

## Unmet healthcare needs during the COVID-19 pandemic among older adults: a prospective cohort study in the Canadian Longitudinal Study on Aging

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19 the views of the Canadian Longitudinal Study on Aging.  
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## Unmet healthcare needs during the COVID-19 pandemic among older adults: a prospective cohort study in the Canadian Longitudinal Study on Aging

### Abstract

Background: The COVID-19 pandemic has impacted access to healthcare services in Canada. There is, however, limited research examining the influence of the social determinants of health (SDOH) on unmet healthcare needs during the pandemic.

Methods: We analyzed data from a prospective cohort study of 23,972 participants in the Canadian Longitudinal Study on Aging (CLSA) COVID-19 Study (April-December 2020) to identify the SDOH associated with unmet healthcare needs during the pandemic among older adults. Using logistic regression, we assessed the association between several SDOH on the following three outcomes (separately): experiencing any challenges in accessing healthcare services, not going to a hospital or seeing doctor when needed and experiencing barriers to accessing testing for COVID-19.

Results: Overall, we found that from September to December 2020, 25% of Canadian adults indicated they had challenges accessing healthcare services and 8% of participants did not visit a hospital or doctor, when needed. Additionally, 4% of participants reported that they faced barriers accessing COVID-19 testing. The prevalence of all three unmet need outcomes was lower among older age groups and differences were observed by region, education, income, and racial background. Presence of any chronic conditions, immigrant status, and pre-pandemic unmet healthcare needs were associated with higher odds of experiencing challenges accessing healthcare services and not visiting a hospital or seeing a doctor.

Interpretation: Substantial unmet healthcare needs were reported by Canadian adults during the pandemic and these varied by SDOH and chronic conditions. The results of this study have important implications for health equity.

**Key Words:** Unmet Healthcare Needs, COVID-19, CLSA

## Introduction

The first case of COVID-19 was first detected in Canada on January 25<sup>th</sup>, 2020 and by March 2020 all provinces and territories had adopted public health restrictions, such as school and business closures and limits on gatherings, to mitigate its spread.(1) Public health restrictions have continued to varying degrees across Canada.(1) The rapid spread of SARS-CoV-2 and adoption of public health restrictions in Canada fundamentally affected access to healthcare services. To adapt to the additional strain of COVID-19 patients, healthcare systems cancelled elective surgeries and in-person appointments, and reliance on virtual visits increased.(2)(3) National data revealed that emergency room visits decreased by 24% and inpatient admission levels decreased by 10% in 2020.(4)(5) Studies in Canada noted disruptions in home care services and primary care.(6)(7) A systematic review of studies from 20 countries found that healthcare utilization was reduced by a third, due to the pandemic.(8)

Self-perceived unmet needs are a reflection of access to and performance of a healthcare system.(9) Unlike objective measures of healthcare use, unmet needs are dependent not only on the use of services but also their accessibility and acceptability. While virtual visits were often used, patients have reported limitations.(10)(11)(12)(13) Unmet healthcare needs during the COVID-19 pandemic may have serious implications on patient care and potentially long lasting consequences.(14) Independent of the COVID-19 pandemic, it is well known that the social determinants of health (SDOH) impact unmet healthcare needs.(15)(16) However, the impact of SDOH on unmet healthcare needs during the COVID-19 pandemic in older adults in Canada are not yet understood. Disruptions to services may have deepened access concerns for vulnerable groups, potentially having implications for health equity. The objectives of this study were to describe unmet healthcare needs, including COVID-19 testing access, and to evaluate the association between the SDOH and other predictors (pre-pandemic unmet healthcare needs and chronic conditions) on unmet healthcare needs among older adults in Canada during the COVID-19 pandemic.

## Methods

### *Study Design and Data Source*

We conducted a prospective cohort study using data from participants in the Canadian Longitudinal Study on Aging (CLSA). The CLSA is a national long-term study of community-dwelling adults aged 45-85 years at the time of recruitment (2010-2015).(17) Participants were recruited across the 10 provinces and are followed-up every 3 years for at least 20 years or until death or loss-to-follow-up. Residents of the three territories or First Nations reserves, members of the Armed Forces, and institutionalized persons were excluded. Participants were required to participate in English or French and complete the survey independently. At baseline, 51,338 individuals participated in the CLSA (2011-2015) and 44,817 went on to complete follow up one (FUP1) (2015-18).

In response to the COVID-19 pandemic, the CLSA COVID-19 Questionnaire Study was launched to collect longitudinal data over a 9-month period with participants completing a 30-minute baseline questionnaire (April 15<sup>th</sup>-May 30<sup>th</sup>, 2020), 10-minute weekly/biweekly/monthly questionnaires, and a 30-minute exit questionnaire (September 29<sup>th</sup>-December 29<sup>th</sup>, 2020). All eligible members of the CLSA cohort (i.e., alive, with known contact information and able to independently complete the survey) were invited to participate (N=42,511) of whom 28,559 individuals participated in the CLSA COVID-19 study (response=67%). Sociodemographic characteristics and pre-pandemic unmet healthcare needs were measured during CLSA baseline (2011-2015) and FUP1 (2015-2018).

### *Measurement of Unmet Healthcare Needs*

Unmet healthcare needs during the COVID-19 pandemic were measured using three questions in the CLSA COVID-19 exit survey: 1) "Since the beginning of the COVID-19 pandemic have you experienced any challenges in accessing healthcare?", 2) "Since March 1st, 2020 were there times when you did not go to the hospital or to see a doctor even though you needed to?" , and 3) "Since the beginning of the COVID-19 pandemic have you experienced barriers to accessing testing for COVID-19?". For each of the three questions, the response options were "Yes," "No," "Don't know/No answer," and "Prefer not to answer." "Don't know/No answer"

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3 responses were grouped together with the “No” responses, as they most likely reflected a lack  
4 of perceived unmet needs. It was observed that nearly 12% of the respondents answered  
5 “Don’t know/No Answer” to the question of experiencing barriers to COVID-19 testing, while  
6 fewer than 2% of respondents indicated the option for the two other questions. To further  
7 explore this, a sensitivity analysis was conducted to determine if the categorization of the  
8 outcomes as “No” compared to missing affected the results, and no differences were observed.  
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14 Participants who answered “Yes” to any of the three unmet healthcare questions were  
15 asked follow-up questions about the types of challenges they had when accessing healthcare,  
16 the reasons they did not visit the hospital or see a doctor and the barriers they faced when  
17 accessing COVID-19 testing. The frequency of the follow up questions will be reported,  
18 stratified by age and province.  
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### 26 *Measurement of the Social Determinants of Health and Other Predictors*

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28 Information on the SDOH were extracted from the CLSA surveys, across different time  
29 points. Sex, racial background, education and immigrant status were extracted from CLSA’s  
30 baseline (2011-2015), while household income, dwelling type and marital status were from  
31 FUP1 (2015-2018). Age, region of residence (Atlantic: Newfoundland, Nova Scotia, P.E.I., New  
32 Brunswick; Quebec; Ontario; Prairies: Alberta, Saskatchewan, Manitoba; British Columbia),  
33 urban/rural status and work status were extracted from the COVID-19 baseline survey.  
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35 Urban/rural status has been measured by linking the participants’ postal codes to the Statistics  
36 Canada Postal Code Conversion file.(18) Work status was determined by asking participants if  
37 they usually worked outside of their residence. Dwelling type was measured by asking if they  
38 lived in a house, apartment/condominium, or other residence type (senior’s housing, institution  
39 or mobile home). In addition to the SDOH, the presence of unmet needs prior to the pandemic  
40 was extracted from FUP1 when participants were asked, “During the past 12 months, was there  
41 ever a time when you felt that you needed healthcare but you didn't receive it?”. The presence  
42 of chronic conditions was measured in the COVID-19 baseline survey, by inquiring about the  
43 lifetime occurrence of asthma, chronic obstructive pulmonary disease, other chronic lung  
44 diseases, diabetes, high blood pressure, heart disease, cancer,  
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3 heart/lung/kidney/liver/pancreas failure, autoimmune disorder, pneumonia and human  
4 immunodeficiency virus.  
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### 8 *Statistical Analysis*

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10 Of the 28,559 individuals who participated in the COVID-19 study, information on  
11 23,975 individuals was available at CLSA baseline, FUP1 and throughout the CLSA COVID-19  
12 study (at both baseline and exit). Three individuals were excluded from the analysis as they  
13 resided in the territories in 2020, resulting in a final analytic sample size of 23,972. We  
14 compared descriptive characteristics at COVID-19 exit to FUP1, to assess how the participants  
15 varied across the timepoints and consider how results of our study might differ if all  
16 participants from FUP1 had completed the COVID-19 exit survey.  
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23 Proportions of participants who reported the unmet healthcare needs outcomes along  
24 with 95% confidence intervals (CI) were computed overall and by each category of SDOH. The  
25 magnitude of the association between each of SDOH and the three unmet healthcare  
26 outcomes, was estimated using logistic regression. Odds ratios and 95% CIs were first estimated  
27 for unadjusted models with each predictor variable on its own. Then, an adjusted model that  
28 included all of the following variables was estimated: sex, age, province, urban/rural, racial  
29 background, immigrant status, household income, education, marital status, dwelling type,  
30 work status, chronic condition status and pre-pandemic unmet needs. Variance inflation factors  
31 (VIF) for the adjusted models were estimated in a linear regression model to assess multi-  
32 collinearity.  
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### 44 **Results**

