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Research Article

Weight Loss App Descriptors in App Stores: A Qualitative Analysis of the Spanish Market

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Mobile applications for weight loss have arisen the interest of private companies and developers, who have put great efforts on the development of this kind of apps. This topic has attracted the interest of the scientific community, both in terms of usability and design. Two main issues have, however, arisen: firstly, research focus has been on the apps themselves, but little attention has been paid to how they are presented in the application stores, and secondly, current literature focuses solely on applications in English. The study objective is to observe how the most popular weight loss applications for the Spanish market are presented in the stores. Using thematic analysis, this study is aimed at discovering the themes featured in the store descriptions and to observe what functionalities are highlighted in these descriptions. The initial sample was based on 247 weight loss applications, which after revision was reduced to 7 applications. Our results show that they focused on efficacy, speed, and, to a much lesser degree, safety in weight loss. Among the main results, we found that app descriptors analyzed did not employ a scientific language and demonstrate technical expertise, or user testimonials. On the other hand, the claims made by the apps about weight loss were mainly based on effectiveness. This sometimes included the concept of quick results and, to a lesser extent, health and safety. Lastly, we observed that there is room for improvement in the linguistic and cultural adaptation of the texts of these application descriptions. Regarding the study limitations, the reduced number of the sample is because our study focuses on applications with features that follow international weight loss guidelines, which most of them did not follow.

1. Introduction

In recent years, the ecosystem of mobile phone applications has rapidly developed resulting in a considerable increase in both applications and categories [1]. In this sense, the use of mobile phone applications has increased considerably in recent years. In 2017, according to Statista [2], 1,016.8 million applications corresponding to "Health & Fitness" were downloaded worldwide, a figure that augmented more than threefold in 2021 to 3,200.4 million. If we focus on the Spanish market, according to Statista Market Insight [3], in the same period of time, the number of downloads increased from 2.71 million in 2017 to 13.96 million in 2022, and it is expected to increase to almost 20 million users by 2028. Naturally, this has resulted in strong competition among the various "Health & Fitness" categories [1] particularly those related to weight loss. It should be noted that users tend to select their favourite application from a relatively reduced number which concentrate most of the downloads [4].

One of the categories which has received the most investment is related to health (mHealth) particularly applications concerning weight loss. These applications present features concerning behavioural changes, nutrition, physical activity, and monitorization of anthropometric data [5] and come under the heading of "Health & Fitness" in application stores [6].

Evidence concerning the effectiveness of such mobile phone applications on weight loss in obesity treatment has been available for a number of years [7–9]. Not only do such

tools aid weight loss, but they also improve treatment compliance [10, 11] and can thus affect health in a beneficial manner.

In addition, an improvement in medical care for the patient has been reported when employed as a follow-up tool by healthcare professionals [4, 10]. Consequently, Serrano et al. [12] noted that such applications, including those commercially marketed, could be useful instruments to help lose weight.

This research forms part of a series of studies focused on the most popular weight loss applications in the Spanish-speaking market. It is aimed at addressing two existing research gaps in the literature:

(i) First, despite the fact the contents of such applications and their functions have been widely studied [13–17], the way they are presented in the stores has not yet been investigated. As stated by Kanthawala et al. [6], users judge the usefulness of a weight loss application prior to actually purchasing it. Their decision is based on such factors as the name of the application or its description

(ii) Second, information is lacking concerning the study of applications in Spanish. The need for them to be culturally and linguistically adapted to the target population has been described [18–20]; nevertheless, the literature currently focuses solely on applications in English

For the aforementioned reasons, the main objective of this research is to observe how the most popular weight loss applications for the Spanish market are presented in stores. As described by Kanthawala et al. [6], there is a discrepancy between what the user perceives and the real technology and characteristics of the application. As a result, we aim to focus on examining those signals that determine whether or not a particular app is downloaded.

2. Theoretical Framework

2.1. Search for and Selection of Applications in the Stores.
Users generally obtain mobile phone applications through proprietary online platforms such as Google Play Store and Apple App Store [21]. They can surf the sections or use keywords as required in order to obtain a page of results coinciding with their search criteria [22].

