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Socioeconomic Inequalities, Health Insurance and Functional Difficulty among Jamaican Adults: Evidence from the 2023 Jamaica Survey of Living Conditions

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Abstract

Socioeconomic disadvantage is widely associated with poorer health. Yet comparatively little contemporary evidence has examined whether household economic position and health-insurance coverage independently predict functional difficulty among Jamaican adults after demographic and social differences are considered. This study used cross-sectional secondary data from the 2023 Jamaica Survey of Living Conditions (JSLC) to examine functional health among 3,312 adults aged 18 years and older, with descriptive statistics, Pearson's chi-square tests, Cramer's V and multivariable binary logistic regression employed to assess socioeconomic, demographic and insurance-related differences. Functional difficulty was reported by 21.9% of respondents, 79.2% were uninsured; insurance coverage displayed a pronounced socioeconomic gradient, increasing from 9.6% among adults in Quintiles 1-2 to 31.4% among those in Quintiles 4-5, $\chi^2(2) = 198.108, p < .001$, Cramer's V = .245, whereas functional health was not significantly associated with socioeconomic group at the bivariate level, $\chi^2(6) = 6.697, p = .350$. The adjusted logistic model was statistically significant, $\chi^2(13) = 686.541, p < .001$, Nagelkerke $R^2 = .290$, and identified age, sex, education and single union status as independent predictors; socioeconomic group and health insurance were not independently associated with functional difficulty. These findings suggest that functional-health inequality in contemporary Jamaica cannot be reduced to current household economic position or insurance status alone and instead reflects a life-course structure in which ageing, female disadvantage and educational stratification appear especially important, with implications for disability prevention, healthy ageing and socially differentiated health policy.

Keywords: Jamaica Survey of Living Conditions; functional health; socioeconomic inequality; health insurance; education; ageing; sex differences; Jamaica.

Introduction

Health inequality remains a major public-health concern because the capacity to live without disabling functional limitations is distributed unevenly across social, demographic and economic groups. The World Health Organization estimates that approximately 1.3 billion people experience significant disability globally and emphasises that poverty, exclusion from education and employment, adverse living conditions and barriers to healthcare contribute to unequal functional-health outcomes (World Health Organization [WHO], 2023). Functional health is particularly important because it captures people's ability to perform ordinary activities rather than merely determining whether they have received a medical diagnosis or recently experienced illness. This distinction becomes increasingly significant as populations age and non-communicable diseases accumulate, potentially producing limitations in mobility, vision, hearing and cognition even when respondents do not identify themselves as recently ill. Functional difficulty provides a useful outcome for investigating how social determinants become embodied as restrictions on everyday life.

Socioeconomic position is conventionally expected to influence health through material resources, education, employment, living conditions, health-related knowledge and access to healthcare. Fundamental Cause Theory proposes that people with greater socioeconomic resources can more readily deploy money, knowledge, social connections and other flexible resources to avoid disease or minimise its consequences, thereby allowing inequalities to persist even when diseases and medical technologies change (Link & Phelan, 1995). International evidence broadly supports socioeconomic gradients in functional health, including research showing that education, occupation and income represent distinct life-course contributors to inequalities in functional limitations (Kok et al., 2016). Research among older populations likewise demonstrates socioeconomic differences in self-rated health, chronic disease and functional limitation, although the strength and mechanisms of these inequalities vary across settings (Lima-Costa et al., 2012; Shang et al., 2023). These observations suggest that a multidimensional assessment of socioeconomic position is preferable to assuming that household economic standing alone captures all socially structured health disadvantage.

Jamaica presents a particularly important setting in which to examine these relationships because its population experiences substantial chronic non-communicable disease burdens alongside longstanding social and economic inequalities. Earlier Jamaican research demonstrated that the determinants of health were not identical among poor and wealthy men, suggesting that socioeconomic position can condition the social processes associated with health rather than operating solely as a uniform linear predictor (Bourne & Eldemire-Shearer, 2010). Other Jamaican studies have identified age, sex, education, area of residence and economic circumstances as important correlates of self-rated health and chronic disease, also demonstrating that the significance of these variables varies across population subgroups (Bourne, 2009; Bourne et al., 2009). The question remains whether contemporary socioeconomic differences remain independently associated with functional difficulty when life-course and demographic characteristics are simultaneously considered.