45 Table 1 presents the sociodemographic characteristics of the participants who  
46 completed FUP1 and the COVID-19 exit survey. The sample is made up of an equal proportion  
47 of males and females, with participants largely living in urban areas. Table 1 illustrates that the  
48 sociodemographic characteristics of the participants who completed data collection up to FUP1  
49 are similar to those that completed the COVID-19 exit survey, as has been previously  
50 demonstrated.<sup>(19)</sup> Table 1 also reports the prevalence of each of the three unmet need  
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3 outcomes. Overall, 25% of the participants indicated that they faced challenges accessing  
4 healthcare and 8% of the participants indicated that they did not visit a hospital or see a doctor  
5 even though they needed to. Additionally, 4% of participants indicated that they faced barriers  
6 accessing testing for COVID-19.  
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10 Table 2 reports the logistic regression results examining the associations between each  
11 of the sociodemographic characteristics, including history of chronic disease and unmet needs  
12 prior to the pandemic, and the three unmet need outcomes. Notably, older age was associated  
13 with lower odds of reporting all three outcomes. In addition, self-report of unmet healthcare  
14 needs prior to the pandemic was strongly associated with higher odds of all three outcomes.  
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19 Immigrants and those with chronic conditions were more likely to face any challenges  
20 accessing healthcare, as well as not visiting a hospital or seeing a doctor when they needed to.  
21 Higher education levels were associated with higher odds of indicating any challenges accessing  
22 healthcare and barriers to COVID-19 testing. While lower income was associated with increased  
23 odds of not visiting the hospital or seeing a doctor when they needed to, higher income was  
24 associated with increased odds of challenges accessing healthcare and barriers to COVID-19  
25 testing. Females were more likely than males to report not visiting the hospital or seeing a  
26 doctor when needed. Similarly, participants who identified as non-white had higher odds of  
27 reporting not visiting the hospital or seeing a doctor when they needed to, relative to white  
28 individuals.  
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38 Statistically significant geographic variation was observed across Canada, with Ontario  
39 participants being the most likely to report challenges accessing healthcare and barriers to  
40 COVID-19 testing. Quebec residents were most likely to not visit a hospital or doctor, while  
41 being the least likely to indicate the other two outcomes. The results of fully adjusted models,  
42 adjusted for all SDOH variables simultaneously, revealed similar associations, with few  
43 exceptions (e.g., the association between racial background and barriers to testing changes  
44 direction but is not statistically significant in the adjusted or unadjusted models) (see  
45 Supplementary Table 1).  
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52 Participants were most likely to report difficulties with accessing the healthcare services  
53 of primary care and specialist care (Supplementary Table 2). The most common reasons for not  
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3 seeking care were redirection of services to priority groups and fear of COVID-19 contact  
4 (Supplementary Table 3). Redirection of services was of greater concern among adults aged 50-  
5 54, than those aged 85-96 (Figure 4). The most common barrier to COVID-19 testing that  
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7 participants reported was not being eligible, which was most commonly reported by adults  
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9 aged 50-54 (Figure 5).  
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### 14 **Interpretation**

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16 We found that a quarter of older adults surveyed (25%) faced challenges accessing  
17 healthcare services and 8% did not go to the hospital or to see a doctor even though they  
18 needed to during the first 9 months of the pandemic in Canada. About 4% of the sample  
19 indicated that they faced barriers accessing COVID-19 testing. Reporting of any of the three  
20 unmet healthcare needs decreased with older age. Pre-pandemic unmet needs were strongly  
21 associated with all three outcomes. Regional differences in the level of unmet healthcare needs  
22 were noted.  
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31 While it may be surprising that older adults reported lower levels of unmet need, it is  
32 consistent with previous research on unmet healthcare needs of Canadians from the 2001-2014  
33 Canadian Community Health Survey (CCHS).(20) In Europe, older individuals aged 80 or over  
34 reported the lowest level of challenges accessing healthcare during the pandemic.(21) We  
35 found that services being redirected to priority groups was a primary concern for adults aged  
36 50-54 but not for adults aged 85-96. In Ontario, the lowest decline in primary care visits was  
37 observed in adults above the age of 75.(6) Furthermore, we found that not being eligible for  
38 COVID-19 testing was of greater concern to adults aged 50-54 than those aged 85-96, which  
39 may be consistent with provincial testing restrictions that may have prioritized older  
40 symptomatic adults.(22) Statistics Canada reported in June 2020 that younger adults (aged 25-  
41 44) were more likely to indicate that they would seek testing than older adults (aged 65+).(23)  
42 Thus, they may be more likely to indicate barriers in attaining the service.  
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52 Participants with chronic conditions and immigrants were significantly more likely to  
53 indicate challenges accessing healthcare services and not visiting a hospital or doctor. This  
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3 finding aligns with previous work on the connection between chronic conditions and unmet  
4 needs and established difficulties in accessing healthcare services by  
5 immigrants.(24)(25)(26)(16) Statistically significant variation by racial background was only  
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7 noted for one outcome, with non-white participants more likely to report not visiting a hospital  
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9 or seeing a doctor than white participants. Research has found that non-white Canadians are  
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11 less likely to have a regular physician.(27) Consistent with other national data, we found  
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13 minimal evidence of differences in COVID-19 testing by racial background but it is a major  
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15 limitation of our study that only 3% of the participants were non-white.(28) Females were 13%  
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17 more likely to indicate not seeking hospital or doctor attention, which aligns with previous  
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19 research indicating women are more likely to report unmet needs.(20)  
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22 Higher education levels were associated with an increased odds of indicating challenges  
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24 accessing healthcare, which is consistent with CCHS findings.(20) Participants with higher levels  
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26 of education were also more likely to indicate barriers accessing COVID-19 testing in our study,  
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28 consistent with research from Statistics Canada.(23) While participants with higher levels of  
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30 income were more likely to report challenges accessing healthcare and barriers to COVID-19  
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32 testing, they were less likely to report not visiting a hospital or seeing a doctor. Higher income  
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34 individuals tend to be less likely to forego care.(29)(30)

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36 Regional differences in unmet healthcare needs were not uniform across the outcomes.  
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38 While Quebec residents were the most likely to indicate not visiting a hospital or doctor,  
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40 Ontario and B.C. residents were the most likely to indicate facing any challenges accessing  
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42 healthcare and barriers to COVID-19 testing. We explored whether these differences were due  
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44 to the language in which the survey was completed (French vs English), but it was difficult to  
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46 distinguish language from region since most French surveys were completed in Quebec.  
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48 Research has suggested that Quebec residents are more likely to lack access to a family  
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50 physician.(31) It is reasonable that Ontario and B.C. residents reported higher levels of unmet  
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52 need, given the high case counts in the provinces.(32) Residents of the Prairies did not report  
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54 higher levels of unmet need, in spite of high case incidence.(32) Urban and rural participants  
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56 did not exhibit significantly different levels of unmet need.  
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3 *Limitations:* Our study described the unmet healthcare needs of nearly 24,000 older adults in  
4 Canada during the COVID-19 pandemic. While it is a strength that data on potential predictors  
5 of unmet healthcare needs were available prior to the pandemic, including a measure of pre-  
6 pandemic unmet healthcare needs, we are unable to quantify the change in unmet healthcare  
7 needs due to slightly different measures used in FUP1 and during the pandemic. However,  
8 given the reasons for not seeking care indicated by participants, namely fear of COVID-19  
9 contact and services redirected to priority groups, it is clear that the COVID-19 pandemic  
10 influenced access to healthcare services. While we did not use objective measurements of  
11 healthcare utilization, using self-report data provided insight into how participants perceived  
12 the availability of care during the pandemic. Lastly, recruitment for the CLSA at baseline  
13 excluded institutionalized persons, residents of three territories or First Nations reserves,  
14 individuals not able to participate in English or French and the inclusion of only a small  
15 proportion of non-white participants, has the potential to limit the generalizability of the  
16 results.(17)  
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### 31 **Conclusion**

