitoring	Weight loss program	(+)	1 RCT with 142 participants showed short-term weight loss (6 months) in the intervention group (8.0%) compared to the control (4.8%).
Bennett et al. (2014)[21]	Online interactive intervention	Face -to -face nutritional education; Self -directed approaches based on printed information	(0)	1 RCT with 1,032 participants, with previous loss of 4 kg or more in a 6-month program, showed no differences in results between interventions. There was lower weight loss among 702 blacks (68%) who used eHealth in the 30-month follow-up.
Berry et al. (2021)[22]	Automated call center to report weekly blood pressure and weight readings and answer lifestyle questions	Weight loss program	(+)	1 RCT with 122 participants showed significant weight reduction in the intervention group.
Menezes et al. (2020)[28]	Contact by telephone (Lifestyle counseling based on international guidelines)	Usual care provided by general practitioners and nursing	(+)	1 RCT with 457 participants showed greater weight loss in the intervention group [–3%; (%, kg or BMI: –4.1, –1.9) compared to control (–1.1%; [%, kg or BMI: –2.2%, 0]).
Menezes et al. (2020)[28]	Postal intervention + 10 interactive nutrition classes	Usual care provided by nutritionists and/or exercise experts	(+) (0)	1 RCT with 1.801 participants showed significantly greater weight loss in the intervention group for obesity class I (–1.84; [%, kg or BMI: 0.27%]); than control group (-1.37; [%, kg or BMI: 0.27%]; P = 0.008]. It did not show weight-loss differences between groups with class II (IG –2.25 [%, kg or BMI: 0.40]; CG –2.17 [%, kg or BMI: 0.43]; (P = 0.965); or obesity class III [IG –2.24 (%, kg or BMI: 0.68); CG –2.30 (%, kg or BMI: 0.67); (P = 0.983)].
Menezes et al. (2020)[28]	Contact by telephone (Mediterranean diet: 70% energy in the first part of the day and 30% after)	Mediterranean diet per dietician (55% energy consumption in the first part of the day and 45% after)	(0)	1 RCT with 36 participants observed greater weight loss in the intervention group (8.2 ± 3 kg) than the control group (6.5 ± 3.4 kg) (P = 0.028).
Menezes et al. (2020)[28]	Contact by telephone (Choice of diet with low carbohydrates or low fat content. A pocket guide for counting calories, fats and carbohydrates was provided)	Randomly assigned to low-fat or low-carbohydrate diet by Dietitian	(0)	1 RCT with 207 participants observed that both groups lost weight, without significant difference [IG –5.7 kg (95% CI 4.3 to 7); CG –6.7 kg (95% CI 5.4 to 8); IG 5.6%; CG 6.2%].

Menezes et al. (2020)[28]	Remote support (learning modules with educational content and self -monitoring tools)	A meeting with a weight loss coach (leaflet and list of recommended sites that promote weight loss)	(0)	1 RCT with 415 participants found no significant difference between groups in weight loss [IG –4.6 ± 0.7 kg (–5%); CG –0.8 ± 0.6 kg (–1.1%)]. There was a change in net weight at 24 months in the intervention group, but without differences between groups (P>0.05).
Podina; Fodor (2018)[30]	eHealth interventions	Posttreatment physical activity	(-)	1 meta-analysis of seven comparisons (without information about the number of RCTs or participants) showed better results for physical activity in weight reduction (g = 0.31; 95% CI -0.43 to -0.20; I^2 = 0%).
Raaijmakers et al. (2015)[31]	Telemonitoring with equipment at home	Regular care (in university services)	(+)	1 RCT with 70 diabetic participants indicated the effect of the intervention on weight loss after 6 months (d = -4.0).
Raaijmakers et al. (2015)[31]	Online behavioral therapy	Face -to -face behavioral therapy	(0)	1 RCT with 90 participants found no differences in weight loss at 12 weeks.
Raaijmakers et al. (2015)[31]	Online group (Club One Island)	Face -to -face group	(0)	1 RCT with 54 participants found no significant difference between groups for weight loss at 12 weeks.
Raaijmakers et al. (2015)[31]	Contact by phone or mail + printed materials	Regular care (in university services)	(0)	1 RCT with 1,801 participants found no differences between groups in weight loss.
Wieland et al. (2012)[36]	Online interactive approach to weight loss + Health technical support	Usual pattern of outpatient care + written materials	(0)	1 RCT with 101 participants showed no difference in waist circumference between the comparison groups at 3 months (MD = -1.87; 95% CI -3.95 to 0.2).
Wieland et al. (2012)[36]	Online recording + chat sessions	Online recording + chat sessions + face -to -face meetings	(0)	1 RCT with 323 participants found no differences between groups in weight loss at 6 months (MD = 0.2; 95% CI -1.01 to 1.41).
			(0)	1 RCT with 323 participants found no difference between groups in weight change at 6 months (MD = 0.3; 95% CI -0.92 to 1.52).
			(-)	1 RCT with 319 participants showed a favorable result for the control group in weight loss at 6 months (MD = 2.1; 95% CI 0.8 to 3.4) and change in weight at 6 months (MD = 2.2; 95% CI 0.92 to 3.48).
Wieland et al. (2012)[36]	Internet support	Minimum personal support program	(-)	1 RCT with 66 participants showed a favorable result of weight maintenance in the control group at 12 months (MD = 4.7; 95% CI 0.66 to 8.74).

