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"TU FARMACÉUTICO INFORMA" VIDEO ADVICE ON YOUTUBE: ANALYSIS OF EFFECTIVENESS AND IMPACT ON THE HEALTH EDUCATION OF INTERNET USERS

VIDEOCONSEJOS "TU FARMACÉUTICO INFORMA" EN YOUTUBE: ANÁLISIS DE EFICACIA E IMPACTO EN LA EDUCACIÓN SANITARIA DE LOS INTERNAUTAS

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RESUMEN

El Doctor Google es un fenómeno habitual en nuestro día a día. Antes de ir a la consulta con el médico/farmacéutico o después de ella acudimos a Internet para buscar información relacionada con nuestra salud y con los términos que nos ha comentado el profesional sanitario.

La búsqueda de información sanitaria *on line* es una práctica que realizó el 67% de los españoles entre 16 y 74 años en 2020, según datos de la Oficina de Estadística de la Unión Europea – Eurostat. Un porcentaje de búsqueda que se sitúa por encima de la media europea y que permanece en crecimiento desde el año 2017 en que se situaba en el 57% de los españoles.

Palabras clave: Redes Sociales, Educación Para la Salud, Información sanitaria, Profesionales sanitarios, Farmacéuticos, Comunicación institucional, YouTube, desinformación, comunicación audiovisual

ABSTRACT

Doctor Google is a common phenomenon in our day-to-day. Before going to the consultation with the doctor/pharmacist or after it, we go to the Internet to look for information related to our health and the terms that the health professional has told us.

The search for health information online is a practice that was carried out by 67% of Spaniards between 16 and 74 years of age in 2020, according to data from the Statistical Office of the European Union - Eurostat. A search percentage that is above the European average and that has been growing since 2017 when it stood at 57% of Spaniards.

Keywords: Social Networks, Health Education, Health Information, Health

professionals, Pharmacists, Institutional communication, YouTube, disinformation, audiovisual communication

DICAS EM VÍDEO "SEU FARMACÊUTICO INFORMA" NO YOUTUBE: ANÁLISE DA EFICÁCIA E IMPACTO NA EDUCAÇÃO EM SAÚDE DE USUÁRIOS DE INTERNET

RESUMO

Doutor Google é um fenômeno comum no nosso dia a dia. Antes de ir à consulta com o médico/farmacêutico ou depois dela, vamos à Internet para procurar informações relacionadas com a nossa saúde e com os termos que o profissional de saúde nos indicou.

A busca de informações de saúde online é uma prática que foi realizada por 67% dos espanhóis entre 16 e 74 anos em 2020, segundo dados do Serviço de Estatística da União Europeia - Eurostat. Um percentual de pesquisa acima da média europeia e que vem crescendo desde 2017, quando era de 57% dos espanhóis.

Palavras-chave: Redes Sociais, Educação em Saúde, Informação em saúde, Profissionais de saúde, Farmacêuticos, Comunicação institucional, YouTube, desinformação, comunicação audiovisual

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1. INTRODUCTION

The daily consumption of hours on social networks by Spaniards in 2021 has exceeded consumption in traditional media for the first time: press, radio, and television. While on Social Networks an average of 215.4 minutes per day was consumed in 2021; on television they were 207.7 minutes; on the radio 92.1 minutes, and the daily press, just 5.7 minutes (AIMC, 2022). In 66% of cases, Spanish Internet users use social networks to get informed, this being one of their main uses (Internet Advertising Bureau Spain 2021).

Social networks are booming and health information is one of the most demanded subject areas. The search for health content *online* was a practice carried out by 67% of Spaniards between 16 and 74 years of age in 2020 (Eurostat 2020). Search percentage that is above the European average and that has grown ten percentage points in the last 5 years.

