



UK Health
Security
Agency

Morbidity and risk factor prevalence survey

Montserrat, February 2022

Authors:

Adelle Springer, Epidemiologist & Senior Scientist, UK Overseas Territories, Global Operations, UK Health Security Agency (UKHSA)

Sharra Greenaway-Duberry, Chief Medical Officer, Montserrat Ministry of Health and Social Services (MoHSS)

Natalie Wright, Health Protection Lead and Consultant in Global Public Health UK Overseas Territories, Global Operations, UKHSA

April 2022

Contents

1. Background	4
2. Objectives	5
3. Methodology	6
4. Results.....	9
5. Discussion	16
6. Conclusion.....	19
7. Recommendations.....	19
Acknowledgements	20
Bibliography.....	20
Annex A.....	22

List of tables and figures

Table 1 Assumptions used in calculating sample size

Table 2 Demographic composition and distribution of morbidities and risk factors, by sex, Montserrat, 16 Feb - 7 Mar 2022

Table 3 Total number and proportion of noncommunicable diseases, Montserrat, 16 Feb - 7 Mar 2022

Table 4 Risk ratios for mental health and risk factors, Montserrat, 16 Feb - 7 Mar 2022

Figure 1 UK Overseas Territories, 2022

Figure 2 Map of GPS points for conducted household interviews and by enumeration district, Montserrat, 16 Feb - 7 Mar 2022

Figure 3 Distribution of surveys by village, Montserrat, 16 Feb - 7 Mar 2022.

Figure 4 Frequency of country of birth, all respondents, Montserrat, 16 Feb - 7 Mar 2022

Figure 5 Proportion of males and females suffering one, two or three NCDs, by age groups, Montserrat, 16 Feb - 7 Mar 2022

Annex A Questionnaire (English version)

List of abbreviations

ASSIST	The Alcohol, Smoking and Substance Involvement Screening Test
AUDIT C	Alcohol use disorders identification test consumption
CMO	Chief Medical Officer
FCDO	Foreign Commonwealth & Development Office
GAD-2	Generalized Anxiety Disorder 2-item
HH	Household
MoHSS	Ministry of Health and Social Services, Montserrat
NCD	Noncommunicable disease
PHC	Primary Healthcare
PHQ-2	Patient Health Questionnaire - 2
SRS	simple random sample
UKHSA	UK Health Security Agency
WHO	World Health Organization

1. Background

Montserrat is a small country in the middle of the West Indies island chain and is one of the UK Overseas Territories with a land mass of 39.5 square miles. The eruption of the Soufrière Hills Volcano in 1995 rendered more than half of the island unsafe, resulting in three quarters of the island declared an exclusion zone, prohibiting anyone from occupying that part of the island. The former capital, Plymouth and the newly refurbished, modernised hospital were destroyed. The hospital was subsequently relocated to a former school premises in the north of the island and Brades became the new capital. The significant exodus that followed means that the population of Monsterrat to present date remains small.



Figure 1 Map of UK Overseas Territories, 2022.

The Ministry of Health and Social Services (MoHSS) is responsible for the provision and governance of health care in Montserrat, the majority provided by the Government with a small private sector. Primary healthcare is free for all Montserratians, although those aged 18-60 are encouraged to use private healthcare facilities instead. Payment is required for medications, although there are exempted groups including people registered with chronic conditions, mental health issues and for antenatal care. Working age adults also pay for their secondary and tertiary healthcare, often through private or work-based insurance schemes. Non-residents and visitors pay for all healthcare with the exception of some primary healthcare doctor consultations.

As with most countries, health services and policies in Montserrat have been dominated since 2020 by the fight against COVID-19. Montserrat had recorded 216 cases, including 5 hospitalisation and 2 deaths as at 27 April 2022, the majority as a result of a community outbreak in January '22, with a further rash of cases occurring later the same year in April. This has diverted resource and attention away from other health areas such as noncommunicable disease and mental health. Health teams are keen to reprioritise issues of concern among the population as we hopefully transition to a 'living with COVID-19 world.

For example, mental health has been given higher priority with a policy and implementation plan developed to cover the years 2015-2020, MoHSS has though unfortunately lacked the resources to implement this. It is however one of the priority areas identified by the Chief Medical Officer along with non-communicable diseases (NCDs) like diabetes, hypertension and cancer, plus developing a sustainable healthcare workforce and projects such as the new hospital building works and moving to an electronic patient information system. The primary healthcare team had been conducting physical and mental health screening of employees of the largest employers on the island, as part of the effort to identify NCDs in the community and get people registered and on to treatment as early as possible.

Nevertheless, through the necessary and unavoidable diversion of public health resources to the management of COVID-19, gaps remain in comprehensively understanding and addressing the health of the population of Montserrat. There are also no official estimates of prevalence of key NCDs, mental health, adult smoking, marijuana usage, or alcohol consumption.

The aim of this survey was therefore to provide reliable estimates of key morbidities and risk factor prevalence to help inform MoHSS policy and services and provide a basis for future investigation and where deeper understanding is warranted.

2. Objectives

There are two objectives of this survey:

- To estimate prevalence in the resident adult population of Montserrat of:
 - key noncommunicable diseases – diabetes, hypertension, cancer, stroke, cardiac problems, lung and kidney disease
 - basic mental health indicators – depression and anxiety
 - health risk factors – smoking, alcohol consumption, marijuana use
- To describe demographic characteristics and compare those with morbidity and risk factors to those without.

3. Methodology

3.1 Survey Design

A survey comprising 18 questions (English version at Annex A), was devised for data collection using a cross sectional survey approach. The survey instrument, developed for use with the KoBotoolbox application [6] was available in English (written by native speaker) and Spanish (translation confirmed by native speaker). Additionally, an interviewer that speaks Haitian Creole was recruited to the field team.

The survey, conducted between 16 February and 7 March 2022 inclusive, was carried out by Interviewers who posed the questions to eligible, consenting respondees at their homes. Responses were entered directly into electronic tablets by the interviewers, who also recorded the GPS point of each consenting or refused HH.

3.2 Target population

Inclusion criteria:

- Adult residents aged ≥ 18 years that have resided on Montserrat for at least 6 months during the period Jan 2021 to Jan 2022.

