

## Facebook recruitment of smokers: comparing gain- and loss-framed ads for the purposes of an Internet-based smoking cessation intervention

Recrutamento de fumantes através do Facebook: uma comparação de anúncios com informações positivas e negativas em uma intervenção online voltada para a cessação do tabagismo

Captación de fumadores a través de Facebook: comparación de anuncios resaltados sobre los beneficios de dejar de fumar y los perjuicios del tabaquismo para una campaña publicitaria realizada en Internet como intervención contra el tabaquismo

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### Abstract

*Gain- and loss-framed messages about smoking behavior have commonly been used to promote cessation. However, there are still no clear conclusions as to what kind of message is more effective for motivating smokers to quit. This study compared the effectiveness of loss- and gain-framed messages in the on-line recruitment of smokers via Facebook Advertising. Loss- and gain-framed messages about smoking were created and released as Facebook ads. Users who clicked on the ads were automatically redirected to the “Live Without Tobacco” intervention (<http://www.vivasetabaco.com.br>). The amount spent on the ads was BRL 647.64. Data were collected from the Facebook Ads platform and from a relational database. Analyses were performed on the 6,350 users who clicked on one of the ads and 1,731 who were successfully redirected to the intervention. Gain-framed ads reached 174,029 people and loss-framed ads reached 180,527. The former received 2,688 clicks, while the latter received 3,662. The cost of the click was BRL 0.12 per gain-framed ad and BRL 0.09 per loss-framed ad. Loss-framed ads reached more users, got more clicks (and website accesses), and led to more accounts and quit plans being created. Loss-framed messages about smoking appear to be more cost-effective for both initial recruitment and intervention engagement. Facebook has proven to be a good outreach and recruitment tool and can be a solution for the difficulty in reaching smokers for cessation interventions.*

*Smoking Cessation; Online Social Networking; Advertisement*

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## Introduction

Tobacco use is the most important preventable cause of disease, disability, and death, leading to nearly 7 million worldwide deaths per year <sup>1</sup>. More than 6 million of those deaths are directly related to tobacco consumption, while around 890,000 are due to secondhand smoke exposure. Despite this, there are 1.1 billion smokers worldwide, 80% of them in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest <sup>2</sup>. According to data from the Brazilian Ministry of Health, about 21 million Brazilian adults (10.1% of the population aged 18 years or older) are smokers <sup>3</sup>. Traditional forms of smoking-cessation interventions include pharmacological treatment, psychotherapy, behavioral support, motivational interviewing, self-help interventions or a combination of various techniques – as recommended by the World Health Organization (WHO) <sup>4</sup>. Innovative technologies, such as the Internet and mobile phones, are increasingly being used to provide information and support to smokers undergoing the process of quitting. The Internet is a promising strategy to reach young smokers, considering its high rates of use among young adults <sup>5</sup>. Online interventions for smoking cessation have reached large samples of smokers <sup>6</sup>. Annually, about 13 million Americans search the Internet for information on how to quit smoking <sup>7</sup>.

Online and mobile technologies offer features that can help overcome access difficulties, cost, and disclosure barriers for smoking-cessation treatment. Behavioral support via the Internet has the advantages of being extremely cost-effective, increasing convenience and confidentiality, and reducing the stigma experienced by patients <sup>8,9</sup>. Such technologies may also be helpful for engaging unmotivated smokers in the quitting process <sup>10</sup>. For many smokers, web-based interventions may be the only source of information and support available during a particular attempt to quit. Moreover, social support via the Internet provides a potential complement to existing cessation interventions.

The challenges in the way of recruiting smokers for various types of cessation interventions – including those making use of the Web – as well as the low rates of use of any kind of cessation assistance have been well documented. The scientific literature on smoker recruitment has for some time been suggesting the need to assess alternative strategies, such as social media and campaigns targeting smartphone users <sup>11</sup>. Social media channels have shown success in reaching a variety of populations and environments <sup>12</sup>, going beyond the recruitment of samples from the general population and reaching specific groups, such as smokers. Studies have evaluated different methods of recruitment and found that social media <sup>13</sup> and particularly Facebook were the most effective recruitment channels in terms of amount of participants recruited, especially for interventions aiming at health behavior change <sup>14</sup>. This method is also more time-efficient – i.e. faster in the recruitment of participants – than traditional methods <sup>15</sup>.

