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Article in press

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How to cite:
Tipo de artículo: Carta al editor

https://doi.org/10.15446/revfacmed.v70n3.95888

Response rate to an online questionnaire amidst the COVID-19 pandemic in undergraduate students and graduates from a Colombian university

Tasa de respuesta a un cuestionario en línea en medio de la pandemia de COVID-19 en estudiantes de pregrado y egresados de una universidad colombiana

Recibido: 19/05/2021 Aceptado: 23/08/2021

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Palabras clave: Internet; Universidad; Encuestas y cuestionarios (DeCS).

Keywords: Internet; University; Surveys and Questionnaires (MeSH).

How to cite:


Dear Editor:

In epidemiology and public health research, caution is necessary when addressing results reported by studies based on the administration of online questionnaires. The most critical limitation in such studies is their impossibility of guaranteeing the representativeness of the sample. However, when having a representative sample is secondary, online questionnaires are an excellent alternative for exploratory studies that seek to obtain information about emerging phenomena quickly and cost-effectively or address sensitive issues, for this approach allows reaching populations difficult to get in contact with using traditional strategies.
Online research allows the complete anonymity of participants and ensures they provide a more honest response, regardless of their social desirability, any stigma, or discrimination.³

Worldwide, online questionnaires response rate is usually inferior to that of paper-based questionnaires. In the case of online questionnaires, the response rate varies according to the target population: it ranges from 5% to 10% in the general population, and from 20% to 47% in university students.⁴ In addition, most of these responses are submitted within the first week after receiving the invitation to participate.²

The coronavirus disease 2019 (COVID-19) pandemic has forced epidemiological studies to rely on online questionnaires. In Colombia, studies based on sending these instruments through physical mail or email are rare. However, the response rate to online questionnaires in epidemiological studies is still unknown in our country. This information might be helpful for future research because said rates vary among countries and according to the type of participants.¹⁴ Bearing this in mind, the aim of this letter to the editor is to report the response rate to an online questionnaire after being available for three weeks.

A cross-sectional observational study was conducted. Adult active undergraduate university students and recent graduates from a state university in Colombia were invited to participate. A first invitation to complete the questionnaire was sent using the Google Form© link in the January 18-24 week, and a reminder email was sent in the second week (January 25-January 31). This way, the Google Form© link sent via email was available to be completed between January 18th and February 1st, 2021.
Additionally, the questionnaire was available for completion from February 2nd to 11th for eventual late responders.

The number of responses was recorded both at the end of the first and second week (early responders), as well as after ten more days (late responders). The student’s t-test and chi-square test were performed to make comparisons between early and late responders, with a significance level of $p<0.05$. All statistical analyses were performed in the IBM-SPSS statistical software, version 23.0. In addition, the study was approved by the institutional research ethics committee of the institution where it was carried out (Minutes 002 of the ordinary meeting held on March 26, 2020 by the Ethics Research Committee of Universidad del Magdalena), and informed consent by all participants was obtained.

The invitation to complete the questionnaire was sent via e-mail to 22 270 active undergraduate students and g students registered as such in the registries of the university. In total, 1486 responses were submitted, 0.33% (n=5) did not complete the informed consent form, and 4.51% (n=67) were excluded for being younger than 18 years. Thus the final sample consisted of 1414 respondents, for an overall response rate of 6.37%. Participants’ age ranged between 18 and 58 years (mean=24.5, SD=6.6). The complete sociodemographic information of respondents is shown in Table 1. Regarding response times, 81.82% (n=1.157) completed the questionnaire the first week, 13.86% (n = 196), in the second week, and 4.31% (n = 61), during the additional 10-day period.
Table 1. Demographical characteristics of the participants.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>933</td>
<td>66.0</td>
</tr>
<tr>
<td>Male</td>
<td>481</td>
<td>34.0</td>
</tr>
<tr>
<td>Marital status</td>
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<td></td>
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<tr>
<td>Single or separated</td>
<td>1,109</td>
<td>78.4</td>
</tr>
<tr>
<td>Married or cohabiting</td>
<td>305</td>
<td>21.6</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business and economics sciences</td>
<td>439</td>
<td>31.0</td>
</tr>
<tr>
<td>Basic sciences</td>
<td>60</td>
<td>4.1</td>
</tr>
<tr>
<td>Educational sciences</td>
<td>150</td>
<td>10.6</td>
</tr>
<tr>
<td>Engineering</td>
<td>331</td>
<td>23.4</td>
</tr>
<tr>
<td>Health sciences</td>
<td>235</td>
<td>16.6</td>
</tr>
<tr>
<td>Humanities</td>
<td>199</td>
<td>14.1</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1,090</td>
<td>77.1</td>
</tr>
<tr>
<td>Middle or high</td>
<td>324</td>
<td>22.9</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>1,214</td>
<td>85.9</td>
</tr>
<tr>
<td>Rural</td>
<td>200</td>
<td>14.1</td>
</tr>
</tbody>
</table>

Source: own elaboration.

There were no significant differences between early and late responders in terms of age, gender, faculty, marital status, type of residence (urban or rural), and income ($p > 0.05$).
These findings show that the response rate obtained here is similar to response rates observed in other studies conducted before the COVID-19 pandemic. For example, Van Mol\textsuperscript{5}, in a study conducted in 15,651 higher education students of the University of Antwerp, Belgium, between October and December 2013, reported that the overall response rate in the first response wave (i.e. after sending the invitation) was 6.2\%, and that it increased to 16.5\% after the first reminder was sent.\textsuperscript{5} Despite the contextual differences, only the first wave response rate reported by Van Mol\textsuperscript{5} is somewhat similar to the response rate obtained during the first week in our study (5.21\%). Indeed, obtaining such a high response rate after a reminder email is unusual; however, it should be noted that response rates may vary among participants according to their demographic characteristics, attitudes, beliefs, level of hesitancy, or access barriers (i.e. internet and/or equipment unavailability to complete online questionnaires).\textsuperscript{4}

On the other hand, our findings suggest that extending the deadline for submitting the response beyond the second week does not significantly increase the overall response rate. Thus, extending the deadline after 2 weeks or more could be useless to increase the overall response rate to online questionnaires.\textsuperscript{2,4} The use of online questionnaires during the COVID-19 pandemic must be avoided when up-to-date information from a high percentage of participants in the target population is needed, since the results of such studies are considered when public health programs, strategies and policies are developed and carried out.

In conclusion, the response rate to an online questionnaire in active students and graduates from a public university in Colombia during the
COVID-19 pandemic was 6.37%, and 95.68% of respondents submitted their response during the first two weeks after sending the invitation. Somehow, replication of these findings is required.

**Conflicts of interest**

None stated by the authors.

**Funding**

None stated by the authors.

**Acknowledgements**

None stated by the authors.

**References**


