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A Field Experiment

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Abstract

Patients are reluctant to use telemedicine health services. Telemedicine is an "experience good," one that can be accurately evaluated and compared to its substitute (in this case, in-person visits) only after the product has been adopted and experienced. As such, an intervention that increases the probability of a first experience can have lasting effects. This article reports the results of a randomized field experiment conducted in collaboration with a health insurance company in Argentina. During the intervention, about two thousand households with no previous experience with telemedicine received periodic e-mails with information about the available services. It effectively increased the take-up and demand for telemedicine. Within the first eight months of the experiment, patients assigned to the treatment group were 6pp more likely to have used the service at least once (12pp higher for those who opened at least one e-mail.) This first use led to large cumulative effects over time. After eight months, the number of virtual consultations by the treatment group was six times larger than those of the control group. These results provide additional evidence about how information interventions can increase technological take-up within the health sector and add to the understanding of how behavioral barriers affect patients' resistance to technological adoption.

JEL classifications: I11, I13, D83, C93

Keywords: Behavioral biases, Field experiment, Telemedicine, Health

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1 Introduction

High and increasing costs, and inequality of access to healthcare are pressing issues for developed and developing countries alike. Telemedicine can potentially lower costs and increase the convenience of health services by shifting care from hospitals and clinics to homes and mobile devices (Bashshur, 1995; Ekeland et al., 2010; Wootton et al., 2011). Telemedicine can provide primary and specialized care to the geographically disconnected (Helm, 2005; Whitacre, 2011), during times of crisis in response to natural disasters (Nicogossian and Doarn, 2011) and humanitarian responses (Doarn et al., 2011), and when mobility is restricted by a pandemic (Dorsey and Topol, 2020; Hollander and Carr, 2020; Thilakarathne et al., 2020) or war (Gordon, 2022; Lee et al., 2023).

During the COVID-19 health crisis, telemedicine proved itself to be a viable substitute when in-person consultations were limited by mobility restrictions (Busso et al., 2022; Fernández-Ávila et al., 2021; Schmulson et al., 2021). Despite its growth and potential, its place in the healthcare system is still small.[1] One healthcare insurer in Argentina saw that by the end of 2020 more than 80% of their affiliates had no experience with telemedicine, even when it was free and readily available to them.[2] There are several reasons why people may be reluctant and resist the use of new technologies, such as telemedicine, that go from inconvenience (Baicker et al., 2012; Bertrand et al., 2004; Kremer et al., 2019; Madrian, 2014a; Rice, 2013) and mistrust (Mair et al., 2007) to behavioral biases (Hartman et al., 1991; Kahneman et al., 1991; Kang and Ikeda, 2016; Kremer et al., 2019; Linnemayr and Stecher, 2015; Madrian, 2014a; Rice, 2013; Suri et al., 2013; Tsai et al., 2019; Williams et al., 2018; Zhang et al., 2017). Telemedicine is an "experience good," one that can only be accurately evaluated and compared to its substitute (in this case, in-person visits) only after the product has been adopted and experienced (Busso et al., 2022). Therefore, reducing the barriers to first use may have multiplicative effects on its use.

In this paper, we evaluate the impact of an informational campaign that attempts to reduce the behavioral barriers to adoption. For the intervention, we partnered with *APSOT*, a health insurance company in Argentina, and *Llamando al Doctor*, the telemedicine company that provides telemedicine services to *APSOT* members and many others.[3] During the intervention, about 3,500 households that had access but had never used the system were randomly allocated to a treatment and a control group. Households in the treatment arm received a series of messages that present simple and actionable information about the benefits of telemedicine and how to use the service. The e-mails were sent from July 6 to August 24, 2021. After 8 months, the

[1] In 2020, 17% of outpatient care in the United States employed telemedicine. The demand for telemedicine was composed mainly of psychiatry and substance use disorder treatment (McKinsey, 2022)

[2] This experience is similar across all health insurers in Argentina, according to telemedicine provider *Llamando al Doctor*.

[3] *Llamando al Doctor* (or "Call your Doctor") is one of the two largest telemedicine providers in Argentina (the other provider is *Doc24*). It offers services to healthcare providers, insurance companies, and individual patients across the country. In 2023, *Llamando al Doctor* offers services in 10 countries, provides services to more than 6 million subscribers, and has 500 affiliated doctors (for more information, see https://www.llamandoaldoctor.com/nosotros.html).

households assigned to treatment were about 6pp more likely to have used the system at least once than those in the control group (3.5 times more likely than those in the control group.) Considering the household that opened at least one of the e-mails, the difference doubles. Importantly, this first use led to a larger cumulative difference in use over time. After eight months, the number of virtual consultations by the treatment group was six times larger than those of the control group.

The results provide evidence that information interventions can effectively change patients' behaviors and the status quo. They are even more encouraging considering that the environment for this intervention is more complex than for other take-up interventions. Compared to interventions where the individual can take immediate action after receiving the message, in this case, households are receiving information about a service they do not necessarily need to use immediately but only once they have to conduct a medical consultation. As such, even if the messages change beliefs and intentions, they may not affect actual measurable behavior in the short to medium run.

This paper contributes to the literature using reminders, messages, and other behaviorally-informed treatments to increase compliance in the health sector. Previous studies have found that reminders can decrease no-show rates for clinics (Farmer et al., 2014), and increase prenatal doctor visits (Busso et al., 2017), the frequency of dental check-ups (Altmann and Traxler, 2014) and the screening rates for breast and cervical cancer (Huf et al., 2020; Uy et al., 2017; Kerrison et al., 2015). They can also increase the demand for vaccination (Batteux et al., 2022; Busso et al., 2015; Dombkowski et al., 2017; Martinez Villarreal, 2023; Milkman et al., 2022; Moehring et al., 2023). Messages that employ digital tools are proven to benefit meaningful public health decisions and reduce the cost of these interventions, and they can even change the behavior of doctors and nurses (Cuesta et al., 2021; Kannisto et al., 2014; Murtaugh et al., 2005; Torrente et al., 2020). The results presented in this paper constitute evidence that information interventions are also effective in promoting telemedicine use.

This paper also adds to the literature on "experience goods." The demand for these goods changes significantly after individuals try them (Sunstein, 2019), which leads to an inefficient equilibrium ex ante. Because people underestimate the value of the good, dynamic pricing (lowering the price originally and then gradually increasing it) has usually been the market solution (Gale and Rosenthal, 1994; Nijs and Rhodes, 2013; Shapiro, 1983).[4] Another way of dealing with such an inefficient equilibrium has involved regulation. The case of rear-view cameras in cars is a good example of this approach. Once they became mandatory and people experienced them, they were willing to pay more and ask for compensation if the car did not have it (Sunstein, 2019). In the case of certain products, however, consumption may be low even if the price is zero, and making it the default option may have economic and political costs. This is the case of telemedicine. To avoid charging a price, most health insurance plans provide the service for free. Making telemedicine mandatory at the health insurance level, however, risks exit to other insurers. Making it mandatory at the national level could generate political backlash. Moreover, because for certain medical conditions it

[4] A popular version of dynamic pricing is the now common use of a "7 day free trial period" for most paid service subscriptions.

may be preferable to attend the patient in person, mandatory use could carry additional health and welfare costs. Behaviorally-informed interventions, such as those described in this paper, could complement the set of policy tools for this type of goods.