Facebook is the world's most popular social media platform, and is available in more than a hundred languages <sup>16</sup>. There are more than 2.2 billion active Facebook users worldwide, which correspond to almost 35% of the world's population <sup>17</sup>. Brazil is the third country in the world in terms of registered Facebook users, totaling 130 million in January 2019 <sup>17</sup>. In recent years Facebook has become a dominant player in the field of digital advertising, with a revenue of about 8 billion USD in 2015 <sup>18</sup>. Because of its widespread use, anonymity, cost-effectiveness, and acceptability, the website has been increasingly used as a research recruitment strategy <sup>19,20,21</sup>. Facebook's ability to reach populations by making use of data such as user location and demographics is at the heart of its recruitment feature <sup>22</sup>. Furthermore, the privacy guaranteed by its terms of use can benefit the recruitment of hard-to-reach populations <sup>14,15,19,20,23</sup>.

Tobacco control programs have focused on a variety of measures to reduce smoking, including forbidding smoking in enclosed public places and increasing the price of cigarettes <sup>24</sup>. Communication strategies to transmit messages expressing the losses associated with smoking as well as the benefits of quitting are also being used <sup>25,26</sup>. The Kahneman and Tversky prospect theory states that people respond to messages in different ways, depending on how these messages are framed <sup>27</sup>. Health messages, for instance, can be framed in terms of potential gains (advantages or benefits) or in terms of losses (costs or disadvantages). Traditionally, health professionals have emphasized the negative consequences of failing to go along with a certain standard of behavior <sup>28</sup>. However, researchers have suggested that the influence of message framing depends on the type of behavior to be promoted, such as a preventive (e.g. sunscreen use) or detection behavior (e.g. mammography). Accordingly, the per-

suasiveness of messages framed in terms of losses or gains differs depending on the health behavior in question <sup>29</sup>.

Cigarette-pack warnings related to the negative consequences of smoking are used worldwide as a tobacco control strategy, but their effectiveness is still unclear <sup>30</sup>. Likewise, there is no clear conclusion about which type of message framing is most effective for changing smoking behavior <sup>31</sup>.

This study aimed to determine which type of smoking-related message, loss- or gain-framed, was most effective for online recruitment of smokers via Facebook Advertising. We compared loss-framed and gain-framed messages in terms of smokers' engagement to the intervention, as well as users' characteristics.

## Methods

### Design and participants

This was an experimental study with a cross-sectional design. Data were collected from the Facebook Ads platform and from a relational database. Analyses were performed on the 6.350 users who clicked on one of the ads and on the 1.731 users who were effectively redirected to the intervention.

### Procedures

Facebook ads have strict design specifications that usually involve a graphic image and several categories of text; these specifications, however, are subject to frequent changes. When this study was carried out, the amount of text that could appear within the image was limited to 20% <sup>32</sup>. According to Facebook's rules, these ads needed to have a 90-character text, a title, and an image <sup>33</sup>. Thus, we chose to focus on the non-verbal language required by Facebook's ad rules: for this purpose, two images, one loss-framed and one gain-framed, were created by a professional designer. Two ads, one with each type of message frame, were then released by Facebook. It is worth noting that the more specifically targeted the ad, the higher its cost <sup>34</sup>. The ads in this study targeted men and women aged 18 to 60 and located in Brazil. Facebook also allows targeting ads at specific users, based on their interests and activities. However, as smoking is not a totally acceptable behavior <sup>35,36</sup>, people may want to hide their smoking status <sup>37,38</sup> in social networks. In this sense, recruiting based on Facebook interests or likes will fail to capture many populations <sup>39</sup>. In order to maintain the widest generalization and reach as many users as possible, we did not use keywords for selecting ad targets. The ads are shown in Figure 1.

Ads ran from 7 to 9 days each, with time intervals between them. Each ad was published twice. A crossover design was used to reverse the order of these publications and to avoid potential bias. The washout period was one week between each ad and one month when the order of ads was reversed. The flowchart presented in Figure 2 illustrates this design.

Users were automatically redirected to the web-based intervention "Live without Tobacco" (<http://www.vivasemtabaco.com.br>) when clicking on ads. "Live without Tobacco" is a web-based intervention for smoking cessation. It is fully automated and its content is based on the "Treating tobacco use and dependence – 2008 update" guidelines <sup>40</sup>. More details about the intervention have been published elsewhere <sup>41</sup>.

