

Barriers to health care utilisation and coping strategies during the COVID-19 pandemic: A cross-sectional survey among the public in Malaysia

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ABSTRACT

The COVID-19 pandemic disrupted global healthcare systems, which created significant barriers to accessing services. This cross-sectional study explored the barriers to healthcare access, coping mechanisms, and their consequences among Malaysians during the pandemic. Conducted online from October to November 2020, the survey targeted adults aged 18 and above who used healthcare services from January to October 2020, excluding those unable to understand Malay or English. The validated questionnaire was adapted from NHMS 2019 and existing literature, underwent expert review, translation, and pre-testing. Data were collected via snowball sampling and analysed using SPSS 26.0, guided by the modified Penchansky and Thomas's theory of access. Significance was set at $p < 0.05$. Of the 4,062 respondents, most were female (71.4%), adults (73.3%), of Malay ethnicity (69.7%), married (62.8%), and had a tertiary education (81.3%). Approximately one in three respondents reported barriers, mainly in the awareness (70%) and accommodation (18.1%) domains. Significant factors included ethnicity (Chinese), acute conditions, and vehicle ownership. Nearly 70% adopted positive coping strategies, with 70.5% purchasing medication at pharmacies. Improved outcomes (81.9%) were linked to acute conditions, vehicle ownership, and positive coping mechanisms. The findings underscore the need for targeted policies to address healthcare disparities and strengthen healthcare resilience, especially during public health crises.

Keywords:

healthcare inaccessibility; barriers; coping mechanisms; consequences; COVID-19

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INTRODUCTION

COVID-19 was declared a pandemic by the WHO in March 2020 and caused the deaths of millions worldwide.^{1,2} In the absence of established protocols, many nations implemented physical interventions, such as lockdowns, school closures, and movement restrictions.³⁻⁵ These measures strained healthcare systems, leading to the postponement of non-urgent services and reduced accessibility to care.^{6,7} Various studies have confirmed disruptions in the provision of multiple health services due to pandemic control measures, including a notable decline in primary care utilisation in Malaysia during the lockdown period.⁸⁻¹⁰

In Malaysia, COVID-19 was detected in January 2020, prompting the enforcement of Movement Control Orders (MCOs) to mitigate the transmission of COVID-19^{11,12} such as a ban on interstate and interdistrict travel, a 10-kilometre essential travel allowance, and roadblocks at state and district borders for surveillance.¹¹⁻¹³ Healthcare service delivery was reorganised to accommodate the rapidly rising COVID-19 cases, which include crowd-control measures such as staggered appointments, rescheduling of elective services, and the redirection of non-COVID-19 patients.¹⁴ These measures inadvertently increase barriers to non-pandemic healthcare services, as documented in previous disease outbreaks.¹⁵

Reducing barriers to healthcare access is crucial in improving health equity.¹⁶ Various models describe these barriers, including Penchansky and Thomas's theory of access, Andersen's Behavioural Model of Health Services Use, and the Health Care Access Barrier Models.¹⁷⁻¹⁹ Penchansky and Thomas's theory of access outlined five domains of access: accessibility, availability, acceptability, affordability, and accommodation. Saurman (2015) suggested additional

domains of awareness in the modified version.²⁰ These domains provided a useful framework for categorising barriers to healthcare access. When confronted with such barriers, individuals adopt coping mechanisms, which can be positive or negative. Positive coping mechanisms refer to actions that promote the continuation of care, such as seeking care at a different healthcare facility, using alternative services like online doctor consultations or value-added pharmaceutical services. Conversely, negative coping mechanisms hinder the continuity of care, particularly when individuals delay or forgo necessary treatment despite being unwell. Both coping mechanisms can improve or exacerbate health conditions, depending on their nature and implementation.^{5,21,22}

Although extensive literature exists on the impact of the pandemic on healthcare utilisation, few studies have examined the specific barriers faced by the public and their coping responses, especially within the Malaysian context. Most prior research has focused on the effects of the pandemic on service delivery or utilisation trends, without fully exploring the relationships between sociodemographic factors, access barriers, coping strategies, and consequences.^{6,7} Additionally, limited attention has been given to differences across population subgroups, such as ethnic minorities, income levels, and geographic locations, or to how these experiences align with theoretical models of healthcare access.¹⁷⁻²⁰

To date, no study in Malaysia has comprehensively examined both barriers and coping strategies to healthcare access during the COVID-19 pandemic using a theory-based framework. This study aimed to address this gap by exploring the factors associated with healthcare access barriers, coping mechanisms and consequences among Malaysians during the COVID-19 pandemic using the modified Penchansky and Thomas's theory of access. This study offers a nuanced understanding of

healthcare access dynamics during the pandemic in Malaysia and informs the development of more resilient and equitable healthcare systems.^{9,14}

METHODS

Study design, setting, and population

This cross-sectional study employed an online, validated, self-administered questionnaire as the data collection tool. This study involved Malaysians aged 18 and above who needed to utilise public, private or both healthcare facilities from January to October 2020. Individuals with no comprehension of the Malay and English languages were excluded.

Sample size calculation

The sample size was calculated using the Raosoft Online Sample Size Calculator²³ with a confidence interval of 95%, a margin of error of 5%, a response distribution of 50%, and a Malaysian population of 32.44 million in 2020²⁴, which yielded 664 respondents. To account for incomplete or missing data and non-response, an additional 20% was calculated, which yielded a total of 797 respondents.