32 We examined how the perception of access to healthcare services among Canadians was  
33 affected by COVID-19. By focusing on the social determinants of health, the study presented  
34 how perceived barriers to services and inadequacies in access to care persisted in the Canadian  
35 healthcare system during the pandemic. The findings suggest that unmet need was lower in  
36 older age groups and varied by education, income, immigration status, racial background and  
37 region. Given that the presence of chronic conditions and pre-pandemic unmet needs were also  
38 associated with higher odds of reporting unmet healthcare needs, there is evidence that  
39 individuals with pre-existing vulnerabilities experience difficulties when trying to access  
40 healthcare services. It is clear that efforts must continue to ensure adequate care for  
41 Canadians, perhaps especially in times of crisis such as the COVID-19 pandemic.  
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Table 1: Descriptive characteristics of adults who completed the CLSA F1 (2015-2018) and COVID-19 exit surveys (Sept. to Dec. 2020)

	<b>CLSA FUP1 (N=44812)</b>	<b>COVID-19 Exit Survey (N=23972)</b>
	N (%)	N (%)
<b>Sex<sup>1</sup></b>		
Female	22943 (51.2)	12743 (53.2)
Male	21869 (48.8)	11229 (46.8)
<b>Age<sup>2,3</sup></b>		
50-54	6598 (14.7)	1097 (4.6)
55-64	14749 (32.9)	7250 (30.2)
65-74	13301 (29.7)	8759 (36.5)
75-84	8365 (18.7)	5145 (21.5)
85-96	1799 (4.0)	1721 (7.2)
<b>Region<sup>2,3</sup></b>		
Atlantic	8831 (19.7)	4334 (18.0)
Prairies	9531 (21.3)	5130 (21.4)
Ontario	9831 (21.9)	5554 (23.2)
Quebec	8546 (19.1)	4336 (18.1)
British Columbia	8073 (18.0)	4618 (19.3)
<b>Urban/Rural<sup>2,33</sup></b>		
Rural area	6658 (14.9)	4245 (17.8)
Urban area	38123 (85.1)	19602 (82.2)
Missing	31	125
<b>Racial background<sup>1</sup></b>		
White	43166 (96.4)	23273 (97.2)
Non-white	1600 (3.6)	673 (2.8)
Missing	46	26
<b>Immigrant status<sup>1</sup></b>		
Immigrant	7171 (16.0)	3789 (15.8)
Non-immigrant	37629 (84.0)	20173 (84.2)

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Missing	12	10
<b>Household income<sup>2</sup></b>		
Less than \$20,000	2083 (5.0)	861 (3.8)
\$20,000 to <\$50,000	9929 (23.9)	4855 (21.4)
\$50,000 to <\$100,000	15122 (36.4)	8569 (37.9)
\$100,000 to <\$150,000	7807 (18.8)	4589 (20.3)
\$150,000 or more	6616 (15.9)	3758 (16.6)
Missing	3255	1340
<b>Education<sup>1</sup></b>		
Less than secondary school	2669 (6.0)	1101 (4.6)
Secondary school	4734 (10.6)	2349 (9.8)
Some post-secondary	3312 (7.4)	1719 (7.2)
Post-secondary degree/diploma	33994 (76.0)	18756 (78.4)
Missing	103	47
<b>Marital status<sup>2</sup></b>		
Single, never married or never lived with a partner	3882 (8.7)	2007 (8.4)
Married or living with a partner	30538 (68.2)	16833 (70.3)
Widowed	4921 (11.0)	2332 (9.7)
Divorced or separated	5449 (12.1)	2785 (11.6)
Missing	22	15
<b>Dwelling type<sup>2,3</sup></b>		
House	35544 (79.3)	18625 (77.8)
Apartment or condominium	8006 (17.9)	4410 (18.4)
Other	1259 (2.8)	907 (3.8)
Missing	3	30
<b>Chronic conditions<sup>3,4</sup></b>		
Present	N/A	14235 (59.7)
Absent	N/A	9594 (40.3)
Missing	N/A	143
<b>Work status<sup>3,4</sup></b>		

Usually work outside the home	N/A	6273 (26.6)
Do not work outside the home	N/A	17357 (73.4)
Missing	N/A	342
<b>Unmet needs (pre-pandemic)<sup>2</sup></b>		
Yes	3756 (8.5)	1874 (7.8)
No	40682 (91.5)	22060 (92.2)
Missing	374	38
<b>Any challenges in accessing healthcare<sup>4,5</sup></b>		
Yes	N/A	5992 (25.3)
No	N/A	17759 (74.7)
Missing	N/A	221
<b>Did not go to the hospital or to see a doctor even though they needed to<sup>4,5</sup></b>		
Yes	N/A	1776 (7.5)
No	N/A	21989 (92.5)
Missing	N/A	207
<b>Experienced barriers to accessing testing for COVID-19<sup>4,5</sup></b>		
Yes	N/A	917 (3.9)
No	N/A	22828 (96.1)
Missing	N/A	227

<sup>1</sup> Extracted from CLSA baseline survey (2011-2015)

<sup>2</sup> Extracted from CLSA follow up one (2015-2018)

<sup>3</sup> Extracted from CLSA COVID-19 baseline survey (April-May 2020)

<sup>4</sup> Variables were not measured equivalently in FUP1, so a direct comparison was not possible

<sup>5</sup> Extracted from CLSA COVID-19 exit survey (September-December 2020)

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Table 2: Logistic regression models assessing the association between sociodemographic characteristics and unmet healthcare needs during the COVID-19 pandemic as reported by participants during the CLSA COVID-19 exit survey (Sept. to Dec. 2020)

	Any challenges in accessing healthcare <b>OR (95% CI)</b>	Did not go to the hospital or to see a doctor even though they needed to <b>OR (95% CI)</b>	Experienced barriers to accessing testing for COVID-19 <b>OR (95% CI)</b>
<b>Sex</b>			
Male	Reference	Reference	Reference
Female	1.01 (0.95, 1.07)	1.20 (1.09, 1.32)	0.92 (0.80, 1.05)
<b>Age</b>			
50-55	Reference	Reference	Reference
55-64	0.88 (0.77, 1.02)	0.78 (0.63, 0.97)	0.72 (0.55, 0.94)
65-74	0.88 (0.77, 1.02)	0.74 (0.60, 0.91)	0.59 (0.45, 0.77)
75-84	0.73 (0.63, 0.85)	0.59 (0.47, 0.74)	0.45 (0.34, 0.60)
85-96	0.52 (0.43, 0.62)	0.51 (0.36, 0.68)	0.37 (0.25, 0.55)
<b>Region</b>			
Atlantic	Reference	Reference	Reference
Quebec	0.48 (0.43, 0.54)	1.38 (1.19, 1.61)	0.80 (0.58, 1.10)
Ontario	1.22 (1.11, 1.33)	0.97 (0.83, 1.13)	3.40 (2.68, 4.32)
Prairies	0.73 (0.67, 0.80)	0.74 (0.63, 0.87)	1.92 (1.48, 2.48)
British Columbia	1.03 (0.94, 1.13)	0.92 (0.79, 1.08)	2.37 (1.84, 3.06)
<b>Urban/Rural</b>			
Urban	Reference	Reference	Reference
Rural	0.93 (0.86, 1.00)	1.06 (0.93, 1.20)	0.79 (0.65, 0.95)
<b>Racial background</b>			
White	Reference	Reference	Reference
Non-white	0.91 (0.76, 1.10)	1.37 (1.06, 1.78)	1.09 (0.74, 1.60)
<b>Immigrant status</b>			
Non-immigrant	Reference	Reference	Reference



Immigrant	1.18 (1.09, 1.27)	1.26 (1.11, 1.43)	1.15 (0.97, 1.37)
<b>Household income</b>			
Less than \$20,000	0.81 (0.68, 0.97)	1.52 (1.18, 1.97)	0.66 (0.46, 0.97)
\$20,000 to <\$50,000	0.80 (0.73, 0.89)	1.19 (1.01, 1.40)	0.56 (0.45, 0.69)
\$50,000 to <\$100,000	0.89 (0.82, 0.98)	1.03 (0.89, 1.20)	0.56 (0.47, 0.68)
\$100,000 to <\$150,000	1.03 (0.93, 1.13)	1.05 (0.89, 1.24)	0.68 (0.56, 0.83)
\$150,000 or more	Reference	Reference	Reference
<b>Education</b>			
Less than secondary school	0.58 (0.50, 0.69)	1.02 (0.81, 1.29)	0.54 (0.36, 0.81)
Secondary school	0.74 (0.66, 0.82)	0.96 (0.81, 1.14)	0.52 (0.39, 0.67)
Some post-secondary	1.02 (0.91, 1.14)	1.09 (0.90, 1.30)	0.90 (0.70, 1.16)
Post-secondary diploma or more	Reference	Reference	Reference
<b>Marital status</b>			
Married or living with a partner	Reference	Reference	Reference
Single, never married or never lived with a partner	1.02 (0.92, 1.14)	1.16 (0.98, 1.38)	1.15 (0.92, 1.45)
Widowed	0.76 (0.70, 0.84)	1.02 (0.87, 1.21)	0.72 (0.56, 0.94)
Divorced or separated	1.03 (0.94, 1.13)	1.40 (1.21, 1.61)	1.13 (0.92, 1.38)
<b>Chronic conditions</b>			
Absent	Reference	Reference	Reference
Present	1.35 (1.27, 1.43)	1.45 (1.31, 1.61)	0.97 (0.85, 1.11)
<b>Dwelling type</b>			
House	Reference	Reference	Reference
Apartment	0.90 (0.83, 0.97)	1.09 (0.97, 1.23)	1.01 (0.85, 1.19)
Other	0.74 (0.63, 0.88)	1.08 (0.84, 1.38)	0.59 (0.38, 0.92)
<b>Work status</b>			
Do not work outside the home	Reference	Reference	Reference
Usually work outside the home	1.07 (1.01, 1.15)	1.05 (0.94, 1.17)	1.43 (1.24, 1.65)
<b>Unmet needs (Pre-pandemic)</b>			
Yes	2.21 (2.00, 2.44)	2.91 (2.55, 3.33)	1.77 (1.45, 2.16)
No	Reference	Reference	Reference