2 Intervention

2.1 Background

Argentina is one of the first adopters of telemedicine in the region (LeRouge et al., 2019). It is no surprise considering the vast territorial extension of the country and the increasing costs of healthcare.[5] In 2019, 26% of hospitals nationwide reported offering telemedicine services to their patients (LeRouge et al., 2019).[6] During the pandemic, the Argentinian telemedicine network experienced a rapid expansion within the private and public sector, and regulation adapted to allow electronic or digital prescriptions, enabling their use in telecare platforms.

The public platform TELESALUD hosted 120,000 consultations in 2020, a 600% increase from the previous year (WHO, 2022). Private health providers also experienced a sharp expansion of telemedicine demand. Telemedicine demand for these providers increased by 200% with a persisting trend for the rest of the year (Busso et al., 2022). Despite this unprecedented increase, telemedicine's place in the healthcare system is still small. In the case of *APSOT*, which is similar to all the other insurance companies *Llamando al Doctor* works with, by the end of 2020, more than 80% of their affiliates had no experience with telemedicine, even when it was readily and freely available to them. If the goal is to achieve widespread use of telemedicine, the challenge lies in understanding the elements that fuel resistance to adoption.

2.2 Treatment Design

Why do people resist adoption? Most people have experience with in-person medical consultations, which have long been the standard. As switching from the status quo is not easy, people need to experience telemedicine before adopting it as a regular practice. In the case of Argentina, and in line with pricing practices for experience goods, telemedicine is free (either publicly provided by those attended by the public system or by the private health insurances), so reducing the price is not an option.[7] Still, there are ways in which the cost of switching can be reduced by dealing with the reasons that may delay adoption.

First, patients may lack information or feel mistrust about the effectiveness of telemedicine. Individuals do not know how telemedicine works, and they may be

[5] In 2019, the national health budget represented around 7.3% of total government expenditure (LeRouge et al., 2019)

[6] The use of telemedicine is well regulated, including the requirement of providing secure communication channels, data privacy, and appropriate informed consent from patients.

[7] In Argentina, health insurance is mandatory for all formal workers in the private and the public sector; informal employees and retirees have access to the public system, but many also hold private sector insurances).

worried that the quality of the physicians and the experience could be subpar (Kimball and Morgan, 2021; Yee et al., 2022). Second, switching to telemedicine has some real—even if small—inconvenience factors, such as having to download and set up the technology, which could discourage its use, or trigger procrastination (Kahneman et al., 1991). Third, a number of behavioral biases may limit the use of telemedicine. Individuals may not download the application because of present bias, which makes people undervalue the future gains of having the service ready to use should they become sick (Kang and Ikeda, 2016; Kremer et al., 2019; Linnemayr and Stecher, 2015; Madrian, 2014a; Williams et al., 2018). Once they are sick, moreover, the cognitive burden could be too high for individuals to use the service. This can be compounded by optimism bias, which leads people to underestimate the probability of negative events (e.g., "why would I download the app and register if I never get sick?") or by loss aversion, which can lead people to worry that using telemedicine could jeopardize access to in-person visits later on (Kahneman et al., 1991; Reed et al., 2021). These biases build on consumers' reticence to move from a known status quo to newer alternatives (Hartman et al., 1991; Kahneman et al., 1991; Rice, 2013; Suri et al., 2013; Tsai et al., 2019; Zhang et al., 2017).

The messages employed in the campaign and sent to the treatment group are designed to address these barriers. First, the messages present simplified access to information about the benefits of *Llamando al Doctor* and easy-to-follow guides for using the service (Madrian, 2014b; Sunstein, 2020). Second, they include actionable steps and calls to action (Dhami and Sunstein, 2022). Third, the messages rely on innovative and interactive ways to present information about how to use the service giving more salience to the ease of use and utility (Dhami and Sunstein, 2022). These messages also contain priming questions designed for the reader to actively consider their choice of using telemedicine (Cohn and Maréchal, 2016). Finally, these e-mails also highlight that the service is provided by the same doctors whom patients see in their in-person visits in order to reduce mistrust. By providing quotes and the personal information of the doctors, the messages generate personalization and familiarity (Mills, 2022). The eight e-mails are attached in the Appendix A.1. An explanation of each behavioral insight used in the construction of the message is provided as well.

2.3 Sample and Data Collection

To increase telemedicine take-up using e-mail reminders and behavioral messaging, we conducted a communication campaign in partnership with *APSOT*, a private health insurance company that serves the managerial staff of the Techint Group in Argentina.[8] At the time of the intervention, *APSOT* had 10,936 individual members (which includes policyholders working for Techint and their relatives or dependents).[9] Several criteria were considered for inclusion in the intervention: i) the primary beneficiary of the insurance account should be at least 18 years old, ii) all of the members under one

[8]Techint is a conglomerate that operates in the construction business, and it is the largest steel-making company in the country. It employs more than 50,000 employees worldwide. For more information see https://www.techint.com.

[9]*APSOT* provided the team only anonymized information.

account had no prior experience with telemedicine, and iii) the primary beneficiary has a registered e-mail address with *APSOT*. For the purposes of the study, the primary beneficiary is considered to be the head of the household. Because *APSOT* has contact information for the primary account holders and not each individual in the household, the unit of observation for this study is a household comprised of all members sharing one account. Column 1 in Table 2 provides descriptive statistics of the primary beneficiaries and household composition.[10]

A sample of 3,548 households was randomized into a control and a treatment group (1774 in each group.) Two strata were used during the randomization: households that live in the capital city of Argentina (29%) and those that live in other cities (71%). The sample is balanced between treatment and control in all the available observable covariates (Table 2.)

The intervention consisted of eight e-mails sent by *APSOT* between June 6 and August 24, 2021. Table 1 presents the dates and subject lines of these e-mails. The content of each individual e-mail is included in Appendix **??**. We only use administrative data. *APSOT* provided houlsehold data and *Llamando al Doctor* provided information about the virtual medical consultations for each *APSOT* member. *Llamando al Doctor* also provided group-level information of the number of downloads of the app (*Llamando al Doctor* has access to the total number of downloads coming from the members of *APSOT*, but that information cannot be linked to the individual household until the app is used).

Figure 1 shows the cumulative opening rates and the additional number of households that engaged with the campaign. The number of e-mails read weekly ranged from 435 to 613, with a decreasing trend over time. Throughout the first week, 35% of the treatment sample opened the e-mail. The opening rate gradually decreased; the last week the opening rate was only 25%. Household engagement is computed by considering those households that opened an e-mail for the first time each week. While the number of households that opened an e-mail for the first time in week 1 was 613, the number dropped to 17 by week 8. By the end of the campaign, 901 households, or 51% of the treatment sample, had opened at least one of the e-mails.