Within a heuristic framework, Dogruel et al. [21] state that when selecting the applications, the decision-making process within the digital environment is based on discrete cues. A number of factors are involved, the most important being the user's own cognitive restrictions, information availability, and time limitation. As a result, users are accustomed to making decisions based on dual-process models which take into account heuristic mechanisms and systematic information processing so as to evaluate the quality and credibility of the applications [6, 21].

Information regarding applications in stores is scarce; moreover, there is a considerable number for each app store category [6]. As a consequence, users are forced to rely on cues and combine both of the previously mentioned mechanisms in their selection process. In the first phase, the main cues are based on the application's rating, its name, popularity, and whether or not it is free of charge [1]. If it appears interesting, the user moves on to a second phase in which cues such as the application's description, its category, number of downloads, and reviews from other users are evaluated [1]. If, for whatever reason (e.g., lack of quality or credibility) the user rejects the application, they resumes the search from zero.

It is interesting to highlight results from the Dogruel et al. [21] study regarding on what users base their app selection. For instance, for those applications that were less complex (e.g., torch and chronometer), users base their selection on simple search-and-stop norms (e.g., highest store rating) which reinforce what they had originally decided. For more complex ones (e.g., fitness and weight loss), however, users tend to trust application descriptions and whether the functions are described [21]. Nevertheless, even though they look at the descriptions, users have been observed to read diagonally, pay little attention to content, and focus on buzzwords [6].

2.2. Research Objective.
The main aim of this research is to observe how the most popular weight loss applications for the Spanish market are presented in the stores. As described by Kanthawala et al. [6], there is a discrepancy between what the user perceives and the actual technology and characteristics of the application. As a consequence, we aim to focus on the cues that determine whether or not a particular application is downloaded.

3. Methodology

Seven applications for weight loss/control were analyzed as shown in Table 1.

Inclusion criteria, according to the reviewed literature and based on store users, were ratings and number of downloads [1, 6]. Our search strategy followed that employed by Franco et al. [23] who reproduced the experience of the typical user in application stores.

We focused on Google Play as, according to Statista [24], 84.1% of the Spanish population have access to this platform. In contrast, only 15.9% use the app store via iOS operative systems.

The initial search was carried out with Google Chrome in private browsing mode without any Google account sign-up. As a result, cookies and prior session data did not influence the results. Once inside Google Play, the "Health & Fitness" category was selected with the following keywords: "lose weight" and "weight-loss". Cognates such as "diet" were ruled out because the research was aimed at weight control applications following international guidelines which included terms such as nutrition, support, community, physical activity, and monitoring [25].

Applications with ratings greater than 4 points, which offered a free version (100% free, freemium, or free trial), and more than 10,000 downloads were included. Those

TABLE 1: Selected applications.

N	Application name	Rating this version	N ratings this version	N downloads	Affiliation
1	FitCycle—weight loss workouts and fitness habits	4.9	8,565	1,000,000	Commercial
2	Lose Weight at Home in 30 Days	4.8	822,874	50,000,000	Commercial
3	Fitness Online—weight loss workout app with diet	4.8	13,285	1,000,000	Commercial
4	DWP Fitness—weight loss with diet and workout plan	4.4	4,450	100,000	Commercial
5	Qué hacer para Perder barriga en 1 semana	4.3	4,237	500,000	Commercial
6	BetterMe: health coaching	4.1	192,498	10,000,000	Commercial
7	Adelgazar rápido	4	139	50,000	Commercial

solely focusing on physical activity or nutrition, or had no Spanish version available, were excluded.

The search was carried out the October 30, 2021. The initial results produced 247 applications (lose weight $N = 49$; weight loss $N = 198$); duplications ($N = 33$) were then eliminated resulting in 214. Of these, 112 were ruled out because their rating was below 4 or they had fewer than 10,000 downloads. The remaining 102 applications were filtered according to exclusion criteria; some were centered solely on physical activity ($N = 31$) and others on nutrition ($N = 61$), or no Spanish version was available. A final figure of 7 applications fulfilled the inclusion criteria.

From these 7 applications, data regarding their name, store description, rating, number of downloads, and affiliation were gathered. NVivo (version 10) qualitative analysis software was employed for the descriptions.

Two of the authors then independently codified the descriptions looking for central themes. Their categorization was based on the healthcare application study of Larsen et al. [26] who classified them according to (a) functionality, (b) claims and disclaimers, and (c) supporting statements based on scientific language, technical expertise, and testimonials. The authors also searched for specification of the characteristics and functionalities that were offered. After a first reading, the results were compared, and in the case of discrepancy, a third author acted as mediator.