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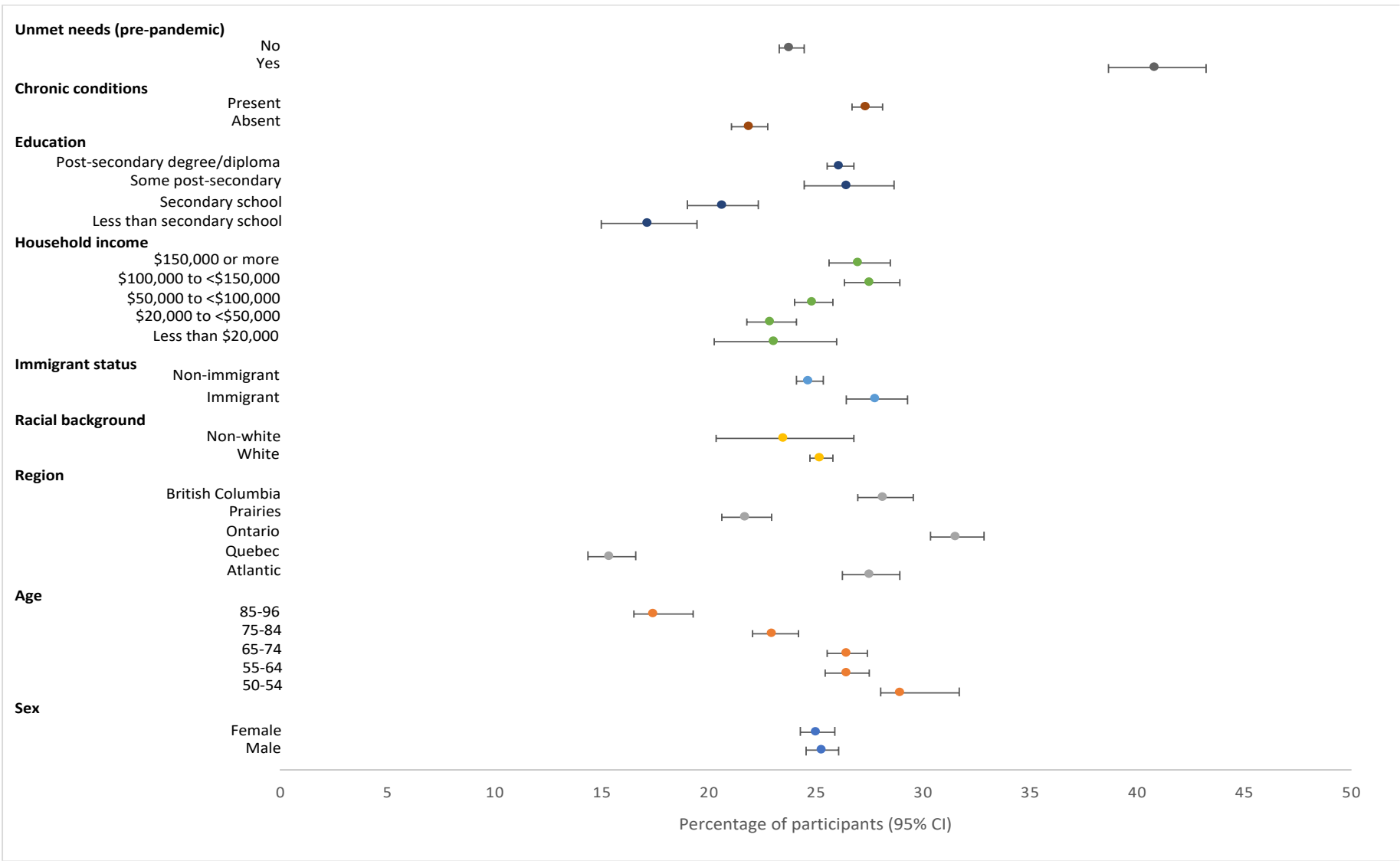


Figure 1: Prevalence of any challenges in accessing healthcare during the COVID-19 pandemic as reported by participants during the CLSA COVID-19 exit survey (Sept. to Dec. 2020), according to sociodemographic characteristics

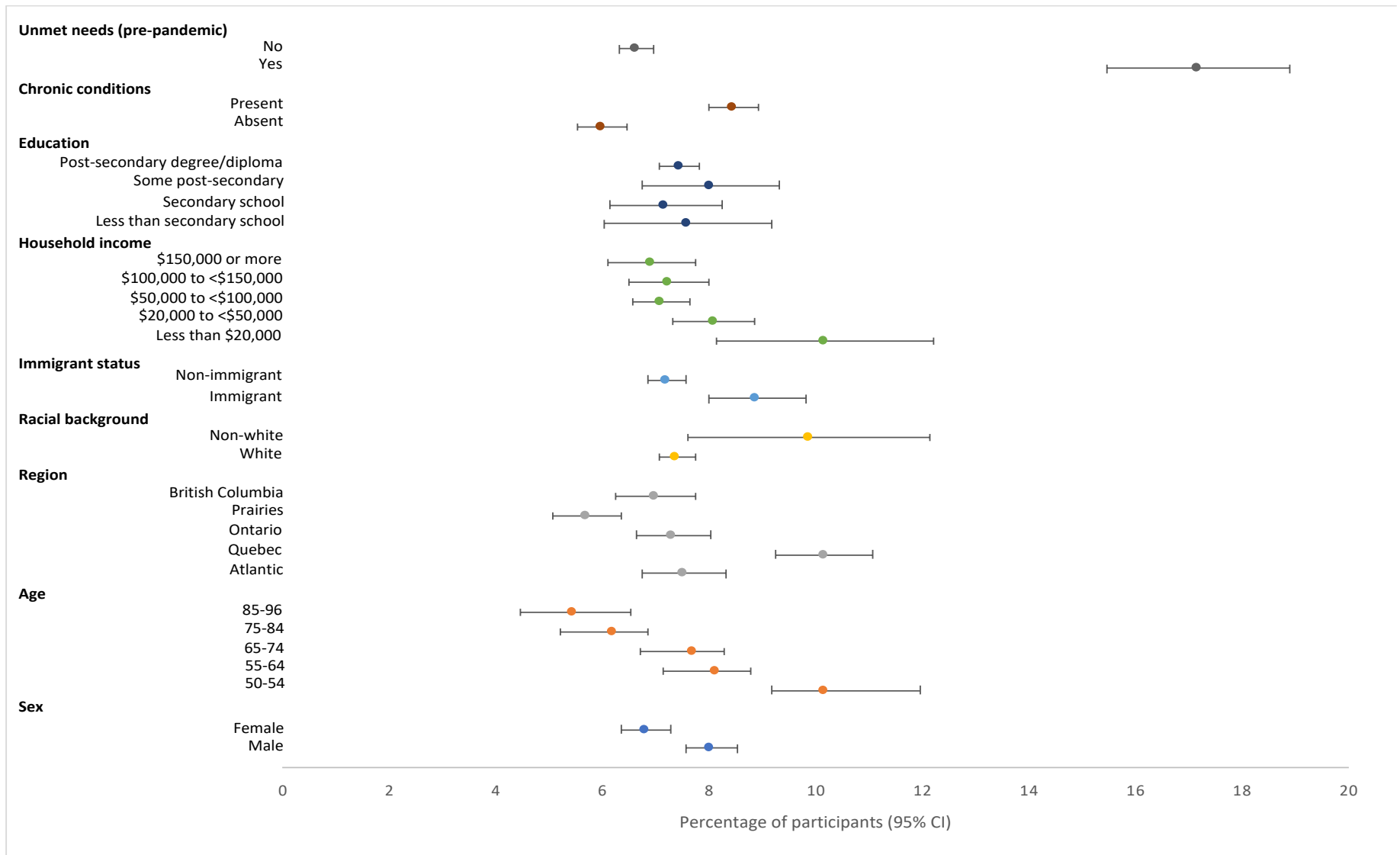


Figure 2: Prevalence of not visiting the hospital or seeing a doctor while needing to during the COVID-19 pandemic as reported by participants during the CLSA COVID-19 exit survey (Sept. to Dec. 2020), according to sociodemographic characteristics