### Instruments

Sample characteristics and smoking history. We measured age and gender. Smoking history was measured by questions like the number of cigarettes smoked per day and the number of previous quitting attempts. Questions were adapted from a nationwide survey <sup>42</sup>.

a) *Patient Health Questionnaire* (PHQ-9). PHQ-9 was used to evaluate the severity of depression and the existence of major depressive disorders. PHQ-9 is a nine-item questionnaire, in which each item receives a score ranging from 0 to 3. The questionnaire has been validated for several populations, including Brazilian ones <sup>43</sup>.

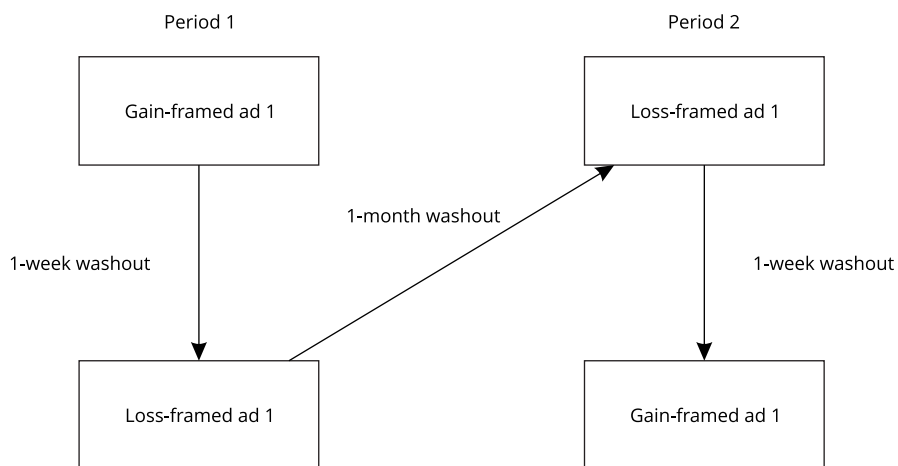
**Figure 1**

Ads released by Facebook.



**Figure 2**

Crossover design showing the order of ad's publication.



b) *Contemplation Ladder*. A one-question scale to evaluate readiness to change. Smokers choose one out of ten options to describe their readiness to quit. Scores range from 0 to 10, where 0 means not motivated at all and 10 completely motivated. The scale is validated and used in the Brazilian quitline service <sup>44</sup>.

c) *Fagerström Test of Nicotine Dependence (FTND)*. A six-item questionnaire. Individual item scores are added up to produce a total score of 0 to 10. It is widely recommended in clinical guidelines (such as the one from the U.S. Department of Health and Human Services <sup>40</sup>) and also in research studies to assess nicotine dependence <sup>45</sup>.

### **Data analysis**

Data extracted from the Facebook Ads platform and its intervention database were analyzed using the R programming language (<http://www.r-project.org>).

Facebook monitors ads' "impressions" (number of times an ad has been shown to the target population), "reach" (number of people who have viewed the ad), "clicks" (number of times the ad was clicked), and "cost per click" (calculated by dividing the total amount spent in the ad by the number of clicks received). These data were analyzed in order to assess the recruitment effectiveness of each ad. Inferential analyses, such as the chi-squared test, were performed to assess the degree of difference between proportions.

To track users' usage of the website, a redirect URL was assigned to each ad. A URL redirect is a web server function that sends the user from one URL to another. Here, it redirected the users who clicked on ads to the website's homepage. Frequency information was collected from each URL in order to assess user adherence to the intervention. These data were collected in four specific pages: (1) homepage; (2) account creation page; (3) choose an option page; (4) quit plan page. To prevent interference from potentially false accounts (e.g., excessive clicks on the same page and access to multiple pages in a short period of time), we inspected each case and excluded atypical ones. Exploratory and descriptive analyses were then performed. Users' characteristics were compared according to the ads they clicked, in order to obtain variables' indicators such as mean and standard deviation and infer the association degree between them. The chi-square test was performed to identify possible differences between proportions.