4. Results

Analysis of the descriptions followed patterns very similar to that reported by Larsen et al. [26], particularly with respect to functionalities and claims and disclaimers. Nevertheless, as will be described in greater detail, we observed that supporting statements did not coincide with these authors' findings.

The description of the application *Qué hacer para perder barriga* (How to lose your paunch) should be highlighted. It did not follow any of the previously mentioned patterns but concentrated on strategies to follow a healthy lifestyle.

Finally, some of the selected applications had been badly translated from English to Spanish. For instance, for the term "calorie tracker" App N1 employed *rastreador de calorías* instead of the more appropriate *contador de calorías*; and App N5 translated "run" as *la corrida* [the bullfight] instead of *salir a correr* [go for a run] in the following:

Pero además de la corrida es importante hacer ejercicios abdominales porque ayudan a fortalecer el abdomen, mejorando la apariencia abdominal.

4.1. Application Objectives. In most cases, the descriptions of the analyzed applications referred to their objectives. We observed that they could be classified into three distinct groups: (a) weight loss, (b) increased muscle mass, and (c) fitness. Of the 7, 57.1% ($N = 4$) referred to a sole objective whilst 42.9% ($N = 3$) presented two. The objective of the former group was weight loss with the exception of one application which referred to fitness. In the case of the latter group with two objectives, one was always weight loss whilst the second was either increased muscle mass or fitness.

Application N5, however, presented a number of objectives which appeared to contradict themselves, for instance, "lose or increase muscle mass," "lose or […] gain some muscle mass pounds," "improve your weight loss or muscle mass," and "reach your weight loss goals."

4.2. Application Functionalities. All the store descriptions indicated that the user could find the functionalities inside the application itself. The degree of detail and explanation depended on the application's function. The only exception was App N5 *Qué hacer para perder barriga* (How to lose your paunch) which presented no description or explicit mention of the application's functionality.

Most of the applications focused on functions related to nutrition and physical activity with varying degrees of importance. Those concerning the former were mainly centered on diet plans which were either low-calorie, ketogenic, or intermittent fasting diets. They also included nutritional advice and food lists with their nutritional values.

With the exception of one application, the functions regarding physical activity all proposed an exercise plan. The plans could be personalized and change depending on the user's objectives. For instance, some applications focused on describing exercises and the zones in question (e.g., legs, thighs, abdominals, and arms) whilst others referred to objectives (e.g., muscle definition, increased muscle mass, and weight loss). The training plans were often accompanied by exercise libraries and highlighted the fact that the exercises could be performed at home without any equipment.

Do not like going to the gym? […] we have created training programmes you can do […] at home. (App N5)

[…] a variety of exercise series for sessions at home. (App N6)

In a similar manner to the nutrition functions, they also offered advice about physical activity.

The third group of relevant functions concerned monitoring which varied according to the application. It could be centered on nutritional aspects such as calorie counting and water consumption, or physical activity including training logs, burnt calorie trackers, and step counters.

The least mentioned were functions related to support and the community. Only one (App N7) explicitly referred to psychoemotional support and another to the community (App N3).

4.3. Claims. All the analyzed applications made positive claims about their effectiveness. None of them depicted disclaimers regarding their contents. The claims could be grouped into (a) results and (b) contents.

4.3.1. Claims about Results. The majority highlighted the effectivity of the application for weight loss. Moreover, such effectivity tended to be accompanied by the concept of speed and, to a lesser degree, health and safety.

Designed for people who want to lose weight and get a beach body in 30 days. (App N1)

Designed to lose weight quickly and safely. (App N2)

This app is different because it has a home training log to moderately lose weight and fat, and an exercise log for legs aimed at getting fast results. (App N3)

A healthy, personalized approach to either lose or gain weight. We can adjust it to your busy diary, preferences, and lifestyle to obtain fast results without damaging your health. (App N6)

+130 tips and pieces of advice to slim quickly without wasting time. (App N7)

Lose weight and achieve a healthy, slim, toned body without fat and cellulitis. (App N7)

We also noted that some descriptions highlighted the ease or need for little effort to gain one's goals:

If you have ever wondered how to get fit, be healthy, and lose weight with minimum effort, look no further […]. Fit-Cycle helps your weight-loss training be easier and faster. (App N1)

[You can] lose weight with a click. (App N3)

A 10-week plan to follow each tip [for weight-loss] effortlessly. (App N7)

Only one application referred to creating healthy lifestyle habits.