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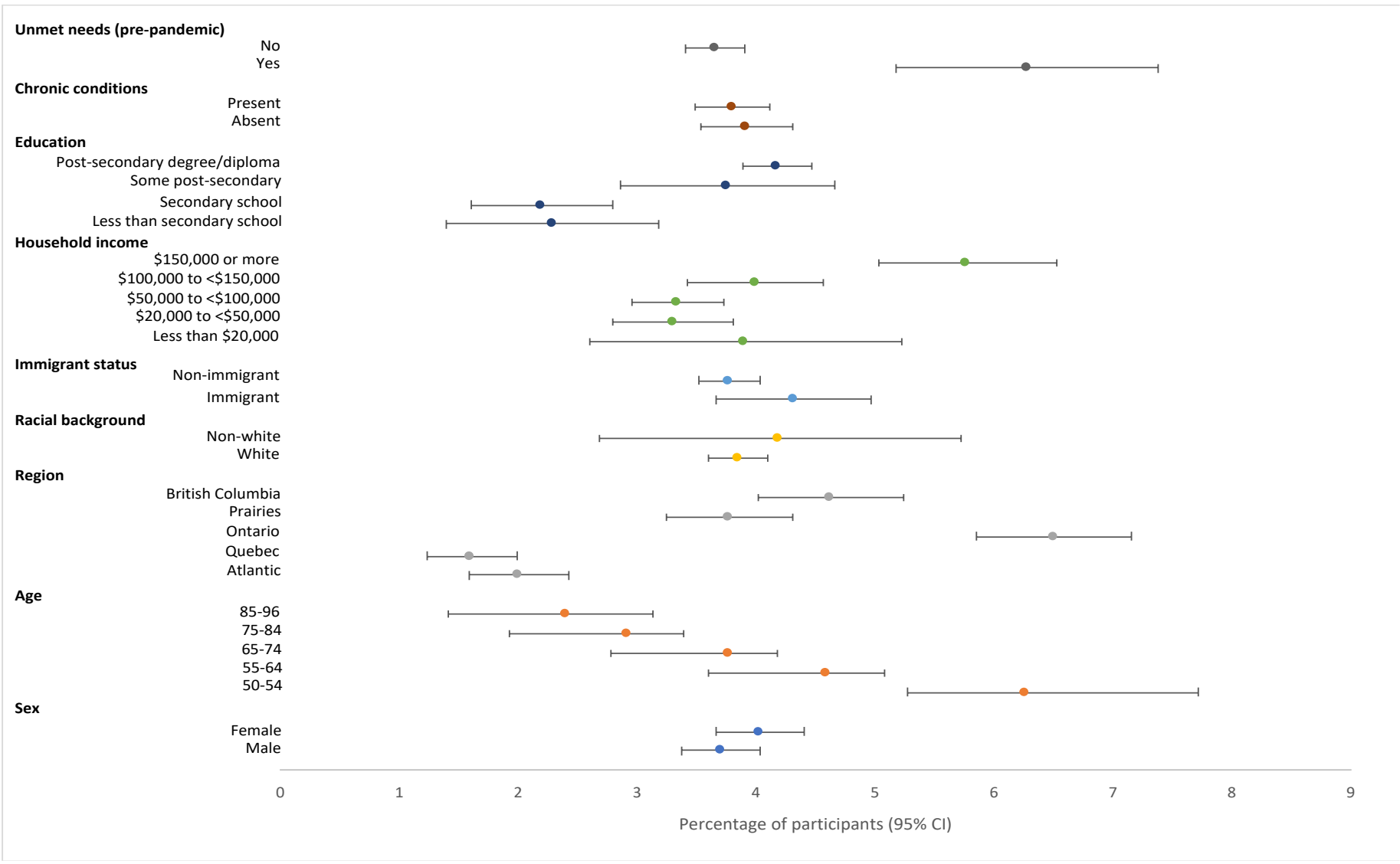


Figure 3: Prevalence of barriers to accessing testing for COVID-19 during the COVID-19 pandemic as reported by participants during the CLSA COVID-19 exit survey (Sept. to Dec. 2020), according to sociodemographic characteristics

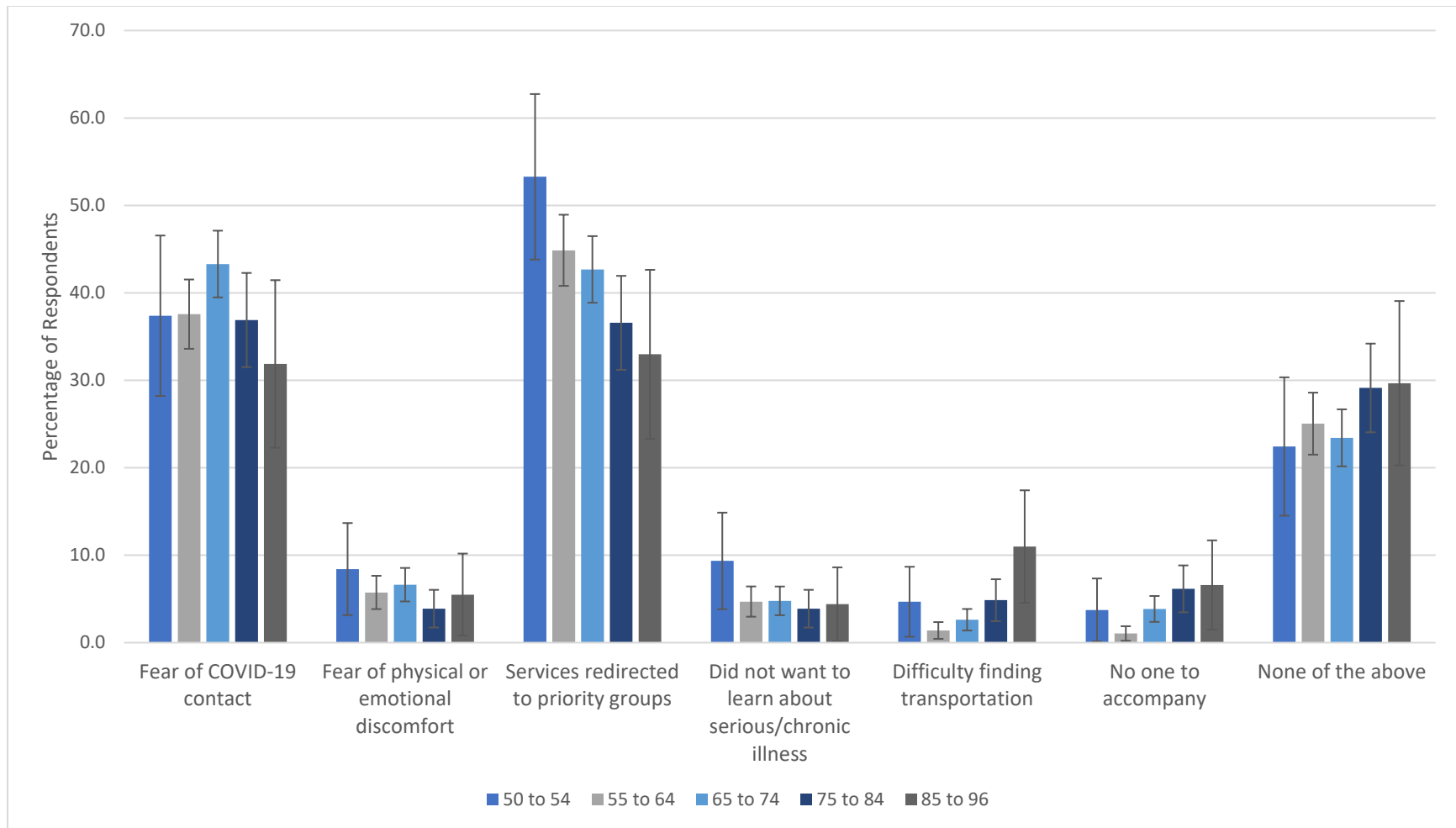


Figure 4: Reasons for not visiting the hospital or seeing a doctor while needing to as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by age (N=1731)