Health information is of interest and social networks constitute an important channel of information and education for health. According to a bibliographic review on the use of social networks and their implication for health communication of articles published in WoS and PubMed between 2009-2019, 64.3% of the articles conclude that Twitter is an effective tool to educate in health (Cambroner & Gómez, 2021). However, this bibliographic review determines that in 58.3% of the articles a greater intervention by health professionals in communication and the generation of health content in Social Networks is still considered necessary.

A presence of health professionals and institutions in the sector on social platforms

that provide valuable, attractive content adapted to the language of each social network. An intervention and participation of groups of health professionals, scientific journals, official bodies, etc. as sources of primary information, contributes to providing veracity to health content in social networks. One of the advantages of social networks is that anyone who has a doubt or a question can obtain an immediate response to their need, bearing in mind that this greater dissemination of knowledge must go hand in hand with a greater commitment both to the formal quality of what is published as with the requirement of truthfulness (Matarín, 2016).

Disinformation and the publication of false content through social platforms constitute a serious problem in all areas, be it political, economic, or social. But it becomes more serious in the health field where the spread of hoaxes can put people's health and lives at risk. The fourth edition of the Health Without Hoaxes 2021 Study (*Estudio Salud Sin Bulos 2021*) points to Social Networks as the main channel for disseminating health hoaxes (45%), while WhatsApp and other instant messaging apps are in second place (24.9%). Regarding the main formats through which health hoaxes circulate, the following are identified: articles on the Internet (39.95), followed by videos (19%), and audio (19%) (Instituto Salud Sin Bulos, 2021).

In this context of the predominance of Social Networks, the generation of health content, and the fight against misinformation, the creation of the video advice channel "*Tu Farmacéutico Informa*" on YouTube is framed. A health education project—started in October 2016—promoted by a professional organization such as the General Council of Pharmaceutical Associations of Spain and a production company specialized in health such as Medicina TV, whose purpose is to provide reliable and quality content on the promotion of health and the responsible use of medicines.

2. OBJECTIVES

The use of audiovisual resources in the field of health education is a growing trend. However, there is little literature on the measurement, effectiveness, and scope of specific audiovisual programs carried out to promote health, as well as combat misinformation.

The objective of this work is to provide the experience of the *Tu Farmacéutico Informa* video advice channel on YouTube, in its more than 5 years of existence, with the publication of weekly video advice. These audiovisual pieces are created under *creative commons* license criteria, in its Attribution - NonCommercial - NoDerivatives (CC BY-NC-ND) category to facilitate their dissemination and reach.

A project that has, during the analyzed period, more than 65.6 million views, in which more than 300 video tips have been prepared on different topics such as the use of medicines, correct handling of inhalers, medicinal plants, dermopharmacy, support products, as well as information on pets and medicines for animal use.

3. METHODOLOGY

To measure and analyze the effectiveness and impact of the "Tu Farmacéutico Informa" video advice project on the health education of Internet users, a quantitative analysis of the channel's figures extracted from Google Analytics has been carried out in the period between the project's launch date —October 2016— until March 2022.

Likewise, the more than 18,900 comments received on the videos hosted on the platform and the audiovisual pieces that have been shared most times by users through other social networks have been analyzed and surveys have also been carried out among the community of users of the "Tu Farmacéutico Informa" channel, using the tools that YouTube makes available to content creators. The community of the *Tu Farmacéutico Informa* channel reached 374,500 followers during the period studied.

4. RESULTS

The still photo of the "Tu Farmacéutico Informa" video advice channel, at the closing date of the study, projects a health education initiative consolidated in its main indicators (Table 1) with a total of 374,500 subscribed users, more than 65 million accumulated views, with audience retention or average duration of viewing of each audiovisual piece of 60%, which reflects the interest of Internet users in the content produced.

Likewise, the project has received more than 640,000 likes; The video tips have been shared about half a million times through other platforms, amplifying their diffusion; and 18,900 comments and questions related to the content of the videos have been handled.

Table 1.

