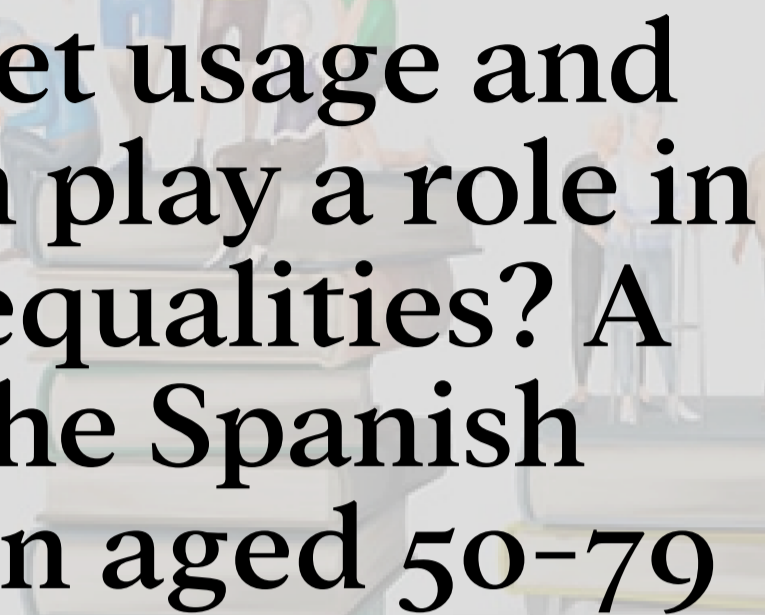


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Article

A stylized illustration of several people standing on a staircase. The staircase is composed of books of various colors. The people are in various poses, some appearing to be climbing or standing on the steps. The background is a light, neutral color.

Do Internet usage and education play a role in health inequalities? A study of the Spanish population aged 50-79

June 2023

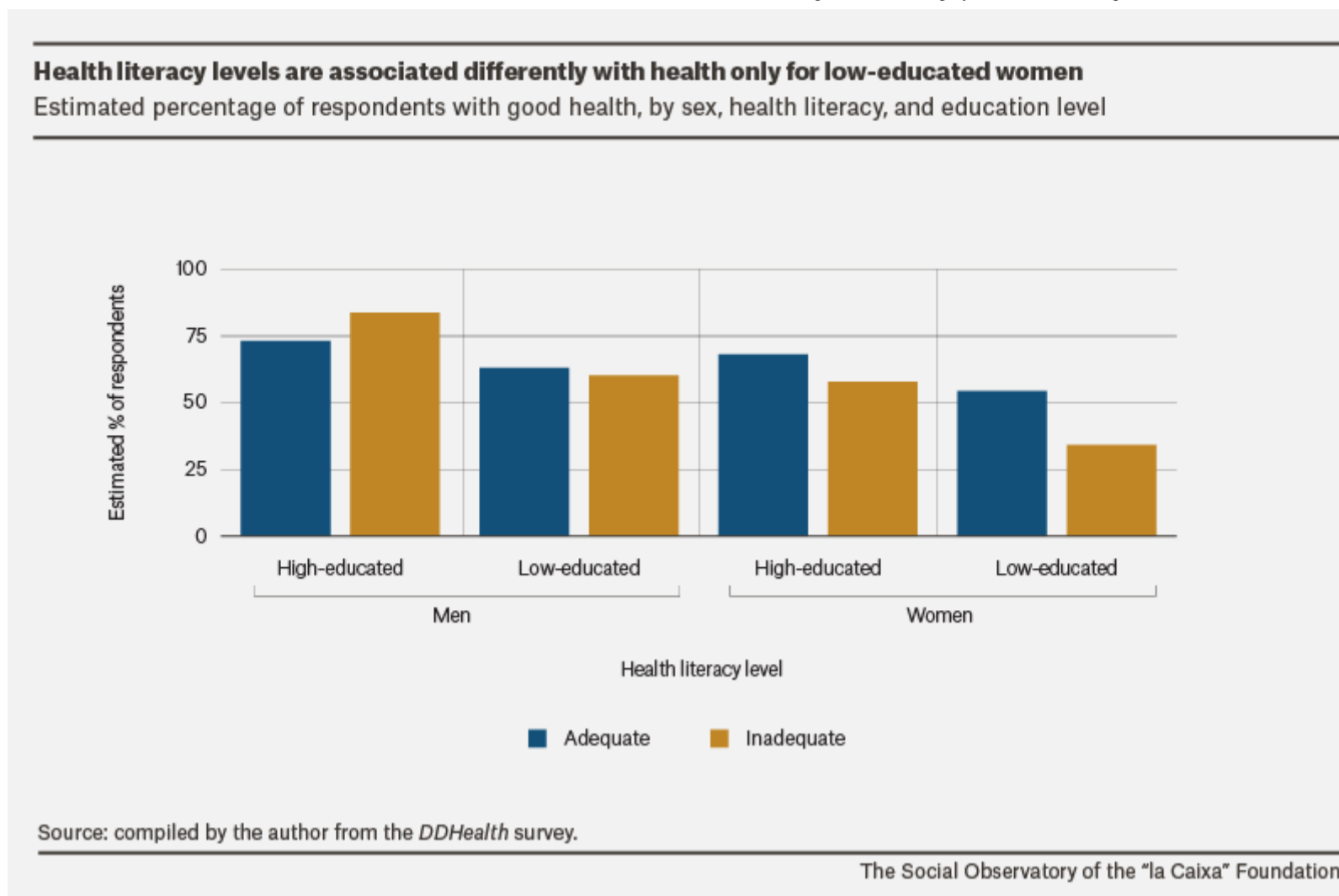
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Project selected in the Call to support research projects on technology and society (FS21-1B)