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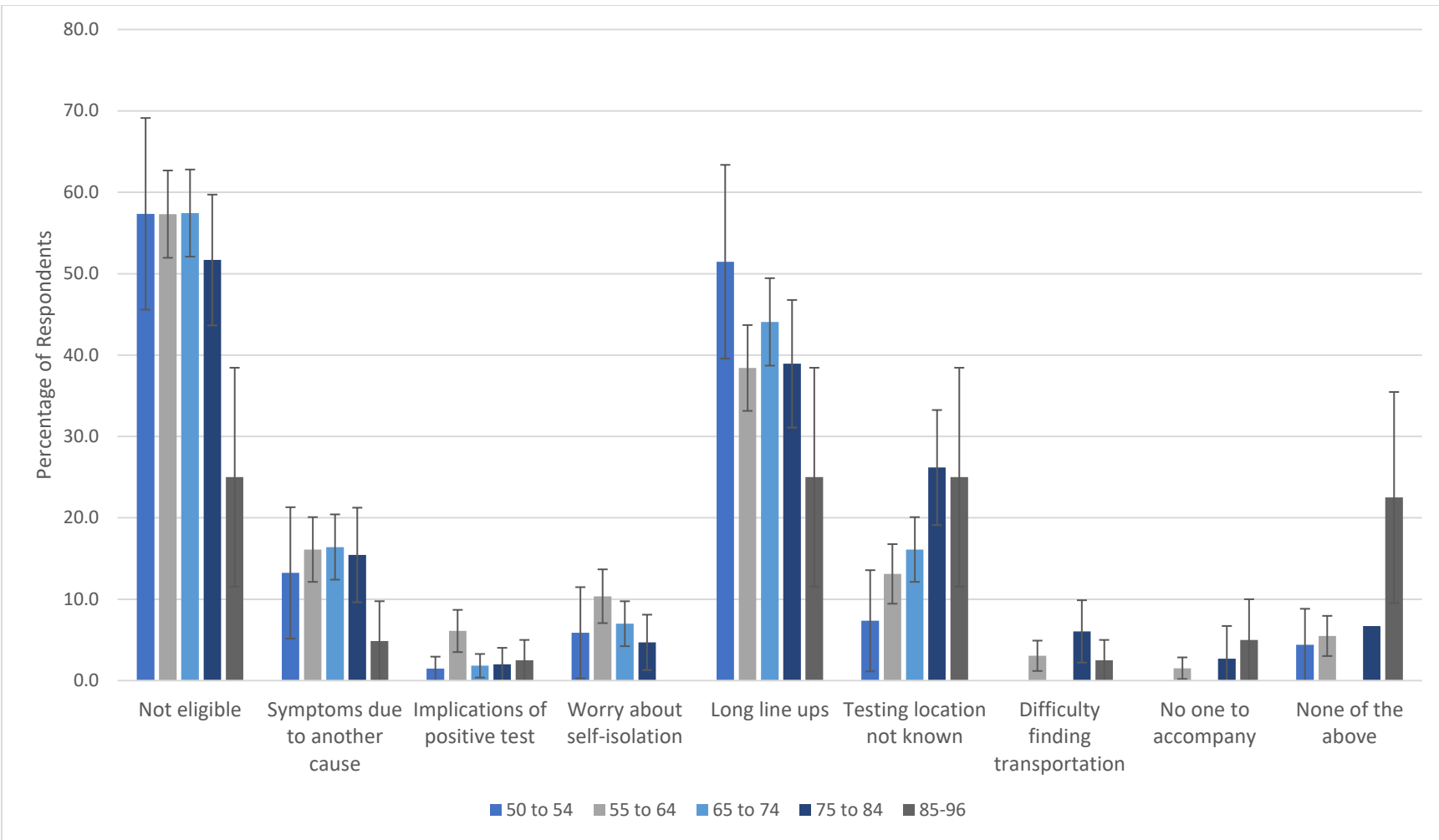


Figure 5: Barriers to accessing testing for COVID-19 as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by age (N=914)

### Supplementary Tables & Figures

Supplementary Table 1: Logistic regression models assessing the association between sociodemographic characteristics and unmet healthcare needs during the COVID-19 pandemic as reported by participants during the CLSA COVID-19 exit survey (Sept. to Dec. 2020), adjusted for all covariates

	Any challenges in accessing healthcare <b>aOR (95% CI)</b>	Did not go to the hospital or to see a doctor even though they needed to <b>aOR (95% CI)</b>	Experienced barriers to accessing testing for COVID-19 <b>aOR (95% CI)</b>
<b>Sex</b>			
Male	Reference	Reference	Reference
Female	1.03 (0.96, 1.10)	1.13 (1.01, 1.25)	0.89 (0.77, 1.03)
<b>Age</b>			
50-54	Reference	Reference	Reference
55-64	0.86 (0.74, 1.00)	0.74 (0.59, 0.92)	0.74 (0.56, 0.99)
65-74	0.85 (0.72, 0.99)	0.62 (0.48, 0.78)	0.66 (0.48, 0.89)
75-84	0.69 (0.58, 0.82)	0.45 (0.35, 0.59)	0.50 (0.35, 0.70)
85-96	0.52 (0.42, 0.64)	0.39 (0.28, 0.54)	0.40 (0.25, 0.64)
<b>Region</b>			
Atlantic	Reference	Reference	Reference
Quebec	0.47 (0.42, 0.53)	1.43 (1.22, 1.68)	0.68 (0.49, 0.95)
Ontario	1.19 (1.09, 1.31)	1.00 (0.85, 1.18)	3.30 (2.57, 4.22)
Prairies	0.72 (0.65, 0.79)	0.78 (0.65, 0.93)	1.84 (1.41, 2.40)
British Columbia	0.98 (0.89, 1.08)	0.90 (0.76, 1.07)	2.19 (1.69, 2.85)
<b>Urban/Rural</b>			
Urban	Reference	Reference	Reference
Rural	0.94 (0.87, 1.03)	1.04 (0.91, 1.20)	0.93 (0.76, 1.13)
<b>Racial background</b>			
White	Reference	Reference	Reference
Non-white	0.74 (0.60, 0.90)	1.09 (0.81, 1.46)	0.91 (0.61, 1.38)
<b>Immigrant status</b>			

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Non-immigrant	Reference	Reference	Reference
Immigrant	1.12 (1.03, 1.22)	1.37 (1.19, 1.58)	0.98 (0.81, 1.19)
<b>Household income</b>			
Less than \$20,000	0.93 (0.76, 1.14)	1.16 (0.86, 1.57)	0.95 (0.62, 1.46)
\$20,000 to <\$50,000	0.93 (0.82, 1.04)	1.10 (0.91, 1.34)	0.84 (0.65, 1.08)
\$50,000 to <\$100,000	0.98 (0.89, 1.08)	1.02 (0.87, 1.20)	0.72 (0.59, 0.89)
\$100,000 to <\$150,000	1.05 (0.95, 1.16)	1.04 (0.87, 1.24)	0.76 (0.62, 0.94)
\$150,000 or more	Reference	Reference	Reference
<b>Education</b>			
Less than secondary school	0.72 (0.60, 0.86)	1.05 (0.81, 1.35)	0.67 (0.43, 1.06)
Secondary school	0.77 (0.69, 0.86)	0.95 (0.80, 1.14)	0.51 (0.37, 0.70)
Some post-secondary	0.96 (0.86, 1.09)	1.09 (0.89, 1.32)	0.85 (0.65, 1.11)
Post-secondary diploma or more	Reference	Reference	Reference
<b>Marital status</b>			
Married or living with a partner	Reference	Reference	Reference
Single, never married or never lived with a partner	1.15 (1.02, 1.30)	0.94 (0.77, 1.14)	1.21 (0.92, 1.58)
Widowed	0.94 (0.83, 1.07)	1.09 (0.90, 1.33)	1.02 (0.75, 1.37)
Divorced or separated	1.12 (1.00, 1.25)	1.17 (0.99, 1.38)	1.20 (0.95, 1.52)
<b>Chronic conditions</b>			
Absent	Reference	Reference	Reference
Present	1.46 (1.36, 1.56)	1.53 (1.37, 1.71)	1.11 (0.96, 1.28)
<b>Dwelling type</b>			
House	Reference	Reference	Reference
Apartment	0.96 (0.88, 1.05)	1.04 (0.91, 1.20)	1.15 (0.95, 1.40)
Other	0.98 (0.81, 1.19)	1.14 (0.86, 1.51)	1.00 (0.63, 1.60)
<b>Work status</b>			
Do not work outside the home	Reference	Reference	Reference
Usually work outside the home	0.97 (0.89, 1.05)	0.92 (0.80, 1.05)	1.09 (0.92, 1.30)
<b>Unmet needs (pre-pandemic)</b>			
Yes	2.23 (2.00, 2.47)	2.55 (2.21, 2.94)	1.70 (1.37, 2.12)
No	Reference	Reference	Reference