Instrument

The instrument was developed by adapting the National Health Morbidity Survey (NHMS) 2019 questions on healthcare access barriers and subsequent actions taken.²⁵ The process was also supplemented by a literature review to identify relevant additional barriers in the context of disease outbreaks.^{26–28}

Content validity was established through cycles of panel expert reviews involving two quantitative study experts, both of whom had conducted studies about barriers and coping mechanisms. The experts evaluated each item for relevance, essentiality, and clarity. The overall CVI score was 0.94, which exceeded the required 0.80 threshold.^{29,30} Their

comments and recommendations were discussed and incorporated into the refinement of the questionnaire, before it was forward-translated by two independent researchers fluent in the target languages.

The questionnaire was pre-tested twice, with 30 participants from the target population in each cycle and then refined according to the feedback received. It consisted of 35 items: 34 items with multiple-choice answers and one open-ended question. The reporting of qualitative findings from the open-ended questions is not within the scope of this article. The 34-item section consists of several questions: (i) identification of respondents who utilise healthcare services, (ii) identification of barriers encountered, (iii) coping mechanisms, (iv) consequences of healthcare inaccessibility; and (v) respondents' sociodemographic characteristics: age, gender, ethnicity, marital status, education level, household income, presence of disability, transportation mode to healthcare facilities, and household composition.

Respondents who responded “Yes” to the question — “Did you experience any health problems, or have an appointment to take medication, undergo follow-up treatment, blood taking, or radiological procedures during the COVID-19 pandemic (January to November 2020)?” — were considered to need healthcare services. They were considered to have experienced barriers to accessing healthcare services if they were unable or chose not to access them for any reason. The type of barriers was listed as a multiple-choice answer to the question, “What is the main reason that you were unable to access healthcare services?” Following the identification of barriers, respondents were asked about their coping mechanisms and consequences of being unable to access healthcare services through questions such as, “What did you do after you could not get healthcare services?” and “What happened to you after you could not get healthcare services?”

Data collection

A remote data-gathering method via Google Forms was adopted to ensure compliance with the MCO. The link and QR code were disseminated via the official Ministry of Health's (MOH) email, Facebook, website, WhatsApp group, and other social media networks. Key informants at the federal and state levels were engaged through snowball sampling to ensure the survey reached the intended target population. Data collection commenced from 1 October to 23 November 2020.

Data analysis

Questionnaire responses were analysed using Statistical Package for Social Sciences (SPSS) 26.0. The findings were mapped according to the modified Penchansky and Thomas's theory of access: accessibility, availability, acceptability, affordability, accommodation, and awareness which provides a robust framework for categorising barriers identified in the study.²⁰ Descriptive analysis was performed, with categorical data expressed as frequencies and percentages. Logistic regressions were utilised to determine the predictors associated with barriers, positive coping mechanisms, and improved consequences. Independent variables with a *p-value* < 0.25 were incorporated into the final logistic regression model. Multicollinearity was assessed using the Tolerance and VIF criteria to confirm that the independent variables in the logistic regression models were not significantly associated with one another. The *p-value* < 0.05 was regarded as statistically significant.

RESULTS

A total of 6117 responses were received, and 4062 responses were included for analysis. Due to the approach employed

in administering the survey, a response rate for this study could not be reported. Although the minimum required sample size was 797, a total of 4,062 valid responses were analysed to enhance statistical power and allow for subgroup analysis across diverse sociodemographic strata. Most of the respondents were female (71.4%), aged 30–59 years old (73.3%), of Malay ethnicity (69.7%), married (62.8%), and had a tertiary education (81.3%). Our respondents' sociodemographic characteristics are not comparable to those of a representative population survey,²⁵ as the sample is skewed towards female participants, individuals who are married, and individuals with tertiary education. Of the 4062 responses, 57.2% indicated the need for healthcare due to acute health problems, and 42.8% due to follow-up appointments for chronic diseases or diagnostic investigations.

Of all responses, 1362 (33.5%) experienced barriers to accessing healthcare services during the pandemic period under study (Table 1). The majority of barriers (70.5%) fell within the awareness domain, where respondents felt that their illness was not severe or were afraid to leave home due to the pandemic. It also included respondents' lack of knowledge about available healthcare services for non-COVID-19 conditions. The second most frequently reported domain was accommodation (18.1%), where long waiting time and strict SOPs were mentioned as key challenges. The results for barriers of other domains are shown in Table 2.

The results from multiple logistic regression on factors associated with experiencing barriers to healthcare access are shown in Table 1. Chinese ethnicity (OR:1.358, 95% CI:1.111–1.660, *p* < 0.05) and other ethnicities (OR:1.323, 95% CI:1.064–1.645, *p* < 0.05) were

significantly associated with higher odds of experiencing barriers. Those with acute health problems (OR:4.431, 95% CI:3.801–5.165, $p < 0.001$) were more likely to experience barriers than those with an appointment. Being married (OR:0.780, 95% CI:0.653–0.931, $p < 0.05$) or owning a vehicle (OR:0.748, 95% CI:0.581–0.964, $p < 0.05$) were associated with lower odds of experiencing healthcare access barriers.

Of the 1362 respondents who experienced barriers, 951 (69.8%) adopted positive coping mechanisms (Table 3). Some positive coping mechanisms include buying medication from a pharmacy (70.5%), going to another healthcare facility (9.5%), obtaining advice from family or friends (4.7%), and utilising alternative services such as online doctor consultations or value-added pharmaceutical services (3.9%). Adults are significantly more likely than youth to adopt positive coping mechanisms (OR:1.432, 95% CI:1.036–1.980, $p < 0.05$). Respondents who were not living alone (OR:1.717, 95% CI:1.101–2.677, $p < 0.05$) and those with acute health problems (OR:1.764, 95% CI:1.327–2.345, $p < 0.001$), as opposed to those with scheduled

appointments, were more likely to adopt positive mechanisms. Chinese ethnicity (OR:0.663, 95% CI:0.481–0.914, $p < 0.05$), and household income of T20 (OR:0.627, 95% CI:0.416–0.945, $p < 0.05$) appeared to be associated with lower odds of adopting a positive coping mechanism. In contrast, those who experienced barriers classified under the availability domain were more likely to adopt positive coping mechanisms (OR:3.879, 95% CI:1.466–10.262, $p < 0.005$).

