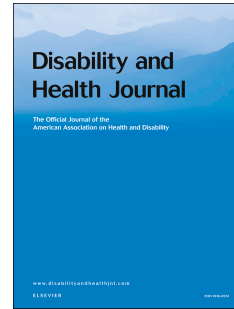


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The Hidden Crisis: Long COVID's Association with Housing Stability and Home Accessibility Among People with Disabilities

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Running Head: Long COVID's association with housing

The Hidden Crisis: Long COVID's Association with Housing Stability and Home Accessibility
Among People with Disabilities

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1 **Abstract**

2 **Background:** The COVID-19 pandemic has given rise to the emerging phenomenon known as
3 Long COVID, characterized by persistent symptoms long after the acute infection has passed.
4 However, the relationship of Long COVID on housing stability and home accessibility remains
5 underexplored.

6 **Objective:** This manuscript aims to comprehensively examine the association of Long COVID
7 on housing stability and accessibility, identifying challenges faced by people with Long COVID
8 and potential strategies to address them.

9 **Methods:** The study employs a cross-sectional mixed-methods approach, combining quantitative
10 and qualitative methods. It analyzes data from 1,533 people with disabilities, 514 with Long
11 COVID and 1,019 without Long COVID, to compare demographics, housing stability, financial
12 concerns, housing problems, and home accessibility. Qualitative analysis extracts thematic
13 insights from 13 participant narratives.

14 **Results:** Individuals with Long COVID exhibit significantly higher rates of housing instability
15 (21.1% v. 8.1%, $p < .001$) and financial concerns, such as worries about high rent or mortgage
16 (50.4% v. 40.0%, $p < .001$), compared to those without Long COVID. They also report more
17 frequent issues with pests (30.0% v. 23.5%, $p < .01$) and mold (22.0% v. 12.7%, $p < .001$) in
18 their homes. Qualitative analysis reveals financial setbacks, difficulties in obtaining support, and
19 the challenges of home accessibility.

20 **Conclusions:** Associations between Long COVID and challenges related to housing stability and
21 home accessibility highlight the need for systemic changes, financial support, and advocacy. This
22 research contributes to understanding Long COVID's challenges, informing policy development,
23 and promoting compassionate responses, ensuring the well-being of people with Long COVID.

24

Introduction

25 In the wake of the COVID-19 pandemic, our understanding of the virus's far-reaching
26 consequences continues to evolve. Despite advancements in COVID-19 diagnosis, treatment,
27 and prevention,¹⁻³ the emergence of Long COVID introduces a complex and multifaceted
28 challenge to many disabled people who already face significant housing barriers.^{4,5} The Centers
29 for Disease Control and Prevention (CDC) notes a significant prevalence, with 1 in 13 U.S.
30 adults (7.5%) now grappling with this condition, defined as symptoms lasting 3 months or more
31 after the initial virus contraction.⁶ Amid this growing understanding, one area that remains
32 largely unexplored in the context of Long COVID is its potential impact on housing stability and
33 home accessibility, specifically for people with disabilities.

34 The persistent and varied symptoms, including debilitating fatigue, cognitive impairment,
35 and shortness of breath,³ have the potential to disrupt an individual's ability to maintain stable
36 housing and navigate their home environment effectively.^{7,8} These symptoms can significantly
37 impair daily functioning, making it challenging to manage employment⁹ and fulfill financial
38 obligations,¹⁰ thereby heightening the risk of eviction, foreclosure, or failing to meet the ongoing
39 demands of home maintenance.⁷ Long COVID can exacerbate existing disabilities or introduce
40 new ones,¹¹ necessitating adaptations in the living space ranging from minor modifications (e.g.,
41 grab bars) to more significant accommodations (e.g., wheelchair ramps, specialized room
42 layouts), or even necessitate relocation to a more suitable living environment.¹²

43 For individuals with disabilities, stable housing is not merely a place to live but a critical
44 factor in the ability to manage health conditions, maintain independence, and engage in
45 community life. Research shows that maintaining housing stability, which encompasses the
46 ability to stay in one's home without the threat of eviction or foreclosure, and having a home that

47 is accessible and accommodating is essential for overall well-being and recovery.^{13,14} In this
48 context, housing stability not only refers to the physical suitability of the living environment but
49 also its financial affordability, ensuring that individuals can maintain their homes over the long
50 term without the threat of displacement. Therefore, addressing the housing needs of individuals
51 with Long COVID, particularly those with disabilities, requires a nuanced understanding of the
52 condition's impact on the essential role of adaptive, stable housing.