The JSLC offers an appropriate empirical foundation for addressing this question because it is a longstanding collaborative survey conducted by the Statistical Institute of Jamaica and Planning Institute of Jamaica to assess Jamaicans' economic and social living conditions and inform public policy. Previous JSLC-based research has generally concentrated on self-rated health, illness, diagnosed disease, healthcare utilisation or particular population groups, rather than positioning functional difficulty as the primary outcome in a contemporary adult socioeconomic analysis. The 2023 dataset permits the simultaneous examination of household socioeconomic position, educational attainment, health insurance, union status, household headship, sex, age and geographic residence alongside health indicators. This breadth creates an opportunity to separate economic position from other dimensions of social stratification rather than assuming that poverty, education and healthcare access represent interchangeable constructs. The present study evaluates whether socioeconomic position and health insurance independently predict functional difficulty among Jamaican adults and compares their contributions with those of age, sex, education and other social characteristics.

Literature Review

Socioeconomic Position and Health in Jamaica

Earlier Jamaican scholarship provides substantial evidence that health is socially patterned, although findings do not support an invariant relationship between income and every health outcome. Bourne and Eldemire-Shearer (2010), for example, directly compared social determinants of health among men in poor and wealthy Jamaican socioeconomic strata and demonstrated that the predictors of health differed between the two populations. This work is important because it suggests that socioeconomic groups may differ not merely in average health but also in the mechanisms through which health is produced. Research among Jamaican women similarly found geographical and socioeconomic variation in health status, with rural women displaying disadvantages that could not be understood independently of their social circumstances (Bourne et al., 2009). Collectively, these studies established that socioeconomic context matters in Jamaica, leaving open the question of whether current per capita economic quintile independently predicts contemporary functional difficulty.

A life-course perspective has also featured prominently in Jamaican health research. Bourne (2009) argued that health status varies over the life course and is shaped by combinations of age, socioeconomic and other social characteristics rather than by a single determinant operating independently. Research among Jamaicans with self-reported chronic disease similarly identified age and other contextual characteristics as important predictors of poor health status, illustrating how chronic morbidity and functional consequences become increasingly important as populations age. This perspective is particularly relevant to functional difficulty because impairments in mobility, cognition and sensory functioning frequently accumulate with advancing age. The contemporary JSLC provides an opportunity to determine whether the apparent influence of socioeconomic position remains once age is measured directly and incorporated into a multivariable model.

Educational attainment deserves separate consideration because education may capture dimensions of accumulated socioeconomic advantage not reflected in current household consumption. Education influences employment possibilities, health literacy, occupational conditions, income trajectories and the capacity to interpret and act upon health information, making it both a socioeconomic resource and a life-course exposure. In the present analytical framework, education is not treated simply as a substitute for household wealth but as a potentially independent predictor of functional health. This distinction is supported by international longitudinal research demonstrating that education, occupation and income make different contributions to socioeconomic inequalities in functional limitations over time (Kok et al., 2016). It also provides a plausible explanation for why educational attainment may remain significant in adjusted Jamaican models even when contemporaneous socioeconomic quintile does not.

Health Insurance and Economic Inequality

Health insurance represents another potentially important dimension of social inequality because it can influence the affordability, timeliness and continuity of healthcare. Jamaican research has previously shown substantial socioeconomic differentiation in patterns of healthcare access and utilisation; the current JSLC-based evidence demonstrates that insurance remains unevenly distributed across economic strata. In the present data, only 9.6% of adults in the lower two socioeconomic quintiles were insured compared with 31.4% of those in Quintiles 4 and 5, yielding a statistically significant association with a moderate effect size. This pattern indicates that wealthier Jamaicans possess substantially greater access to insurance-based financial protection even though insurance itself did not independently predict functional difficulty after adjustment. The distinction is analytically important because unequal access to a healthcare resource does not necessarily imply an immediate cross-sectional association between possession of that resource and existing functional limitations.

The absence of an independent insurance effect should also be interpreted in light of selection and timing. Health insurance may improve access to diagnosis and treatment without reversing functional limitations that developed over many years; people with existing health needs may also be more motivated to obtain insurance where coverage is available. In addition, Jamaica maintains a public healthcare system, meaning that lack of private insurance does not equate automatically to complete absence of healthcare access, although differences in waiting times, convenience, specialist access and out-of-pocket expenditures may remain important. The Ministry of Health and Wellness has responsibility for overseeing Jamaica's public health system and promoting access to healthcare across the population. The relationship between insurance and functional health should be conceptualised as part of a wider health-system pathway rather than interpreted as a simple insured-versus-uninsured causal contrast.