Socioeconomic inequalities in health persist in Spain. This can be explained, partly, by the interaction of multiple variables, including education and gender. The covid-19 pandemic intensified the potential impact of two critical factors on health inequalities: health literacy and the socioeconomic digital divide. This article explores these factors within the relationship between education and individual self-reported health status among a representative sample of the Spanish population aged 50-79. The main findings suggest that women report worse health than men, and that low-educated groups report worse health than their high-educated counterparts. Internet usage and having “adequate” levels of health literacy are associated with better health among the low-educated groups.

Key points

- 1 In Spain, high-educated groups tend to report better health (66% of women and 75% of men report good health) than their low-educated counterparts (50% of women and 62% of men report good health).
- 2 Health literacy refers to the ability of individuals to meet and understand complex demands for promoting and maintaining health. It is related positively to health outcomes in women, but not in men.
- 3 The group reporting worse health was that of women with low education and “inadequate” levels of health literacy (47%).
- 4 Internet usage was found to be positively associated with good health in both men and women, but the association seems stronger among the low-educated groups.
- 5 Internet usage and health literacy are associated with educational differences in health. Improving the population’s health literacy, educating all social groups and providing them with access to the Internet could contribute to reducing health inequalities.



Introduction

Socioeconomic inequalities in health outcomes persist in Spanish society. These inequalities may be analysed from different perspectives, including education and gender. The covid-19 pandemic potentially contributed to increasing inequalities in employment, wealth, and health. However, there has been very little research on inequalities in health or well-being in a post-lockdown context. In this article, socioeconomic inequalities in self-reported health (a subjective assessment of one's own health status) are explored among a representative sample of the Spanish population aged 50-79 in March-April 2022.

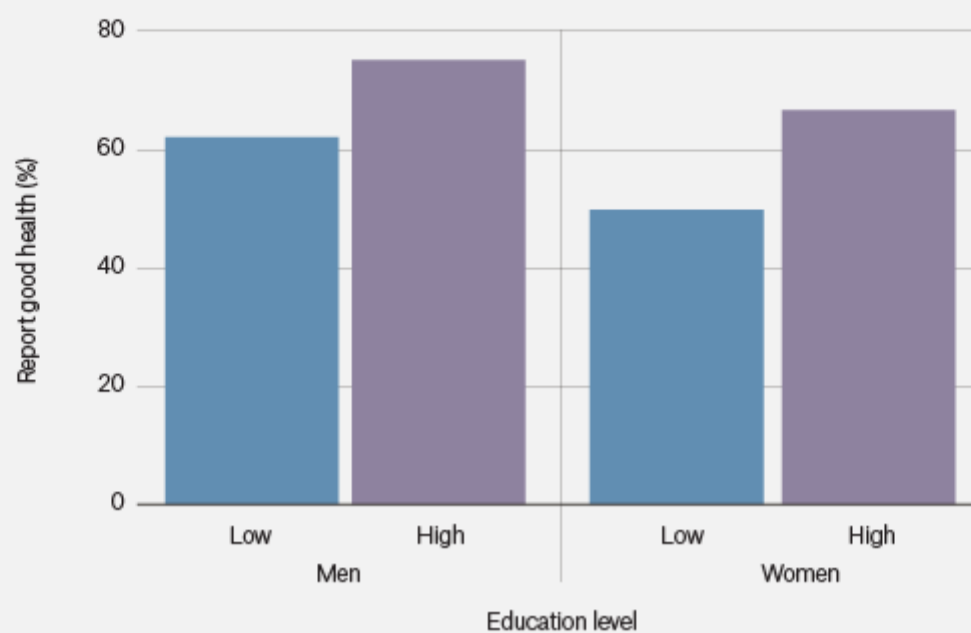
Of all the possible factors that may have an impact on socioeconomic inequalities in health, this research focuses on two critical elements: health literacy and the socioeconomic digital divide. *Health literacy* refers to the ability of individuals to meet and understand the complex demands for promoting and maintaining health in modern society, a subject of growing public concern. The *socioeconomic digital divide* refers to the differences in possibilities for access to technology and Internet usage between social classes.