Exclusion criteria:

- Visitors and those residing in Montserrat for less than 6 months during period Jan 2021 to Jan 2022.
- Under 18 year olds
- People in prison
- Persons physically or mentally incapable of giving informed consent to participate.

Households randomly selected using ArcGIS spatial mapping software and living anywhere in Montserrat were eligible to participate in the survey.

3.3 Definitions

<i>Respondent</i>	Any resident aged ≥ 18 years that has resided on Montserrat for at least 6 months during the period Jan 2021 to Jan 2022 who participated in the survey.
<i>Absent household</i>	A selected household where no response was obtained after two attempts to contact residents for interview and where apt, personal requests for appointment by note/phone also failed to elicit a response.
<i>Refusal</i>	A selected household where residents were successfully contacted and eligible, but then refused to participate in the survey.
<i>Smoking</i>	'Regular' (at least weekly) consumption of any burnt tobacco products, during any period of respondent's life and by any method. ○ For those answering 'yes', frequency during the last seven days.

<i>Marijuana use</i>	Use of marijuana in any form and by any means during the last 12 months.
<i>Alcohol consumption</i>	Frequency of consumption of any drinks that contain alcohol, both commercial and home-made – from ‘never’ to daily’ with no timeframe stipulated.

3.4 Sample Size

The required sample size to estimate prevalence within 5% of the true population prevalence was calculated based on simple random sampling (SRS) and a number of parameters [1].

Table 1 Parameters used in calculating the sample sizes for prevalence survey, Montserrat

morbidity and risk factor prevalence	
confidence level	95%
proportion estimate*	50%
precision required	5%
population (2)	4 458
Average number of eligible respondents per HH	2
Respondents required	354
HH required	177

Target of 180 households

*most conservative approach taken to yield largest sample size in the absence of existing prevalence estimates.

The original target of 180 HHs failed to deliver the intended number of respondents due to higher than anticipated refusal rates and by additional eligible adults present in consenting HHs. Interviews continued therefore with an additional 40 randomly selected HHs.

3.5 Sampling Methodology

Simple random sampling was used to provide equal opportunity for all resident HHs in Montserrat to be included in the assessment. The ArcGIS specialist team within the Lands and Planning Department provided GPS points for randomly selected structures based on their maps of Montserrat and its enumeration districts. These points were distributed proportionally according to estimated population of each enumeration area, as provided by Montserrat Statistics Department.

Where interviewers encountered abandoned houses, structures that were not HHs or if there was no eligible adult in the HH, the nearest HH was used as a replacement. HHs where consent was not given were not replaced (although target HHs were increased as noted above).

For absent HHs, two physical visits were made, notification left to request an appointment and/or phone call made in the case of interviewers personally knowing the occupants. If these approaches still failed to yield eligible, consenting adults finally the HH was not replaced.

3.6 Data Collection

Every consenting HH was asked:

- Number of people in the HH and number of eligible adults aged =>18 years

Each consenting, eligible individual was asked:

- place and date of birth and their sex
- if they had any medical diagnoses from a list of noncommunicable diseases
- questions regarding anxiety and depression
- frequency and volume alcoholic consumption
- tobacco products consumption and exposure
- marijuana use and method of use.

Questions regarding alcohol use, mental health and smoking were based on the AUDIT-C screening tool [3], GAD-2 and PHQ-2 mental disorders screening tools [4] and World Health Organization (WHO) ASSIST tool [5] respectively.

3.7 Data Management and Analysis

The collected data was uploaded to KoBotoolbox online and stored on a secured, password-protected server, accessible only by the epidemiologist responsible for analysis. Data was reviewed daily for quality with feedback, guidance and coordination of the field team ensuring any quality issues were identified and rectified early. Analysis was conducted using Stata 15.1.

3.8 Ethics and consent

The purpose of the interview was explained to each respondent in the language with which they were most comfortable. Inclusion in the study was entirely voluntary after obtaining oral informed consent.