2.4 Empirical Strategy

The main specification is:

$$Y_i = \beta_0 + \beta_1 T_i + \epsilon_i \tag{1}$$

where Y_i is an outcome variable for individual i -whether household used telemedicine, T_i is an indicator variable that records assignment to treatment, β_1 is the intent to treat effect of the communication campaign. Regressions also include a set of control variables for robustness purposes. Given that many household may not actually receive the e-mails or open them, we also compute the LATE estimates using an instrumental variables estimator of actual treatment (opening at least one of the eight e-mails) instrumented by assignment to treatment.

[10]The median household in the sample has a primary beneficiary who is a male, active, about 50 years old, and outside the capital. In addition to the primary beneficiary, the household is comprised of 2 additional family members, including a younger child.

2.5 Results

Was the campaign successful? A first look at this is by looking at the number of households downloading the mobile application, which is a prerequisite to being able to use telemedicine services when needed. Because we cannot link the downloads to each individual member, we can only present suggestive evidence. Figure 2 shows the time series of downloads, with dotted lines indicating the dates of each e-mail. As can be observed, the pattern of downloads is quite stable during the six months previous to the campaign, with an average of six downloads per day. In order to see if this pattern changes statistically after the intervention, we conducted an event study approach to evaluate the differences in downloads of the application during each week of 2021. Figure 3 shows the event study estimation of new app users each week relative to the immediate week before our first intervention (Week 26). As can be observed, the download pattern prior to the intervention is consistent and does not statistically deviate from our baseline. The pattern, however, drastically changes once the intervention begins in week 27. On July 7, the number of mobile application downloads jumped to 107. The application download growth relative to the baseline is statistically significant for the first three weeks after the first intervention, with user growth also significant at week 5. A similar pattern of out-of-trend peaks occurs the days the rest of the messages are sent. The decreasing size of the peaks is aligned with the decreasing rate of new e-mail openings shown in Figure 1. After the last e-mail sent on week 34, the number of downloads stabilizes again. This evidence helps to link the e-mail campaign and the use of the service, which we explore next.

Table 3 presents the regression results for the estimation of equation 1 (ITT). Odd columns present the regression results with no controls and even columns with controls for the use of the app by 3 different cut-off dates: 30 November 2021, 31 December 2021, and 28 February 2022. The coefficient of interest estimates the probability that a household in the treatment group would have used the service compared to one in the control group. Five months after the beginning of the campaign, the treatment group was 4.1pp more likely to have used telemedicine compared to the control group (column (2)). The difference between the treatment and control group grew over time to 4.5pp after six months and to 6pp after eighth months. This is about three-and-a-half times larger. While the coefficients and absolute numbers may seem small, it is important to notice two things. First, we are measuring the use of the app, which requires not only downloading it but also having a medical need to use it. Second, only about half of the households in the treatment opened the e-mail.

To compute the effect of the e-mails for those who actually opened them, we run an instrumental variable model of the variable *Read*, that indicates which households opened at least one e-mail using assignment to treatment T as the instrument. Table 4 presents the results. As expected given the opening rate of e-mails, results are now twice as large. For the individuals who opened at least one e-mail, the probabilities of having used the service were 8.1pp, 9pp, and 11.9pp larger than for those in the control group at each data cut-off.

Results in Table 3 report the likelihood that a household assigned to treatment used telemedicine at least once. As we have argued, telemedicine is an "experience good." Once households try it, they may use it more. Figure 5, shows the cumulative number

of telemedicine calls and fist-time users from the start of our treatment until the last cut-off date in February 2022. Because neither control nor treatment individuals had any experience with telemedicine at the beginning of the intervention, the lines start at zero. Soon after the intervention started, the trends start to diverge. By the end of 2021, the treatment group had 103 new first-time users compared to 24 in the control group. By the eighth month, the difference was 133 to 29, more than four-and-a-half times larger. As expected, the number of total calls grows even more than first use for both groups. By the last cut-off date, the average user in the treatment group had made more than two calls and six times more calls than those in the control group.

3 Conclusions

Telemedicine can increase access to health care, reduce healthcare costs, and expand service, particularly to geographically remote and underserved populations (WHO, 2016). The pandemic, the war in Ukraine, and recurring natural disasters have heightened its role to provide relief to strained healthcare systems, help meet increasing demand, and provide basic medical care when mobility or access to medical centers is restricted. The use of telemedicine, however, faces demand-side as well as technological restrictions. Offering the service for free, for instance, is not enough. There are many reasons why demand is lower than it could be, but once households try the service, its use accelerates. Behavioral tools can help lower barriers to the service and nudge people into using it.

This paper shows that information campaigns can be successful for increasing telemedicine use. This paper nonetheless has some limitations. The sample is relatively small and not representative of the overall population of Argentina. Also, even though we partnered with a health insurance company, we cannot estimate the impact of using telemedicine on in-person visits and health outcomes. For example, is telemedicine a substitute or complement to in-person visits? Does it improve health outcomes by providing more and easier access to doctors? These are still open questions, and future research may need to pair the take-up intervention with a full evaluation of the long-term impact on those outcomes.