Source: The authors. Note: (+) favorable effect of the intervention; (0) similar effect as the comparator; (-) favorable effect of the comparator; BMI = body mass index; MD = mean difference; RCT = randomized clinical trial; g = pooled effect size; CG = control group; IG = intervention group; I2 = measurement of heterogeneity; CI = confidence interval.

and BMI.[27] Another SR reported a favorable effect on weight loss of the online application EBalance for promoting healthy lifestyles.[24]

One SR[22] showed better results for weight-loss in the control group, focused on strategies to change dietary behavior and exercise combined with meditation, than compared to the group that received messages about diet and exercise or compared to a smartphone application (ENGAGED).

There were no significant differences in body weight reduction between online smartphone application and face-to-face appointment groups[9,22] or between those who used the MyFitnessPal mobile phone app combined with regular care,[27] and the Lose It!

program combined with counseling or not.[33] No difference was identified in BMI reduction with the use of an online smartphone app[9] or with the use of smart training for lifestyle management for 6 months combined with intensive diet, exercise counseling, and smartphone self-monitoring.[29] The use of the online application yielded no difference in waist circumference reduction.[9]

In an SR about eating habits modifications[9], there was no significant difference in caloric intake with the use of an online smartphone app in one primary study, while there was a higher caloric intake among participants of face-to-face activity in another study.

Two SRs[25,27] evaluated the effects of interventions on the practice of physical activity, showing that there was no significant difference with the use of the Lose It! associated to intensive counseling, nor with the MyFitnessPal mobile application and usual care, and an eHealth intervention based on a mobile application.[25]

One SR[33] analyzed the effects of interventions on weight loss and treatment adherence, noting that there was no significant difference with the use of the My Meal Mate mobile app on weight loss, nor significant positive effects on adherence.

Table 2. Results of interventions mediated by mobile phone applications and their comparators

Author	Intervention	Comparator	Direction of effect	Results
Beleigoli et al. (2019)[9]	Online application for smartphone	Face -to -face counseling	(0)	1 RCT with 35 participants did not show difference between the comparators in weight loss (MD= 0.70; 95% CI -1.89 to 3.29) or in BMI reduction (MD= 0.10; 95% CI -0.79 to 0.99).
			(0)	1 RCT with 68 participants showed no differences between the comparators in BMI reduction (MD = 0.30; 95% CI -0.16 to 0.76).
			(0)	1 RCT with 29 participants found no differences in means between the interventions in the reduction of waist circumference (MD = 2.31; 95% CI -1.83 to 6.45).
			(0)	1 RCT reported that there was no difference between groups in caloric intake no numerical data was reported.
			(+)	1 RCT reported that caloric intake was higher in the face-to-face group; no numerical data was reported.
Berry et al. (2021)[22]	Mobile application (Lose It!)	Nutrition + exercise counseling	(+)	1 RCT with 34 participants showed significant weight reduction in the intervention group.
Berry et al. (2021)[22]	Application for smartphone (ENGAGED) with messages about diet and exercise	Sessions led by an exercise psychologist or physiologist, focused on diet and exercise + meditation + behavior change strategies	(-)	1 RCT with 64 participants showed weight reduction in favor of the control group.
Berry et al. (2021)[22]	Automated notifications based on smartphone applications containing personalized messages related to health and motivation	In-person consultations	(0)	1 RCT with 90 participants showed weight reduction, but without significant difference between groups.
Lau et al. (2020)[24]	Online application to promote healthy lifestyles (EBalance)	Face-to-face information session	(+)	1 RCT with 85 participants reported better weight loss results with the intervention (MD = -1.31; 95% CI -2.51 to -2.43).