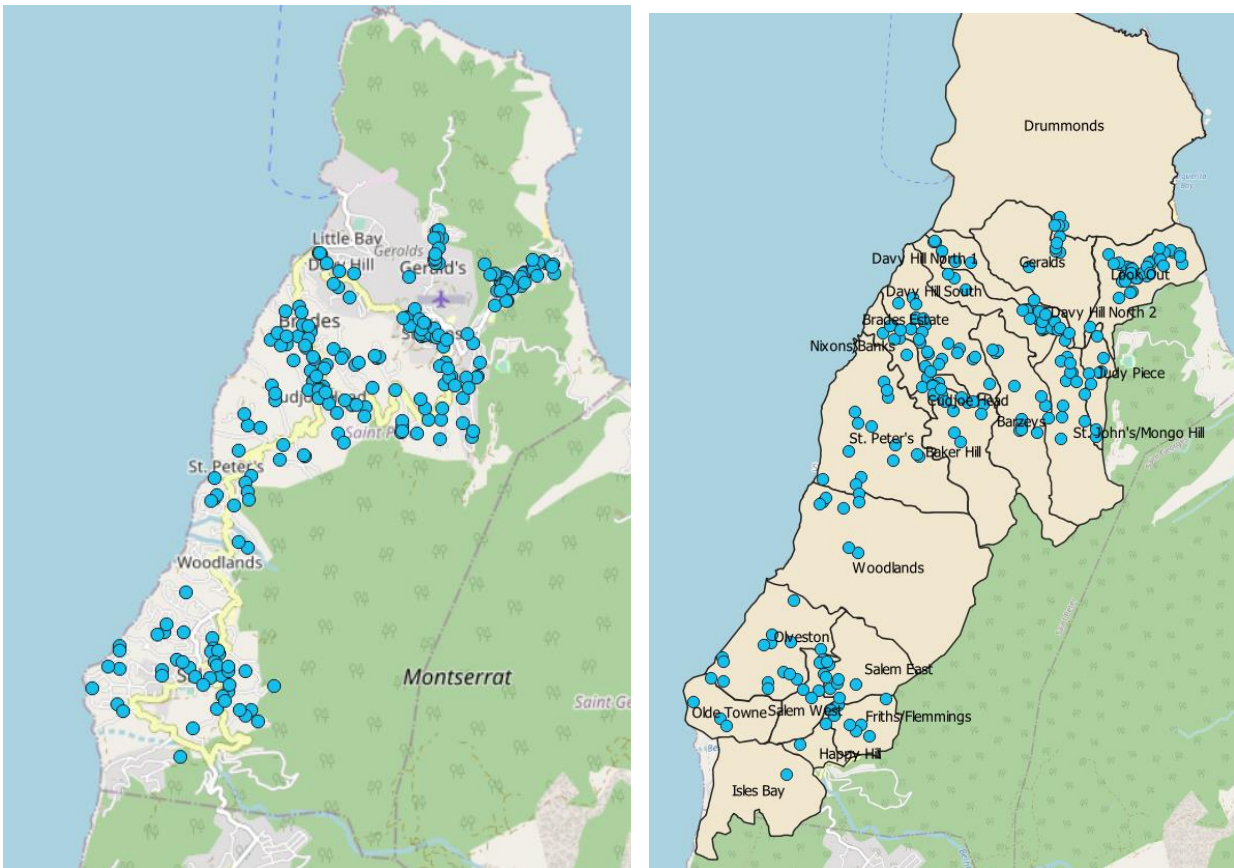


Figure 2 Map of GPS points for conducted household interviews and map by enumeration district, Montserrat, 16 Feb - 7 Mar 2022

4. Results

4.0 Household level

A total of 227 eligible households were approached, of which 20 (8.8%, 95%CI: 5.5% - 13.3%) refused to participate, leaving 207 households included in the survey. HH size ranged from one to eight occupants, median of 2 occupants per HH, of which between one and five were adults (≥ 18 yrs) - a median of 1 adult per HH. HHs were randomly selected using probability population to size, the distribution of villages included in the survey reflects the relative density of populations in those villages (Figure 3).

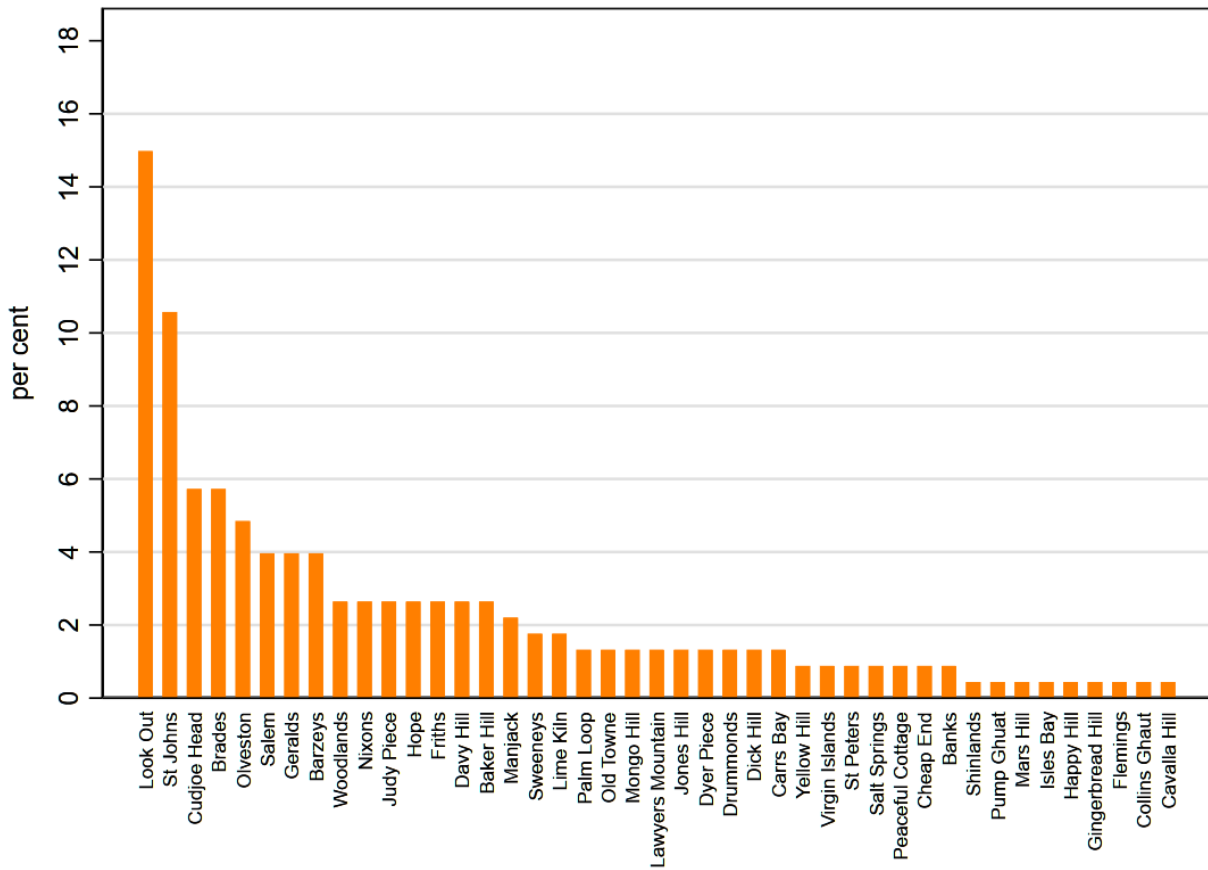


Figure 3 Proportion of survey respondents by village, Montserrat, 16 Feb – 7 Mar 2022

4.1 Individual level demographic, morbidity and risk overview

A total of 313 eligible HH members were asked to participate, of which 9 (2.9%, (95%CI: 1.3% - 5.4%)) refused, therefore 304 eligible adults were included in the analysis.

Overall, half of all respondents were born in Montserrat 53.9%, (95%CI: 48.2% - 59.7%), with those born in Guyana the second most common group (11.2%, 95%CI: 7.9% - 15.3%) (Figure 4).