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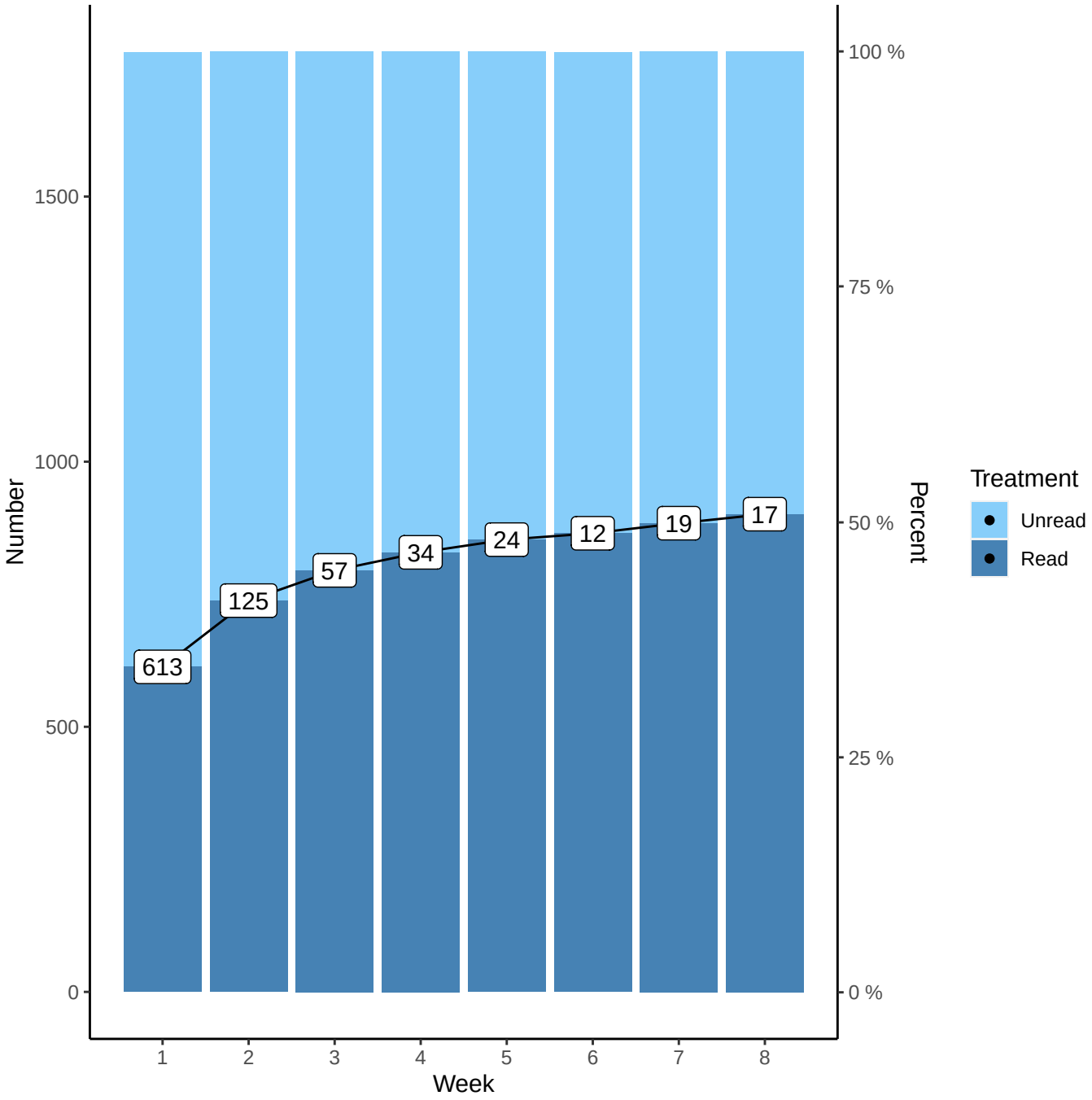
4 Tables and Figures

Table 1: E-mail campaign Timeline

E-mail	Date Sent	Subject Translation	Original Subject
A1	July 6, 2021	Winter is coming! Download Call the Doctor	¡Se viene el invierno! Descarga Llamando al Doctor
A2	July 14, 2021	Winter is here. Download Call the Doctor	Llego el invierno Descarga Llamando al Doctor
A3	July 20, 2021	A quick and safe way to visit your doctor. Download Call the Doctor	Una forma rápida y segura de ver a tu médico. Descarga Llamando al Doctor
A4	July 27, 2021	Someone in your family needs to see the doctor? Download Call the Doctor for them.	¿Alguien de tu grupo familiar necesita una consulta médica? Descargales Llamando al Doctor
A5	August, 3, 2021	Your doctor from the comfort of your home. Download and use Call the Doctor	Tu médico desde la comodidad de tu casa. Descargá y usá Llamando al Doctor
A6	August 10, 2021	CallTheDoctor: A doctor without leaving your home	LlamandoAlDoctor: Un médico sin salir de tu casa
A7	August 17, 2021	Did you already used our app CallTheDoctor?	¿Ya usaste nuestra app LlamandoAlDoctor?
A8	August 24, 2021	Do you need a consultation? Download Call the Doctor	¿Necesitás hacer una consulta médica? Descargá LlamandoAlDoctor

Figure 1: E-mails Opening Rate



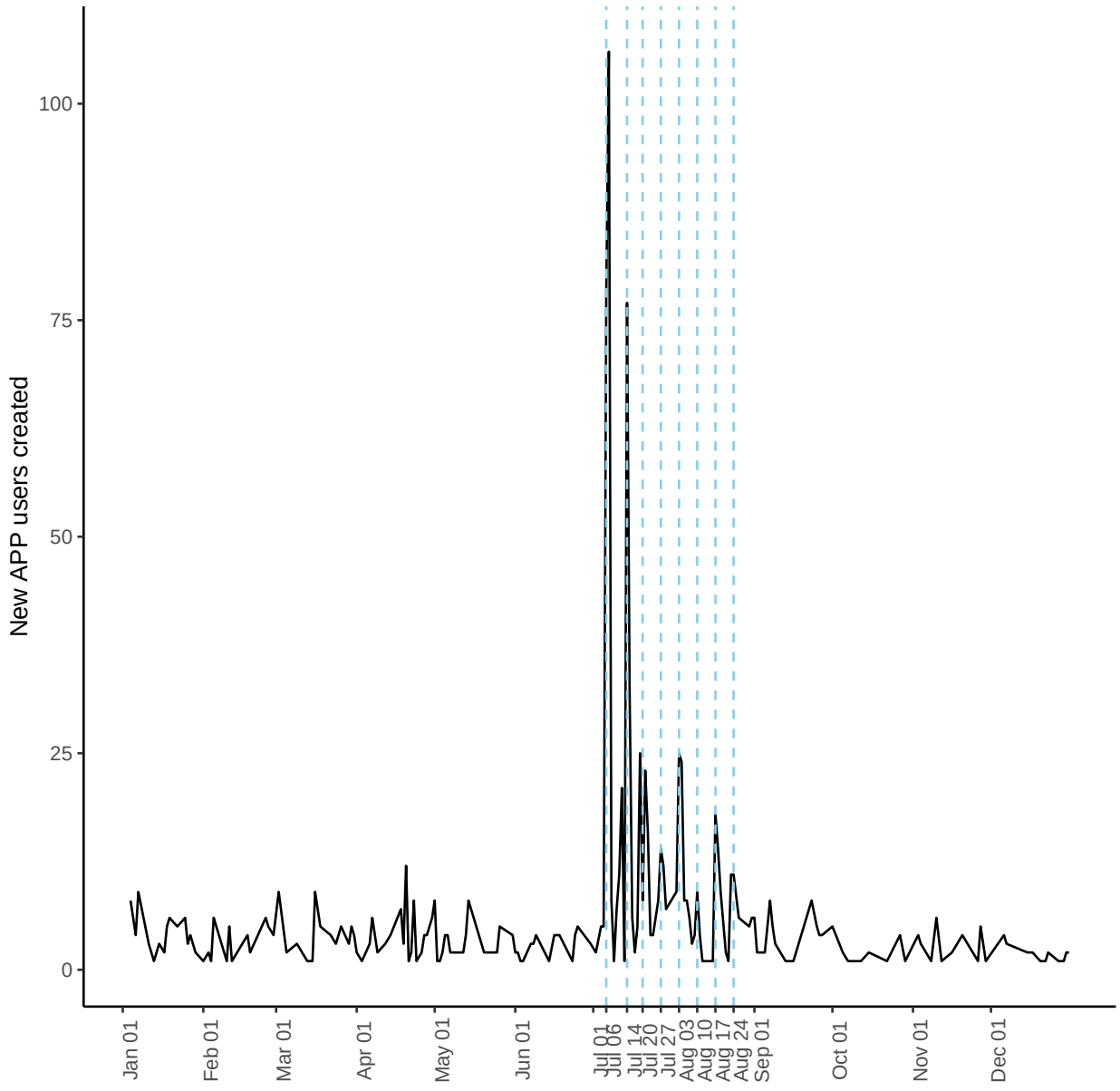
Note: This figure shows information about the opening rate of the e-mails during the campaign. The dark blue columns represent the accumulated number of households that opened an e-mail. The left scale provides the number of households, while the right scale provides the proportion of households in this category. The label above each column provides the additional number of households that opened an e-mail for the corresponding week.