### **Compliance with ethical standards**

This study met all ethical standards required by *Resolution n. 466/2012* of the National Health Council (CNS, Brazil), which deals with ethics in research involving humans. This research was approved by the UFJF's Platform Brazil/Ethics Committee (process: CAAE – 49855915.9.0000.5147).

## **Results**

### **Results from Facebook Ads platform**

Gain-framed ad 1 reached 123,263 people and got 2,030 clicks (cost per click BRL 0.12), while loss-framed ad 1 reached 141,119 people and got 2,662 clicks (cost per click BRL 0.09). After the one-month washout period, the gain- and loss-framed versions of ad 2 had reached 50,766 and 39,408 users, and received 658 and 1,000 clicks (cost per click BRL 0.12 and BRL 0.07), respectively. All in all, the four runs received 6,350 clicks.

The ads followed a similar click pattern across both segments, with the loss-framed ad getting a higher proportion of clicks in comparison to the gain-framed in both segments (56.73% and 60.31% of clicks came from loss-framed ads 1 and 2, versus 43.27% and 39.69% from the gain-framed ad). In order to facilitate the analysis and the interpretation of results, the ads were combined as follows: (1) Gain-framed condition: gain-framed ads 1 and 2 (2,688 clicks, 42.33%), and (2) Loss-framed condition: loss-framed ads 1 and 2 (3,662 clicks, 57.67%).

The vast majority of clicks came from female users, both in the loss-framed (3,279, or 51.64%) and gain-framed (2,279, or 35.89%) conditions, meaning that 87.53% of all clicks came from women. Regarding participants' age group, the highest frequency of clicks came from users aged 45 to 54 years (2,625, 41.34%) and 55 to 64 years (2,209, 34.79%). The youngest users, with 18 to 24 years of age, had the lowest click rate (237 clicks, 3.73%).

Regarding users' devices, most clicks came from Android smartphones (5,546, 87.34%), followed by Android tablets (183 clicks, 2.88%), desktop computers (127, 2%), iPhones (54, 0.5%), and iPads (32, 0.5%). Other devices contributed with 408 clicks (6.43%).

Ads ran on both Facebook and Instagram. Almost all clicks came from Facebook (99.9%), with only two clicks from Instagram. Regarding ad placement, 97.97% of clicks came from a mobile news feed. Desktop news feeds, desktop right column and Instagram were the source of 1.92%, 0.08% and 0.03% of the clicks, respectively.

### **"Live without Tobacco" user data**

From these clicks, 1,731 users were directed to the intervention homepage (cost BRL 0.37), 613 users visited the account creation page (BRL 1.05), 437 chose one of the available options (BRL 1.48), and 32 created a quit plan (BRL 20.23). The total amount spent on ads was BRL 647.64. Table 1 shows the number of users on each page and the chi-square test result according to ad.

Concerning differences between ads, the values obtained by the chi-square test had an associated probability of  $< 0.001$  in all analyzed segments (redirection to the intervention, account creation page, "choose an option" page, and quit plan creation), showing there was a significant difference between the two conditions in regards to frequency of clicks.

Table 2 presents the comparison of users' sociodemographic characteristics, smoking history, motivation to quit, nicotine dependence, patterns of intervention use, and depression, according to each condition.

## **Discussion**

This study explored the use of Facebook paid ads as a recruitment method. We assessed the effectiveness of loss- and gain-framed messages on the recruitment of smokers to an Internet-based smoking cessation program. Moreover, we described the characteristics of users whose data was captured in relation to each condition.

Results show that Facebook is a good outreach and recruitment tool, and may be a solution for the difficulty in reaching smokers to be recruited for cessation interventions. A similar result was found in Bold et al.<sup>46</sup>, who showed that Facebook ads were effective for reaching smokers interested in treatment. Moreover, the use of other non-traditional recruitment approaches, such as Google Adwords and medical websites, may be a cost-effective way of recruiting participants for smoking

**Table 1**

Chi-square test result: proportion differences between conditions according to number of users on different intervention pages.

Page	Loss-framed condition	Gain-framed condition	$\chi^2$ value
Redirection to the website	1,076	655	102.39 *
Account creation page	417	196	79.675 *
"Choose an option"	306	131	70.08 *
Quit plan	24	8	8.0 **

\*  $p < 0.001$ ;

\*\*  $p < 0.05$ .