Functional Health, Age and Sex in the Caribbean

Regional research strongly supports the importance of age and sex in understanding functional health. Zunzunegui et al. (2009) examined adults aged 60 years and older across seven Latin American and Caribbean cities and found that women displayed poorer outcomes than men

across multiple measures, including mobility limitations, cognitive impairment and activities-of-daily-living disability. Women retained substantial disadvantages after adjustment for childhood poverty, adult education and occupation, and later-life income, indicating that socioeconomic exposures alone did not fully explain sex differences. The present Jamaican finding that males had substantially lower adjusted odds of functional difficulty is consistent with a broader regional pattern rather than representing an isolated national observation. Such consistency suggests that biological ageing, gendered life-course exposures, occupational histories, caregiving burdens and differential survival may collectively contribute to women's greater functional-health burden.

Alvarado et al. (2007) similarly examined lower-extremity function among older people in Latin American and Caribbean cities and found substantially higher prevalence of lower-extremity limitation among women than men. Their analysis further demonstrated that limited education and insufficient income were associated with lower-extremity limitations in both sexes, reinforcing the relevance of socioeconomic experiences across the life course. The investigators concluded that measured life-course factors explained only part of the gender difference, indicating that sex inequalities in function cannot be reduced to income alone. This finding closely parallels the current Jamaican evidence in which sex and education remained significant after adjustment, whereas contemporaneous socioeconomic group did not. The comparison strengthens the interpretation that functional health may embody cumulative social exposures that a single current economic measure cannot capture adequately.

Ageing is equally important because functional limitations increase as physiological reserve declines and chronic conditions accumulate. Research on chronic disease and functional limitation among older adults in Latin America and the Caribbean has documented strong relationships between non-communicable disease and disability, underscoring the importance of functional assessment in ageing populations (Menéndez et al., 2005). PAHO has also highlighted increasing long-term-care needs in the Americas as populations age and severe functional limitations become more prevalent. These regional developments are particularly relevant to Jamaica because 29.3% of the adult analytical sample was aged 60 years or older. An analysis of socioeconomic inequality that fails to control carefully for age could attribute age-related functional decline incorrectly to economic position.

International Evidence

Evidence from outside the Caribbean generally supports a socioeconomic gradient in functional health, but it also demonstrates that different dimensions of socioeconomic position need not produce identical statistical relationships. A longitudinal study found that education, occupation and income each contributed differently to inequalities in functional limitations over 16 years, emphasising that socioeconomic position is multidimensional (Kok et al., 2016). Brazilian research has documented socioeconomic inequalities across self-rated health, functional limitation and chronic-disease measures among older adults (Lima-Costa et al., 2012). More recent international research continues to identify socioeconomic differences in functional limitations, although the size of these differences depends on the health outcome and socioeconomic indicator selected (Shang et al., 2023). The Jamaican findings should not be

regarded as contradicting the social-determinants literature merely because household socioeconomic group becomes non-significant after adjustment.

WHO's contemporary disability framework provides a useful interpretation of this complexity because it conceptualises disability and functional limitation as outcomes of interactions between health conditions and personal, social and environmental circumstances. WHO identifies poverty, exclusion from education and employment, poor living conditions and health-system barriers as contributors to health inequity among people living with disability, also recognising age and sex as important dimensions of heterogeneity (WHO, 2023). This multidimensional model predicts that socioeconomic position may act through education, work histories, accumulated disease, healthcare access and environmental conditions rather than necessarily retaining a large independent coefficient after these pathways are statistically controlled. The present study's combination of economic quintile, insurance, education, demographic characteristics and functional health is consistent with contemporary international approaches to health equity. It also allows the Jamaican evidence to contribute to broader debates regarding which socioeconomic indicators are most consequential for functional independence.