Lee (2021)[25]	eHealth Intervention based on mobile application	In-person service	(0)	2 RCTs with 675 participants showed no difference between groups in terms of increasing in physical activity in adults with obesity.
Mateo et al. (2015)[27]	Mobile application (Lose It!) + Intensive counseling	Intensive counseling	(+)	1 RCT with 36 participants showed favorable results in the intervention group in weight loss (MD = -2.90; 95% CI -5.63 to -0.17) and BMI reduction (MD = -1.00; 95% CI -1.91 to -0.09).
			(0)	This same RCT showed no significant difference in the results between the groups in the practice of physical activity (MD = -0.09; 95% CI -0.77 to 0.58).
Mateo et al. (2015)[27]	Mobile application (MyFitnessPal) + usual service	Counseling on weight loss activities + one -page educational booklet on healthy eating	(0)	1 RCT with 212 participants showed no significant difference between the groups in body weight reduction (MD = -0.30; 95% CI -1.55 to 0.95), nor in the practice of physical activity (MD = 0.08; 95% CI -0.19 to 0.35).
Park et al. (2019)[29]	Smart training for lifestyle management for 6 months + intensive diet + exercise counseling + self -monitoring by smartphone	Intensive counseling	(0)	1 RCT with 34 participants showed no difference between the comparators in terms of reduction of BMI (MD = -1.0; 95% CI -1.91 to -0.09).
Rumbo-Rodriguez et al. (2020)[33]	SmartLoss Application	Health education group	(+)	1 RCT with 40 participants showed weight reduction at 12 weeks in the intervention group (-7.08 kg) compared to the control group (-0.6 kg).
Rumbo-Rodriguez et al. (2020)[33]	Mobile application (Lose It!); Intensive counseling + Mobile application (Lose It!); less intensive counseling + mobile application (Lose It!)	Intensive counseling	(0)	1 RCT with 68 participants showed no significant difference in weight loss between the groups 6 months later.
Rumbo-Rodriguez et al. (2020)[33]	My Meal Mate mobile app on diet and physical activity	In-person service	(0)	1 RCT with 128 participants showed weight loss with the intervention, but there is no significant difference between the groups.
			(+)	1 RCT with 128 participants showed significantly greater positive effects on adherence to treatment with the use of the mobile app compared to the control group.

Source: The authors. Note: (+) favorable effect to the intervention; (0) similar effect to the comparator; (-) favorable effect to the comparator; MD = mean difference; RCT = randomized clinical trial; CI = confidence interval; BMI = body mass index.

Interventions mediated by text messages

Interventions mediated by text messages (SMS) were evaluated in six SRs[19,20,22,24,34,35] (Table 3).

The results were favorable for text message interventions alone[19,22,35] or combined with other interventions (diet, physical activity, monthly weighing, and financial incentive;[20] usual care;[35] or diet associates to physical activity and messaging about weight loss.[20] In addition, when text messages were combined with a pedometer, regardless of the presence of a coach for walking, there was an effect on BMI and waist circumference measurements reduction.[34] There was no significant difference in weight loss with the text message intervention or with the use of a pedometer combined with text messages.[34] There was also no significant difference in the increase in physical activity in adults with obesity from using the web-based eHealth intervention (email messages).[25]

Table 3. Results of interventions mediated by text messages and their comparators

Author	Intervention	Comparator	Direction of effect	Results
Allen et al. (2014)[19]	Text message or e-mail	In-person educational sessions	(+)	26 RCTs showed better results for weight loss with the intervention; no numerical data was reported.
Bacigalupo et al. (2013)[20]	Diet + physical activity + cell phone feedback message	Regular care (monthly information or tips on how to achieve weight loss through diet + exercise)	(+)	1 RCT with 78 participants reported greater weight loss in the intervention group over 4 months (IG: 3.2%; CG: 1%; P = 0.02).
Bacigalupo et al. (2013)[20]	Text messages + diet and physical activity + monthly weighings + financial incentive (lottery or deposit agreement)	Monthly weighings without access to technology	(+)	1 RCT with 57 participants reported favorable weight-loss results from text messages with financial incentives (lottery or deposit agreement) after 16 weeks.
Berry et al. (2021)[22]	Text message on nutrition education, stress management, goal setting, skill provision, identification of barriers, knowledge assessments	Medical guidance on healthy eating and lifestyle	(+)	1 RCT with 471 participants showed significant weight reduction in the intervention group.
Berry et al. (2021)[22]	Text messages focused on health/nutrition education, diet recall, increased motivation	Offline education sessions + monthly group weight check + brief counseling focused on managing behavioral and emotional influences on food	(+)	1 RCT with 205 participants showed significant weight reduction in the intervention group.
Berry et al. (2021)[22]	Weight loss program for weight loss	Session with nutritionist to create a custom weight control plan + medical visit + digital pedometer + printed educational materials	(+)	1 RCT with 124 participants showed significant weight reduction in the intervention group.
Lau et al. (2020)[24]	Daily message for weight control (shape plan)	Education (face-to-face + video)	(0)	1 RCT with 76 participants showed no difference between groups in weight loss (MD = -1.27; 95% CI 44.05 to 1.51, P = 0.37).
Lee (2021)[25]	Web -based eHealth Intervention (email messages)	In-person service	(0)	1 RCT with 26 participants showed no significant difference between groups in physical activity in obese adults.
Sarno et al. (2014)[34]	Pedometer + text messages	Pedometer + text messages + coach	(+) (0) (0)	1 RCT with 71 participants obtained significant reductions in BMI. 1 RCT with 71 postmenopausal participants younger than 75 years with BMI between 25 and 40 kg/m2 showed significant reductions in weight in both groups; no numerical data were reported. 1 RCT with 71 participants showed significant reductions in waist circumference in both groups and did not find difference with the use of a coach.