Table 2: Testing Balance Between Groups

Covariate	Sample Mean (1)	Control (2)	Treatment (3)	Difference (4)	P.value (5)
Male	77.9%	77.7%	78.2%	-0.5%	0.716
Capital	28.9%	28.9%	28.9%	0.1%	0.97
Active worker	75.6%	75.8%	75.5%	0.2%	0.876
Age	49.8	50.1	49.54	0.56	0.341
18-24	4.1%	4.3%	3.9%	0.4%	0.553
25-39	28.2%	27.3%	29.0%	-1.6%	0.279
40-54	31.7%	31.7%	31.7%	0.1%	0.971
55-64	13.2%	14.0%	12.4%	1.6%	0.165
65 or older	22.9%	22.7%	23.1%	-0.4%	0.78
Family Members	2.4	2.35	2.42	-0.07	0.12
<2 members	61.1%	62.4%	59.8%	2.6%	0.113
3-5 members	37.5%	36.4%	38.7%	-2.4%	0.145
5-9 members	1.4%	1.2%	1.5%	-0.2%	0.561
HH with younger	34.1%	33.1%	35.1%	-2.0%	0.215
HH with older	18.2%	18.2%	18.2%	0.0%	1
HH w. older & younger	23.2%	22.3%	24.1%	-1.8%	0.203
HH with none	47.8%	48.8%	46.9%	1.9%	0.268

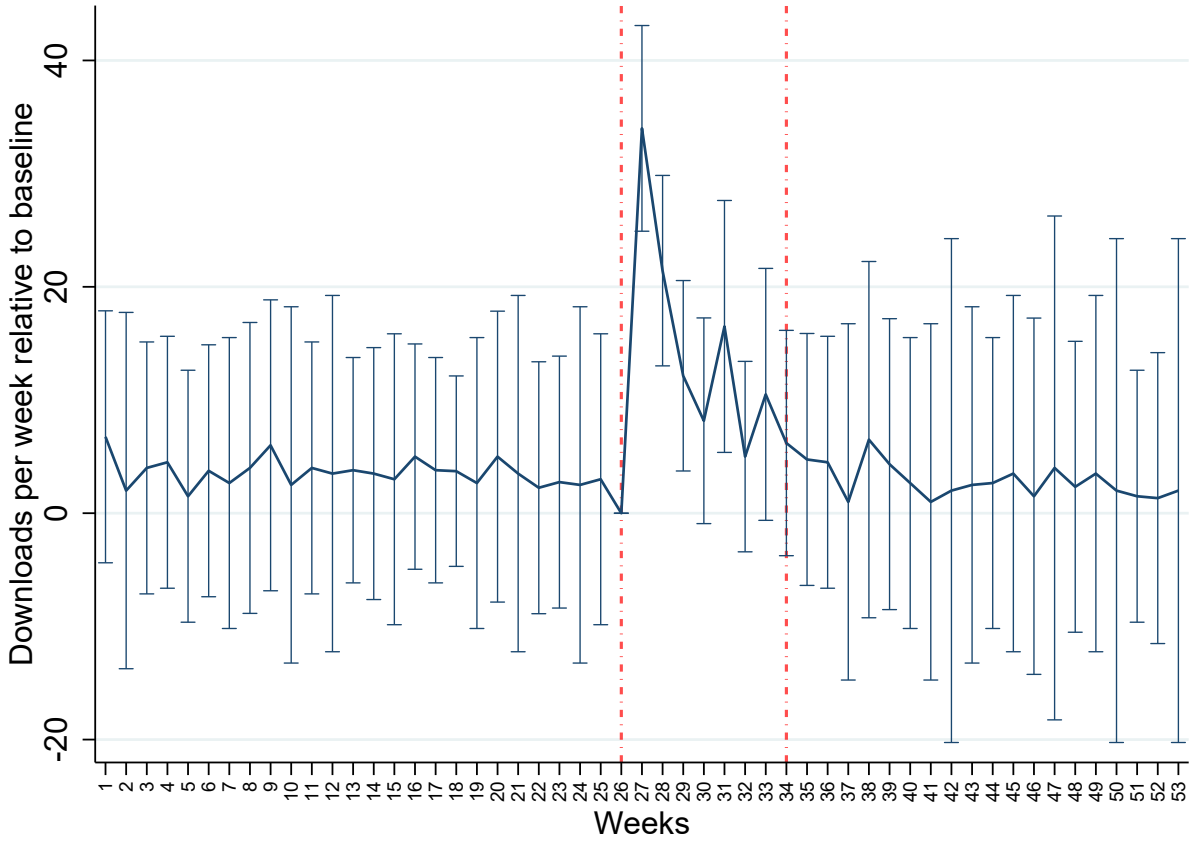
Notes: The table presents the testing balance between control and treatment groups. In column (1), we present the full sample mean. Column (2) and (3) presents control and treatment means. The total sample size is 3548, both groups have the same sample size: 1774. Column (4) presents the difference between group means.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure 2: Time-Series Application Downloads for 2021



Note: This figure shows time-series data about the number of new users of the application for the year 2021. These data pertain only to patients who use *APSOT* as their insurer. The vertical dashed lines indicate the dates when the e-mails were sent. Information about the subject of the e-mails is found in 1.

Figure 3: Impact of Treatment on Application Downloads per Week during 2021



Note: This figure shows the event study estimation of the number of new application users each week from January 2021 to December 2021. The relative baseline of downloads is week 26, the immediate week before our first intervention. Each week, between the 27th and the 34th, included a day treated by the intervention. The data pertain only to patients who use *APSOT* as their insurer. The vertical dashed lines indicate the dates when the e-mails were sent. The first e-mail was sent in week 26 (July 6, 2021), and the last e-mail was sent in week 34 (August 24, 2021).