Theoretical Framework

The study is principally informed by the Social Determinants of Health framework and Fundamental Cause Theory. The Social Determinants of Health perspective proposes that health is generated within social and economic conditions that shape exposure to risks, access to protective resources and opportunities to maintain health across the life course (Commission on Social Determinants of Health, 2008; Solar & Irwin, 2010). Fundamental Cause Theory adds that socioeconomic advantage provides flexible resources that can be deployed to avoid health threats or minimise their consequences even as diseases and interventions change (Link & Phelan, 1995). Applied to functional difficulty, these perspectives suggest that household economic position may influence functioning through education, occupation, living conditions, healthcare access, prevention and accumulated chronic-disease exposure rather than only through a direct current-income effect. The theoretical expectation is not that every socioeconomic variable must remain independently significant, but that socially structured resources jointly shape the pathways through which functional advantage and disadvantage accumulate.

A life-course perspective supplements this framework by recognising that contemporary functional ability represents the cumulative product of exposures occurring over many years. Age is particularly important because the biological and disease processes associated with functional limitation accumulate over time; education is usually established earlier in adulthood and can influence subsequent occupational and material trajectories. Sex may similarly embody both biological differences and gendered social experiences that accumulate through work, caregiving, reproductive histories, health behaviour and differential exposure to social stressors. Regional research showing persistent female disadvantages in functional health after adjustment for socioeconomic conditions strongly supports this life-course interpretation (Alvarado et al., 2007; Zunzunegui et al., 2009). Accordingly, current economic quintile is conceptualised as one component of a broader trajectory of advantage or disadvantage rather than as a complete measure of lifetime socioeconomic circumstances.

Conceptual Framework

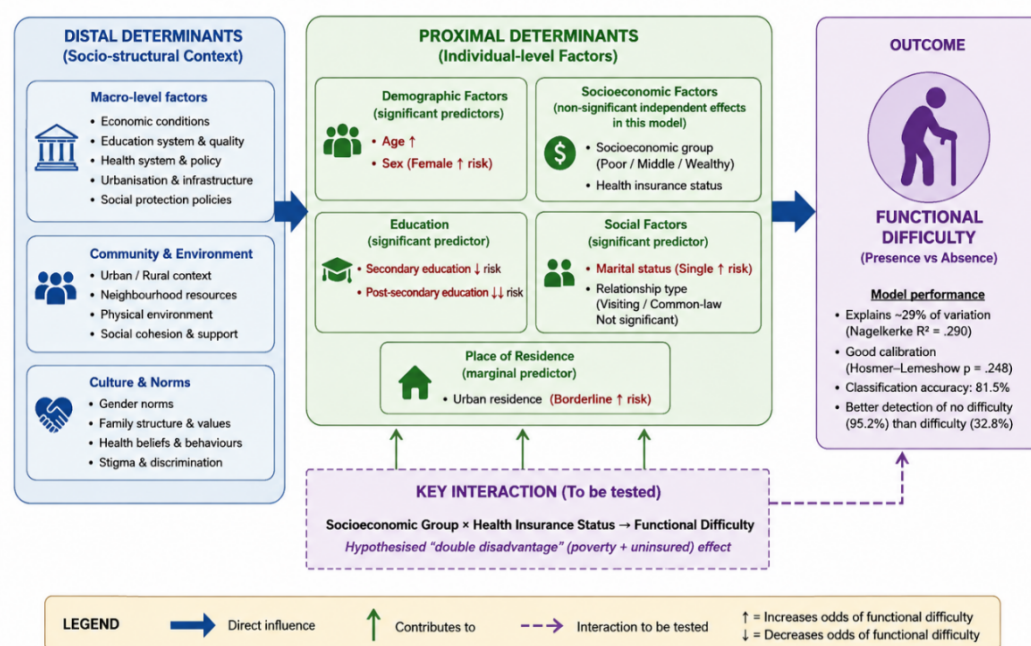
Figure 1 conceptualises functional difficulty among Jamaican adults as the outcome of interconnected structural, socioeconomic, demographic, educational, social and healthcare-related determinants, rather than as a direct consequence of economic status alone. This organisation is consistent with the Social Determinants of Health framework, which distinguishes structural socioeconomic circumstances from intermediary mechanisms through which social position becomes translated into health outcomes (Solar & Irwin, 2010). At the structural level, economic conditions, educational opportunities, health-system arrangements, social protection and community environments establish the broader context within which individual-level determinants operate. Socioeconomic position may affect functional health through education, employment, material resources, health insurance, healthcare access and accumulated exposure to health risks, even when socioeconomic quintile does not retain an independent statistical association with functional difficulty. Accordingly, Figure 1 provides a life-course interpretation of functional health in which current economic position represents one component of a much broader process of cumulative social advantage and disadvantage.