Skinner et al. (2020)[35]	Text messages (three unidirectional and bidirectional weekly) for 22 weeks on healthy lifestyle education + usual care	Counseling on healthy diet + exercise	(+)	1 RCT with 30 participants found greater weight loss in the intervention group (MD= -3.95; 95% CI -6.86 to -1.04).
Skinner et al. (2020)[35]	One text message every 2 weeks for 12 months (informative, motivational or behavioral content)	Advice on behavioral changes in lifestyle + personalized dietary recommendations and physical activity counseling	(+)	1 RCT with 129 participants found greater weight loss with the intervention (MD= -3.42; 95% CI -5.48 to -1.36).
Skinner et al. (2020)[35]	Four semi -personalized text messages per week + usual care	Usual care (Community monitoring)	(+)	1 RCT with 710 participants found greater weight loss with the intervention (MD= -4.45; 95% CI -5.32 to -3.58).
Skinner et al. (2020)[35]	Three to four text messages daily + choice of three goals from a total of eight goals preprepared for work + usual care	Consultation with nutritionist and doctor + eating plan + physical activity tips + pedometer	(0)	1 RCT with 51 participants found no difference in weight change between the comparators (MD = -3.50; 95% CI -7.10 to 0.10).
Skinner et al. (2020)[35]	Daily text messages for self -monitoring of personalized behavioral goals + feedback + weekly tips + fact sheets + usual care	In-person group educational sessions + educational videos + pedometer + prescription of 10,000 steps per day	(0)	1 RCT with 50 participants showed no difference between the comparison groups in weight loss (MD = -2.41; 95% CI -5.19 to 0.37).

Source: The authors. Note: (+) favorable effect to the intervention; (0) similar effect to the comparator; (-) favorable effect to the comparator; MD = mean difference; RCT = randomized clinical trial; CI = confidence interval; BMI = body mass index; kg/m2 - kilograms per square meter.

Interventions mediated by websites or computers

Eight SRs[9,19,24,28,31-33,36] evaluated interventions mediated by websites or computers compared to face-to-face activities (Table 4).

Favorable effects on weight loss were observed with the online interventions alone[19] and a website with a wearable body monitor,[32] a portable computer,[32] the computer program Eating Machine plus the behavioral program Ferguson,[32] or an Internet training program.[31] Other studies found no significant difference in weight loss with online interventions combined or not with face-to-face activities; the Ferguson behavioral program and EATS nutritional software; the Ferguson behavioral program plus The Eating Machine nutritional software;[36] EATS, the Ferguson behavioral program, and face-to-face sessions;[32] website and face-to-face treatment;[9] a website for self-monitoring or a voice response system;[28] online interventions combined with face-to-face activities [website SHED-IT associated with a booklet;[24,32] or online education software on diet and physical activity (Elluminate Live!) or a virtual reality group (Club One Island via Second Life of the Linden Lab) and a face-to-face diet and PA group.[33] There was also no significant difference in the reduction of BMI with the on-site and in-person care interventions;[9] website for self-monitoring or a voice response system;[28] SHED-IT booklet and a face-to-face session;[32] or the Nutri-expert computer program combined seven face-to-face sessions.[32]

Two SRs showed that the results for weight loss were better for the control groups: the comparisons were the website eDiet plus five face-to-face sessions versus printed materials plus five face-to-face sessions,[32] and an online weight loss program vs. a face-to-face meeting–based weight loss program.[31]

Table 4. Results of interventions mediated by sites or computers and their comparators

Author	Intervention	Comparator	Direction of effect	Results
Allen et al. (2014)[19]	Online intervention	In-person educational sessions	(+)	19 RCTs showed better results for weight loss with the intervention; no numerical data was reported.