General data and most viewed videos of the YouTube channel "Tu Farmacéutico Informa"

DATOS GENERALES						
Vistas	Suscriptores Ganados	Me gustas	Compartido	Comentarios		
65.689.029	374.533	641.439	493.366	18.987		
‡ 486,485.4%	‡ 211,500.6%	‡ 451,617.6%	‡ 76,868.2%	‡ 632,800.0%		

Vid...	Título del vídeo	Vista...	Duración	Suscripci...	Comentari...	%Visualizacio...
1.	 Sildenafil, cuándo y cómo debemos tomarlo. Tu Farmacéutico Informa	4.153.1...	00:02:23	22.341	472	69,34 %
2.	 Metformina, cuándo y cómo debemos tomarla. Tu Farmacéutico Informa	3.298.7...	00:02:55	22.329	606	68,16 %
3.	 Jengibre, cuándo y cómo debemos tomarlo. Tu Farmacéutico Informa - #PlantasMedicinales	2.389.8...	00:02:37	17.059	340	68,51 %
4.	 Azitromicina, cuándo y cómo debemos tomarla. Tu Farmacéutico Informa	1.971.1...	00:02:34	11.367	444	70,37 %
5.	 Ibuprofeno, cuándo y cómo debemos tomarlo. Tu Farmacéutico Informa	1.931.5...	00:03:34	10.196	346	56,41 %
Total		65.682...	00:26:27	373.138	18.983	59,39 %

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Source: Google Analytics.

The most viewed video advice is a medication for erectile dysfunction "*Sildenafil, cuándo y cómo debemos tomarla*" (Sildenafil, when and how should we take it) with a duration of 2'23" that registers more than 4.1 million views with an average percentage of the viewed video of 69.3%.

The second most viewed video advice is the antidiabetic drug "*Metformina, cuándo y cómo debemos tomarla*" (Metformin, when and how should we take it) with a duration of 2'55" that registers more than 3.2 million views with an average percentage of the viewed video of 68.1 %.

The third most viewed video advice is from a medicinal plant "*Jengibre, cuándo y cómo debemos tomarlo*" (Ginger, when and how should we take it) with a duration of 2'37" that registers more than 2.3 million views with an average percentage of the viewed video of 68.5%.

The fourth most viewed video advice is about an antibiotic "*Azitromicina, cuándo y cómo debemos tomarla*" (Azithromycin, when and how should we take it) with a duration of 2'34" that registers more than 1.9 million views with an average percentage of the viewed video of 70.3%.

And the fifth most viewed video advice is from a highly consumed anti-inflammatory "*Ibuprofeno, cuándo y cómo debemos tomarlo*" (Ibuprofen, when and how should we take it) with a duration of 3'34" that registers more than 1.9 million views with an average percentage of the viewed video of 56.4%.

In total, taking into account the number of views and the average length of viewing of each piece, the channel "*Tu Farmacéutico Informa*" accumulates nearly 2 million hours of health content consumed by Internet users.

It should be noted that the most viewed video on the channel refers to sexual education content, a topic that usually heads the usual classifications and rankings of the most searched topics on the Internet. Likewise, the most viewed videos correspond to the most used and globally consumed medications, such as ibuprofen, omeprazole, or the case of azithromycin, which is among the best-selling antibiotics in the world (WIPO 2021).

4.1. Channel Evolution

Regarding the evolution of the figures recorded by the channel since its inception, they show a constant growth over time in the main indicators. A continuous progression both in the number of views of the videos (Figure 1) reaching peaks of 107,000 daily views; as in the number of followers (Figure 2), reaching levels of 630 daily new followers.

The development of the project continues to grow with a monthly average of between 9,000 and 12,000 new followers, which suggests that the scope and interest of Internet users for this health education initiative have not yet reached their peak.

Figure 1.