53 While existing literature extensively covers the immediate impacts of the COVID-19
54 pandemic on housing stability,¹⁵⁻¹⁸ a gap exists in understanding Long COVID's influence on
55 such critical, long-term aspects of people's lives. This manuscript aims to address this knowledge
56 gap through comparative and qualitative analyses, examining the relationships and experiences
57 related to housing stability and home accessibility among individuals with Long COVID. We
58 hypothesize that individuals with Long COVID experience greater housing instability and
59 accessibility challenges compared to those without Long COVID, as evidenced by increased
60 rates of financial concerns, housing-related problems, and the need for home adaptations to
61 accommodate new or exacerbated disabilities. Utilizing both quantitative and qualitative data, we
62 delve into risk factors, potential interventions, and policy recommendations to mitigate these
63 challenges, contributing valuable insights for public health responses and policy development
64 within the broader context of Long COVID.

65 **Methods**

66 **Data Source and Sample**

67 This cross-sectional study utilized unweighted data from the 2022 National Survey on
68 Health and Disability (NSHD), an internet-based survey of people with disabilities in the United
69 States, conducted from May to September of 2022. Given the inherent challenges in defining and

70 enumerating a representative population of individuals with disabilities—stemming from the
71 limitations of federal question sets which do not fully capture this demographic^{19,20}—the NSHD
72 adopted a purposive convenience sampling method. This approach aimed to engage a broad and
73 more inclusive array of respondents.

74 The target population for the NSHD consists of adults residing in the United States who
75 self-identify as having “*any physical or mental condition, impairment, or disability that affects*
76 *daily activities and/or requires the use of special equipment/devices.*” This disability screening
77 measure aims to capture a wide spectrum of experiences and conditions often overlooked by
78 more restrictive federal definitions.

79 The recruitment process involved collaboration with over 60 national disability
80 organizations, leveraging their networks to distribute the survey broadly. These organizations
81 utilized various communication channels, including emails, newsletters, and social media, to
82 reach potential respondents, thereby enhancing the survey’s visibility and reach within the
83 disability community.

84 The survey garnered responses from 2,725 adults with disabilities, reflecting a broad
85 array of experiences and conditions. However, due to the limitations in federal question sets, we
86 cannot confirm the representativeness of our sample within the broader disability population.
87 This uncertainty underscores the complexity of defining a representative sample in this context.
88 Additionally, because we used a convenience sampling approach, we do not have data on the
89 survey’s response rates. Participants were incentivized with a drawing for one of ten \$100 gift
90 cards. All study procedures were approved by the University of [masked] Institutional Review
91 Board.

92 **Quantitative Measures**

93 **Long COVID status.** Respondents were classified into “Long COVID” ($n = 514$) and
94 “non-Long COVID” ($n = 1,019$) groups based on their response to the question, “*Have you*
95 *experienced any COVID-19 symptoms for three months or longer following a suspected or*
96 *confirmed COVID-19 infection – also known as Long COVID? Examples of symptoms include*
97 *fatigue or extreme tiredness, cognitive problems, abnormal heart rate, shortness of breath, loss*
98 *of taste or smell, depression or other mental health conditions.*” Due to the survey design,
99 participants who did not confirm having contracted COVID-19 or responded “*I don’t know*”
100 were not asked the Long COVID question, leading to the exclusion of 1,192 respondents.

101 **Sociodemographic characteristics.** Information collected included housing status [own,
102 rent, live long-term with friends or family, and other situation], living situation [alone or with
103 others], gender, race, ethnicity, age, self-reported health, and employment status.

104 **Housing variables.** “Housing instability,” adapted from the Social Needs Screening
105 Tool,²¹ was categorized based on participants’ responses to their current living situation.
106 Individuals who reported a lack of a steady place to live or concerns about losing their place of
107 residence within the next six months were identified as having housing instability. “Housing cost
108 burdens,” adapted from the American Housing Survey (AHS),²² encompassed perceptions of
109 high rent or mortgage payments and real estate taxes, with “high” being a subjective term based
110 on participants’ own assessments rather than a predefined threshold. This category also included
111 utility bills, unsteady income, reliance on others for housing expenses, unexpected expenses, and
112 high debt, each scored as either present (1) or absent (0). “Housing-related problems,” adapted
113 from the Social Needs Screening Tool,²¹ included pests, mold, lead paint or pipes, lack of heat,
114 malfunctioning appliances, missing or non-functioning smoke detectors, and water leaks,
115 recorded as “yes” (1) if present. “Housing accessibility,” an internally developed measure, was

116 assessed based on the question, “*How well do you think the layout and features of the place you*
117 *live now support you?*”, rated from “*not at all*” (1) to “*very well*” (5). Quantitative data analyses
118 were conducted using cross-tabulations in SPSS (Version 28). Differences between the Long
119 COVID and non-Long COVID groups were tested using chi-square tests.