Beleigoli et al. (2019)[9]	Site	Presential	(0)	1 RCT with 440 participants showed no difference in weight loss between the comparison groups (MD = 0.90; 95% CI -0.39 to 2.19).
			(0)	1 RCT with 440 participants showed no difference between the groups in terms of reduction of BMI (MD = 0.30; 95% CI -0.16 to 0.76).
Lau et al. (2020)[24]	Site " SHED-IT " + booklet + 1 face-to-face session	Booklet + 1 face -to -face session	(0)	1 RCT with 65 participants showed no difference between the groups in terms of weight loss (MD = -1.80; 95% CI -3.89 to 0.29; p = 0.09).
Reed et al. (2012)[32]			(0)	1 RCT with 65 participants showed favorable results for the intervention in weight change (IG: -4.80; CG: -3; MD = -1.80; 95% CI -3.99 to 0.39), but without significance statistic.
Menezes et al. (2020)[28]	Site for self -monitoring or voice response system	Usual care provided by trained community health educators	(0)	1 RCT with 365 participants showed greater weight loss in the intervention group, but without statistically significant difference between groups.
			(0)	1 RCT with 365 participants showed a greater decrease in BMI in the intervention group, but without statistically significant.
Raaijmakers et al. (2015)[31]	Internet weight loss program	Program for weight loss with face -to -face meetings	(-)	1 RCT with 481 participants indicated a small effect on weight loss from the face-to-face intervention (ES = 0.4; P < 0.01).
Raaijmakers et al. (2015)[31]	Internet training program	Regular care (in university services)	(+)	1 randomized community trial with 186 participants found a moderate effect on weight loss of the intervention after 12 weeks (ES = 0.6; P < 0.0001).
Reed et al. (2012)[32]	Site + wearable body monitor + 7 face -to -face sessions	7 face -to -face sessions	(+)	1 RCT with 38 participants showed favorable results of weight change in the intervention group (IG: -6.2; CG: -4.1; MD = -2.10; 95% CI -4.30 to 0.10).
Reed et al. (2012)[32]	Portable computer + 4 group therapy sessions	10 group therapy sessions	(+)	1 RCT with 60 participants showed favorable weight-loss results in the intervention group (IG: -2.6; CG: -1.8; MD = -0.80; 95% CI -10.16 to 8.56).
Reed et al. (2012)[32]	"Eating Machine" computer program + Ferguson behavioral program + face -to -face sessions	Ferguson behavioral program + face -to -face sessions	(+)	1 RCT with 18 participants showed favorable results of weight change in the intervention group (IG: -2.6; CG: -1.5; MD = -1.10; 95% CI -17.96 to 15.76).
Reed et al. (2012)[32]	"EATS" computer program + Ferguson behavioral program + face -to -face sessions	Ferguson behavioral program + face -to -face sessions	(0)	1 RCT with 17 participants showed no significant difference in weight change between groups (IG: -1.2; CG: -1.5; MD = 0.30; 95% CI -15.66 to 16, 26).
Reed et al. (2012)[32]	Site " SHED-IT " + booklet + 1 face-to-face session	Booklet + 1 face -to -face session	(0)	1 RCT with 65 participants showed no differences between the comparators in the reduction of BMI (IG: -1.5; CG: 0.9; MD = -0.6; 95% CI -1.28 to 0.08).
Reed et al. (2012)[32]	"Computer program" " Nutri-expert " " + 7 face-to-face sessions	7 face -to -face sessions	(0)	1 RCT with 230 participants showed no difference between groups in the reduction of BMI (IG: -1.9; CG: -2; MD = 0.10; 95% CI -1.28 to 1.48).

Reed et al. (2012)[32]	Site "eDiet" + 5 face -to -face sessions	Printed materials + 5 face -to -face sessions	(-)	1 RCT with 47 participants showed better weight change results in the control group (printed materials plus face-to-face sessions) (IG: -0.8; CG: -3.3; MD = 2.50; 95% CI 0.30 to 4.70).
Rumbo-Rodriguez et al. (2020)[33]	Software for online education on diet and physical activity (Elluminate Live!)	Face -to -face diet and PA group	(0)	1 RCT with 1711 participants showed no difference between the comparison groups in weight loss.
Rumbo-Rodriguez et al. (2020)[33]	Virtual reality group (Club One Island via Second Life of Linden Lab)	Face -to -face diet and PA group	(0)	1 quasi-experimental study with 54 participants showed no difference between the comparison groups in weight loss (IG: -3.9 kg; CG: -2.8 kg, p = 0.29).
Wieland et al. (2012)[36]	Ferguson behavioral program and nutritional software 'EATS'; Ferguson behavioral program + nutritional software ' The Eating Machine'	Ferguson behavioral program	(0)	1 RCT with 26 participants showed no difference in weight loss outcome at up to 10 weeks between the comparison groups (MD = 0.41; 95% CI -4.1 to 3.28).

Source: The authors. Note: (+) favorable effect to the intervention; (0) similar effect to the comparator; (-) favorable effect to the comparator; MD = mean difference; RCT = randomized clinical trial; ES = effect size; CI = confidence interval; BMI = body mass index.