Evolution of the number of daily views of the "Tu Farmacéutico Informa" channel

**Durante el periodo seleccionado, tu canal ha conseguido
65.686.236 visualizaciones**

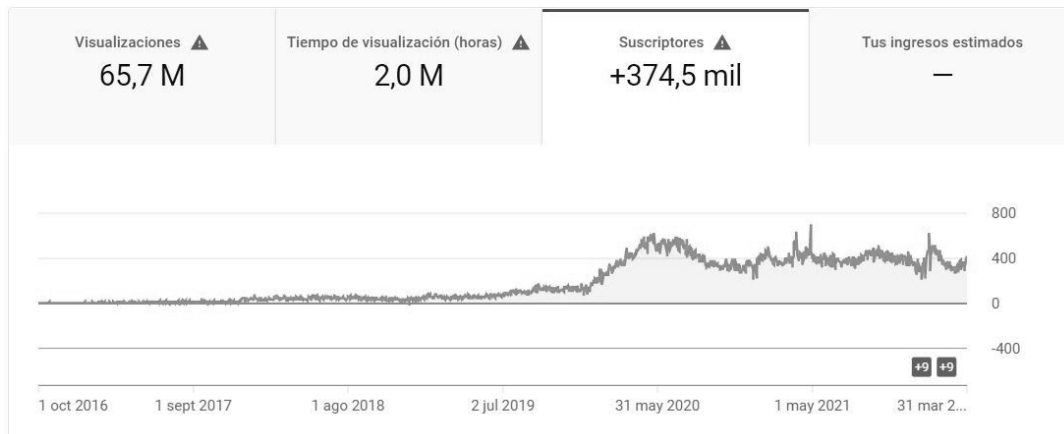


Source: Google Analytics.

Figure 2.

Evolution of the number of daily followers of the "Tu Farmacéutico Informa" channel

**Durante el periodo seleccionado, tu canal ha conseguido
65.686.236 visualizaciones**



Source: Google Analytics.

Besides the logical growth of the video advice channel —due to the cumulative production of videos and their viewing— a notable increase is observed, and then maintained over time, both in the number of followers and in views as a result from the start of the COVID-19 pandemic in March 2021. This significant growth of the channel goes hand in hand with the increase experienced by social networks since the start of the pandemic as a result of the periods of mandatory confinement. Mobility restrictions brought with them a greater number of users of Social Networks —with a year-on-year growth of 13%— and a greater time of use of social networks

(We Are Social. 2021). A pandemic triggered the use of social networks, as published by the *Expansión* newspaper in 2021.

4.2. Users' profile

The profile of Internet users who access the health content of the *Tu Farmacéutico Informa* channel is mostly female (54.8%) between 35 and 44 years old (20.5%) (Figure 3). This profile is very similar to that established by the INE study in 2021, on Equipment and use of ICT in homes, which shows, in 2021, a greater preference among women for health, educational, and social issues, especially when looking for information on health issues, with 7.4 points more than men.

Figure 3.

Age and gender of Internet users of the "Tu Farmacéutico Informa" channel.



Source: Google Analytics.

Although the majority average profile of the Internet user is a woman between 35 and 44 years old, there is also great variability regarding the age of the user concerning the topic of the video advice. For example, the video advice on sildenafil is seen by 95.8% of men over 55 years of age (38%), while the video on medication for the treatment of acne is seen mostly by young women between 18-24 years of age (60%).

For its part, access to the channel's audiovisual health information comes mainly from search terms on the YouTube platform, with 46.8%; followed by external sources, in 21.8% of cases, and suggested videos in 18.3%. (Figure 4).

A form of access to health information that fits into the patterns of use of this social network —preparation and searches for tutorials of the what is it for, how is it taken

type— and reaffirming the use of information consumption that is made on YouTube where the search engine option is quite useful. Mainly due to the link between the main search engine Google and the YouTube social video platform (El Mundo, 2016).

Figure 4.
Traffic sources of the "Tu Farmacéutico Informa" channel



Source: Google Analytics.

Regarding the origin of the views of the channel's videos, Internet users from Mexico occupy the first position, with about 30% of the total views; followed by Spain, 12%; and Colombia, 10%. (Figure 5)

Figure 5.
% viewing of the "Tu Farmacéutico Informa" channel by country



Source: Google Analytics.