Of the 1362 responses with barriers to healthcare access during the pandemic, 1116 (81.9%) reported improving consequences (Table 4). Respondents who owned a vehicle (OR:2.257, 95% CI:1.373–3.709, $p < 0.05$), experienced acute health problems (OR:9.229, 95% CI:6.645–12.819, $p < 0.001$) rather than having a scheduled appointment, and adopted positive coping mechanisms (OR:1.578, 95% CI:1.134–2.195, $p < 0.05$) were more likely to have improved consequences. Adults, the elderly, and individuals of Indian ethnicity were associated with lower odds of having improved consequences as compared to youth and those of Malay ethnicity, respectively.

Table 1. Characteristics of the study population and factors associated with barriers to accessing healthcare during COVID-19 pandemic (n = 4062)

	Experienced barriers to accessing healthcare					
	Total sample, n(%)	Yes, n(%)	Chi-square test		Multiple logistic regression	
			No, n(%)	p-value	OR(95% CI) ^a	p-value
Gender						
Male	1161(28.6)	373(32.1)	788(67.9)	0.231	1	0.662
Female	2901(71.4)	989(34.1)	1912(65.9)		1.036(0.885, 1.211)	
Age						
Youth(18–29) ^	874(21.5)	329(37.6)	545(62.4)	0.009	1	0.530
Adult(30–59)	2979(73.3)	972(32.6)	2007(67.4)		1.064(0.876, 1.293)	
Elderly(>60)	209(5.1)	61(29.2)	148(70.8)		1.200(0.81, 1.778)	
Ethnicity						
Malay	2831(69.7)	897(31.7)	1934(68.3)	0.002	1	0.003
Chinese	590(14.5)	223(37.8)	367(62.2)		1.358(1.111, 1.66)	
Indian	176(4.2)	62(35.2)	114(64.8)		1.11(0.791, 1.559)	
Other	465(11.4)	180(38.7)	285(61.3)		1.323(1.064, 1.645)	
Marital Status						
Single	1238(30.5)	488(39.4)	750(60.6)	< 0.001	1	0.006
Married	2550(62.8)	789(30.9)	1761(69.1)		0.780(0.653, 0.931)	
Others	274(6.7)	85(31.0)	189(69.0)		0.750(0.546, 1.032)	
Education						
Primary level or lower	69(1.7)	20(29.0)	49(71.0)	0.016	1	0.421
Secondary school	581(14.3)	202(34.8)	379(65.2)		1.287(0.696, 2.382)	
Tertiary education	3301(81.3)	1088(33.0)	2213(67.0)		1.157(0.633, 2.112)	
Refuse to answer	111(2.7)	52(46.8)	59(53.2)		2.087(1.024, 4.257)	
Household income*						
B40(<RM2500–RM4849)	1872(46.1)	656(35.0)	1216(65.0)	0.042	1	0.738
M40(RM4850–RM10959)	1335(32.9)	411(30.8)	924(69.2)		0.971(0.814, 1.157)	
T20(>RM10960)	444(10.9)	145(32.7)	299(67.3)		1.044(0.813, 1.339)	
Refuse to answer	411(10.1)	150(36.5)	261(63.5)		0.999(0.783, 1.275)	

	Experienced barriers to accessing healthcare					
	Total sample, n(%)	Yes, n(%)	Chi-square test		Multiple logistic regression	
			No, n(%)	p-value	OR(95% CI) ^a	p-value
Disabilities						
No	3970(97.7)	1335(33.6)	2635(66.4)	0.390 ^b		
Yes	92(2.3)	27(29.3)	65(70.7)			
Own vehicle						
No	336(8.3)	139(41.4)	197(58.6)	0.001	1 0.748(0.581, 0.964)	0.025
Yes	3726(91.7)	1223(32.8)	2503(67.2)			
Living with						
Living alone	308(7.6)	104(33.8)	204(66.2)	0.927 ^b		
Not living alone	3754(92.4)	1258(33.5)	2496(66.5)			
Condition						
Appointment	1740(42.8)	285(16.4)	1455(83.6)	<0.001	1 4.431(3.801, 5.165)	<0.001
Acute health problem	2322(57.2)	1077(46.4)	1245(53.6)			

^a Multiple Logistic Regression model using the Enter method was applied

^b Not included in the MLR due to $p > 0.25$

[^] According to the Malaysian Youth Policy³¹

*Based on the Household Income and Basic Amenities Survey 2019³²

Table 2. Barriers identified during the COVID-19 pandemic based on the Modified Penchansky and Thomas's theory of access domains (n = 1362)