I. Women and low-educated groups tend to report worse health

The results from the survey show that men, as well as high-educated groups, tend to report better health than women and their low-educated counterparts, respectively. For example, 66% of high-educated women and 75% of high-educated men reported good health, whereas these percentages fell to 50% and 62% among low-educated women and men, respectively. The results obtained highlight significant differences in health which may be influenced by several factors.

Although previous studies have explored sex and gender gaps in health, little is known about the role played by two factors that in recent years have become increasingly important in society and scientific debates: health literacy and Internet usage in the Spanish population. Firstly, a better ability to understand medical knowledge and advice may be associated with better health outcomes. Secondly, Internet usage is linked to improved health outcomes and a potentially higher ability to gain access to health information.

Figure 1. **Women and low-educated groups tend to report worse health than their counterparts**
Prevalence of good self-reported health status, by sex and educational group



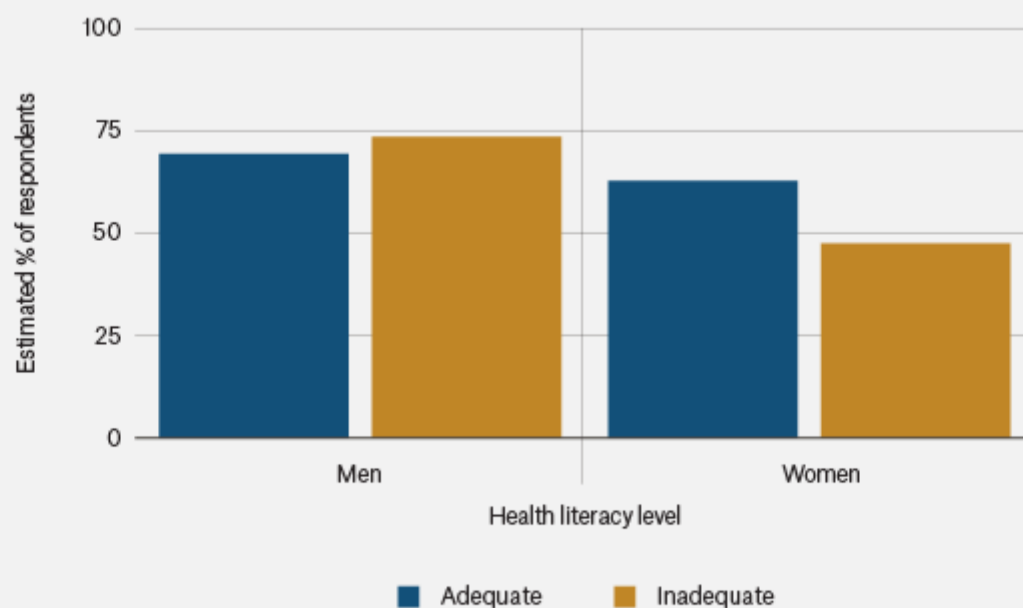
Source: compiled by the author from the *DDHealth* survey.

The Social Observatory of the "la Caixa" Foundation.