Online globalization of content is also projected in the scope of the *Tu Farmacéutico Informa* channel, impacting practically all Spanish-speaking countries.

4.3. Analysis and management of the comments received

The management of the 18,900 comments received on the YouTube channel "*Tu*

Farmacéutico Informa" in the analyzed period follows a process of review, response, and publication by pharmaceutical professionals that allows providing Internet users with more information about the video advice, besides enriching the channel content and generating community.

The comments are open to all users, but public posting requires prior review and approval by the promoters of the channel. A review before the observations raised by Internet users prevents the publication of ads for miracle and illegal products that do not have the corresponding approval by the health authorities. Advertising comments from "healers" constitute a common practice in this type of network and are eliminated from the channel without being published.

All comments likely to generate disinformation and propagation of health hoaxes by bot accounts or profiles are also previously eliminated. Although, on certain occasions and depending on the profiles that make the comments and intentionality, the response to the comment is used to deny the hoax and reinforce the work of health education among the community of the channel. For example, when faced with a question from a user, José Tomás, about the drug Montelukast, which said: "Is it true that it drives you crazy?", the pharmaceuticals' response was: "Hello! Misinformation and health hoaxes are serious public health problems. Always go to reliable sources and consult experts, as in this case the General Pharmaceutical Council. Don't be fooled. #TuFarmacéuticoInforma".

The video tips that receive the greatest number of comments are those related to dermatology or skin care and health —35% of the total—followed by medications —30%— and the use of medicinal plants —20%. For example, the video advice "*Tienes una cicatriz ¿se puede eliminar?*" (You have a scar; can it be removed?) is the one that received the greatest number of comments during the analyzed period with a total of 610 comments (Table 2).

It is worth noting here the high number of comments recorded by the video advice on metformin (about the possible use of this off-label antidiabetic drug as a slimming agent to lose weight). Comments that received the following response from Pharmacists taking the opportunity to do Health Education:

Hello! As we have answered in other questions, metformin is currently authorized in Spain only as an antidiabetic drug, which is the indication in which its efficacy and safety have been demonstrated through clinical trials. AND REMEMBER: medicines are not consumer products, but health goods, which are not exempt from interactions, side effects, or contraindications, so their use must always be accompanied by the corresponding prescription, indication, and advice from a health professional. #TuFarmacéuticoInforma.

Table 2.

Videos with the highest number of comments received

Víd...	Título del vídeo	Vistas	Duración	Suscripci...	Comentari...	%Visualizacio...
1.	 Tengo una cicatriz ¿se puede eliminar? Tu Farmacéutico Informa #Dermofarmacia	816.625	00:02:56	4.612	610	58,2 %
2.	 Metformina, cuándo y cómo debemos tomarla. Tu Farmacéutico Informa	3.298.7...	00:02:55	22.329	606	68,16 %
3.	 Maca, cuándo y cómo debemos tomarla. Tu Farmacéutico Informa - #PlantasMedicinales	1.799.8...	00:02:09	15.084	598	71,41 %
4.	 Aciclovir, cuándo y como debemos tomarlo. Tu Farmacéutico Informa	749.682	00:02:25	3.761	537	69,85 %
5.	 Dermatitis seborreica en el cuero cabelludo. Tu Farmacéutico Informa #Dermofarmacia	1.569.6...	00:03:18	8.753	511	59,97 %
Total		65.682...	00:26:27	373.138	18.983	59,39 %

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Source: Google Analytics.

Another of the most frequent and recurring questions to video advice videos is how to take medication, whether before or after meals; about the need for a medical prescription or not for drugs; as well as the possible relationship between the consumption of medicines and/or medicinal plants during pregnancy or breastfeeding.

Also noteworthy is the existence of comments congratulating the initiative and thanking the information provided in the videos, highlighting their brevity, conciseness, and simplicity.