Domain and barriers identified		Frequency, n(%)
Awareness		960(70.5%)
i.	Felt the illness was not severe enough	744(54.6%)
ii.	Scared or afraid to go out of the house	148(10.9%)
iii.	No free time	48(3.5%)
iv.	Didn't know which health facility to visit	16(1.2%)
v.	Afraid of the treatment/procedure	2(0.2%)
vi.	Forgot appointment	2(0.2%)
Accommodation		243(17.8%)
i.	Appointment was postponed	148(10.9%)
ii.	Waiting time was too long	62(4.6%)
iii.	Strict SOP	19(1.4%)
iv.	HCW competency	12(0.9%)
v.	New appointment system	2(0.2%)
Availability		62(4.6%)
i.	Facility didn't provide the service that I needed	49(3.6%)
ii.	Insufficient healthcare providers in the facility	5(0.4%)
iii.	Insufficient medications in the facility	4(0.3%)
iv.	Nearby facilities were not in service	4(0.3%)
Accessibility		44(3.2%)
i.	Difficult to travel due to roadblocks	22(1.6%)
ii.	No transport	11(0.8%)
iii.	No one to accompany and bring to the clinic/hospital	10(0.7%)
iv.	Under quarantine	1(0.1%)
Acceptability		39(2.9%)
i.	Rejected by the healthcare facility without a clear reason	20(1.5%)
ii.	Didn't believe in the healthcare services provided during a pandemic	19(1.4%)
Affordability		14(1.0%)
i.	Cannot afford to pay for the treatment	13(1.0%)
ii.	Not enough money	1(0.1%)

Table 3. Characteristics of the study population who experienced barriers to accessing healthcare by coping mechanism and factors associated with positive coping mechanisms (n = 1362)

	Positive coping mechanism when experiencing barrier(s) to access healthcare					
	Total sample (n)	Chi-square test		p-value	Multiple logistic regression	
		Yes, n (%)	No, n (%)		OR (95% CI) ^a	p-value
Gender						
Male	373	264(70.8%)	109(29.2%)	0.638 ^b		
Female	989	687(69.5%)	302(30.5%)			
Age						
Youth (18–29) [^]	329	215(65.3%)	114(34.7%)	0.126	1	
Adult (30–69)	972	692(71.2%)	280(28.8%)		1.432(1.036, 1.98)	0.030
Elderly (>60)	61	44(72.1%)	17(27.9%)		1.923(0.968, 3.82)	0.062
Ethnicity						
Malay	642	642(71.6%)	255(28.4%)	0.019	1	
Chinese	136	136(61.0%)	87(39.0%)		0.663(0.481, 0.914)	0.012
Indian	44	44(71.0%)	18(29.0%)		1.040(0.58, 1.863)	0.896
Other	129	129(71.7%)	51(28.3%)		1.035(0.717, 1.493)	0.854
Marital Status						
Single	488	324(66.4%)	164(33.6%)	0.120	1	
Married	789	566(71.7%)	223(28.2%)		1.062(0.775, 1.455)	0.709
Others	85	61(71.8%)	24(28.2%)		1.182(0.683, 2.045)	0.549
Education						
Primary level or lower	20	13(65.0%)	7(35.0%)	0.364 ^b		
Secondary school	202	145(71.8%)	57(28.2%)			
Tertiary education	1088	762(70.0%)	326(30.0%)			
Refuse to answer	52	31(59.6%)	21(40.4%)			
Household income*						
B40 (<RM2500–RM4849)	656	474(72.3%)	182(27.7%)	0.169	1	
M40 (RM4850–RM10959)	411	285(69.3%)	126(30.7%)		0.793(0.591, 1.065)	0.123
T20 (>RM10960)	145	94(64.8%)	51(35.2%)		0.627(0.416, 0.945)	0.026
Refuse to answer	150	98(65.3%)	52(34.7%)		0.763(0.519, 1.122)	0.169

	Positive coping mechanism when experiencing barrier(s) to access healthcare					
	Total sample (n)	Chi-square test		p-value	Multiple logistic regression	
		Yes, n (%)	No, n (%)		OR (95% CI) ^a	p-value
Disabilities						
No	1335	930(69.7%)	405(30.3%)	0.363 ^b		
Yes	27	21(77.8%)	6(22.2%)			
Own vehicle						
No	139	90(64.7%)	49(35.3%)	0.169	1	
Yes	1223	861(70.4%)	362(29.6%)		1.306(0.879, 1.94)	0.186
Living condition						
Living alone	104	59(56.7%)	45(43.3%)	0.002	1	
Not living alone	1258	892(70.9%)	366(29.1%)		1.717(1.101, 2.677)	0.017
Condition						
Appointment	285	173(60.7%)	112(39.3%)	<0.001	1	
Acute health problem	1077	778(72.2%)	299(27.8%)		1.764(1.327, 2.345)	<0.001
Domain of barriers						
Acceptability	39	24(61.5%)	15(38.5%)	0.150	1	
Accessibility	44	28(63.6%)	16(36.4%)		1.410(0.548, 3.625)	0.476
Accommodation	243	170(70.8%)	73(30.0%)		1.810(0.852, 3.848)	0.123
Affordability	14	8(57.1%)	6(42.9%)		0.894(0.245, 3.259)	0.865
Availability	62	51(82.3%)	11(17.7%)		3.879(1.466, 10.262)	0.006
Awareness	960	670(69.8%)	290(30.2%)		1.272(0.629, 2.573)	0.504

^a Multiple Logistic Regression model using the Enter method was applied

^b Not included in the MLR due to $p > 0.25$

[^] According to the Malaysian Youth Policy³¹

* Based on Household Income and Basic Amenities Survey 2019³²

Table 4. Characteristics of the study population who experienced barriers to accessing healthcare, grouped by consequences and factors associated with improved consequences (n = 1362)