2. Higher health literacy levels are associated with better self-reported health in women, but not in men

The survey results suggest that, in 2022, groups with adequate levels of health literacy have a higher probability of reporting good health than groups with an insufficient health literacy level among women (63% vs. 47%), but not among men (69% vs. 74%). In other words, adequate health literacy levels seem significant for determining perceived health in women, but not in men. Explanations for this finding are multifactorial, but it is likely that women with "adequate" health literacy levels also have healthier lifestyles (e.g., diet, drinking habits, physical activity). Nonetheless, it is important to remember that men and women may respond differently to surveys, and that men in the age bracket considered are a more highly selected subpopulation than that of women, as mortality rates are higher among men than among women.

Figure 2. **Higher health literacy levels are associated with better health in women, but not in men**
Estimated percentage of respondents with good health, by sex and health literacy levels



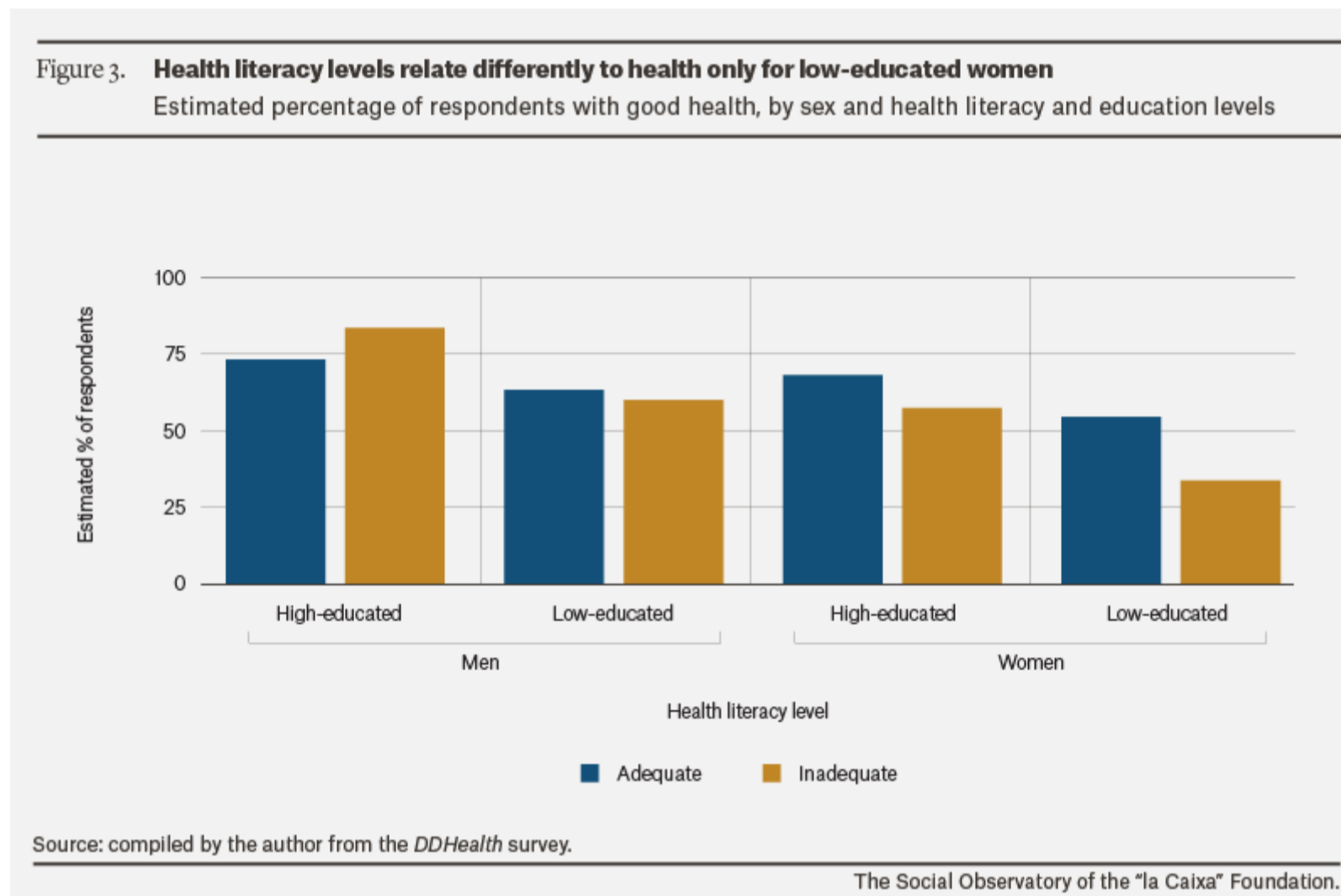
Source: compiled by the author from the *DDHealth* survey.