**Table 2**

Users' sociodemographic characteristics, smoking history, motivation to quit, nicotine dependence, patterns of intervention use, and depression, according to each condition.

	Loss-framed condition		Gain-framed condition		p-value
	Mean	SD	Mean	SD	
Age (years)	48.25	9.05	47.53	97	0.56
Cigarettes smoked daily	18.61	7.71	18	891	0.66
Motivation to quit (Contemplation Ladder)	6.56	1.57	6.78	1.49	0.57
Nicotine dependence (FTND)	9.61	2.15	9.82	1.72	0.78
Depression (PHQ)	8.19	5.51	12.67	9.71	0.09
# of pages visited	14.24	9.41	14.85	11.54	0.82
Time spent per visit	600.09	534.74	451.12	571.98	0.001

FTND: *Fagerström Test of Nicotine Dependence*; PHQ-9: *Patient Health Questionnaire*; SD: standard deviation.

Notes:  $\chi^2$  value = 2.2137; df = 1; p-value = 0.1368.

cessation studies on the web<sup>47</sup>. In any case, social networks have advantages over traditional methods of recruitment and can reach smokers who might not be reached in other ways<sup>48</sup>.

Emphasizing the negative consequences of smoking seems more likely to generate engagement in health promotion actions, considering that loss-framed ads were more effective not only in terms of number of clicks (3,662 out of 6,350 total clicks, 57.67%), but also in terms of users' adherence to the smoking cessation intervention. Loss-framed ads redirected more users to the website (1,076 out of 1,731 redirections, 62.16%), had a higher conversion output in terms of account creation (417 out of 613 created accounts, 68.03%), led to more users reaching the "choose an option" step (306 out of 437, 70.02%), and to more quit plans being created (24 out of 32 quit plans, 75%). A study assessing online smoking-cessation ads also showed that loss-framed ads generate higher click rates than gain-framed ads (0.105% vs. 0.095%, point estimate = 1.08, 95%CI: 1.03-1.14, p = 0.004)<sup>20</sup>. A study among adolescent smokers showed that prevention messages framed in terms of losses were a more effective way of influencing smoking-related attitudes and behavioral intentions<sup>49</sup>. However, studies in the literature have dealt with varying degrees of smokers' access to each type of advertising, meaning that there is still no clear conclusion about which type of message framing is most effective in promoting smoking-behavior change<sup>31</sup>. Considering that advertising via social networks is cheap, future researches using Facebook recruitment should consider rotating both types of advertising over time.

Average ad-click cost was BRL 0.10, confirming that Facebook is a cost-effective method of reaching smokers. Ramo et al.<sup>50</sup> also showed that ads were cost-effective for recruiting young adult smokers to a national online survey, in addition to producing a greater number of valid results than other methods. Facebook has greater success in initial recruitment than traditional methods<sup>13,51</sup>; however, some studies suggest that it is not the most cost-effective method when it comes to participant engagement<sup>46,52</sup>. In one of these studies, the cost per participant in the initial screening process was USD 16.63, while the cost per participant effectively enrolled in the study was USD 149.64<sup>52</sup>. A study<sup>46</sup> used Facebook Ads to recruit smokers and spent USD 0.27 per click, 1.76 per answered survey, 4.37 per eligible participant, and 34.35 per participant enrollment in the treatment. Similarly, our study showed Facebook had a greater effectiveness for initial recruitment (BRL 0.10 per click), with a much higher cost for each user who reached the last segment of the intervention website (BRL 20.23 per quit plan creation). Despite this variation, the cost per participant in this study was lower than in the other studies discussed here.

Even though many people click on online ads, most do not complete the survey or adhere to the intervention to which they were redirected<sup>11,53</sup>. Even after they express interest and fill in some data fields, an abrupt drop in the number of participants can occur when they are asked to enroll in intensive programs<sup>54</sup>. This has also been observed in other studies<sup>34,55,56</sup>, which concluded that less than 1% of people who clicked on an ad enrolled in the corresponding study, especially



in the case of large-scale randomized clinical trials. In these cases, Facebook may not be the most cost-effective approach <sup>50</sup>.