Variable	Improved consequences after not accessing healthcare					
	Total sample (n)	Chi-square test			Multiple logistic regression	
		Yes, n (%)	No, n (%)	p-value	OR (95% CI) ^a	p-value
Gender						
Male	373	293(78.6%)	80(21.4%)	0.046	1	0.301
Female	989	823(83.2%)	166(16.8%)		1.202(0.848,1.705)	
Age						
Youth (18–29) [^]	329	294(89.4%)	35(10.6%)	<0.001	1	0.012
Adult (30–69)	972	790(81.3%)	182(18.7%)		0.542(0.336,0.874)	
Elderly (>60)	61	32(52.5%)	29(47.5%)		0.248(0.111,0.556)	
Ethnicity						
Malay	642	751(83.7%)	146(16.3%)	0.001	1	0.438
Chinese	136	169(75.8%)	54(24.2%)		0.844(0.551,1.295)	
Indian	44	43(69.4%)	19(30.6%)		0.44(0.226,0.856)	
Other	129	153(85.0%)	27(15.0%)		1.46(0.877,2.43)	
Marital Status						
Single	488	412(84.4%)	76(15.6%)	0.009	1	0.468
Married	789	644(81.6%)	145(18.4%)		1.171(0.764,1.796)	
Others	85	60(70.6%)	25(29.4%)		1.02(0.526,1.979)	
Education						
Primary level or lower	20	14(70.0%)	6(30.0%)	0.536 ^b		
Secondary school	202	164(81.2%)	38(18.8%)			
Tertiary education	1088	896(82.4%)	192(17.6%)			
Refuse to answer	52	42(80.8%)	10(19.2%)			
Household income*						
B40(<RM2500–RM4849)	656	539(82.2%)	117(17.8%)	0.389 ^b		
M40(RM4850–RM10959)	411	334(81.3%)	77(18.7%)			
T20(>RM10960)	145	125(86.2%)	20(13.8%)			
Refuse to answer	150	118(78.7%)	32(21.3%)			

Variable	Improved consequences after not accessing healthcare					
	Chi-square test				Multiple logistic regression	
	Total sample (n)	Yes, n (%)	No, n (%)	p-value	OR (95% CI) ^a	p-value
Disabilities						
No	1335	1096(82.1%)	239(17.9%)	0.283 ^b		
Yes	27	20(74.1%)	7(25.9%)			
Own vehicle						
No	139	1017(83.2%)	206(16.8%)	0.001	1	0.001
Yes	1223	99(71.2%)	40(28.8%)		2.257(1.373,3.709)	
Living condition						
Living alone	104	74(71.2%)	30(28.8%)	0.003	1	0.184
Not living alone	1258	1042(82.8%)	216(17.2%)		1.475(0.831,2.62)	
Condition						
Appointment	285	145(50.9%)	140(49.1%)	<0.001	1	<0.001
Acute health problem	1077	101(9.4%)	976(90.6%)		9.229(6.645,12.819)	
Coping mechanism						
Negative	951	145(15.2%)	806(84.8%)	<0.001	1	0.007
Positive	411	101(24.6%)	310(75.4%)		1.578(1.134,2.195)	

^a Multiple Logistic Regression model using the Enter method was applied

^b Not included in the MLR due to $p > 0.25$

[^] According to the Malaysian Youth Policy ³¹

* Based on Household Income and Basic Amenities Survey 2019 ³²

DISCUSSION

This study provides insights into healthcare access barriers and coping strategies during the COVID-19 pandemic in Malaysia. Nearly one-third of respondents reported barriers in accessing healthcare, which is lower than figures from New Zealand (55%) and Poland (49.7%).^{33,34} Awareness remained the primary barrier, consistent with non-pandemic patterns.²⁵ Beyond the common perception that illnesses were not severe enough to warrant care, the pandemic heightened fear of contracting the virus, further discouraging healthcare use.^{3,35,36} A higher proportion of respondents also reported barriers related to the accommodation and availability domain, compared to a national survey²⁵ reflecting pandemic-driven reallocation of healthcare resources and service adjustments, including hospital conversions and the establishment of low-risk treatment centres.¹⁴ These changes inadvertently disrupted non-COVID-19 services, leading to staff shortages, fewer appointments, and longer waiting times.³⁷ In response, the MOH introduced strategies including virtual clinics, appointment system enhancement, and alternative clinical support services such as pharmacies' value-added services.¹⁴ However, as our study only covered the early pandemic period, misperceptions regarding healthcare services and misinterpretations of government recommendations are yet to be addressed.³⁸ The impact of MOH's mitigation strategies in maintaining access to non-pandemic healthcare services may have occurred after the study period.

Our study reported that individuals who are married and own a vehicle were less prone to experiencing barriers to accessing healthcare during the pandemic. Married individuals often experience fewer barriers due to shared resources, social support, and logistical help from their spouses, such as managing appointments or

transportation.^{39,40} Lack of transportation is a significant healthcare access barrier even in non-pandemic circumstances, which include limited public transportation, high travel costs, and long distances to healthcare facilities. It disproportionately affects vulnerable populations such as low-income individuals, the elderly, and those living in rural or underserved areas.^{41,42}

Over half of the participants who faced barriers to accessing healthcare services during the pandemic adopted positive coping mechanisms, with most choosing to purchase medication from a pharmacy. This behaviour demonstrates a proactive approach to managing health despite challenges in accessing conventional healthcare services.⁴³ Additionally, some seek advice from friends or family whose insights stem from their personal experiences or familiarity with the health issue. This approach offers valuable insights, such as home remedies, self-care strategies, or alternative options for symptom management, when conventional healthcare services are difficult to reach.