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3. Health literacy is relevant only for low-educated women

To gain a better understanding of the interplay between education and health literacy, different analyses in which these two factors interacted were carried out. It was found that, generally, adequate levels of health literacy were related to better health across all education levels and sexes. A possible explanation for this result is that health literacy skills may help to handle adverse health situations and may be related to healthier lifestyles. The exception to this finding is the high-educated men group, in which insufficient health literacy levels are associated with better health than adequate health literacy levels. This finding, however, is not statistically significant.

Figure 3 shows the interaction between education and health literacy and its impact on health inequality. The group reporting worse health was that of women with a low health literacy level and a low education level, and health literacy seems to be a crucial factor for this group. In other words, among low-educated women, adequate levels of health literacy substantially increase their chances of having good health: from 34% among women with inadequate levels of health literacy to 55% among women with adequate levels of health literacy.

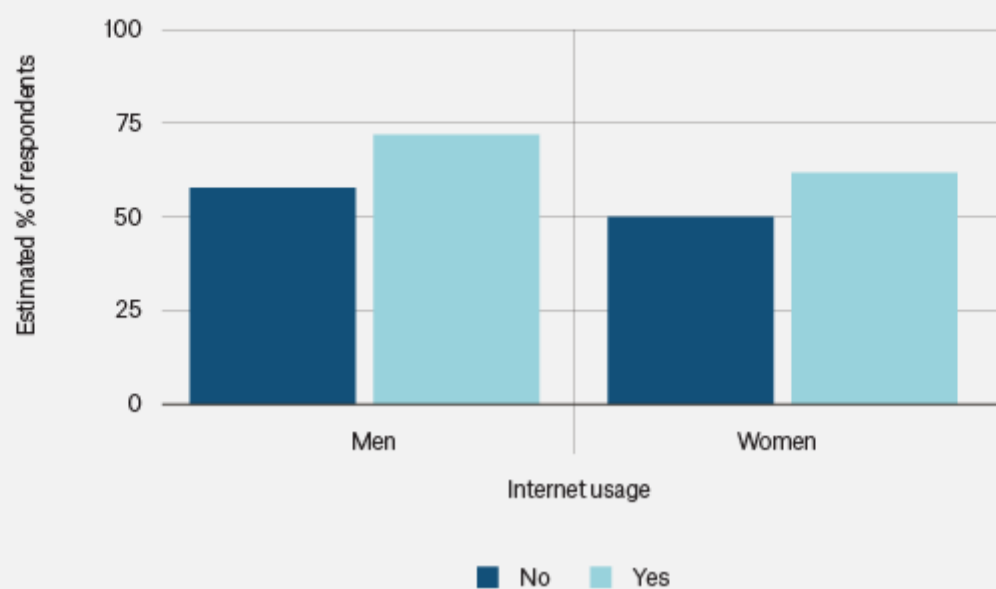


4. Internet usage is associated with better health in both men and women

The second critical component that has rapidly become an important skill is Internet usage, which is used as a proxy for the socioeconomic digital divide. Proper Internet usage depends on both individual technical skills and individual resources for Internet accessibility. In general, the results of the survey suggest that men who have used the Internet over the last three months have a higher probability of reporting good health (72%) than those who have not used it over the same period of time (58%). The same pattern is also observed among women, although the difference is narrower (62% vs. 50%).

These data show that, in post-lockdown Spain, Internet usage is positively associated with good self-reported health. There are two possible explanations behind this result. Firstly, Internet usage is positively related to health promotion, health prevention and overall health outcomes. Secondly, the fact that Internet users are a selected sub-population should not be disregarded. In previous literature, it has been shown that there is a positive relationship between Internet usage and both socioeconomic status and good health.