120 **Qualitative Methods**

121 We focused exclusively on individuals with Long COVID and conducted 13 in-depth
122 remote interviews using Zoom and telephone, drawing from a purposively selected sample of
123 NSHD respondents. This sample was carefully chosen to represent a diverse range of
124 demographics, including housing status, gender, race, ethnicity, and geographical region. Our
125 semi-structured interview guide, refined through pilot interviews and expert feedback, was
126 developed to ensure comprehensive coverage of relevant themes, such as the participants’
127 employment status, financial situations, and home environment interactions. During the
128 interviews, the flexibility of our approach allowed for thorough exploration and spontaneous
129 follow-up questions, enriching the data collected. Each interview was recorded and transcribed
130 verbatim to maintain the integrity and accuracy of the participants’ responses, and participants
131 received a \$50 gift card for their contributions. The interviews were conducted from January to
132 October 2023. Following the interviews, a single coder performed an initial thematic analysis on
133 the transcripts,²³ identifying potential themes and categorizing the data. These initial themes
134 were then meticulously refined in relation to the data set and existing literature. To ensure the
135 robustness of our findings, two additional members of the research team reviewed the initial
136 coding. This collaborative effort aimed to validate and refine the identified themes, ensuring
137 themes accurately reflected the participants’ experiences with Long COVID.

138 **Results**

139 Demographics

140

141 Table 1 compares demographics of individuals with Long COVID ($n = 514$) to those142 without ($n = 1,019$). The Long COVID group had significantly more females ($p < .01$).

143 Individuals with Long COVID were also significantly more likely to report poor/fair health and

144 not working ($p < .001$). Demographics of interview participants are also included in Table 1.**145 Quantitative Findings**

146

147 Table 2 presents a comparative analysis of housing stability and cost burdens between

148 Long COVID and non-Long COVID groups. Housing instability was markedly higher among

149 the Long COVID group (21.1%) compared to non-Long COVID groups (8.1%). Participants

150 with Long COVID reported greater concerns about high rent or mortgage payments (50.4% vs.

151 40.0%), utility bills (55.7% vs. 45.5%), unsteady income (54.8% vs. 35.2%), relying on others

152 for housing payments (46.6% vs. 30.8%), and large, unexpected expenses (80.3% vs. 36.2%).

153 They also reported more concern about high credit card, student loan, or other debt (51.3% vs.

154 38.1%). However, concerns about high real estate taxes were similar, with 31.0% of respondents

155 in the Long COVID group and 27.1% in the non-Long COVID group expressing concern.

156 Regarding housing-quality issues, individuals with Long COVID reported more pest problems

157 (30.0% vs. 23.5%) and more prevalent mold issues (22.0% vs. 12.7%). Other housing concerns

158 showed minor differences. Concerning home accessibility, 17.6% of individuals in the Long

159 COVID group reported encountering unsupportive housing layouts and features, significantly

160 higher than the 11.4% reported among the non-Long COVID group.

161 Qualitative Findings

162 While Table 2 provides a comprehensive overview of housing stability and home

163 accessibility among individuals with Long COVID, our qualitative investigation reveals the

164 intricate ways in which Long COVID is associated with housing stability, financial burdens,
165 housing issues, and home accessibility. Seven overarching themes, each accompanied by distinct
166 key topics (shown in Table 3), offer unique insights into the challenges faced by these
167 individuals. The subsequent narrative presents detailed descriptions and representative quotations
168 for each theme, enhancing the depth of our findings.