Our findings showed that Chinese individuals were more likely to experience barriers and exhibit negative coping mechanisms, which could be due to a cultural emphasis on self-reliance and collectivism, leading individuals to internalise or minimise health concerns, delaying or avoiding professional care.⁴⁴ Chinese individuals in Malaysia were also reported to demonstrate high adherence to COVID-19 preventive measures, such as movement restrictions and social distancing, which may inadvertently reduce the likelihood of seeking in-person healthcare.⁴⁵

On another note, T20 individuals may find it harder to cope with barriers, as they are less accustomed to the resilience strategies or adaptive skills often developed by lower-income individuals through regular exposure to such challenges during non-pandemic situations.⁴⁶ In addition,

their reliance on private healthcare may have posed difficulties during the early pandemic period, when private services were reported to be heavily compromised.⁴⁷

Our findings indicated that individuals of Indian descent are more vulnerable to adverse consequences of unmet healthcare needs, which could be due to higher unemployment rates and unstable incomes compared to other ethnic groups,⁴⁸ making healthcare costs difficult to manage and potentially exacerbating health outcomes. Another significant factor associated with negative consequences is the elderly. They face considerable barriers to healthcare access, including transportation difficulties, insufficient finances, and social isolation, which ultimately deteriorate their physical health.^{49,50} Moreover, the elderly often have pre-existing health conditions, making them more likely to suffer from negative consequences due to missed appointments and delayed care.⁵¹ Individuals with acute health problems were more likely to encounter barriers, adopt positive coping mechanisms, and subsequently experience improved outcomes, likely because most reported acute health issues were minor ailments and self-limiting.

This study encompasses a broad perspective of respondents' experiences by providing a comprehensive picture of the respondents' barriers, actions taken, and their outcomes. Nevertheless, some limitations existed. Convenience sampling likely introduced sampling bias by overrepresenting individuals with digital access and underrepresenting other groups without such access, while limited survey language options may have excluded respondents who preferred other languages. These limitations restrict the study's ability to capture data across diverse cultural, socioeconomic, and educational backgrounds. Furthermore, the large

sample size may artificially inflate statistical significance, which warrants caution when interpreting the real-world applicability of the findings. Future studies should consider probability-based sampling and multilingual options to enhance representativeness, complemented by a mixed-methods design for richer, context-specific insights into healthcare barriers and coping mechanisms. While multiple regression can identify outcome-related factors such as coping mechanisms, its utility is limited, especially with homogeneous samples and possible biases. Additionally, questionnaires also face recall bias, as participants may misremember past events thereby reducing data reliability.

RECOMMENDATIONS

The study highlights critical policy implications for improving healthcare accessibility and resilience during public health crises. Given that awareness emerged as the most common barrier, culturally tailored public health communication through community-based outreach programs and partnerships with local leaders and organisations is essential. Additionally, strengthening of telemedicine services, expanding value-added services such as pharmacy delivery systems and subsidised transportation services or mobile health units should be prioritised in future crisis planning to mitigate logistical and financial barriers.

This study identified significant risk factors associated with barriers to accessing healthcare during the COVID-19 pandemic, along with associated coping mechanisms and consequences. The inequalities in healthcare access, driven by sociodemographic factors, underscore the need for targeted interventions aimed at specific groups most negatively affected by the health crisis. This study offers

actionable insights to guide policymakers and healthcare providers in building a more inclusive, accessible, and resilient healthcare system.

AUTHORS' CONTRIBUTIONS

NHS and IRMU contributed equally to this study and are considered joint first authors. NHS: Methodology, Formal analysis and Writing - Original Draft. IRMU: Methodology, and Formal analysis. KM: Methodology and Formal analysis. NWZ: Conceptualization. SA: Conceptualization and Writing - Review & Editing

ETHICAL CONSIDERATIONS

This study was registered with the National Medical Research Registry (NMRR-20-989-54777) and approved by the Medical Research and Ethics Committee, MOH Malaysia (KKM/NIHSEC/P20-1586 (4)) on 10 August 2020. The initial part of the questionnaire informed participants of the study's nature, objective, and a declaration of confidentiality and anonymity. Electronic consent was embedded in the questionnaire via an 'I agree' button, which indicated participants' consent and voluntary participation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

1. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 [Internet]. [cited 2024 Jan 3]. Available from: <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
2. Coronavirus Disease (COVID-19) Situation Reports [Internet]. [cited 2023 Dec 29]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
3. Nshimyiryo A, Barnhart DA, Cubaka VK, Dusengimana JMV, Dusabeyezu S, Ndagijimana D, et al. Barriers and coping mechanisms to accessing healthcare during the COVID-19 lockdown: a cross-sectional survey among patients with chronic diseases in rural Rwanda. BMC Public Health [Internet]. 2021 Dec 1 [cited 2024 Jan 3];21(1):1–11. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10783-z>
4. Pujolar G, Oliver-Anglès A, Vargas I, Vázquez ML. Changes in Access to Health Services during the COVID-19 Pandemic: A Scoping Review. Int J Environ Res Public Health. 2022;19(3).
5. Abdus-salam RA, Balogun RO, Lawal TV, Lawal OO, Lawal RO, Abdulmalik JO, et al. Assessment of anxiety and depression, and coping mechanisms during COVID-19 lockdown among pregnant women. Heliyon. 2022;8(10).
6. WHO. Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic: January-March 2021 [Internet]. CC BY-NC-SA 3.0 IGO. Geneva: World Health Organization, 2020. 2021. Available from: <https://www.who.int/publications/i/item/WHO-2019->