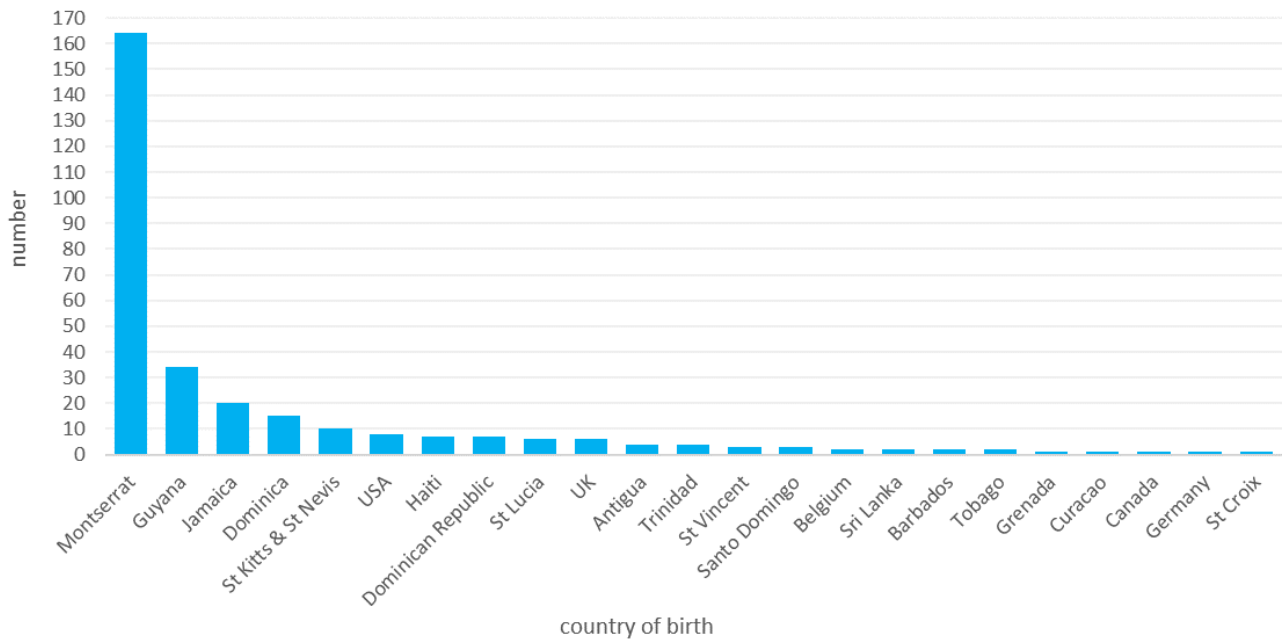


Figure 4 Frequency of country of birth, all respondents, Montserrat, 16 Feb - 7 Mar 2022

Females were the majority of all respondents at 58.2% (95%CI: 52.6% - 63.7%). Age was fairly evenly distributed across both sexes, although women were younger overall with a median age of 48 years compared with 54 years for men.

Overall, around one-third of respondents suffered from at least one NCD (34.5%, 95%CI: 29.4% - 40.1%) and among these 105 people, women accounted for 62.9% (95%CI: 52.9% - 72.1%). Basic MH indicators differed significantly between the sexes ($p=0.03$). Of the 88 people (28.9%, 95%CI: 24.14% - 34.3%) who responded that in the last two weeks they had, at least 'on several days' (score ≥ 1), experienced signs of depression and/or anxiety, women accounted for 68.2% (95%CI: 57.4% - 77.7%).

Although overall more than one-third (34.9%, 95%CI: 29.5% - 40.5%) of respondents never drank alcohol, a significantly higher proportion of men did drink compared with women ($p<0.0001$).

Prevalence of smoking, exposure to second-hand smoke and marijuana use appeared low, particularly among women. Overall, just 13.5% (95%CI: 10.1% - 17.8%) of people reported ever having been a regular smoker ($n=41$), with 48 people admitting ever having used marijuana. Only 8.5% (95%CI: 5.9% - 12.3%) reported that they were exposed to second-hand smoke in the home or workplace. All smoking risk factors differed significantly between men and women ($p\leq 0.01$) (Table 2).

Table 2 Demographic composition and distribution of morbidities and risk factors, by sex, Montserrat, 16 Feb – 7 Mar 2022

	Female		Male		Total		P value
	n=175	% (95% C.I.)	n=127	% (95% C.I.)	n=304	% (95% C.I.)	
age group* (years)							
18 to 29	32	18.3 (13.2, 24.7)	17	13.4 (8.5, 20.5)	49	16.2 (12.5, 20.8)	0.20
30 to 39	35	20.0 (14.7, 26.6)	16	12.6 (7.8, 19.6)	51	16.9 (13.1, 21.6)	
40 to 49	23	13.1 (8.9, 19.0)	21	16.5 (11.0, 24.1)	44	14.6 (11.0, 19.0)	
50 to 59	36	20.6 (15.2, 27.2)	21	16.5 (11.0, 24.1)	57	18.9 (14.8, 23.7)	
60 to 69	25	14.3 (9.8, 20.3)	23	18.1 (12.3, 25.8)	48	15.9 (12.2, 20.5)	
70 to 79	17	9.7 (6.1, 15.1)	20	15.7 (10.4, 23.2)	37	12.3 (9.0, 16.5)	
80+	7	4.0 (1.9, 8.2)	9	7.1 (3.7, 13.1)	16	5.3 (3.3, 8.5)	
<i>median age*</i>		48		54	49	51	
NCD flag#	66	37.3 (30.5, 44.6)	39	30.7 (23.3, 39.2)	105	34.5 (29.4, 40.1)	0.23
MH flag^	60	33.9 (27.3, 41.2)	28	22.0 (15.7, 30.1)	88	28.9 (24.1, 34.3)	0.03
ever drink	100	56.5 (49.1, 63.6)	98	77.2 (69.1, 83.6)	198	65.1 (59.6, 70.3)	<0.0001
ever smoked regularly	11	6.2 (3.4, 10.9)	30	23.6 (17.0, 31.8)	41	13.5 (10.1, 17.8)	<0.0001
ever used marijuana	18	10.2 (6.5, 15.6)	30	23.6 (17.0, 31.8)	48	15.8 (12.1, 20.3)	0.002
2nd hand smoke exposure	9	5.1 (2.6, 9.5)	17	13.4 (8.4, 20.5)	26	8.6 (5.9, 12.3)	0.01

*excludes two (0.7%) females of unknown age

#score >0 for any of the listed seven NCDs – hypertension, diabetes, cancer, cardiac problems, stroke, kidney disease, liver disease

^score >0 for any of 4 mental health indicators

4.2 NCDS

Among the 105 respondents with at least one NCD, the most common conditions overall were hypertension at 48.6 (95%CI: 38.7% - 58.8%), diabetes and hypertension at 18.1% (95%CI: 11.3% - 26.8%), then diabetes alone at 17.1% (95%CI: 10.5% - 25.7%) While the majority had only 1 NCD, in total 29.5% had two or three (95%CI: 21% - 39.2%) (Table 3). There was no significant difference in NCDs, nor in the number of NCDs between sexes (p>0.05).