The vast majority of recruited users were female. Despite the bias this may introduce in the interpretation of results, it is common to get higher response rates among women in online surveys. A study <sup>57</sup> evaluating the effectiveness of different social media channels for recruitment also found a higher proportion of recruited women in its sample (54.19% vs. 45.81% males). Similarly, another study <sup>46</sup> used paid advertisements on Facebook to recruit smokers and got significantly more female responses than male ones (65.8% vs. 34.2%). According to the Pew Internet & American Life Project <sup>58</sup>, 74% women who use the Internet are also social media users, compared to 62% men. Women are also more likely to search for health information on the Internet than men <sup>59</sup>. The predominance of women in smoking cessation approaches has also been described <sup>60</sup>.

Previous studies have shown that smokers recruited in online interventions tend to be younger <sup>47,61</sup>. However, our findings show that the highest rate of clicks was from older age groups, such as 45-54 years of age (41.34%) and 55-64 years of age (34.79%). The average age of participants who enrolled in the intervention was 47.9 years. Social media use among Americans has increased massively in only ten years (2005 to 2015): from 8% to 77% in the 30-49 years age group; from 5% to 51% in the 50-64 years age group, and from 2% to 35% in the 65 years or over age group <sup>62</sup>. Furthermore, smokers seeking treatment tend to be older than those who do not seek treatment <sup>63</sup>. Consequently, young adults are less likely to enroll in smoking cessation programs <sup>64</sup>.

No statistically significant differences between the two conditions were found regarding almost all of the analyzed characteristics. A study comparing gain- and loss-framed messages for smoking cessation also found no significant differences between them <sup>65</sup>. Time spent per visit was the only characteristic with a statistically significant difference, with ads under the loss-framed condition obtaining higher scores. This difference was expected, considering that these ads had higher user adoption.

Higher levels of depression were found in users who enrolled in the website via gain-framed ads, as compared to those who came from loss-framed ads (12.6 vs. 8.1). Toll et al. <sup>65</sup> found a similar pattern in depression scores: 9.2 for users in the gain-framed condition, and 8.2 for users in the loss-framed condition. Experiments performed by Keller et al. <sup>66</sup> showed that message framing effectiveness depends on the receiver's emotional state. Participants with positive mood were persuaded more by loss-framed messages, while those with negative mood were persuaded more by gain-framed messages. Likewise, in this study, users with higher depression scores were persuaded more by gain-framed ads. Since depression is a comorbidity associated with smoking <sup>67</sup>, messages directed at this population need to be carefully framed, developed and evaluated.

Our study had some limitations. The first concerns the variability in users' response rates. After registering, users were able to freely browse the "Live without Tobacco" program. Consequently, not all participants responded to all instruments, and thus the characteristics indicated here cannot be generalized to all users of the intervention. To minimize this gap, strategies that increase online response rates are necessary.

The lack of further sociodemographic data was another limitation. It is known that socioeconomic status and educational level may influence the prevalence of smoking and Internet use. However, at the time of the study these data were not collected, and thus we cannot infer Facebook recruitment and message-framing effectiveness in respect to these specific characteristics. Future research should collect these data in order to better understand the relationship between these variables and message-framing effectiveness.

Although the ads' target was as broad as possible, some potential participants may not have been reached. Moreover, some people may have seen the ads and even clicked on them, but decided to access the site at a later time. A URL was created to track accesses coming from the ads, while accesses from other sources were excluded. One possible solution to this limitation is to ask users about how they found out about the website.

Finally, future research and recruitment using Facebook ads should consider the creation of advertisements highlighting other gains and losses associated with tobacco use, such as financial cost and social stigma.



## Conclusions

Given the increase of access to the Internet, the widespread use of social media (especially Facebook), and the ease of connecting to users who have mobile devices, researches using ads can be an important strategy to reach and engage smokers in cessation programs. Targeted ads can help reach specific populations, such as smokers. Additionally, Internet-based programs can be accessed immediately from Facebook ads, reducing the delay between recruitment and intervention usually present in traditional studies.

Smokers' characteristics did not differ drastically between the two conditions. However, the loss-framed condition was significantly more effective for recruiting and engaging smokers in the online smoking-cessation intervention, suggesting that messages emphasizing the negative consequences of smoking are better for promoting health behavior changes.

Facebook facilitates and optimizes recruitment time in online smoking-cessation interventions without substantial impact on the generalization of study results. However, the performance and convertibility (i.e. intervention adherence) of the recruitment methods are critical aspects that should be considered in the development of a recruitment plan.