Table 3: Regression Results (ITT)

	Dependent variable: 1{Telemedicine Use}					
	Nov-2021		Dec-2021		Feb-2022	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.041***	0.041***	0.045***	0.045***	0.060***	0.059***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Constant	0.013***	0.006**	0.014	0.022***	0.017	0.017***
	(0.004)	(0.003)	(0.022)	(0.003)	(0.024)	(0.003)
Control Variable	No	Yes	No	Yes	No	Yes
Observations	3,469	3,469	3,469	3,469	3,469	3,469
Adjusted R^2	0.013	0.017	0.014	0.020	0.020	0.029

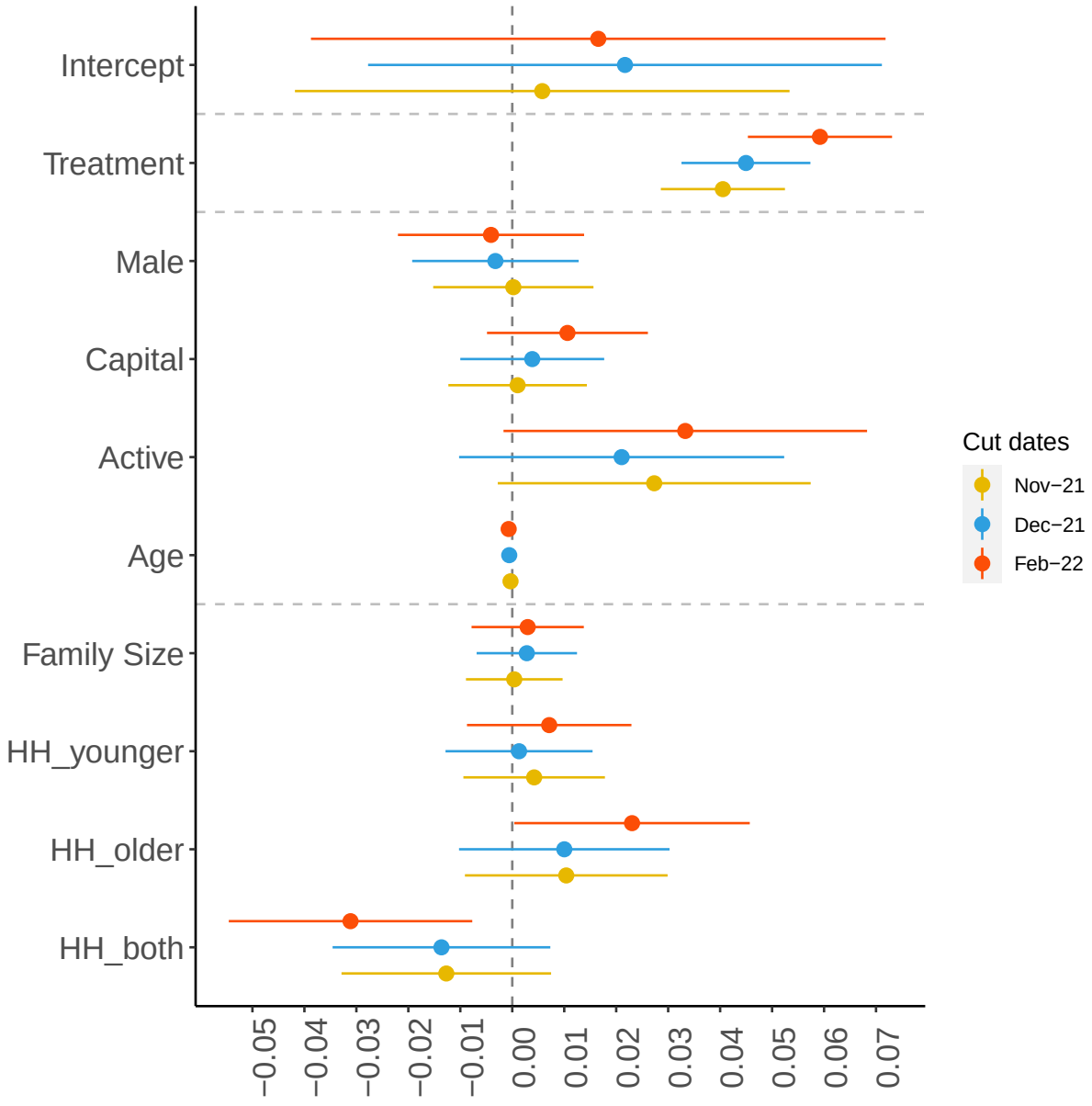
Note: The table above presents the results from model 1. The first two columns present results using the data set with a cutoff date of November 30, 2021, with the fist column presenting OLS results and the second column controlling for co-variates described in Table 2. Columns 3 and 4 present these results for the data set with a cutoff date of December 31, 2021, and columns 5 and 6 present results for the data set with a cutoff date of February 28, 2022.

Table 4: Regression Results (LATE)

	Dependent variable: 1{Telemedicine Use}					
	Nov-2021		Dec-2021		Feb-2022	
	(1)	(2)	(3)	(4)	(5)	(6)
Read	0.081***	0.080***	0.090***	0.089***	0.119***	0.117***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.014)	(0.014)
Constant	0.013***	0.029	0.014***	0.047*	0.017***	0.050*
	(0.004)	(0.024)	(0.004)	(0.025)	(0.005)	(0.028)
Observations	3,469	3,469	3,469	3,469	3,469	3,469
R^2	0.016	0.017	0.015	0.018	0.020	0.025
Adjusted R^2	0.015	0.015	0.015	0.015	0.020	0.022