Table 3 Total number and proportion of noncommunicable diseases, Montserrat, 16 Feb – 7 Mar 2022

NCDs	N	% (95% C.I.)
hypertension	51	48.6 (38.7, 58.5)
diabetes & hypertension	19	18.1 (11.3, 26.8)
diabetes	18	17.1 (10.5, 25.7)
cardiac problem & hypertension	4	3.8 (1.0, 9.5)
cardiac problem, hypertension & diabetes	3	2.9 (0.6, 8.1)
kidney disease	2	1.9 (0.2, 6.7)
lung disease	2	1.9 (0.2, 6.7)
cancer & hypertension	2	1.9 (0.2, 6.7)
cardiac problem & diabetes	1	1.0 (0.02, 5.2)
stroke & diabetes	1	1.0 (0.02, 5.2)
cancer	1	1.0 (0.02, 5.2)
stroke & hypertension	1	1.0 (0.02, 5.2)
TOTAL	105	100.0
Total with 1 NCD	74	70.5 (61.0, 78.5)
Total with 2 NCDs	28	26.7 (19.0, 36.0)
Total with 3 NCDs	3	2.9 (0.9, 8.6)

Both men and women suffered from NCDs in the younger 18-29 and 30-39 age groups. Of the 66 women with any NCDs, the largest number with only one (n=18) were most commonly aged 50-59 years, overall 27.3% (95%CI: 17.0% - 39.6%). This age group also most commonly had two NCDs (n=5), an equal proportion with 70-79 year old women at 7.6% (95%CI: 2.5% - 16.8%) of all women with NCDs.

Among males with NCDs (n=39), those most commonly suffering from one (n=9) were a little older than their female counterparts, aged 60-69 years accounting for 23.1% overall (95%CI: 11.1% - 39.3%). Those most commonly with two NCDs (n=5) were similarly aged 70-79 years, 12.8% (95%CI: 4.3% - 27.4%) of all men with NCDs (Figure 5).

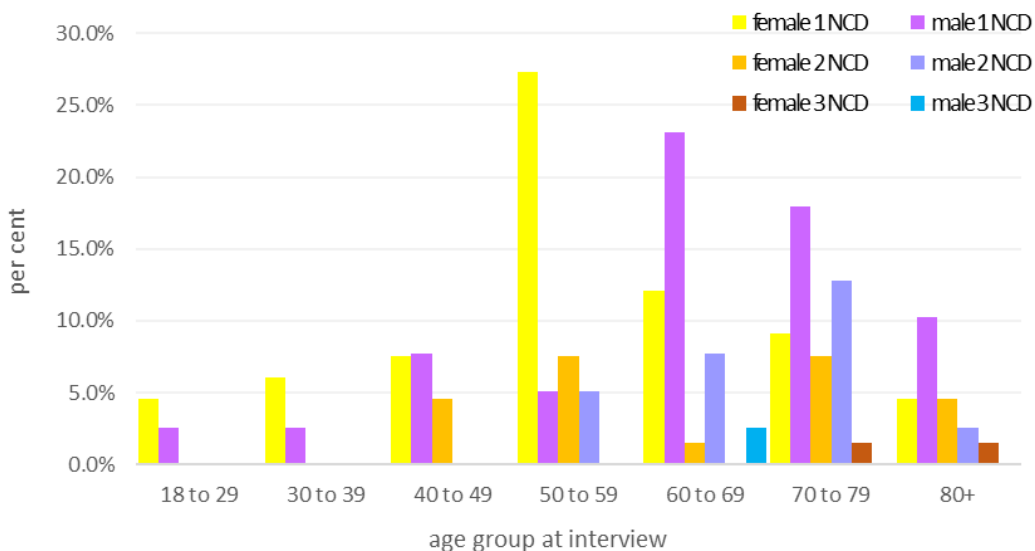


Figure 5 Proportion of males and females suffering one, two or three NCDs, by age group, Montserrat, 16 Feb - 7 Mar 2022

* Excludes 2 females for whom age was unknown

4.3 Mental Health

Each GAD-2 question for anxiety and PHQ-2 question for depression could be scored from 0 to 3 (instruments are referred to in the methods section). In total 88 people, nearly one-third (28.9%, 95%CI: 23.9% - 34.4%) scored ≥ 1 across all four questions and of these 68.2% (95%CI: 57.4% - 77.7%) were women. The risk of scoring ≥ 1 was 35% less for men (RR:0.65, 95%CI: 0.44 - 0.96, $p=0.03$) (Table 4).

To give an indication of mental health stress 'severity', GAD-2 scores were combined for anxiety and PHQ-2 scores combined for depression for each of the 88 individuals who scored ≥ 1 . 'Severity' was then dichotomized, with those scoring ≥ 3 flagged as a potential MH 'case'.

In total, 22/88 (25.0%, 95%CI: 16.4% - 35.4%) people were potential MH 'cases' and here there was no significant difference between the sexes ($p=0.3$). There were 15 potential cases of anxiety (17.0%, 95%CI: 9.9% - 26.6%) and 16 of depression (18.2% 95%CI: 10.8% - 27.8%), Seven women and two men were potential cases for both anxiety and depression (10.2%, 95%CI: 4.8% - 18.5%).

4.4 Risk factors

Among the 198 people who said they ever drink alcohol, comparing 'less risky' (≤ 2 to 4 times /month) to 'more risky' drinking ≥ 2 to 4 times/ week), men's risk was two and a half times that of women for 'more risky' drinking (RR 2.55, 95% CI:1.39 - 4.69, $p=0.001$).