169 ***Direct Impacts of Long COVID***

170 **Theme 1: Employment and financial impact on housing stability.** The theme of
171 employment and financial impact highlights the profound effects of Long COVID on
172 participants' ability to work. Changes to employment status, resulted in significant income loss
173 and subsequent instability, which, in turn, affected housing stability. As participant #15724
174 states: *"I've been unable to work as a result [of Long COVID]... I was a geriatrician, a*
175 *physician for old people. And I was very busy, never worked less than 40 hours a week. I got*
176 *infected at work and have been sick ever since. And that was three and a half years ago."*

177 The issue of high-deductible health insurance plans adds another layer to the financial
178 strain, as participant #15724 highlights: *"I was a healthy person going into this. I was a long-*
179 *distance runner. I had no reason to think that I would really need my health insurance. So, I had*
180 *a high deductible plan... For the final year I was on [my employer-sponsored insurance], I spent*
181 *between \$10,000 or \$12,000."*

182 The struggle to meet financial obligations extended beyond healthcare, affecting various
183 aspects of participants' lives such as bills, medications, and the pursuit of nutritious food. As
184 participant #11561 illustrates: *"Aside from the little GoFundMe funds that I have gotten, which*
185 *all went to bills, there's no extra money for buying an electric wheelchair or getting a new car or*
186 *finding a [more accessible] house... You just kind of feel stuck."*

187 Participants also described the painful reality of depleting savings and liquidating assets
188 like 401(k)s and personal belongings, a sentiment captured by participant #15340: *“For a while,
189 I was paying my rent and the bare minimum expenses... just out of my savings account. I cashed
190 in my 401k. I cashed in savings bonds that I've had since birth... So, I was just blowing through
191 all the savings that I had amassed at this point in my life.”*

192 Finally, the necessity of lifestyle adjustments to cope with financial and health-related
193 limitations is evident in participants' experiences, as participant #15724 describes: *“I very much
194 decreased my expenditures. We sold our house and moved to a much smaller place... Basically,
195 we changed our lifestyle so that we could survive on just one income.”*

196 **Theme 2: Home accessibility challenges.** Participants detailed significant difficulties
197 with home accessibility, particularly with stairs, which became major obstacles in their daily
198 lives due to physical limitations and fatigue from Long COVID. Participant #15340 provides a
199 vivid account: *“The stairs are definitely difficult. They're a lot of energy. Like do I have the
200 energy to go up one more time...? And it's like no, I don't. I'm down here. I'm done for the day. It
201 just makes things a little bit more complicated... There's no running water down here. So, if I
202 need to wash my hands or get a get a drink, I've got to go upstairs... And I'm not able to hold my
203 bladder as well as I used to. So, there was one or two accidents that I just cleaned up and don't
204 think about. Like everybody has an accident. It just sucks that I have to have them so young.”*

205 Kitchen accessibility was another critical issue, with many participants finding it
206 challenging to prepare meals due to the lack of suitable modifications (e.g., lack of accessible
207 countertops, cabinets, and appliances). As participant #15340 shares: *“I'll get something on the
208 stove to start boiling and then just come in the other room and sit down. And wait until I hear it*

209 *start boiling because I can't stand there. And I mean, I used to cook a lot... And now I just don't*
210 *have the energy.”*

211 Bathroom accessibility posed additional hurdles, with participants facing challenges
212 using shower facilities, bathtubs, and the absence of assistive devices, significantly affecting
213 their personal hygiene and safety. Participant #11561's experience encapsulates these challenges:
214 *“[Bathing] is so exhausting that I can only shower like once a week. And then it usually takes me*
215 *about an hour and a half, or almost two hours, just for the actual showering part, not even*
216 *drying or getting dressed or doing anything. Because, at that point, I am laying on my bed*
217 *recovering after. And I have to use bath wipes and a shower cap type of thing on the other days.”*

218 **Theme 3: Effects of home inaccessibility on daily life.** Participants discussed the need
219 to manage their energy carefully due to fatigue and physical limitations caused by Long COVID,
220 necessitating prioritization of tasks to ensure well-being. As participant #15340 illustrates: *“I*
221 *need to kind of gamble with my energy a lot of the times and what I can do. If my laundry doesn't*
222 *get done today, or if I need to finish it in the morning, that's not that big of a deal. But I had to*
223 *get the trash done today... I'm going to be on my bed the rest of today.”*

224 Inaccessible homes necessitated reliance on family members, friends, or caregivers for
225 daily tasks and mobility within the home. Participants often found themselves unable to move
226 around or use certain rooms without assistance, contributing to a heightened sense of
227 dependence. As participant #11561 illustrates: *“There are about ten steps down to our driveway*
228 *to get to one of the vehicles. I can't get down them by myself. My husband has to help me... Or*
229 *like if my sister or my aunt or somebody is taking me to an appointment, they help me down the*
230 *stairs. And they have to bring the walker and the wheelchair down for me... I can't do it alone.”*