This is your "all in one" solution to create healthy habits and routines in your life. [A] fitness application whose aim is to develop good habits and a healthy lifestyle for women. (App N1)

4.3.2. Claims about Contents. These fell into three groups: (a) variety of information and resources, (b) possibility to personalize the application, and (c) content designed by experts.

In a similar manner to the previous section, variety referred mainly to aspects of physical activity and nutrition.

The former had two dimensions: physical activity exercises and training programs.

More than 550 exercises with quality 3D animation. (App N3)

It's not necessary to go to the gym; more than 1500 of our exercises can be done at home; with our diverse exercise library. (App N6)

Food plan collections to enhance your training. (App N1)

Offering an application that contains a diet regime [with] many recipes containing healthy food both local and international. (App N4)

Getting fit is strongly linked to nutrition, and we have carefully selected hundreds of recipes for different tastes, cooking time, and budget. (App N6)

More than 130 pieces of advice to lose weight: psychological tips, healthy habits, diets, and physical exercise. (App N7)

The descriptions that made claims about personalization also mentioned their content variety which could adapt itself to the user's needs and goals.

You can chose from a range of exercises […] or adapted to a specific objective such as training programmes to lose fat. (App N3)

You can now lose weight with a personalised diet plan. (App N4)

Choose among more than 130 international and local recipes and create your perfectly adapted menu. (App N3)

We have created personalized [physical activity] training plans according to your objectives. (App N4)

Training programmes: personalized exercise series and nutrition to help you get fit quicker. (App N6)

Only two descriptions mentioned the participation of experts or professionals in their applications. They were, however, in very generic terms and without specifying exactly what kind of expert or professional was involved.

Training at home or in the gym, created with a plan designed by experts. (App N3)

Nutrition plans created by qualified experts to improve your progress with options such as ketogenic and vegan diets, intermittent fasting, and much more. (App N6)

4.3.3. Supporting Statements. It was observed that all the descriptions employed very simple, generic language, avoiding technical and scientific terms, and whilst some referred to affirmations with scientific backing, there were no formal references.

It has been scientifically demonstrated to help improve health and physical fitness. (App N2)

BetterMe encourages you to try the 16 : 8 fasting approach, a proven method that consists of WHEN to eat rather than WHAT to eat. (App N6)

Monitoring appeared as a function in most of the descriptions; nevertheless, it was not employed as an expert support technique. The exception was App N2 which mentioned that a "follow-up of […] weight-loss and precise calorie-counting" could be carried out although it did not clarify how or why it was precise.

Finally, it should be highlighted that none of the descriptions made use of testimonials whether from application users or those who had prescribed them.

5. Discussion

The aim of this study was to observe, through their descriptions, how the most popular weight loss applications for the Spanish-speaking market were presented in the stores.

Analysis of the descriptions revealed that they all followed patterns similar to those reported by Larsen et al. [26] in mental health applications, particularly regarding functionalities, claims, and disclaimers. Nevertheless, there were some differences; for example, the descriptions we evaluated did not employ scientific language, technical expertise, or testimonials. This could be explained by the different natures of weight loss and mental health. Whilst both are considered as health issues, weight loss is also intertwined with more aesthetics and wellness pursuits [27] than mental health, therefore eliminating the need of using scientific language in their texts.

5.1. App Objectives. Regarding app objectives, all the applications except one were centered on weight loss. In some cases, this was linked to fitness (increase in muscular mass or getting into shape) which is crucial as weight loss is not only about shedding kilos but long-term maintenance [28]. In fact, only one placed particular emphasis on healthy habits. This is an interesting result, since weight loss discourses usually revolve around health motivation (i.e., improving one's health) [27]. However, by mainly focusing on weight loss and not healthy habits, it could be implied a more aesthetic motivation, rather than a health one. Especially when combined with the fact that the secondary focus of the apps objective was linked to fitness and mainly as a form of shaping the body.