The proximal pathways in Figure 1 are strongly supported by the empirical findings, particularly those involving age, sex and educational attainment. Age emerged as the strongest independent predictor, with each additional year increasing the odds of functional difficulty by 6.1%; males had 39.8% lower adjusted odds than females, demonstrating an important female functional-health disadvantage. These findings are consistent with Caribbean and Latin American research demonstrating increasing functional limitation with ageing and persistent female disadvantages in mobility and other dimensions of functioning, even after socioeconomic circumstances are considered (Alvarado et al., 2007; Zunzunegui et al., 2009). Education also demonstrated a pronounced gradient, as secondary and post-secondary education were associated with 44.4% and 58.2% lower adjusted odds of functional difficulty, respectively, supporting international evidence that education represents an enduring life-course socioeconomic resource associated with functional health (Kok et al., 2016). Single adults additionally had 44.1% higher adjusted odds than married adults, whereas visiting and common-law relationships were non-significant, suggesting that social relationships, support structures and health selection may constitute additional pathways through which social circumstances become associated with functional capacity.

Importantly, Figure 1 distinguishes statistically demonstrated direct predictors from socioeconomic and healthcare pathways that remain theoretically important but were not independently significant in the adjusted model. Socioeconomic group was strongly associated with education and especially health insurance, with insurance coverage increasing from 9.6% among poor adults to 31.4% among wealthy adults, yet neither socioeconomic position nor insurance independently predicted functional difficulty after adjustment. This finding does not imply that socioeconomic inequality is unimportant; rather, it supports the proposition that economic circumstances may influence functioning indirectly through education, accumulated material conditions, chronic morbidity, healthcare access and other life-course mechanisms, consistent with contemporary social-determinants theory (Solar & Irwin, 2010). The dashed Socioeconomic Group $\times$ Health Insurance pathway consequently represents an important

untested component of the framework because the existing main-effects model cannot determine whether being both poor and uninsured produces a combined or “double-disadvantage” effect on functional health. Overall, Figure 1 provides an empirically informed conceptual framework in which ageing, female sex and lower educational attainment constitute the clearest direct correlates of functional difficulty, and socioeconomic position, insurance, social relationships and residential context form a broader network of structural and intermediary influences operating across the life course.

Figure 1. Conceptual Framework: Socio-demographic, Socioeconomic and Social Determinants of Functional Difficulty among Adults



Note. The framework is informed by the results of the binary logistic regression model in Table 9 and the broader literature on social determinants of health and functioning.

Methods

Study Design and Data Source

This study employed a quantitative, cross-sectional analytical secondary-data design using the 2023 Jamaica Survey of Living Conditions (Planning Institute of Jamaica [PIOJ] & Statistical Institute of Jamaica [STATIN], 2024). The JSLC is a collaborative national survey undertaken by the Statistical Institute of Jamaica and the Planning Institute of Jamaica and has been used since 1988 to assess Jamaicans' living conditions and support social and economic policy development, with the dataset being available from SALISES Documentation and Data Centre. (2026). The underlying 2023 dataset contained 4,442 respondents distributed across socioeconomic and geographic groups, with enumeration districts serving as primary sampling units and households selected through systematic probability procedures. For the present investigation, the analytical population was restricted to respondents aged 18 years and older, producing an adult sample of 3,312 individuals. The cross-sectional design permits estimation of associations and population differences but does not establish temporal sequence or causation.

Study Population

Adults were operationally defined as respondents aged 18 years or older at the time of the survey. The analytical sample comprised 1,578 males (47.6%) and 1,734 females (52.4%); the largest age category consisted of adults aged 25-44 years at 32.5%. Adults aged 45-59 years represented 25.6%, those aged 60-74 years accounted for 20.9%, those aged 75 years and older constituted 8.4%, and adults aged 18-24 years comprised 12.5%. The sample was sufficiently heterogeneous to examine functional health across adulthood, containing a sizeable older population in whom functional limitations would be expected to occur more frequently. Thirty-four cases lacked valid educational information, resulting in 3,278 complete cases in the multivariable regression.