Supplementary Table 2: Frequency of types of challenges experienced accessing healthcare reported by CLSA COVID-19 exit survey (Sept. to Dec. 2020) participants (N=5960)

<b>Service</b>	<b>N (%)</b>
Primary care	4009 (67.3)
Specialist care	2261 (37.9)
Prescription medication	567 (9.5)
Pharmacist	91 (1.5)
Diagnostic testing	1782 (29.9)
Screening test/surgery	779 (13.1)
Delay of scheduled surgery	492 (8.3)
Unable to use zoom/no access to a computer	206 (3.5)
None of the above	246 (4.1)

Supplementary Table 3: Frequency of reasons for not visiting the hospital or seeing a doctor while needing to reported by CLSA COVID-19 exit survey (Sept. to Dec. 2020) participants (N=1731)

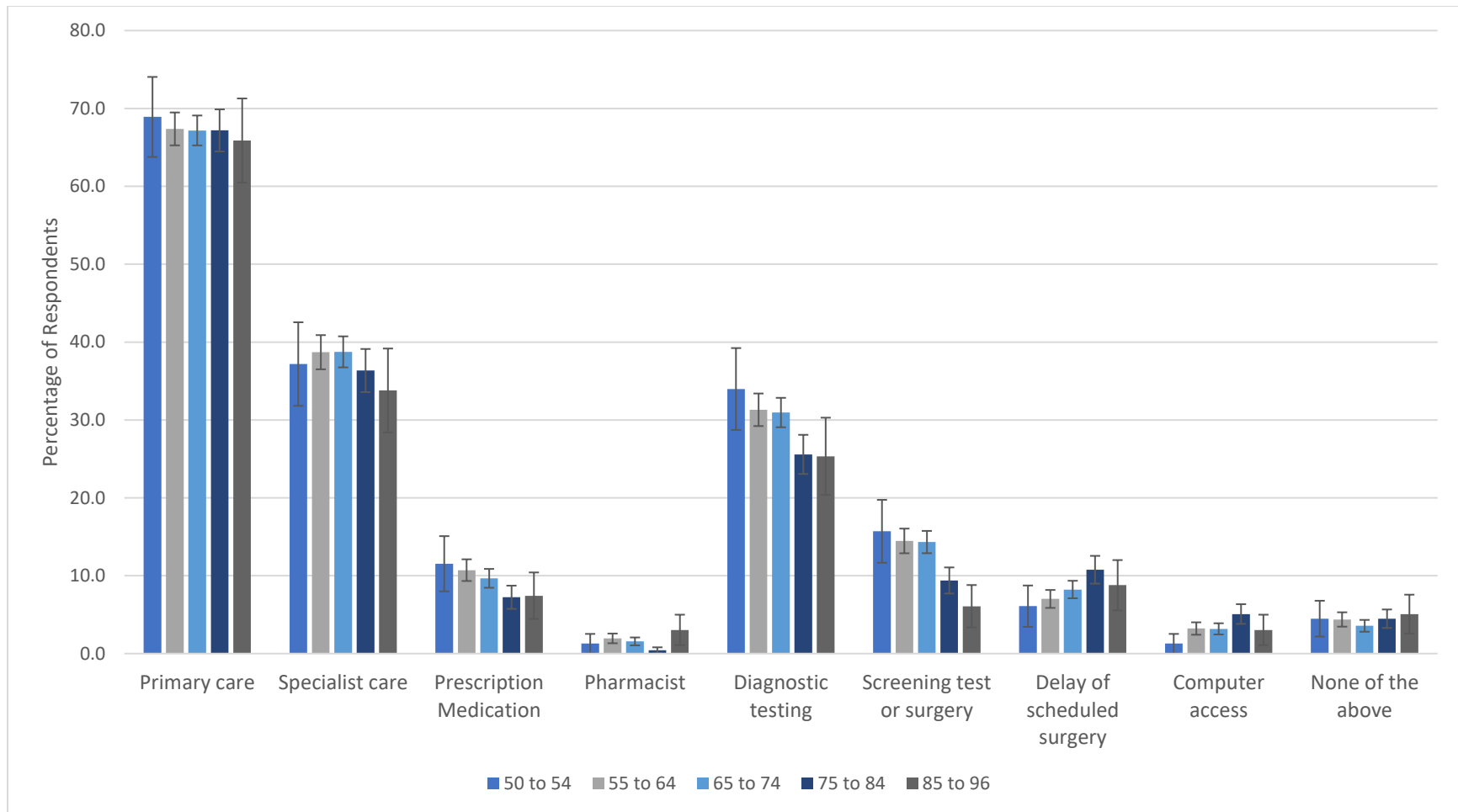
<b>Service</b>	<b>N (%)</b>
Fear of COVID-19 contact	680 (39.3)
Fear of physical or emotional discomfort	102 (5.9)
Services redirected to priority groups	735 (42.5)
Did not want to learn about chronic/serious illness	84 (4.8)
Difficulty finding transportation	55 (3.2)
No one to accompany	60 (3.5)
None of the above	437 (25.2)

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Supplementary Table 4: Frequency of barriers to accessing testing for COVID-19 reported by CLSA COVID-19 exit survey (Sept. to Dec. 2020) participants (N=914)

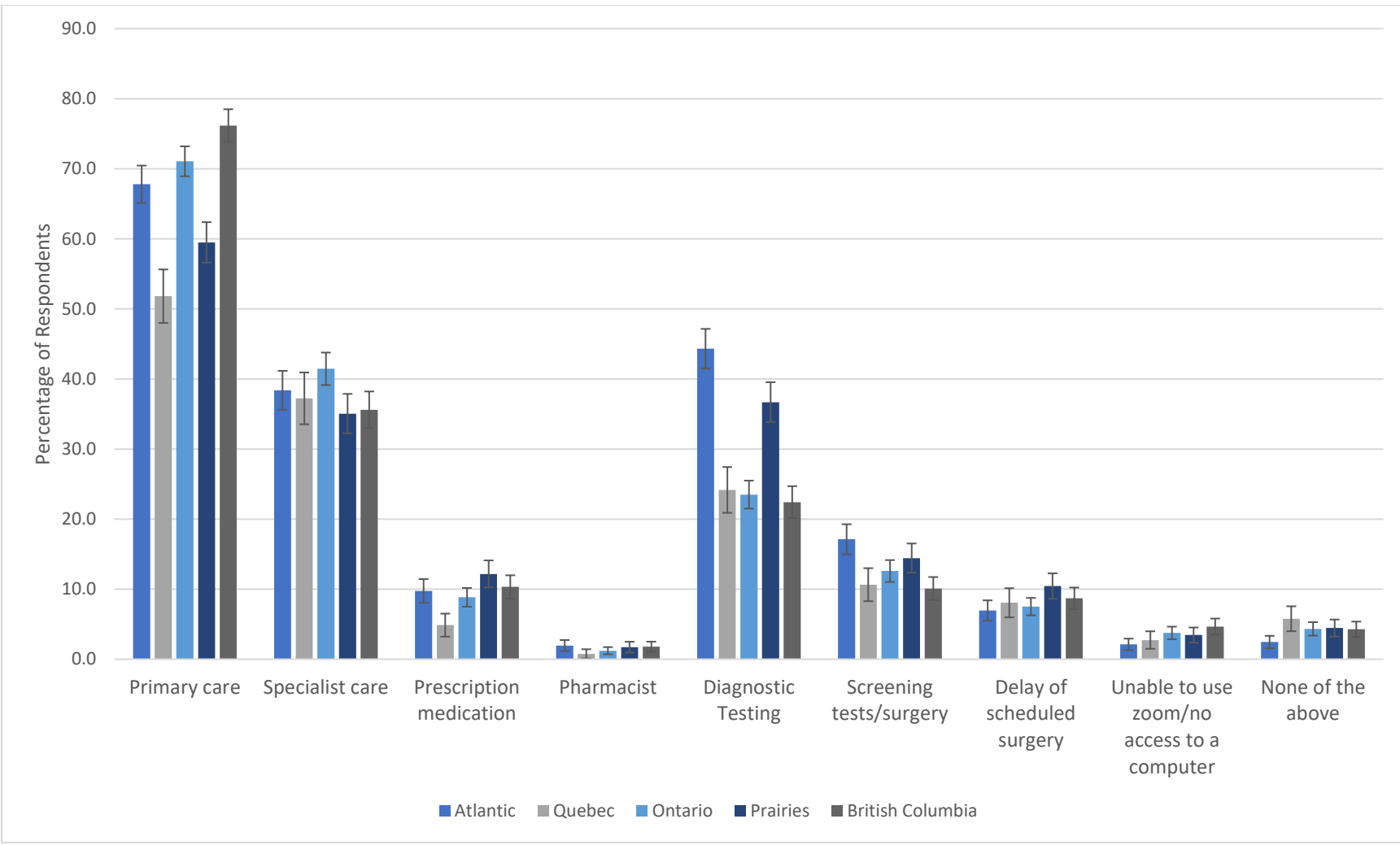
<b>Service</b>	<b>N (%)</b>
Not eligible	503 (55.0)
Symptoms due to another cause	141 (15.4)
Implications of positive test	31 (3.4)
Worry about self-isolation	68 (7.4)
Long line ups	374 (40.9)
Testing location not known	150 (16.4)
Difficulty finding transportation	37 (4.0)
No one to accompany	20 (2.2)
None of the above	73 (8.0)