Multicomponent interventions

The multicomponent interventions were evaluated in 12 SRs[9,19,20,22,23,26,28,29,31,34-36] (Table 5).

Regarding weight loss, nine SRs[19,20,23,28,29,31,34-36] reported favorable results of the interventions, while six SRs[9,23,26,28,29,35] did not show a significant difference in the results between the interventions and their comparators, and two SRs showed favorable results for the control group.[9,26]

One SR[20] reported a lower proportion of body fat in participants of an online program for physical activity practices combined with ongoing counseling by cell phone.

For BMI reduction, lifestyle change combined with five training calls and one daily text message had favorable effects,[29] as did the combination of text messages, weekly email feedback, skills training (including healthy eating patterns and tips), and a face-to-face session focused on problem-solving, assessment of progress and behavioral change.[23] There was no significant difference in the results between the following interventions and their comparators: online and mobile phone physical activity programs [continuous counseling,[20] online interactive weight loss interventions, and health technical support.[36] In one SR,[9] a favorable result was observed for face-to-face activity when compared to a chat group plus a pedometer and a website platform in terms of weight loss and BMI.

Table 5. Results of multicomponent interventions

Author	Intervention	Comparator	Direction of effect	Results
Allen et al. (2014)[19]	Online chat rooms + Text message or e-mail + Self-monitoring with online technology	In-person educational sessions	(+)	21 RCTs reported statistically significant weight loss in the intervention group compared to the control group. Numerical data not reported.
Bacigalupo et al. (2013)[20]	Weight program + cell phone monitoring (Telemonitoring (scales and accelerometer) + diet and daily self and semi-independent physical activity + weekly feedback + monthly blood samples + monitoring of participants	Information on diet and physical activity (given in person)	(+)	1 RCT with 125 participants showed weight loss by the multiple-intervention program in 6 months (IG: 11.8 kg + - 8.0 kg; CG: 0.3 + - 2.9 kg; p = 0.000).

Bacigalupo et al. (2013)[20]	Weight loss program + cell phone monitoring (Telemonitoring + scales + accelerometer), Diet + physical activity, Self and semi-independent daily + weekly feedback + monthly blood samples + monitoring of participants) + financial incentives	Information on diet and physical activity + financial incentives (given in person)	(+)	1 RCT with 70 participants showed significant weight loss at 32 weeks in the intervention group (IG: 8.70 lbs; CG: 1.17 lbs; P = 0.04).
Bacigalupo et al. (2013)[20]	Physical activity program online and on cell phones	Limited exercise counseling	(+) (0)	1 RCT with 77 participants reported a significantly lower percentage of short-term body fat in the intervention group than the control group (-2.18% vs. -0.17% at 9 weeks). 1 RCT with 77 participants found no significant change in BMI values for either group (IG BMI = -0.24; CG BMI = +0.1; P = 0.06).
Beleigoli et al. (2019)[9]	Lessons from the site + challenges + e-mail	Presential	(0)	1 RCT with 88 participants showed no difference in results between the comparison groups in weight reduction (MD = 0.14; 95% CI -1.54 to 1.82).
Beleigoli et al. (2019)[9]	Chat group + pedometers + website platform	Presential	(-) (-)	1 RCT with 319 participants favored face-to-face weight loss intervention (MD = 2.5; 95% CI 1.21 to 3.29). 1 RCT with 318 participants favored the face-to-face group in changing BMI (MD = 0.8; 95% CI 0.36 to 1.28).
Berry et al. (2021)[22]	Accelerometer (FitLife) + mobile app to monitor exercise + financial incentives to achieve exercise and weight goals	Session with a trained nurse focused on diet, health and physical education	(0)	1 RCT with 70 participants showed weight reduction, but without significant difference between groups.
Enyioha et al. (2022)[23]	mHealth with applications + text messaging + social media	Program or not with monitoring by health professional + educational material	(+)	3 RCTs, with 18, 124, and 371 participants, reported significantly more weight loss among the participants in the intervention group. The reduction in weight was observed at 3 months, 14 weeks, 6 months, and 12 months.
Enyioha et al. (2022)[23]	Text messages + weekly email feedback + skills training (healthy eating patterns and tips) + face-to-face session focused on problem solving, progress assessment and behavior change	Health education class + videos addressing topics on healthy eating and exercise + pedometer + a prescription for walking 10,000 steps per day	(+) (0)	1 RCT with 50 participants found no significant difference in BMI change between groups [IG: mean change in BMI -0.47 (SD 2.42); CG: mean change in BMI 0.42 (SD 0.90) p 0.09]. 1 RCT with 50 participants found no significant difference in weight loss between groups.