Figure 4. **There is a relationship between Internet usage and better health in both men and women**
Estimated percentage of respondents with good health, by sex and Internet usage



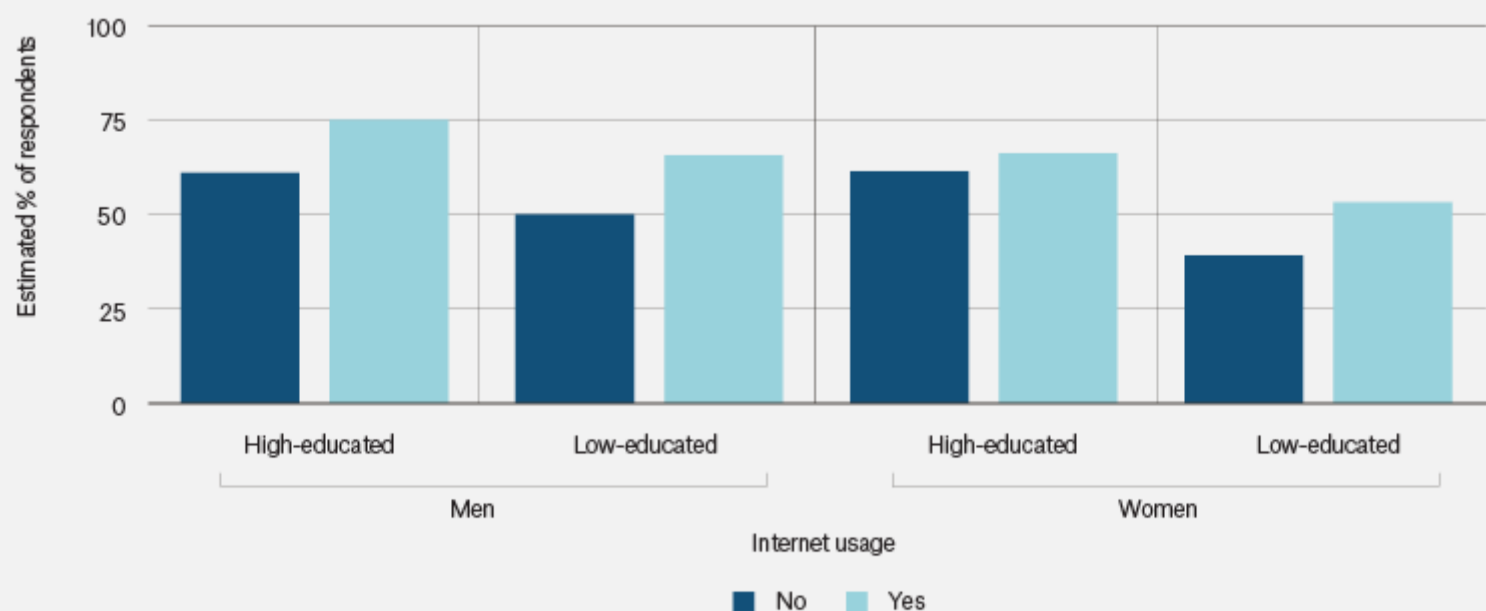
Source: compiled by the author from the *DDHealth* survey.

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5. Role of Internet usage in the association between education and health

In order to assess educational gradients in the association between Internet usage and health, results are presented for both low- and high-educated groups. Those with high education tend to report better health, regardless of their Internet usage. Furthermore, in low-educated groups, the probability of reporting good health is higher among Internet users (66% in men and 54% in women) than in non-Internet users (50% in men and 40% in women). These results suggest a more significant role of Internet usage in determining health outcomes among low-educated women.

Figure 5. **Role of Internet usage in the relationship between education and health**
Estimated percentage of respondents with good health, by sex and education and Internet usage



Source: compiled by the author from the *DDHealth* survey.

The Social Observatory of the "la Caixa" Foundation.

6. Conclusions

Health differences across subpopulation groups persist in Spain. In this study, with its focus on the Spanish population aged 50-79, educational inequalities in health are documented. Specifically, two key and overlooked factors – i.e., health literacy and Internet usage – were examined. Both factors are significant determinants of social life, and potential health outcomes. Our findings suggest that it is important to take these two factors into account when assessing health inequalities. Low-educated women are the people who would potentially benefit most from improving both their health literacy and Internet usage. The results from this article reinforce the argument that it is crucial to implement social policies to promote health and well-being, particularly among the more disadvantaged groups in order to improve their health literacy levels and Internet accessibility.

7. Limitations of this study

This study has two main limitations that should be taken into account. Firstly, Internet usage is considered a key variable for measuring the digital divide, and we are aware that a more comprehensive examination of the role played by the digital divide in health inequalities would require consideration of more factors. And secondly, it must be acknowledged that health literacy and Internet usage may be related, which suggests that future studies should address this phenomenon.

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