Confidential

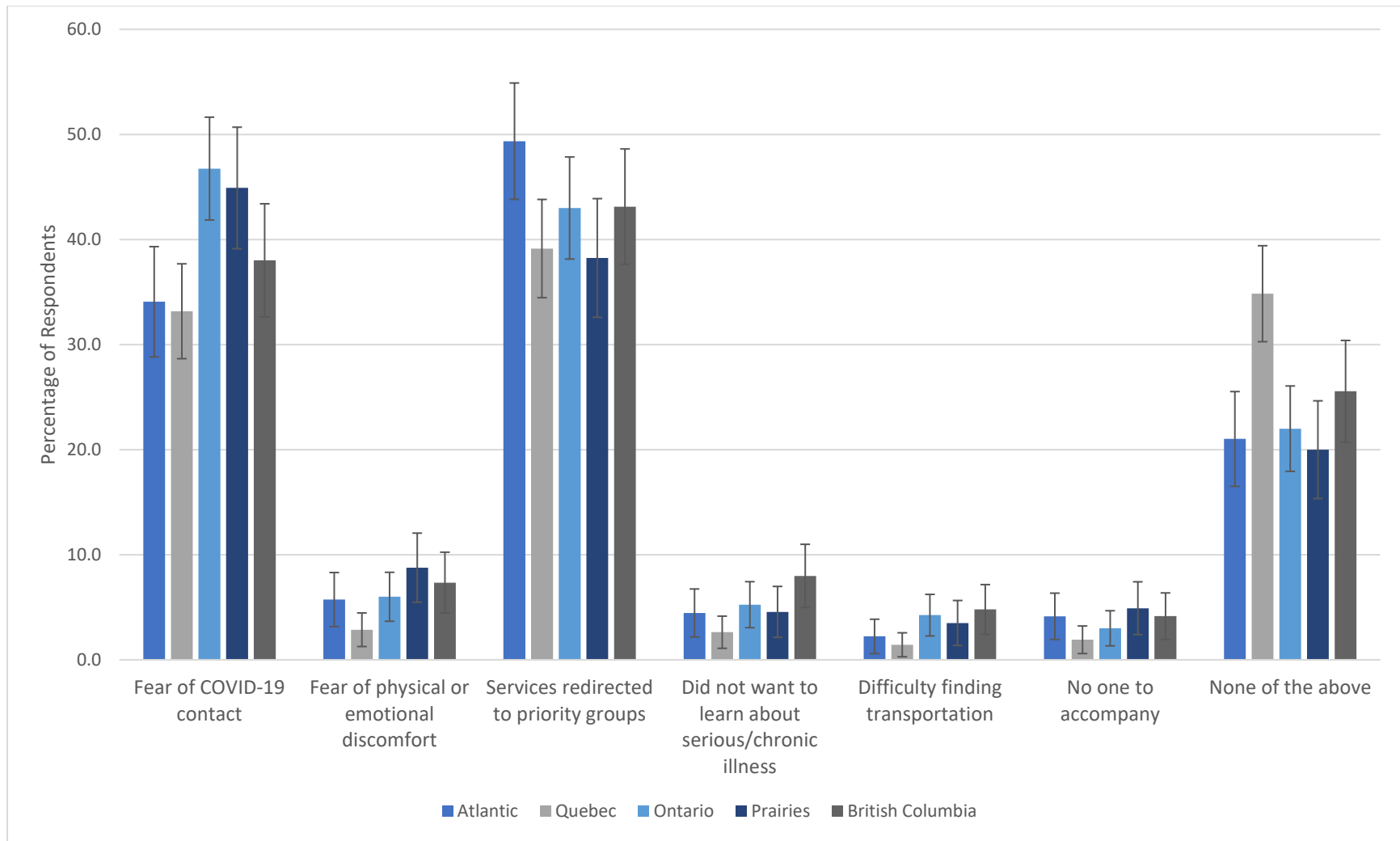


Supplementary Figure 1: Frequency of types of challenges experienced accessing healthcare, as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by age (N=5960)

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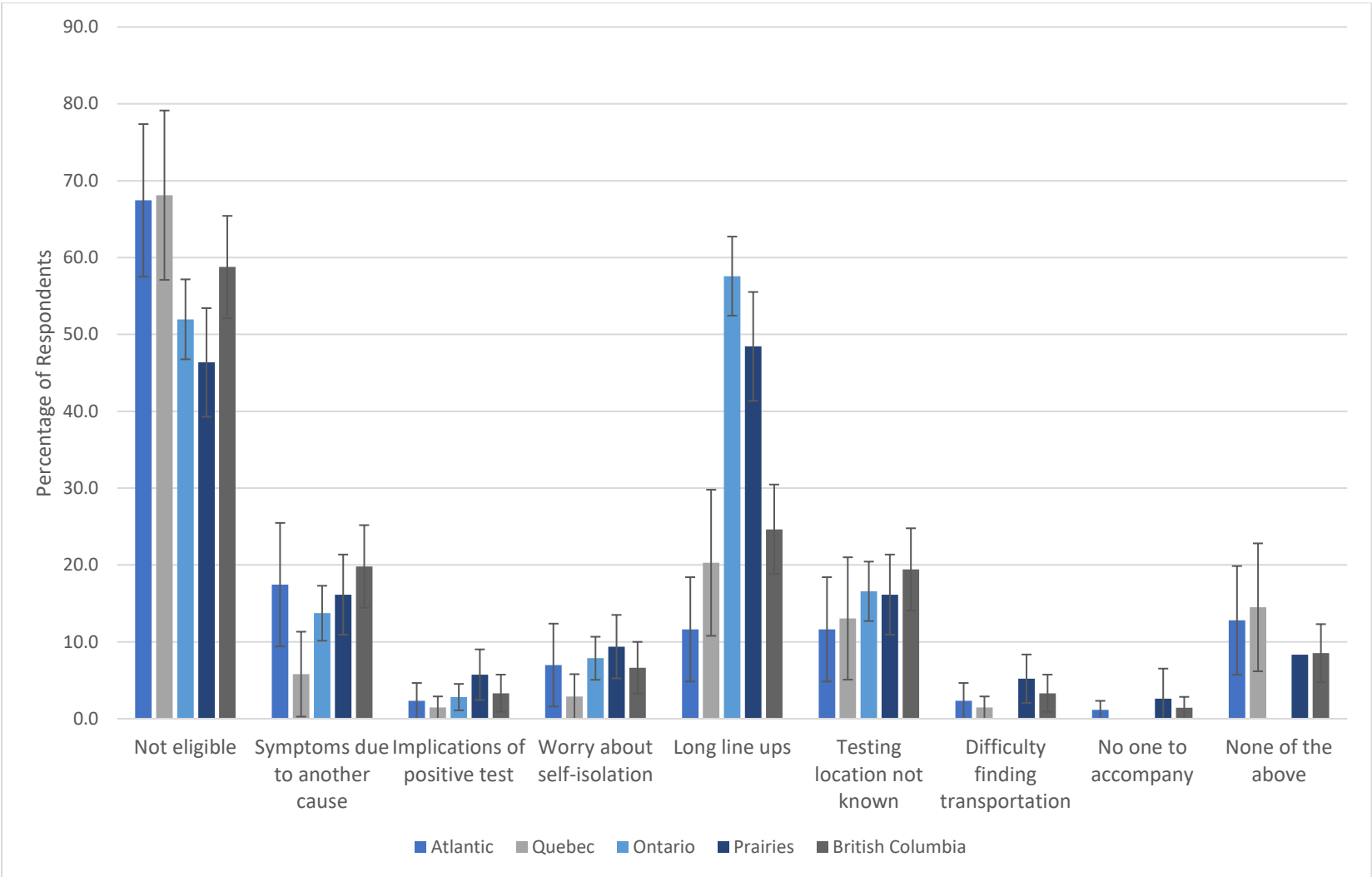


Supplementary Figure 2: Frequency of types of challenges experienced accessing healthcare as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by province (N=5960)



Supplementary Figure 3: Reasons for not visiting the hospital or seeing a doctor while needing to as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by province (N=1731)

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Supplementary Figure 4: Barriers to accessing COVID-19 testing as reported by participants in the CLSA COVID-19 exit survey (Sept. to Dec. 2020), stratified by province (N=914)

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