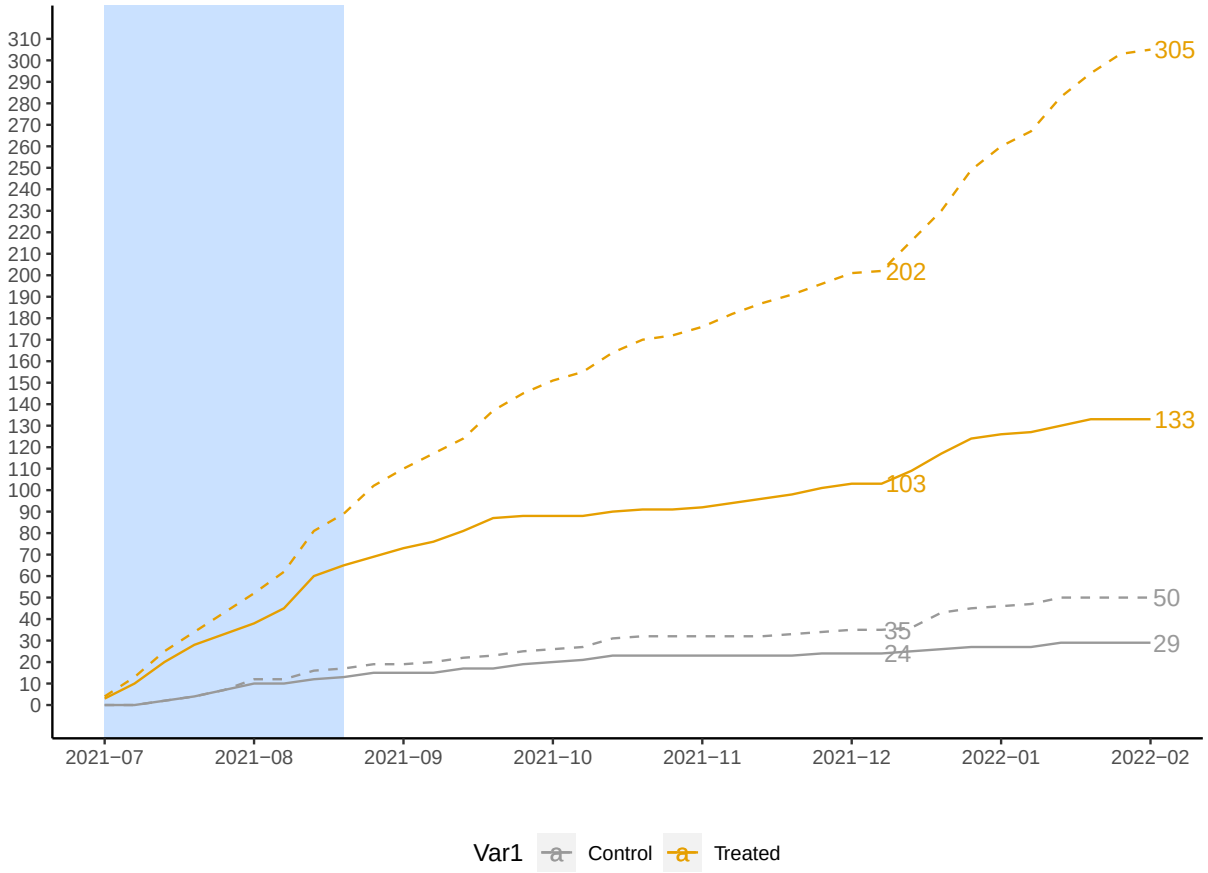
Note: The first two columns present results using the data set with cutoff date November 30th 2021. Columns 3 and 4 present these results for the data set with cutoff date December 31st 2021 and columns 5 and 6 present results for the data set with cutoff date February 28 2022. *p<0.1; **p<0.05; ***p<0.01

Figure 4: OLS Regresion Results



Note: This figure is a visual representation of the OLS model result described in Table **??**. The model was applied to three different data sets with varying cutoff dates, namely November 2021, December 21 and February 2022. It uses the variables described in Table 2 as controls.

Figure 5: Cumulative Calls and First-Time Telemedicine Users



Note: This figure shows the number of cumulative calls and new users of the mobile application by control and treatment group. The yellow lines represent the demand growth of the treatment group, the dashed line indicates number of calls, and the solid line indicates number of first-time users. Similarly, the gray lines represent the demand of the control group, with the dashed line indicating the number of calls and the solid line indicating the cumulative number of first-time users. The light blue panel indicates the period of the communication campaign.

Appendix

A.1 Treatment E-mails

Figure A1: E-mail Week 1, July 6, 2021

Figure A2: E-mail Week 2, July 14, 2021

From:
Subject: ¡Llegó el invierno! Descargá Llamando al Doctor (Com 2)
Date:
To:

Con Llamando al Doctor tenés siempre a tu alcance un doctor desde la comodidad de tu casa.

Hacé click en tu sistema operativo y mirá el **Paso a Paso** para descargar y usar la App: **Android** - **iOS**

Además, recordá que nuestros médicos propios del Consultorio de Av. Córdoba 302 se encuentran atendiendo a través de la App, mirá sus días y horarios en la siguiente grilla:

SIMPLIFICATION and PROMINENCE

CLÍNICA		
BADO RODOLFO	Lunes, martes y jueves de 14 a 17hs.	Miércoles de 9 a 13hs.
DELLE PIANE HUGO	Lunes, miércoles y viernes de 15 a 20hs.	
PEIRANO JOSÉ LUIS	Jueves y viernes de 9 a 14hs.	
CAMPANA VERÓNICA	Lunes, martes y jueves de 8 a 14hs.	
DERMATOLOGÍA		
SCALIA GABRIELA	Miércoles y jueves de 9 a 17hs.	
ENDOCRINOLOGÍA		
STALLDECKER GRACIELA	Martes de 14.30 a 17.30hs.	Jueves de 10.30 a 12.30hs.
GINECOLOGÍA		
MEDAL GRACIELA	Lunes y jueves de 10 a 13hs.	
NUTRICIÓN		
GUTT SUSANA	Lunes, martes y viernes de 14 a 18hs.	
OTORRINOLARINGOLOGÍA		
ROSENDE MARINA	Lunes a viernes de 16 a 18hs.	
TRAUMATOLOGÍA		
VALACCO MARCELO	Lunes de 10.30 a 13hs.	Miércoles de 10.30 a 12hs.
ALONSO HIDALGO IGNACIO	Martes de 9 a 12hs.	

Encontrá siempre un médico on-line y realizá tu consulta las 24Hs., los 7 días de la semana.

CALL TO ACTION

¡Descargá LAD ahora, no te olvides!

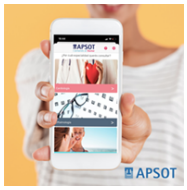
Figure A3: E-mail Week 3, July 20, 2021

From: [redacted]
Subject: Una forma segura y rápida de ver a tu médico. Descargá y usá Llamando al Doctor (Com 3 Martes 20/07)
Date: [redacted]
To: [redacted]

¿Querés ver un doctor desde la comodidad de tu casa?
Hacé click en tu sistema operativo y mirá el **Paso a Paso** para descargar y usar la App: **Android** - **iOS**

SIMPLIFICATION and PROMINENCE

Encontrá siempre un médico on-line y realizá tu consulta las 24Hs., los 7 días de la semana.



Recordá que también podés tener una consulta con tu médico del Consultorio APSOT a través de la App, mirá sus días y horarios en la siguiente grilla:

CLÍNICA		
BADO RODOLFO	Lunes, martes y jueves de 14 a 17hs.	Miércoles de 9 a 13hs.
DELLE PIANE HUGO	Lunes, miércoles y viernes de 15 a 20hs.	
PEIRANO JOSÉ LUIS	Jueves y viernes de 9 a 14hs.	
CAMPANA VERÓNICA	Lunes, martes y jueves de 8 a 14hs.	
DERMATOLOGÍA		
SCALIA GABRIELA	Miércoles y jueves de 9 a 17hs.	
ENDOCRINOLOGÍA		
STALLDECKER GRACIELA	Martes de 14.30 a 17.30hs.	Jueves de 10.30 a
MEDAL GRACIELA	Lunes y jueves de 10 a 13hs.	
NUTRICIÓN		
GUTT SUSANA	Lunes, martes y viernes de 14 a 18hs.	
OTORRINOLARINGOLOGÍA		
ROSENDE MARINA	Lunes a viernes de 16 a 18hs.	
TRAUMATOLOGÍA		
VALACCO MARCELO	Lunes de 10.30 a 13hs.	Miércoles de 10.30 a 12hs.
ALONSO HIDALGO IGNACIO	Martes de 9 a 12hs.	