5.2. App Claims. The claims made by the applications on weight loss were mainly based on efficacy. On occasion, this included the concept of rapid results and, to a lesser degree, health and safety. Taking into account that these applications can be employed autonomously, without professional healthcare supervision, it is interesting that the descriptions highlighted efficacy and speed over safety. Another key element was the concept that the users could attain their objectives easily or with little effort. These findings align with a neoliberal discourse around weight, in which losing weight is something that can be done in a simple an easy way [29] and, therefore, the obvious choice for the user.

5.3. App Contents and Language. With respect to application content, the descriptions were principally focused on the variety of content available and the possibility of personalization. Curiously, only two of the applications mentioned that, in addition, their content had been designed by experts. They did not, however, go into detail about what kind of experts had been involved.

Besides making claims about the kind of results the user could expect, the descriptions described their functions which mainly focused on nutrition and physical activity. A third type of key function was related to monitoring whilst those regarding support or community were barely present.

As previously stated, the descriptions did not place any value on supporting statements, and moreover, the only ones that referred to scientific backing did so without providing any references.

Finally, it was observed that some of the descriptions had not been well adapted either linguistically or culturally [18–20]. For instance, on occasions, they employed terms that had been literally translated and did not have the same connotations. In a similar manner, the pound, the official unit of weight for the United Kingdom, the United States, Liberia, and Myanmar, was provided as reference.

5.3.1. Implication. To our knowledge, this is the first study to examine weight loss app presentations in app stores. This can provide with a useful insight for researchers when studying weight loss media ecosystems and discourses. Based on our findings, it could be hypothesized that those weight loss applications that are the most downloaded are those which focus on an aesthetic result, as in weight loss per se instead of improving health or acquiring healthy habits, or doing exercise to shape the body in a certain way instead of—for instance—gaining function. Similarly, the focus on the effectiveness over safety and the lack of scientific references may be indicators that support this hypothesis that users may choose these applications for aesthetic reasons rather than health ones. This would be in line with the results of Kwan's [30] study, where she found that interviewees' main motivation to lose weight was aesthetic, although they acknowledge that it would also bring them health benefits.

There are also implications for healthcare professionals and app marketers. Although the use of weight loss applications can be an ally in clinical practice, results show how little they focus on safety. Therefore, our research could be useful for these professionals to become aware of the kind of apps that are available in the market and that their patients may be using. As for app marketers, our results show how app descriptors have not been neither properly translated nor adapted culturally. Therefore, this research shows how there is still room of improvement in this department which could ultimately give their apps an edge in the app stores.

5.3.2. Limitations and Future Research. This study has some limitations. As it was focused on weight loss applications following international guidelines the sample was reduced, this means that caution should be exercised when extrapolating our findings to the whole weight loss app ecosystem. Although it provides with an insight of how these apps are presented, it is not meant to be taken as a systematic review of all applications for weight loss. Consequently, and taking into account that the main focus of the descriptions was nutrition and physical activity, the number of applications including only one of these aspects could have been higher. Therefore, future research could expand the analysis to fitness or nutrition applications, which can also be used as aids for losing weight, increasing the sample.

In a similar manner, the analyzed descriptions were in Spanish, and it has been observed that they were inappropriately adapted, as if done by automated translation. This could mean that some connotations and nuances from the text were lost to the researchers. Further research could

establish whether this phenomenon only occurs in this language or is present in others.

Our work was centered on the text and content of the descriptions, without taking audiovisual content or users' comments into account. Therefore, for a more comprehensive understanding of app presentation on app stores, future research could include those variables to study. Additional investigations could focus on which cues in the stores are aimed at users for these weight loss applications by employing experimental methodologies. Another future research line could be conducting interviews or focus groups on users to assess their preferences and the cues they use when downloading weight loss apps.

6. Conclusion

This study has analyzed the descriptions of popular weight loss applications and how they are presented. It has been observed that their main goal is weight loss followed by fitness. Weight loss was shown to be linked to the concepts of efficacy, speed, and, to a much lesser degree, safety. With respect to application content, variety and the possibility of personalization were highlighted. There was no backing to support the claims of method efficacy or involvement of experts in the content creation, and neither was the language scientific, it tended to be simple and generic. Finally, there is considerable room for improvement in the linguistic and cultural adaptations of the texts of these application descriptions.

Data Availability

We focused on Google Play; all information published here is in the public domain.

Conflicts of Interest

We declare that no conflict of interest exists.

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