Lee, Lindquist (2015)[26]	Lifestyle modification program + telephone counseling (technology -based weight loss and weight loss interventions)	Educational Council face to face	(+) (0) (-)	1 RCT with 234 participants showed the best weight loss result in the lifestyle modification program group from 0 to 18 months of follow-up (IG: -8.2; CG: -6.8). 1 RCT with 234 participants found a recovery of weight in both groups in the follow-up of 6 to 18 months, being higher in the control group (IG: +1.2 [0.7]; CG: +3.7 [0.7])). 1 RCT with 234 participants showed that weight loss was greater in the control group (face-to-face educational sessions) from 0 to 6 months (IG: -9.4 [0.6]; CG: -10.5 [0, 6])
Menezes et al. (2020)[28]	Telephone contact + text messages (Atkins -based diet and intensive life intervention program)	A single session of clinical education and printed health education materials	(+)	1 RCT with 140 participants showed that more patients lost weight in the intervention group [IG: –5.58 ± 5.60 kg (–5.37 ± 5.31%); CG: –2.8 ± 4.96 kg (–2.62 ± 4.34%) P = 0.002].
Park et al. (2019)[29]	Weight loss program based on lifestyle + 5 training calls + daily text message for 6 months	Brief counseling session	(+) (+)	1 RCT with 110 participants favored the intervention group in weight loss at 3-4 months (MD = -1.08; 95% CI -1.19 to -0.97). 1 RCT with 110 participants favored the intervention group in weight loss at 6 months (MD = -1.80; 95% CI -1.91 to -1.69).
Park et al. (2019)[29]	Change in lifestyle + 5 training calls + a daily text message	Brief counseling session	(+)	1 RCT with 110 participants favored the lifestyle intervention for BMI change at 3 months (MD = -0.42; 95% CI -0.46 to -0.38).
Park et al. (2019)[29]	Smart training for lifestyle management for 6 months + intensive diet + exercise counseling + self -monitoring by smartphone	Intensive counseling	(0)	1 RCT with 34 participants showed no difference between the comparison groups in weight loss at 6 months (MD = 2.90; CI 9-5.63 to -0.17).
Raaijmakers et al. (2015)[31]	Text messages + phone contacts with the coach	Informative meeting	(+)	1 RCT with 123 participants found a large effect on weight loss in the intervention group at 6 months (ES = -6.0; P < 0.0001).
Sarno et al. (2014)[34]	Walking at a convenient time and place + healthy eating habits + participation in group workshops + telephone counseling + texting	Structured physical exercises (walking)	(+)	1 quasi-experimental study with 49 participants showed that both interventions were effective at controlling obesity. However, considering the chronic nature of obesity, an intervention that allows people to exercise at a convenient time and place, learning to deal with their lifestyle barriers, would be more advantageous. The use of SMS was effective for sending the guidelines; without numerical data.
Skinner et al. (2020)[35]	Personal and interactive text messages sent two to five times a day + printed materials + brief monthly telephone calls from a health counselor	In-person dietary assessment + printed material sent by mail on weight loss once a month	(+)	1 RCT with 65 participants favored the intervention for weight change (MD = -1.70; 95% CI -3.11 to -0.29).

Skinner et al. (2020)[35]	Two text messages per day for 2 months + weekly self -monitored information feedback + usual care	Information leaflet + group information session	(+)	1 RCT with 80 participants favored the intervention group in weight change (MD = -1.50; 95% CI -2.52 to -0.48).
Skinner et al. (2020)[35]	Text messages sent six times a week for 6 months + Weekly self -reported weighting by SMS + motivational interviews with the health coach + usual care	Diabetes prevention program classes + individual consultations with nutritionist	(0)	1 RCT with 163 participants showed no difference in weight loss results between the comparator groups (MD = -0.93; 95% CI -2.55 to 0.69).
Wieland et al. (2012)[36]	Online interactive approach to weight loss + Health technical support	Current standard of outpatient care + written materials	(+) (+) (0)	1 RCT with 101 participants favored the intervention for weight loss at 3 months (MD = 2.56; 95% CI -3.58 to -1.54). 1 RCT with 101 participants favored the intervention for weight loss at 4 months (MD= -1.07; 95% CI -1.45 to -0.69; P < 0.0001). 1 RCT with 101 participants showed no difference in BMI change between the comparison groups at 3 months (MD = -2.99; 95% CI -4.08 to -1.9).

Source: The authors. Note: (+) favorable effect to the intervention; (0) similar effect to the comparator; (-) favorable effect to the comparator; MD = mean difference; RCT = randomized clinical trial; ES = effect size; CG = control group; IG = intervention group; CI = confidence interval; BMI = body mass index; SMS = short message service; mHealth = mobile phone–based health intervention.