¡Anticipate a cualquier emergencia, descargá LAD ahora!

CALL TO ACTION

Figure A4: E-mail Week 4, July 27, 2021

Figure A5: E-mail Week 5, August 3, 2021

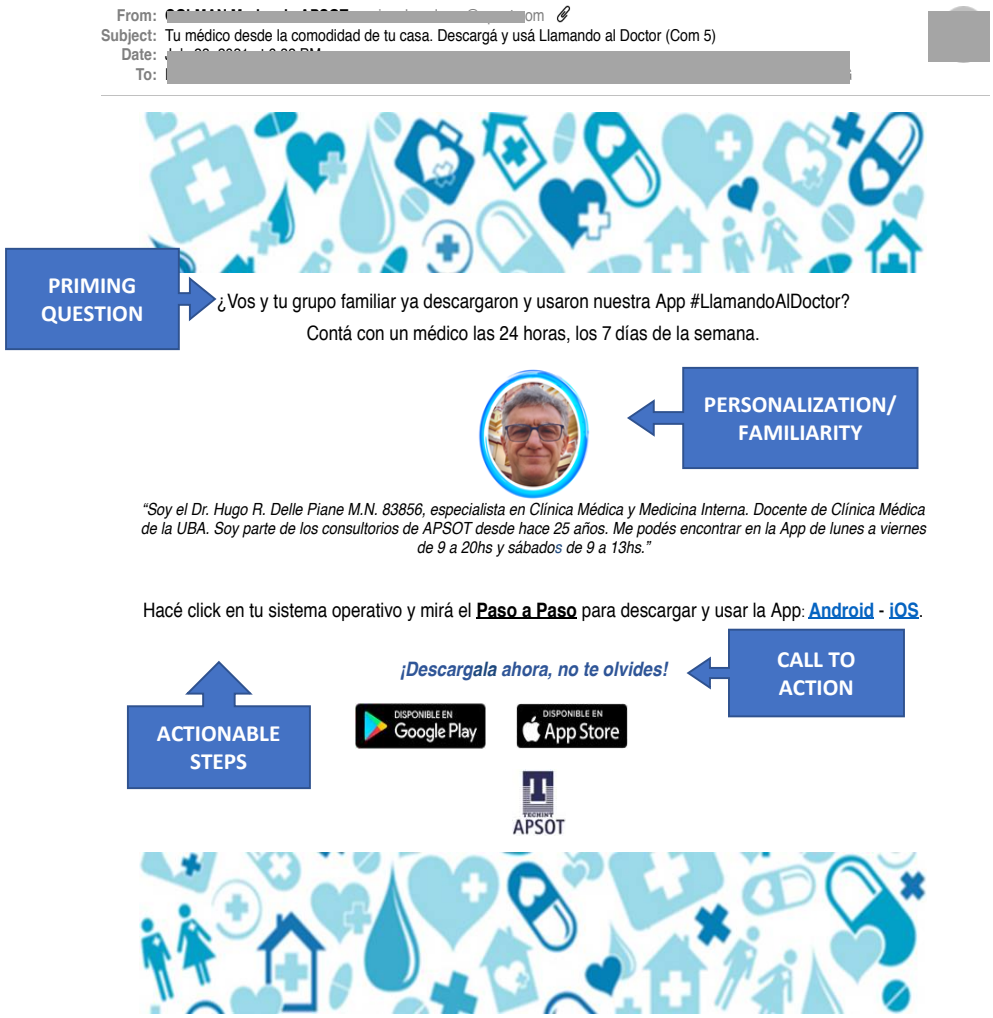


Figure A6: E-mail Week 6, August 10, 2021

Figure A7: E-mail Week 7, August 17, 2021

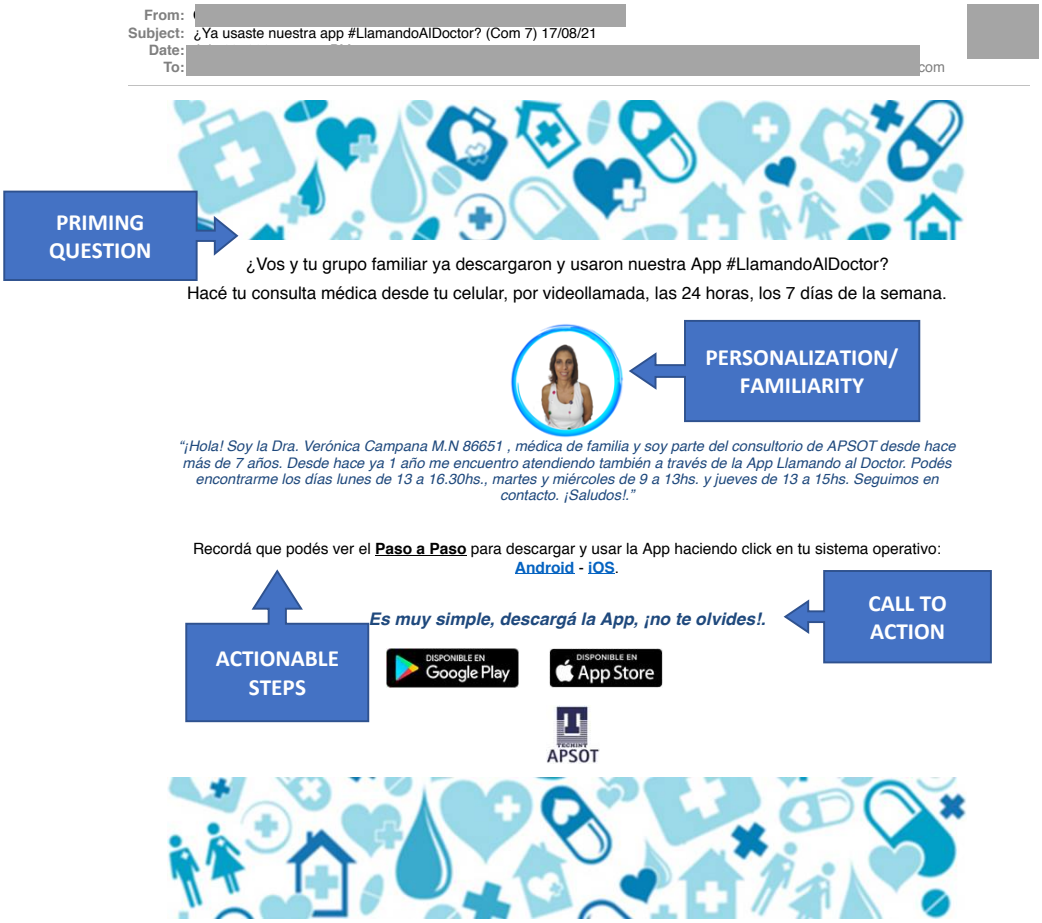


Figure A8: E-mail Week 6, August 24, 2021