231 The combination of inaccessible rooms and limited mobility raised the risk of injuries,
232 particularly due to falls. Participants shared various instances of falls, broken bones, and
233 accidents within their homes. As participant #11561 states: *“I don’t think I’ve reciprocal walked*
234 *upstairs in at least a year and a half. It’s always a one step because I lose my balance. And, with*
235 *the neuropathy, I can’t always tell if I’m on the step. I had four falls in a year when I first got*
236 *sick. One of them resulting in a broken foot.”*

237 Inaccessibility within their homes prevented participants from engaging in community
238 activities and events, leading to feelings of being trapped and isolated, exacerbating their sense
239 of loneliness and exclusion. As participant #11561 notes: *“I physically can’t go outside of my*
240 *house by myself. And it is isolating... My whole existence is in my house... And it’s literally all I*
241 *have. My whole life is in this box. I live in a box.”*

242 One participant described a particularly challenging period when they became bed-
243 bound, highlighting the critical impact of home inaccessibility on the risk of institutionalization.
244 Participant #15642’s account is telling: *“I actually had considered and asked my health care*
245 *professional if I needed to move into a [nursing] home because I was completely bed bound. I*
246 *was in basically keeping bottles of Ensure around me just so I could drink it and not have to get*
247 *up, and I was literally wearing a diaper because I lost all control of my muscles.”*

248 ***Downstream Consequences***

249 **Theme 4: Deteriorating housing conditions.** The theme of deteriorating housing
250 conditions sheds light on the struggles many participants faced in maintaining their homes, a
251 challenge directly linked to the physical limitations imposed by Long COVID. The inability to
252 perform even minor repairs or routine upkeep due to debilitating symptoms was a common
253 thread in participants’ experiences, highlighting a significant aspect of their daily lives disrupted

254 by the illness. Participant #15724 vividly captured this sentiment: *“We're constantly in a*
255 *situation where we have little things that need to be done around the house. We don't have the*
256 *ability to do it, and we can't find anyone to hire to do it... Things that are really, really little, but*
257 *we're just not capable of.”*

258 Compounding these challenges, participants also dealt with the breakdown of essential
259 household appliances, adding layers of stress and practical difficulties to their already strained
260 lives. As participant #15761's experience exemplifies: *“Of course, my washing machine broke*
261 *during all this... And not having the money to buy another one, I'm having to go to the*
262 *laundromat... I may or may not get [my laundry] back in the house that same day. But it won't*
263 *get put away that same day... Lifting, moving, picking up, bending... I've got arthritis in every*
264 *bone in my body now.”*

265 Moreover, some participants shared distressing accounts of how deteriorating housing
266 conditions exacerbated their physical and emotional turmoil. As participant #14062 illustrates:
267 *“The situation in my house that got so bad was they were doing some sewer repair outside. And*
268 *it tore up the street. And all the rats in the neighborhood came above ground... And at this point,*
269 *the dysautonomia was to such a degree that I would literally sometimes collapse. I could not*
270 *stand up. I was laying in tarps because the diarrhea never stopped... And then I look up, and*
271 *there's rats climbing my curtains and coming over the picture molding above my bed... So now I*
272 *have PTSD every night because this is what I picture when I'm falling asleep.”*

273 ***Efforts to Mitigate and Barriers***

274 **Theme 5: Home modifications and daily living aids.** This theme explores how
275 participants adapted their living environments to better manage the limitations imposed by Long
276 COVID. Many participants undertook home modifications to enhance accessibility and support

277 their daily activities (e.g., installing railings, shower chairs, and raised toilets), reflecting a
278 proactive approach to mitigating the impact of their physical restrictions. As participant #15724
279 shares: *“My wife actually built a fold out countertop so I can pull up a stool and sit at the
280 counter to do cooking or cutting things. Because, otherwise, if there's not a countertop that sticks
281 out, then my [legs] would not be able to go under the countertop, and I really wouldn't be able to
282 do it.”*

283 In addition to structural changes, participants incorporated various mobility aids (e.g.,
284 walkers and wheelchairs) to assist with navigation and reduce physical strain within their homes.
285 As participant #15340 illustrates: *“I've got these little dolly cart things that I got from some
286 furniture store. And I use those to get laundry or if I order a package... I use those to get from
287 one end of the house to the other. And I've got one on each floor so that I can use them. It's just
288 easier on my body when I can just lean onto something and just push it.”*