- nCoV-EHS-continuity-survey-2021.1
7. Kruse MH, Durstine A, Evans DP. Effect of COVID-19 on patient access to health services for noncommunicable diseases in Latin America: a perspective from patient advocacy organizations. *Int J Equity Health* [Internet]. 2022;21(1):1–9. Available from: <https://doi.org/10.1186/s12939-022-01648-x>
 8. Huston P, Campbell J, Russell G, Goodyear-Smith F, Phillips RL, van Weel C, et al. COVID-19 and primary care in six countries. *BJGP Open*. 2020;4(4):1–6.
 9. Ujang IRM, Hamidi N, Hamid JA, Awang S, Zulkifli NW, Supadi R, et al. The COVID-19 pandemic and disruptions to maternal and child health services in public primary care Malaysia: a retrospective time-series analysis. *BMJ Glob Heal*. 2023;8(11):1–11.
 10. Mohd Ujang IR, Ab Hamid J, Hamidi N, Ab Rahman AA, Sooryanarayana R. The impact of the COVID-19 pandemic on urban-rural outpatient primary care utilisation in Malaysia: a retrospective time series and spatiotemporal analysis. *Int J Equity Health* [Internet]. 2025 Feb 13;24(1):43. Available from: <https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-025-02406-5>
 11. Khair NKM, Lee KE, Mokhtar M. Community-based monitoring in the new normal: A strategy for tackling the covid-19 pandemic in malaysia. *Int J Environ Res Public Health*. 2021;18(13).
 12. World Health Organization. Malaysia: Strong Preparedness and Leadership for a successful COVID-19 Response. *World Heal Organ* [Internet]. 2020;(20 August). Available from: <https://www.who.int/publications/m/item/malaysia-strong-preparedness-and-leadership-for-a-successful-covid-19-response>
 13. Ahad NA, Okwonu FZ, Siong PY. COVID-19 Outbreak in Malaysia: Investigation on Fatality Cases. *J Adv Res Appl Sci Eng Technol*. 2020;20(1):1–10.
 14. Institute for Health Systems Research. Malaysia Health Sector Response to COVID-19 Pandemic [Internet]. Selangor; 2020. Available from: <http://library.nih.gov.my/e-doc/flipbook/mhsrccovid19-pandemic-hopedespite-adversity/index.html>
 15. Yerger P, Jalloh M, Coltart CEM, King C. Barriers to maternal health services during the Ebola outbreak in three West African countries: a literature review. *BMJ Glob Heal* [Internet]. 2020 Sep 1 [cited 2024 Aug 22];5(9):e002974. Available from: <https://gh.bmj.com/content/5/9/e002974>
 16. Jindal M, Chaiyachati KH, Fung V, Manson SM, Mortensen K. Eliminating health care inequities through strengthening access to care. *Health Serv Res* [Internet]. 2023 Dec;58 Suppl 3(Suppl 3):300–10. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/38015865>
 17. Penchansky R, Thomas JW. The Concept of Access. *Med Care* [Internet]. 1981 Feb;19(2):127–40. Available from: <http://journals.lww.com/00005650-198102000-00001>
 18. Andersen R, Newman JF. Societal and individual determinants of medical care utilization in the United States. *Milbank Mem Fund Q Health Soc* [Internet]. 1973;51(1):95–124.

- Available from: <http://www.ncbi.nlm.nih.gov/pubmed/4198894>
19. Emilio Carrillo J, Carrillo VA, Perez HR, Salas-Lopez D, Natale-Pereira A, Byron AT. Defining and targeting health care access barriers. *J Health Care Poor Underserved*. 2011;22(2): 562–75.
 20. Saurman E. Improving Access: Modifying Penchansky and Thomas's Theory of Access. *J Heal Serv Res Policy*. 2016;21(1):36–9.
 21. Afonso Cortez P, Heila , Da M, Veiga S, Ana , Stelko-Pereira C, et al. Brief Assessment of Adaptive and Maladaptive Coping Strategies During Pandemic. 123AD [cited 2024 Feb 21]; Available from: <https://doi.org/10.1007/s43076-023-00274-y>
 22. Cramer P, College W. Understanding Defense Mechanisms. *Psychodyn Psychiatry*. 2015;43(4):523–52.
 23. Raosoft: An online sample size calculator. Raosoft Inc. 2004.
 24. Department of Statistics Malaysia. Key Findings Population and Housing Census of Malaysia. Department of Statistics Malaysia. 2021. 10–27 p.
 25. Institute for Health Systems Research (IHSR). National Health and Morbidity Survey (NHMS) 2019: Vol. II: Healthcare Demand. [Internet]. Selangor; 2020 [cited 2021 Dec 8]. Available from: https://iku.moh.gov.my/images/IKU/Document/REPORT/NHMS2019/Report_NHMS2019-HCD-eBook_p.pdf
 26. Yerger P, Jalloh M, Coltart CEM, King C. Barriers to maternal health services during the Ebola outbreak in three West African countries: A literature review. *BMJ Glob Heal*. 2020;5(9):4–10.
 27. Kyomba GK, Law MR, Grépin KA, Mayaka SM, Mambu TNM, Mbunga BK, et al. Barriers and facilitators to healthcare facility utilization by non-Ebola patients during the 2018–2020 Ebola outbreak in the Democratic Republic of Congo. *Glob Heal Res Policy* [Internet]. 2024;9(1). Available from: <https://doi.org/10.1186/s41256-024-00387-6>
 28. Elston JWT, Danis K, Gray N, West K, Lokuge K, Black B, et al. Maternal health after Ebola: Unmet needs and barriers to healthcare in rural Sierra Leone. *Health Policy Plan*. 2020;35(1):78–90.
 29. Davis LL. Instrument review: Getting the most from a panel of experts. *Appl Nurs Res*. 1992 Nov 1;5(4):194–7.
 30. Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. *Educ Med J*. 2019;11(2):49–54.
 31. Kementerian Belia dan Sukan Malaysia. Dasar Belia Malaysia [Internet]. Putrajaya; 2015. Available from: https://dbbelia.gov.my/images/2022/frontend/article/DasarBeliaMalaysia_BM.pdf
 32. Department of Statistics Malaysia. Household Income and Basic Amenities Survey Report 2019. Putrajaya; 2020.
 33. Imlach F, McKinlay E, Kennedy J, Pledger M, Middleton L, Cumming J, et al. Seeking Healthcare During Lockdown: Challenges, Opportunities and Lessons for the Future. *Int J Heal Policy Manag* [Internet]. 2022; 11(8):1316–24. Available from: <https://doi.org/10.34172/ijhpm.2021.26>
 34. Mularczyk-Tomczewska P, Zarnowski A, Gujski M, Jankowski M, Bojar I, Wdowiak A, et al. Barriers to accessing health services during the COVID-19 pandemic in Poland: A nationwide cross-sectional survey among 109,928 adults in Poland. *Front Public Heal*. 2022;10.
 35. Aledo-Serrano Á, Mingorance A,