Overall, only 8.6% (95%CI: 5.4% - 13.4%) of total respondents that consume alcohol said that they consumed 5 or more drinks on a typical drinking day. However, 'binge drinking'

was more common; 16.2% (95%CI: 11.6% - 22.0%) responded that they drank 6 or more drinks on a single occasion on at least a monthly basis. Again, men were at double the risk of 'binging' (RR 2.24, 95% CI:1.12 - 4.49, p=0.02). (Table 4).

Men were at substantially increased risk compared to women of ever having regularly smoked (RR 3.80, 95% CI:1.98 - 7.33, p<0.0001) (Table 4). Of the 41 respondents who said they had ever been regular smokers, only 16 (39.0%, 95%CI: 25.6% - 54.3%) said they had smoked in the last 7 days, 13 being male.

Among the 48 people who reported ever using marijuana, 50.0% (95%CI: 35.2% - 64.8%) also reported having ever been a regular smoker. The risk of using marijuana was more than seven times higher among ever regular smokers compared to those who never regularly smoked (RR 7.53, 95% CI:4.39 – 12.91, p<0.0001) (Table 4).

Using marijuana with tobacco was the second most common method overall - those who used it with or with/without tobacco (n=17) accounted for 27.1% (95%CI: 22.2% - 50.5%). Of these, 11 classified themselves as never having regularly smoked despite two people using marijuana with tobacco weekly and three people doing so daily.

Table 4 Risk ratios for mental health and risk factors, Montserrat, 16 Feb – 7 Mar 2022

		N	prevalence (%)	RR	95% CI.	P value
having a mental health score >0 vs 0	female	60	33.9	1		
	male	28	22.0	0.65	0.44, 0.96	0.03
drinking at riskier vs less risky levels*	female	12	12.0	1		
	male	30	30.6	2.55	1.39, 4.69	0.001
Binge drinking [^] ≥monthly vs ≤monthly	female	10	10.0	1		
	male	22	22.4	2.24	1.12, 4.49	0.02
ever having regularly smoked vs never	female	11	6.2	1		
	male	30	23.6	3.80	1.98, 7.30	
marijuana use ever vs never	never regularly smoked	17	6.6	1		<0.0001
	ever regularly smoked	24	50.0	7.53	4.39, 12.91	<0.0001

*riskier levels >=2 to 4 times weekly vs less risky <=2 to 4 times a month

[^]6 or more drinks on any occasion

5. Discussion

Respondents were predominantly Montserratian born, a proportion very similar to that found by the 2018 census findings, so these findings may say something about Montserratian people as well as the resident community, which is a vibrant and mixed society. Women were majority respondents and as in 2018, 41% of HHs in Montserrat were female headed, this may be reflective of household composition. Male respondents were older than females and with an overall median age of 51 years and survey respondents were older than the 40 years reported in the census [7].

Both men and women are impacted by NCDs, even from the youngest age group of 18-29 years and women do appear to suffer from multiple morbidities earlier than their male counterparts. Those aged 50-59 years accounted for 23/66 women with NCDs, while men aged 60-69 and 70-79 years each accounted for 12/39 men with NCDs. WHO indicates that NCDs are responsible for 41 million deaths each year, 71% of all global deaths and that while typically are associated with older age groups, 15 million NCD attributable deaths world-wide are 'premature' occurring in those aged 30-69 years [8]. Regionally PAHO reports the NCD mortality rate as 436.5/100,000 (2016), with the non-Latin Caribbean subregion having among the highest [9].

The impact of diabetes and hypertension is highly evident in Montserrat as 100 of the 105 people with NCDs have either condition uniquely or as one of their morbidities - 40.0% (95% CI: 30.6%, 50.0%) uniquely or in combination with another NCD for diabetes and 76.2% (95% CI: 66.9%, 84.0%) for hypertension. Montserrat's nearest neighbour Antigua and Barbuda recorded 8.2% of deaths due to diabetes in 2016 [8]. Here diabetes was the leading cause of death and disability (DALYs) and hypertensive heart disease has remained the seventh cause of total deaths from 2009 to 2019, with a 32.7% increase over that period [10].

In a study of 154 countries estimating association of raised systolic blood pressure (SBP) with different causes of death and disability found that the disability-adjusted life-years (DALYs) burden globally in 2015 was 211,816 (192,712 to 231,114) for those with SBP \geq 110-115 mmHg and 143,037 (130,198 to 156,961) among those with \geq 140 mmHg. In the Caribbean in 2015, the estimated number of all-cause deaths (thousands) related to SBP was 74.3 (65.5 to 82.7) and 51.7 (45.0 to 57.9) for SBP \geq 110-115 mmHg and \geq 140 mmHg respectively [11].

The risk factors for NCDs include tobacco use and harmful use of alcohol. Around one third of Montserratians reported never drinking but among those who did, men had a pronounced risk of increased frequency and volume of drinking at two to two and a half times that of women. This discrepancy in drinking habits also appears typical for the region, for example St Kitts and Nevis women consuming 4.2 litres/person/year of pure alcohol versus 14.9 litres/person/year for men (2018) [9].

Prevalence estimates for smoking and exposure to second-hand smoke were low, particularly among women. The wide confidence intervals associated with these suggests caution, however anecdotally smoking is uncommon outside of the expat community and is also socially unacceptable. This can be an effective discouragement but can also mean that numbers are under-reported. Regional data on smoking prevalence are sparse, nevertheless with men 30 of the 41 ever regular smokers, the large discrepancy between Montserrat's men and women does appear to echo 2017 estimates of current smokers from the region, e.g. Guyana with 23.0% male versus 2.3% female [9].

It is very interesting to note too that the majority of those who used marijuana with tobacco sometimes or usually did not consider themselves to have ever been regular smokers, even when the marijuana smoking was weekly or daily. This points to a disconnect that may exist between the health and social negativity associated with tobacco smoking and the use of a tobacco as a medium for marijuana use.