289 The theme also touches on participants' decisions to relocate to more suitable living
290 spaces. Downsizing or choosing homes with accessibility in mind was a critical step for some, as
291 participant #15724 illustrates: *“I had been in a colonial [house] where there was a long walk
292 from my bedroom to the stairs to downstairs, and then another long walk to the kitchen. The
293 setup was bad. And now I'm in a split level. I have only five steps and about 20 feet between me
294 and the kitchen... So, that makes a really big difference that I don't have to walk far to get to the
295 kitchen or the bathroom.”*

296 **Theme 6: Financial constraints on home modifications.** This theme underscores the
297 financial hurdles participants encountered when considering necessary home modifications to
298 accommodate their needs due to Long COVID. The cost of adapting homes for increased
299 accessibility proved prohibitive for many, highlighting a significant gap between the need for

300 such modification and the ability to afford them. Participant #11561's statement encapsulates this
301 challenge: *"We've tried to look into some different options for [home] modification. But it's*
302 *expensive. And we don't have the finances to be able to really make any modifications."*

303 Additionally, the theme touches of the difficulties of acquiring mobility aids, such as
304 wheelchairs, which are crucial for maintaining independence and quality of life. As participant
305 #15724 highlights: *"I looked into the process of getting a wheelchair and discovered that I had*
306 *zero chance of it being approved by my insurance."*

307 **Theme 7: Lack of support from agencies and healthcare.** This theme delves into the
308 challenges participants encountered while navigating support systems, emphasizing the
309 difficulties in securing aid from both healthcare and social service agencies amidst the
310 complexities of Long COVID. Participant experiences reveal a systemic struggle in accessing
311 private and Social Security disability benefits, with bureaucratic hurdles significantly impeding
312 their ability to obtain crucial financial support. As participant #15724's states: *"The system*
313 *basically is designed to automatically deny everyone on first pass and force everyone to hire a*
314 *lawyer... It wasn't until a couple months before my administrative judge hearing that I heard*
315 *from someone that there was a form called a residual functional capacity form ... And it doesn't*
316 *appear that most doctors know anything about that."*

317 The theme also captures participants' efforts to seek state and private rental assistance,
318 illustrating the temporary relief and subsequent challenges when such assistance runs its course.
319 As participant #15340 reflects: *"Once [rental assistance] ran out, I wasn't able to afford my rent*
320 *anymore... So, I had to move. Right now, I am living in my grandparents' basement because it's*
321 *rent free... Because I definitely can't afford rent right now."*

322 Moreover, the theme sheds light on the dissatisfaction and frustration with government
323 agencies, particularly when it comes to healthcare and personal assistance services. Participant
324 grievances about the inadequacies of Medicaid and other services illustrate the broader issue of
325 unmet needs within this community. As participant #14062 notes: “*My situation here at the*
326 *house became so bad that last year, I called Adult Protective Services... I called the suicide crisis*
327 *hotline. And I asked the crisis line to report me as a victim of neglect. Because... No one. No one*
328 *has come to help me.*”

329 **Discussion**

330 People with pre-existing disabilities have long grappled with housing instability and
331 accessibility concerns.²⁴ These persistent housing problems²⁵ are potentially exacerbated by
332 Long COVID, emphasizing its role in a broader narrative of housing inequities.^{26–28} We should
333 view the experiences of individuals with Long COVID as a catalyst for addressing broader issues
334 and developing comprehensive solutions that benefit all individuals with disabilities. This study
335 emphasizes the pressing need to address these long-standing concerns, both within the context of
336 Long COVID and as part of a larger initiative to create inclusive and accessible housing for all.

337 Our findings indicate an association between individuals with Long COVID and
338 experiences of housing instability, which may be associated with high costs and unsteady
339 income. Healthcare practitioners should be aware of the financial challenges faced by these
340 patients and consider referring them to financial counseling or support services, including
341 Medicaid or other assistance programs, which can provide critical support in accessing various
342 necessary services.²⁹

343 Policy changes, such as extended rent and mortgage relief programs³⁰ or enhanced job
344 protection for individuals with prolonged COVID symptoms,³¹ are crucial to address these

345 financial barriers. Additionally, systemic changes are needed to ensure economic stability for
346 individuals with disabilities, ensuring they have access to affordable housing options. Tailored
347 financial support, potentially accessible through Medicaid or specific grants designed for
348 individuals with disabilities, could alleviate some of the economic pressures contributing to
349 housing instability.