-
- Jiménez-Huete A, Toledano R, García-Morales I, Anciones C, et al. Genetic epilepsies and COVID-19 pandemic: Lessons from the caregiver perspective. *Epilepsia*. 2020;61(6):1312–4.
36. Dopfer C, Wetzke M, Zychlinsky Scharff A, Mueller F, Dressler F, Baumann U, et al. COVID-19 related reduction in pediatric emergency healthcare utilization - A concerning trend. *BMC Pediatr*. 2020;20(1):1–11.
 37. Ang ZY, Cheah KY, Shakirah MS, Fun WH, Anis-Syakira J, Kong YL, et al. Malaysia's health systems response to COVID-19. *Int J Environ Res Public Health*. 2021;18(21).
 38. Pujolar G, Oliver-Anglès A, Vargas I, Vázquez ML. Changes in Access to Health Services during the COVID-19 Pandemic: A Scoping Review. *Int J Environ Res Public Health* [Internet]. 2022 Feb 1 [cited 2025 Sep 2];19(3):1749. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC8834942/>
 39. Pandey KR, Yang F, Cagney KA, Smieliauskas F, Meltzer DO, Ruhnke GW. The impact of marital status on health care utilization among Medicare beneficiaries. *Med (United States)*. 2019;98(12).
 40. Bastani P, Mohammadpour M, Samadbeik M, Bastani M, Rossi-Fedele G, Balasubramanian M. Factors influencing access and utilization of health services among older people during the COVID – 19 pandemic: a scoping review. *Arch Public Heal*. 2021;79(1):1–11.
 41. Cochran AL, McDonald NC, Prunkl L, Vinella-Brusher E, Wang J, Oluyede L, et al. Transportation barriers to care among frequent health care users during the COVID pandemic. *BMC Public Health* [Internet]. 2022;22(1):1–10. Available from: <https://doi.org/10.1186/s12889-022-14149-x>
 42. Wolfe MK, McDonald NC, Holmes GM. Transportation Barriers to Health Care in the United States: Findings From the National Health Interview Survey, 1997-2017. *Am J Public Health*. 2020;110(6):815–22.
 43. Subramaniam Kalianan R, Woon YL, Hing YL, Leong CT, Lim WY, Loo CE, et al. Appointment structure in Malaysian healthcare system during the COVID-19 pandemic: The public perspective. *BMC Health Serv Res* [Internet]. 2022;22(1):1–8. Available from: <https://doi.org/10.1186/s12913-021-07456-3>
 44. Ting RSK, Foo PL. Counseling Chinese Communities in Malaysia - The Challenges and Needs in Mental Health Service Deliverance. 2018;(September):23–49.
 45. R. AB, M Z Z, M D MU, S I SS, J NH, A H, et al. Compliance with COVID-19 Mitigation Measures During COVID-19 Pandemic in Malaysia. *Int J Acad Res Progress Educ Dev*. 2024 May 25;13(3).
 46. Kyaw HK, Than KK, Diaconu K, Witter S. Community stressors and coping mechanisms in accessing the health system during a double crisis: a qualitative case study from Yangon Region, Myanmar. *Int J Equity Health* [Internet]. 2023;22(1):1–11. Available from: <https://doi.org/10.1186/s12939-023-01851-4>
 47. Hing NYL, Leong CT, Kalianan RS, Lim WY, Loo CE, Woon YL. Impacts of the COVID-19 Pandemic on Healthcare Services in Malaysia from the Perspective of Healthcare Providers: A Cross-Sectional
-

- Analysis. 2022 Mar 29 [cited 2023 May 25]; Available from: <https://www.preprints.org/manuscript/202203.0378/v1>
48. Alam MS, Abdelsalam EFA. Comparative Study on the Socioeconomic and Political Conditions of Indian and Chinese Communities in Malaysia. *Sprink J Arts, Humanit Soc Sci*. 2023; 2(09): 35–53.
49. Fitzpatrick AL, Powe NR, Cooper LS, Ives DG, Robbins JA, Enright E. Barriers to Health Care Access Among the Elderly and Who Perceives Them. *Am J Public Health* [Internet]. 2004 [cited 2025 Sep 2];94(10):1788. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC1448535/>
50. Chan E, Procter-Gray E, Churchill L, Cheng J, Siden R, Aguirre A, et al. Associations among living alone, social support and social activity in older adults. *AIMS Public Health* [Internet]. 2020 [cited 2025 Sep 2];7(3):521. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC7505797/>
51. Ghimire S, Shrestha A, Yadav UN, Mistry SK, Chapadia B, Yadav OP, et al. Older adults with pre-existing noncommunicable conditions and their healthcare access amid COVID-19 pandemic: A cross-sectional study in eastern Nepal. *BMJ Open*. 2022;12(2).