Montserratians generally seem to be a happy people, with the majority reporting that that they hadn't at all felt anxious or depressed at all in the last two weeks. Overall prevalence of potential cases of anxiety at 4.9% (95% CI: 2.8%, 8.0%) and 5.3% (95% CI: 3.0%, 8.4%) are similar to WHO country estimates for Antigua and Barbuda at 5.1% and 6.1% respectively (2017) [12]. Nevertheless, 22 people were flagged as potential 'MH cases' with a combined score of ≥ 3 for either depression or for anxiety, with nine people reaching this threshold for both. These may be transitory or longer-term states for the individuals concerned, however these findings may indicate that there is some level of mental health stress in the community that warrants further investigation.

5.0 Limitations

With regard to validity of results, the socio-cultural factors mentioned above with regard to smoking and marijuana use could mean that these risk factors are under-reported. In addition, stigma or a sense of 'unacceptability' about admitting mental health stress may also have led to under-reporting; the instruments used for MH screening were basic and would not have elicited nuanced responses, plus respondents may have felt more comfortable self-selecting their answers than reporting them to the interviewer.

However, logistics and data collection challenges made most contribution to the study limitations. A short turn-around time for the project coupled with logistical obstacles presented challenges such as the high number of abandoned houses encountered by surveyors and the problems in replacing these. Given the terrain and sometime remote and natural environment of residential areas, finding substitute inhabited and eligible homes was often challenging and sometimes not possible.

Surveys were conducted mostly in the evening after standard working hours, throughout the week and on both Saturday and Sunday to access the widest range of householders. Nevertheless, interviewers sometimes faced quite hostile reactions when attempting to

obtain consent from households perhaps owing to 'survey fatigue', or because people did not have the time with their other commitments, or simply they did not appreciate having their free-time disturbed.

Additional household members who were eligible to participate often refused to do so. Interviewers attempted to question people separately, but this was not always possible, so it may be that additional HH members did not like the questions once they had heard them, or it could simply be a case that the household felt it had made its contribution by answering one survey.

People were asked about their nationality at birth as there is a great deal of movement around the Caribbean islands and this was the simplest way to avoid the complexities around 'nationality'. Plus, people frequently have mixed heritage, many people have been long term residents of Montserrat but are not nationalised, while people originally from other countries may now be classed as Montserratian. However, real or perceived prejudices among exist people and so there are those who may feel marginalised or stigmatised because of their nationality, even suspecting they are being asked certain questions because of their nationality. As a result, 'in which country where you born' was intended to be neutral, but even this querying of 'origin' meant that some people refused or terminated interviews.

Ultimately the survey was not able to reach the target population. Alongside a nearly 9% HH refusal, which was not built into the survey design, some of these social and cultural sensitivities meant that despite adding additional GPS points for the interviewers to approach, ultimately the survey was not able to reach the target sample size, returning 88.1% the intended 354 individuals.

The potential for bias therefore will have increased. Despite women heading up around 40% of HHs (2018), females were 50.1% of the 18 years and over population according to mid-year population estimates 2021 [2], yet they comprised nearly 60% of respondents. Respondents' median age was 11 years older than the 2018 census. Although proportions overall for those aged 70 years and upwards and in the youngest 18-29 age group were very similar to mid year estimates for 2021, notable under-representation ranged from 1.8% in the 60-69 years age group to 6.1% among the 40-49 year age group compared to those estimates. While there was no significant difference in the distribution of age groups between the sexes indicating that within study there was not an age bias, it does suggest that the sample may not be as representative of the true Montserratian population as is ideal.

6. Conclusion

With this study MoHSS has been able to ascertain important prevalence estimates for key noncommunicable diseases and risk factors that are widely considered to be issues in the community, but for which evidence has been lacking.

There are positives such as low prevalence of smoking and modest levels of alcohol consumption, particularly by women, while thankfully the vast majority of Montserrat residents report enjoying a life free from mental health issues.

Alongside though are more concerning factors, such as the propensity of men who drink to do so more at risky levels. Hypertension and diabetes are well-established in the community and absorb modest healthcare resources to manage these long-term, chronic conditions. Mental health is an increasing factor in the global burden of disease and its impact on quality of life can be acute - there are undoubtedly those in the community suffering moderate to quite severe depression and/or anxiety that may require targeted support.

The limitations and challenges faced in realising this study necessarily impact accuracy of the estimates and in some cases confidence intervals are wide, giving quite some uncertainty around some of the estimates, while power to detect differences is diminished. Nevertheless, this rapid assessment has yielded many valuable learnings and lays an important foundation helping MoHSS to better understand current burdens of key morbidities and risk factors.

7. Recommendations

1. This study provides a baseline against which targets and indicators may be set and should therefore help inform CMO and DPH planning. Annual follow-up surveys can then provide monitoring of progress and flag areas of continued concern, ideally feeding into the CMO report and complementing quarterly and/or 6 monthly reviews of key indicators against PHC collected data.
2. A more detailed investigation regarding MH may be warranted, for example using the more comprehensive GAD-7 and PHQ-9 instruments, combined with a qualitative component. With active interest by the MH team to better understand any unmet community need, developing something suitably adapted with those potential barriers noted above in mind would help flesh out the picture on this important health issue.
3. While smoking prevalence appears low and admitted marijuana use small, there are some interesting contradictions that appear in reported behaviours around the two themes. This may be better illuminated by qualitative research into attitudes around

marijuana use, which could provide insights useful for developing public health messaging that may resonate with users.

4. At a future point a study into mortality and life expectancy can be valuable. Comparing mortality data for Montserratians who die on- and off-island to establish estimates for life expectancy and key mortalities can enable better understanding of the mortality burden for Montserratians at home and in the diaspora. Such investigations may reveal if there may be differences and if so, what lessons can be learned from these for public health good.

Acknowledgements

Interviewer coordinator: Sandrae Thomas

Interviewers: Alex Ackie, Romonia Archibald, Fionan Brown, Emmanuella Jean, Dr Tiffannie Skerritt.

Lavern Rogers-Ryan - GIS Manager, Physical Planning Unit, Ministry of Agriculture, Trade, Land, Housing and the Environment

Montserrat Statistics Department

Dr Dorothea Hazel-Blake - Director of Primary Health Care

Ian Walker, UKOTs Health Improvement Lead, Office for Health Improvement and Disparities, Department of Health and Social Care (UK Government)

Sarah Williams, Tobacco Control Programme Manager, Office for Health Improvement and Disparities, Department of Health and Social Care (UK Government)

Dr Miguel Angel Garcia Martin, University of Malaga

Without whose cooperation, support, advice and hard work, this survey would not have been possible.