As its major contribution, this study seems to be the first to assess the characteristics and usage patterns of users recruited via Facebook after the initial ad click, thus evaluating the effectiveness of this method not only in regards to number of clicks, but also intervention adherence. Moreover, this study's results contribute to the literature on the use of message framing for health behavior interventions.

## Contributors

N. M. Machado, H. P. Gomide, H. S. Bernardino, and T. M. Ronzani participated in all phases of research and article writing.

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## Conflict of interests

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

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## Resumo

A cessação do tabagismo tem sido promovida através de mensagens positivas, focadas em ganhos, e negativas, focadas em perdas. Entretanto, ainda não há conclusões claras sobre o tipo de medida mais eficaz na motivação dos fumantes para deixar de fumar. O estudo comparou a efetividade das mensagens negativas e positivas no recrutamento online de fumantes através de anúncios no Facebook. Mensagens negativas e positivas sobre o tabagismo foram criadas e divulgadas pelo Facebook Ads. Ao clicar nos anúncios, os usuários eram automaticamente direcionados para a intervenção "Viva Sem Tabaco" (<http://www.vivasemtabaco.com.br>). O valor gasto na divulgação foi de BRL 647,64. Os dados foram extraídos da plataforma de anúncios do Facebook e de uma base de dados relacionais. As análises foram realizadas para os 6.350 usuários que clicaram em um dos anúncios e para os 1.731 usuários que foram redirecionados para a intervenção. Os anúncios positivos atingiram 174.029 pessoas e os negativos 180.527, que foram convertidas em 2.688 e 3.662 cliques, respectivamente. O custo do clique foi de BRL 0,12 para os anúncios positivos e de BRL 0,09 para os negativos. Os anúncios negativos atingiram mais usuários, receberam mais cliques no site e tiveram maior conversão em número de contas e planos de cessação criados. As mensagens sobre as perdas associadas com o tabagismo parecem ser mais custo-eficazes, tanto no recrutamento quanto no engajamento dos fumantes na intervenção. O Facebook mostrou ser uma boa ferramenta de divulgação e recrutamento e pode ser uma solução para a dificuldade de alcançar fumantes para intervenções de cessação.

Abandono do Hábito de Fumar; Redes Sociais Online; Anúncio

## Resumen

Los anuncios resaltados sobre los efectos del tabaco se han utilizado para luchar contra el tabaquismo. No obstante, todavía no existen conclusiones claras sobre qué tipo de mensaje es el más efectivo para motivar a los fumadores a dejar este hábito. Este estudio comparó la efectividad de anuncios resaltados sobre los beneficios de dejar de fumar y otros sobre los perjuicios del tabaquismo para una campaña de captación de fumadores en línea a través de Facebook Advertising. Estos anuncios fueron creados y divulgados mediante Facebook Ads. Los usuarios que hicieron clic en los anuncios fueron automáticamente redirigidos a la intervención "Vive sin Tabaco" (<http://www.vivasemtabaco.com.br>). La cantidad invertida para su difusión fue BRL 647.64. Los datos se recogieron de la plataforma Facebook Ads y de una base de datos relacional. Los análisis se realizaron con 6.350 fumadores que hicieron clic en uno de los anuncios y con los 1.731 que fueron redirigidos a la intervención. Los anuncios sobre los beneficios de dejar de fumar llegaron a 174.029 personas y los relativos a los perjuicios a 180.527, que se convirtieron en 2.688 y 3.662 clics, respectivamente. El coste del clic fue BRL 0.12 para los anuncios sobre los beneficios de dejar de fumar y BRL 0.09 en el caso de los que subrayaban los perjuicios. Estos últimos alcanzaron a más usuarios, tuvieron más clics en la página web, y existió una conversión más grande entre el número de cuentas y planes creados para dejar de fumar. Asimismo, estos anuncios se muestran como más costo efectivos, tanto para la captación, como para la implicación de fumadores en esta intervención. Facebook ha demostrado ser una buena herramienta de alcance y captación y puede ser una solución para evitar la dificultad de llegar a fumadores en intervenciones de lucha contra el tabaquismo.

Cese del Hábito de Fumar; Redes Sociales en Línea; Anuncio

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