In this type of health channel, it is also common to manage comments about specific questions about users' health issues. Although, when faced with this type of query, they are told that the channel is only a health education initiative, that it is never about diagnosis or treatment, and to seek a healthcare professional. The existence of this type of online health channel is usually complementary projects to face-to-face activity, never substitutes.

Finally, although a minority in the analysis of the comments received within the channel, a group of *haters* towards the lobby of the pharmaceutical industry and chemical products, in general, is also observed. Users who do not identify themselves and who comment and criticize any information about medicines. In these cases, as with the hoax comments, they are analyzed and, where appropriate, used to respond positively if appropriate, reinforcing the health information. For example, in the ibuprofen video about when and how to take it, one user commented: "when? never. how? throwing it away if you have it." And the pharmaceuticals' response was: "Excuse me. Medications should not be thrown in the trash. They must be recycled to take care of nature <http://www.sigre.es/>".

The level of acceptance of the responses to the comments raised by Internet users is equally high, where more than 70% of the responses prepared and published by the *Tu Farmacéutico Informa* channel have obtained a like from the users who had asked the question.

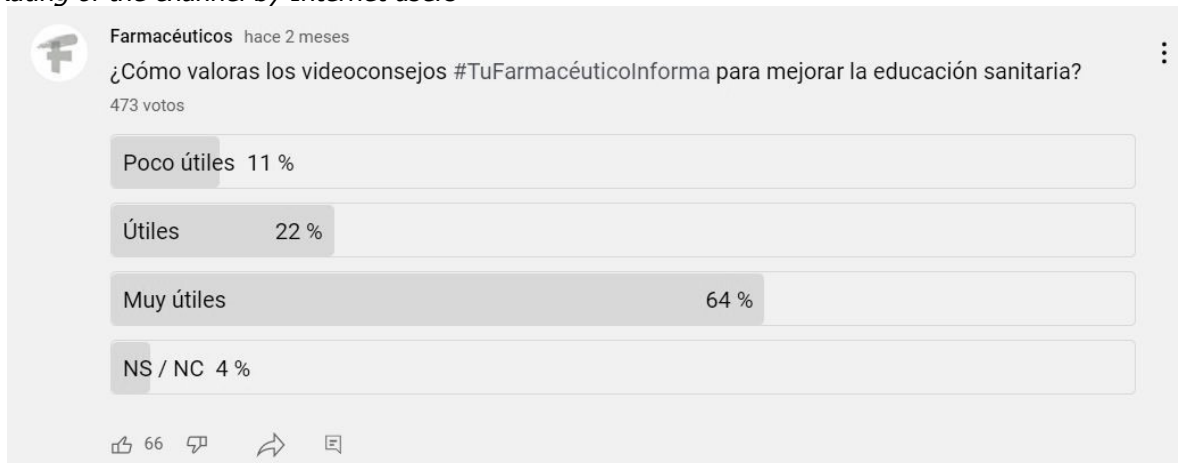
4.4. Rating by Internet users of the *Tu Farmacéutico Informa* channel

The acceptance of video health advice by Internet users is supported both by the retention of the audience—who watch on average more than half of each published video advice—and by the high number of comments received and the percentage of likes obtained compared to dislikes.

Likewise, to deepen the opinion of the users of the channel about the published content, surveys have been carried out within the YouTube channel "*Tu Farmacéutico Informa*". For this, several direct questions have been formulated, through the COMMUNITY tab enabled and existing within the video advice channel, so that they could be answered by the users of this thematic channel. Thus, a direct question was asked about the usefulness of video advice in improving the health education of users (Table 3).

The result of the question, answered by 473 Internet users who entered the community tab, shows that 86% of them value the health information provided by the channel's video tips as useful or very useful.