350 Furthermore, our study reveals that some people with Long COVID report struggling to
351 maintain their homes due to physical limitations, impacting both housing stability and overall
352 health. Healthcare providers should assess the living conditions³² and recommend necessary
353 home health or rehabilitation services. Policymakers should also consider implementing
354 incentives or programs to assist Long COVID patients in maintaining their living environments.
355 In this regard, systemic changes could include policies that mandate or incentivize the
356 construction of accessible housing units,²⁷ ensuring that new developments meet the needs of
357 individuals with varying levels of mobility and physical ability.

358 Our findings also highlight that some people with Long COVID encounter home
359 accessibility challenges, which may significantly affect their energy levels, reduce their
360 independence, and increase their risk of injuries. To effectively address these challenges,
361 collaborative efforts between healthcare practitioners, occupational therapists, and physical
362 therapists are essential.³³ These professionals can provide a holistic approach to care, ensuring
363 that the individual's living environment is conducive to their recovery and daily functioning.
364 Healthcare providers also play a critical role in assisting patients in navigating resources for
365 adaptive equipment and home modifications,³⁴ with potential support from Medicaid or similar
366 programs to facilitate these adaptations. This support from healthcare providers is vital in

367 supporting individuals with Long COVID adapt to their new limitations, promoting safety and
368 autonomy within their living spaces.

369 On a broader scale, policymakers must recognize the importance of supporting home
370 adaptations for individuals with Long COVID by expanding insurance coverage and grant
371 programs, including Medicaid. Such initiatives would not only provide financial relief but also
372 ensure that more people have access to the necessary modifications that can significantly
373 improve their quality of life. By fostering an environment where comprehensive support is
374 readily available, we can make a meaningful difference in the lives of those affected by Long
375 COVID, helping them navigate their challenges more effectively.

376 **Limitations**

377 One limitation is the potential bias in self-reported data, which might affect the study's
378 accuracy. The cross-sectional study design precludes causal inferences and examination of
379 changes over time. Qualitative data, while valuable, may not capture the full diversity of Long
380 COVID experiences, and subjectivity in qualitative data analysis may lead to different
381 interpretations. Additionally, the researchers did not inquire whether respondents were currently
382 experiencing Long COVID symptoms, which limits our understanding of the impacts of Long
383 COVID on housing.

384 Moreover, the study's findings could be influenced by various confounding factors that
385 were not controlled for, such as preexisting health conditions, socioeconomic status, and access
386 to healthcare services. For instance, preexisting health conditions might exacerbate the severity
387 of Long COVID symptoms, thereby increasing the individual's housing instability or need for
388 accessible housing. Therefore, future research should consider these potential confounding
389 factors to provide a more nuanced understanding of the observed relationships. Finally, the study

390 did not extensively explore regional or contextual factors influencing housing stability and
391 accessibility, which could offer additional insights into the barriers and facilitators of housing
392 equity for people with Long COVID.

393 Additionally, we acknowledge the inherent limitations of making inferences from
394 nonprobability samples to the broader population. While our sample may not be representative of
395 the general population, it is nevertheless fit for the purpose of this study, which involves
396 examining relationships between population characteristics and key outcomes rather than
397 focusing on the prevalence of those outcomes. This approach allows us to explore the complex
398 dynamics and specific challenges faced by individuals with Long COVID in relation to housing
399 stability and accessibility.

400 **Conclusion**

401 This manuscript underscores the profound connection between Long COVID and issues
402 with housing stability and accessibility, which persist beyond the initial infection. Individuals
403 with Long COVID may grapple with heightened rates of housing instability, financial stress, and
404 home accessibility challenges. Implementing systemic changes and tailored financial support is
405 crucial to enhance living conditions and alleviate the shortage of accessible housing. This
406 research contributes to a broader understanding of Long COVID challenges and advocates for a
407 more inclusive response to the pandemic's aftermath. We hope our findings spur further
408 investigations, shape policy development, and promote a compassionate, evidence-based
409 approach to support individuals with Long COVID.

410

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Table 1. Participant demographics.