Discussion

This rapid review included 19 SRs that reported the effects of telehealth interventions and interventions mediated by cell phone applications, text messages, websites, or computer and multicomponent interventions for overweight and obese adult care. Studies showed some effectiveness at reducing body weight, BMI, waist circumference, body fat, and caloric food intake, as well as increased adherence to treatment and physical activity. In general, most interventions performed remotely, alone or in combination with other interventions, showed more favorable results than face-to-face activities.

The authors of the AMSTAR 2 tool propose an overall systematic review classification that takes into account gaps in critical domains, which can greatly weaken the trust that can be placed in a systematic review. In our review, one RS was classified as high confidence, six as low confidence and twelve as very low confidence.

Of the 16 items evaluated, the following are considered critical domains: Protocol registered before commencement of the review; Adequacy of the literature search; Justification for excluding individual studies; Risk of bias from individual studies being included in the review; Appropriateness of meta-analytical methods; Consideration of risk of bias when interpreting the results of the review; Assessment of presence and likely impact of publication bias.

According to AMSTAR 2, RS is highly reliable when it does not present any critical failure or weakness. This means that the systematic review provides an accurate and comprehensive summary of the results of the available studies that address the question of interest. RS is considered low confidence when it presents one critical flaw with or without non-critical weaknesses. Thus it may not provide an accurate and comprehensive summary of the available studies that address the question of interest. An RS critically low is one that presents more than one critical flaw with or without non-critical weaknesses. In this circumstance, It should not be relied on to provide an accurate and comprehensive summary of the available studies[18].

Similar to this rapid review, other studies have identified positive results with the use of health technologies for the management of overweight and obesity in the adult population. Bardus et al.[37] found favorable results of the use of mobile technologies on weight loss. The narrative synthesis and meta-analysis they present provides strong and consistent evidence for positive effects, especially for the groups that used text messages and cell phone applications, showing significant weight loss in 33 of 44 studies[7]. In addition, all studies of this SR reported improvements in eating habits and physical activity, although the association was not always statistically significant[7]. The evidence on mobile interventions (mHealth) in an overview by Marcolino et al.[38] indicated moderate quality of short-

term weight loss in overweight and obese adults with a starting BMI of 25 to 39.[9]

Wang et al.[8] observed mixed effects on BMI, body weight, and waist circumference measurements with mHealth for the management and treatment of obesity. Their meta-analysis showed that the use of applications was associated with significant improvements in body weight and BMI, but some studies reported little or no effect of the interventions.

In contrast, Sorgente et al.[39] reported that web-based interventions for weight loss for overweight and obese adults were less effective than face-to-face interventions in the reviews they covered.

Study limitations

The study has some limitations. First, because it is a rapid review, it involved some shortcuts, such as the inclusion of studies in only three languages. Second, populations with comorbidities were not included. Third, the extraction process was not performed in duplicate or independently.

Implications for policy or clinical practice

The results of this rapid review support the use of interventions via telehealth and mobile devices for overweight or obese adult health care. It is worth considering the use of such tools in health programs, including in the current context, due to the health crisis across the world from the COVID-19 pandemic.

Another relevant aspect for future research is the population of interest. This study focused only on adults, and because obese children are much more likely to be obese adults, the efficacy and long-term benefit of telehealth in children merit further investigation. Although the identification of barriers and facilitators for the implementation of telehealth in the management of overweight and obesity in adults was not the object of our research, it is noteworthy that the SRs included show that these technologies are easily applicable for weight control in large populations,[1,40-43] as well as helping to treat people living in remote communities without access to large specialized health centers.[40,44,45] However, it is important to consider barriers such as lack of skills, digital literacy and various types of technology,[40,44,45] lack of access to the internet network or adequate infrastructure for telemedicine care, in addition to the availability of professionals for care.[13]

In the current context of the COVID-19 pandemic, telehealth has become an important tool for offering safe care alternatives.[40] The pandemic has led to a rapid change in the way services can be provided. Consumers' expectations have changed, and there is a demand for convenience in a safe and socially distant manner, supported by the available technology. It is likely, therefore, that telehealth will be incorporated as an adjunct to regular service delivery models and will become more prevalent in health research.[40] In addition to public policies and traditional health care, digital health programs offer a promising addition to this supply of tools, taking advantage of increased connectivity to create solutions that help control various health problems, such as obesity.[1]

Conclusion

This rapid review found evidence on the efficacy of telehealth interventions and technologies for the care of overweight and obese adults. The safety of the strategies was not reported in any of the SR. Results showed that some of these strategies may have positive effects on weight reduction or maintenance, BMI, waist circumference, and body fat, in addition to improving eating habits and physical activity.

It is worth noting, however, that practically all the results presented here refer to individual primary studies and, even though eight reviews have presented results from meta-analyses, only one was reported in this rapid review, due to the criteria established in the research question. Finally, we also recall that only one SR was classified as high confidence, the others being low or critically low confidence.

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