Bibliography

1. Australian Bureau of Statistics sample size calculator. Available from <https://www.abs.gov.au/websitedbs/d3310114.nsf/home/sample+size+calculator>
2. Intercensal Count and Labour Force Survey 2018 & Mid Year Population Estimates 2019-2021, Montserrat Statistics Department, Nov 2021.
3. Alcohol use disorders identification test consumption (AUDIT C). Available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/684826/Alcohol_use_disorders_identification_test_for_consumption_AUDIT_C.pdf

4. Generalized Anxiety Disorder 2-item (GAD-2) and Patient Health Questionnaire-2 (PHQ-2). Available from <https://www.hiv.uw.edu/page/mental-health-screening/phq-2>
5. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). Available from <https://www.who.int/publications/i/item/978924159938-2>
6. KoboCollect data collection software and storage. Available from <https://www.kobotoolbox.org/>
7. Intercensal Population Count and Labour Force Survey 2018: Key findings report, Montserrat Statistics Department, 06 Dec 2019.
8. Noncommunicable diseases: Key Facts, World Health Organization. Available from <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>. Accessed 31 March 2022.
9. NCDs at a Glance: Noncommunicable Disease Mortality and Risk Factor prevalence in the Americas, Pan American Health Organization, 2019.
10. Global Burden of Disease - Institute for Health Metrics and Evaluation (IHME). Antigua and Barbuda profile. Seattle, WA: IHME, University of Washington, 2021. Available from <http://www.healthdata.org/antigua-and-barbuda>. Accessed 31 March 2022.
11. Forouzanfar MH. Et al., Global burden of hypertension and systolic blood pressure of at least 110 to 115 mmHg, 1990–2015. *JAMA*. 2017 Jan 10;317(2):165-182. doi:10.1001/jama.2016.19043.
12. World Health Organization. *Depression and other common mental disorders: global health estimates*. World Health Organization, 2017.

Annex A

HH health_MST_2022

***[A1] Surveyor Number**

Enter your surveyor number

***[A2] Date of interview**

Day month year day when you are conducting the interview

***[A3] Household number (GPS point)**

Write the GPS point number you are at.

If the point is not a HH move to the nearest household.

***[A4] Village name**

Name of village in which you are conducting the interview

- Baker Hill
- Banks
- Barzeys
- Brades
- Carrs Bay
- Cassava Ghaut
- Cassava House

***[A5] Confirm the respondent, or at least one adult in the HH, complies with the definition of 'eligible'**

- yes
- no

***[A6] Person Consent: Does the person give their consent to capture their details in this form?**

- yes
- no

*[A7] Including you, how many people normally live in your household (those usually resident for at least 6 months of the year)?

make sure you ALSO count the respondent and ALL children, regardless of age

*[A8] How many of those people are aged 18 years or older

make sure you ALSO count the respondent

Instruction

You will now ask each individual the survey questions.

▼ Questionnaire


1

*[B1] Household member number

This is the number of each member of the HH who you interview sequentially (1, 2, 3 etc)

*[B2] What is your date of birth?

If the person does not say the name of the month but only the number, confirm the NAME of the month. PLEASE ENTER THIS CAREFULLY!

*[B3] What was your sex at birth?

- male
 female

*[B4] In which country were you born?

Even if the person is has a different nationality, write the the country in which they were born.

Explain that you will now ask the respondent about their health and wellbeing

*[C1] Has a nurse or doctor told you that you are suffering from any of these conditions?

Read the list of options and select ALL that apply, or none. Confirm this is a MEDICAL diagnosis

- diabetes
 cancer (any type and in any part of the body)
 high blood pressure/hypertension
 cardiac problems
 stroke
 kidney disease
 lung disease
 none of these

*[C2] Thinking about the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge?

- not at all
 several days
 more than half the days
 nearly everyday

***[C3] not being able to stop, or to control worrying?**

remind respondent they are thinking about the last 2 weeks

- not at all
- several days
- more than half the days
- nearly everyday

***[C4] Thinking again about the last 2 weeks, how often have you been bothered by having little interest or pleasure in doing things?**

- not at all
- several days
- more than half the days
- nearly everyday

***[C5] feeling down, depressed or hopeless?**

remind respondent they are thinking about the last 2 weeks

- not at all
- several days
- more than half the days
- nearly everyday

Explain that you will now ask the respondent about their alcohol consumption

***[D1] how often do you have a drink containing alcohol?**

Explain that this means shop bought AND homemade alcohol eg. beer, Caribe, bush-rum and mixed drinks like Malibu and pineapple. Read them the categories.

- never
- monthly or less
- 2-4 times a month
- 2-4 times a week
- 4 or more times a week

***[D2] How many drinks containing alcohol do you have on a typical day when you are drinking?**

- 1 or 2
- 3 or 4
- 5 or 6
- 7 to 9
- 10 or more

***[D3] How often do you have six or more drinks on one occasion?**

- never
- less than monthly
- monthly
- weekly
- daily or almost daily

***[E1] Have you ever regularly smoked tobacco products of any kind?**

Explain that means as a cigarette, cigar, pipe etc. "Regular" means smoked at least once a week during any period of their life.

- yes
- no

***[E2] On how many of the last seven days did you smoke any tobacco products?**

2

***[E3] Do you live or work with people who smoke inside the home or the workplace?**

This is about understanding exposure to 2nd hand smoke, select yes ONLY if the other smoking is done INSIDE inside the home or workplace

- yes
- no

***[E4] In the last 12 months how often have you used marijuana in ANY form?**

Remind respondent that all info is confidential and anonymous. Read the list of options and select ALL that apply.

- I have never used cannabis
- I have used cannabis, but not in the past 12 months
- less than once a month
- once a month
- once a week
- daily
- prefer not to say

***[E5] By which of the following methods did you use marijuana?**

Read the list of options and select ALL that apply.

- smoked it without tobacco
- smoked it with tobacco
- consumed it in food or drinks
- some other way
- prefer not to say

Thank the respondent(s) for their time.

***Please take the GPS point of household**

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)



search for place or address