	Long COVID (n = 514)	Non-Long COVID (n = 1019)	Interview Participants (n = 13)
Housing Status			
Own	46.4%	46.8%	n = 6
Rent	36.9%	37.6%	n = 5
Long-term w/ friends/family (not paying rent)	13.1%	13.0%	N/A
Other Situation	3.6%	2.6%	n = 2
Lives Alone	23.5%	24.6%	n = 6
Gender**			
Female	70.8%	63.6%	n = 9
Male	17.4%	25.5%	N/A
Transgender	0.2%	0.4%	N/A
Non-Binary	6.1%	4.5%	n = 2
Two-Spirit	0.8%	0.1%	n = 1
Agender	1.2%	1.8%	N/A
Other ^a	3.6%	4.1%	n = 1
Race			
American Indian/Alaska Native	1.9%	1.1%	n = 3
African American	3.1%	3.3%	n = 2
Asian	2.3%	2.8%	n = 1
Native Hawaiian/Pacific Islander	0.0%	0.1%	N/A
White	87.6%	88.9%	n = 5
Multi-Racial	5.2%	3.7%	n = 2
Ethnicity			
Hispanic/Latine	7.0%	5.6%	n = 1
Poor/Fair Health***	68.6%	40.4%	n = 10
Employment Status***			
Not Working	38.4%	26.5%	n = 7
Working for Pay	42.6%	49.2%	n = 5
Self-Employed	8.4%	7.7%	N/A
Both Self-Employed & Working for Pay	3.9%	4.2%	N/A
Not Working, Retired	6.6%	12.4%	n = 1
Geographical Region			
South	27.2%	24.5%	n = 3
West	28.4%	28.8%	n = 3
Midwest	26.3%	24.3%	n = 3
Northeast	18.1%	22.2%	n = 4
Territories	0.0%	0.2%	N/A
Mean Age*	44.8	45.8	43.7
	(18-79; SD = 12.7)	(18-92; SD = 15.0)	(23-63; SD = 12.5)

* $p < .05$; ** $p < .01$; *** $p < .001$ ^a Includes other genders as identified by participants.

Table 2. Comparative analyses.

	Long COVID (n = 514)	Non-Long COVID (n = 1019)
Housing stability and cost burdens		
Experiencing Housing Instability***	21.1%	8.1%
Worried About High Rent or Mortgage***	50.4%	40.0%
Worried About High Utility Bills***	55.7%	45.5%
Worried About Unsteady Income***	54.8%	35.2%
Worried About Relying on Others to Help Cover Housing Payments***	46.6%	30.8%
Worried About Large Unexpected Expenses***	80.3%	36.2%
Worried About High Credit Card, Student Loan, or Other Debt***	51.3%	38.1%
Worried About High Real Estate Taxes	31.0%	27.1%
Housing-quality problems		
Problems with Pests**	30.0%	23.5%
Problems with Mold***	22.0%	12.7%
Problems with Lead Paint/Pipes	3.7%	3.1%
Problems with Lack of Heat	3.7%	2.6%
Problems with Oven, Stove, or Refrigerator Not Working	7.6%	5.5%
Problems with Smoke/CO2 Detectors Missing or Not Working	10.9%	9.0%
Problems with Water Leaks	11.3%	9.7%
Housing accessibility		
Unsupportive Housing Layout and Features***	17.6%	11.4%

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Qualitative themes and key topics.**Theme 1: Employment and Financial Impact on Housing Stability**

Loss of Work and Income
 Health Insurance Costs
 Monthly Financial Struggles
 Depletion of Savings and Retirement Funds
 Financial Adjustments

Theme 2: Home Accessibility Challenges

Stair Challenges
 Kitchen Accessibility
 Bathroom Limitations

Theme 3: Effects of Home Inaccessibility on Daily Life

Decreased Energy
 Restricted Independence
 Increased Risk of Injury
 Decreased Community Participation / Isolation
 Increased Risk for Institutionalization

Theme 4: Deteriorating Housing Conditions

Maintenance Challenges
 Appliance Breakdown
 Traumatic Experience

Theme 5: Home Modifications and Daily Living Aids

Home Modifications
 Use of Mobility Aids
 Housing Relocation

Theme 6: Financial Constraints on Home Modifications

Financial Constraints on Home Adaptations
 Financial Constraints on Obtaining Mobility Aids

Theme 7: Lack of Support from Agencies and Healthcare

Barriers in Obtaining Financial Support and Disability Benefits
 Barriers in Maintaining Rental Assistance
 Absence of Assistance