Table 3.
Rating of the channel by Internet users

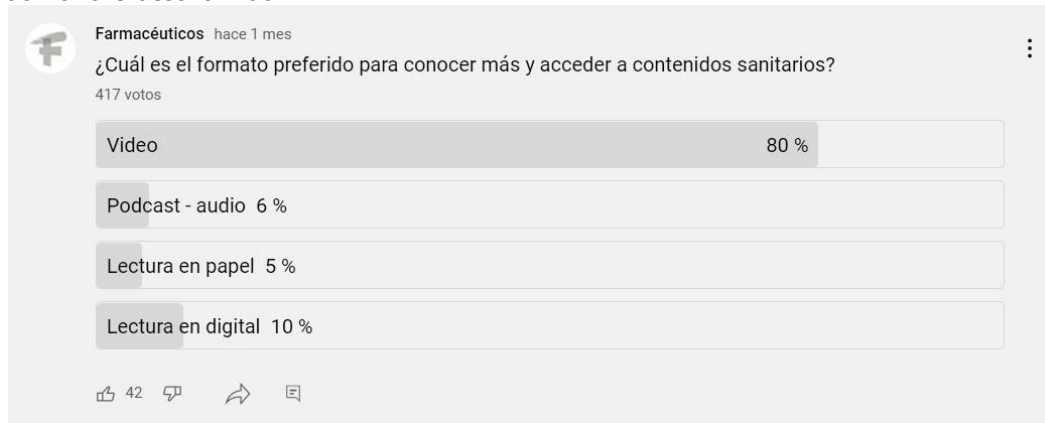


Source: Own elaboration.

Likewise, they were asked about the preferred format to access and consult health information, to which the majority responded through audiovisual content (Table 4). Not surprisingly, these are frequent users who are used to this audiovisual platform. It also highlights that paper, although a minority, is still considered an ideal means of accessing health information, even among digital users.

Table 4.

Evaluation of the best format



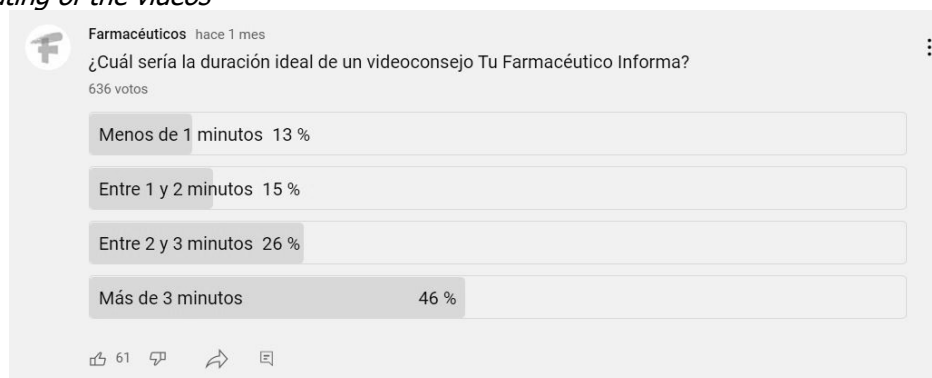
Source: Own elaboration

Regarding the question about the ideal duration of a video health advice, the majority response is surprising, where 46% of Internet users bet on pieces longer than 3 minutes (Table 5).

An extension that contradicts the usual duration of the pieces of the *Tu Farmacéutico Informa* channel, whose duration ranges between 2 and a half minutes and 3 minutes. Although the perfect duration of a video on YouTube should be adjusted to the content to explain it in the best possible way to viewers – whether it is 1 minute, 20 minutes, or even an hour – so that they understand it well. The duration of a video is usually not as decisive for the YouTube algorithm as the audience retention percentage is. That is the duration of viewing the video by the user (Revista para Youtubers, 2020).

Table 5.

Duration rating of the videos

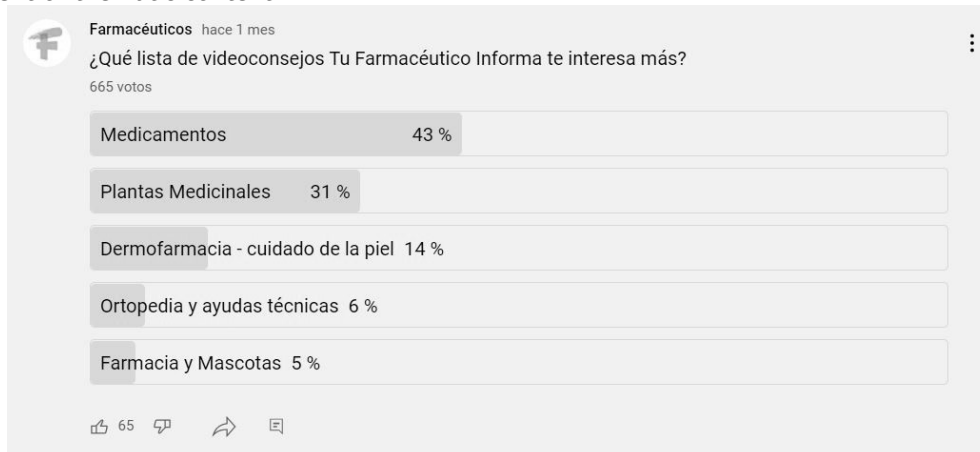


Source: Own elaboration.

As for the theme of the videos that are most interesting for users of the *Tu Farmacéutico Informa* channel, the majority opt for information on the use of medicines (43%), followed by medicinal plants (31%), and skin care and health/ Dermopharmacy (14%) (Table 6).

Table 6.

Assessment of thematic content



Source: Own elaboration.

5. DISCUSSION

Building a community around a health education initiative contributes to its success. The explosion of social networks ended the hegemony of one-way communication, as predicted by the Cluetrain Manifesto (Levine *et al.*, 1999), and listening, responding, and talking with the community are becoming increasingly important.

In this sense, maintaining and giving continuity over time to information and health education programs is a value to be taken into account both for the creation of the project's own brand and to generate memory and notoriety among Internet users. It must be borne in mind that health is not a daily search term for the user, but that the search occurs timelessly and on-demand in the event of the loss of one's own health, that of a family member, or an acquaintance.

Likewise, disinformation in Health is not only combated reactively in the face of the appearance of a hoax, dismantling it; but hoaxes are also curbed by acting preventively and implementing information and health education policies that contribute to the formation of society. An informed patient helps fight hoaxes and break the chain of their dissemination.

To do this, understanding how misinformation is produced and generated in the health field is a priority to combat it successfully. In this regard, experts point out that a key measure to prevent misinformation is to share good information and do it in a clear, complete, fast, and easily editable format (Salaverría, 2021).

The participation and commitment of health professionals to health disclosure on social networks is one more extension of their prestige and professionalism in the physical world. In this sense, the pharmacist as a health professional expert in medicine is positioned to be the best *influencer/referencer* in social networks for society on any aspect related to pharmacological treatments, as projected in the Decalogue on Medicine Information in Social Networks prepared by the General Council of Pharmaceutical Associations and *Salud Sin Bulos*.

5. CONCLUSIONS

As a result of the figures obtained and analyzed in these five years of operation of the "Tu Farmacéutico Informa" video advice channel on YouTube, the following conclusions can be drawn:

The presence of institutions and organizations in the generation of proven, reliable, quality, and attractive health content for the public on social networks is necessary and positive. Participation that responds to a growing need for rigorous information on medicines and on the world of health that serves as a counterweight against misinformation, hoaxes, and *fake news* in the health field.

Likewise, the adaptation of the message to the channel is essential for the success of health education initiatives on social networks. In the specific case of the YouTube platform, the successful operation of the video tutorial format is notable, that is, videos that answer the typical questions of "what is it for", "what to do", or "how to take it". This type of format, which provides specific answers to users' questions, is highly valued by Internet users to the extent that they are useful and solve their doubts. A successful format that has been translated into the field of Health through the video advice "Tu Farmacéutico Informa".

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