Outcome Variable

The primary outcome was binary functional difficulty, derived from the JSLC functional-health information. The original severity coding was structured as 0 = no difficulty, 1 = some difficulty, 2 = a lot of difficulty, and 3 = cannot do at all, with the descriptive distribution showing 78.1% with no difficulty, 11.4% with some difficulty, 5.3% with a lot of difficulty and 5.1% unable to perform the relevant function. For the logistic regression, the outcome was dichotomised as 0 = no functional difficulty and 1 = any functional difficulty, thereby identifying respondents with at least some limitation. This operationalisation produced 722 respondents with functional difficulty and 2,556 without functional difficulty among the 3,278 complete regression cases. The binary construction was selected to estimate adjusted odds ratios for the presence rather than the severity of functional limitation.

Independent Variables

The principal exposures were socioeconomic position and health-insurance status; demographic and social covariates included age, sex, educational attainment, household headship, union status and area of residence. Socioeconomic position was derived from the JSLC per capita population quintile and classified as poor or lower socioeconomic position for Quintiles 1-2, middle for Quintile 3 and wealthy or higher socioeconomic position for Quintiles 4-5. Educational attainment was classified as primary and below, secondary and post-secondary, consistent with the derived educational measure in the dataset. Union status comprised married, single, visiting and common-law relationships; geographic residence was entered through urban and semi-urban dummy variables, with rural residence serving as the implied reference category. Health insurance was entered as a binary variable coded uninsured versus insured, allowing the analysis to determine whether insurance was independently associated with functional difficulty after demographic and socioeconomic adjustment.

Statistical Analysis

Data were analysed using IBM SPSS Statistics, with frequencies and percentages used to describe demographic, socioeconomic, health and healthcare characteristics. Pearson's chi-square tests evaluated bivariate associations between categorical variables; Cramer's V was used to quantify the magnitude of associations rather than relying exclusively on statistical significance. Binary logistic regression using the Enter method estimated adjusted odds ratios, 95% confidence

intervals, Wald statistics and p -values for functional difficulty, controlling simultaneously for the selected explanatory variables. Model performance was assessed using the omnibus likelihood-ratio test, $-2 \log$ likelihood, Cox and Snell R^2 , Nagelkerke R^2 , Hosmer-Lemeshow goodness-of-fit test and classification accuracy, consistent with the analytical approach documented for related JSLC work. Statistical significance was established at $p < .05$, although substantive interpretation also considered effect sizes, confidence intervals and theoretical plausibility.

Ethical Considerations

The study involved secondary analysis of an anonymised national survey dataset and required no direct interaction with respondents. The source analytical documentation indicates that identifying information was excluded and that the data were used for academic research under applicable data-access conditions. Analyses were undertaken with attention to confidentiality, responsible data stewardship and accurate representation of the original survey measures. Because respondents were not re-contacted and no new data were collected, the present investigation introduced no additional participant burden. Findings are reported in aggregate form so that individual survey participants cannot be identified.

Findings

Sociodemographic Characteristics

Table 1 presents the sociodemographic characteristics of the 3,312 Jamaican adults aged 18 years and older included in the analytical sample from the 2023 JSLC. Females constituted a modest majority of respondents, accounting for 52.4% ($n = 1,734$), compared with 47.6% ($n = 1,578$) who were males. The age distribution demonstrates that young adults aged 25-44 years represented the largest age group at 32.5%, followed by middle-aged adults aged 45-59 years at 25.6%. Adults aged 60-74 years represented a further 20.9%; those aged 75 years and older constituted 8.4% of the sample. Approximately 29.3% of the sample was aged 60 years or older, an important consideration for subsequent analyses because functional limitations are likely to be strongly patterned by age.

Union status was characterised by substantial heterogeneity, although almost one-half of respondents were classified as single (49.1%, $n = 1,626$). Married adults accounted for 21.0% of the sample, 17.9% were in visiting relationships, and 11.9% were living in common-law unions. Taken together, married, common-law, and visiting relationships represented 50.8% of respondents, indicating an almost even distribution between single adults and those reporting one of the three specified partnership arrangements. Household responsibility was similarly balanced, although a slight majority of respondents were heads of household (51.9%) compared with 48.1% who were not household heads. These characteristics are potentially important to the proposed functional-health analysis because union status and household headship may capture differences in social support, household responsibilities and access to socioeconomic resources.

Educational attainment was particularly concentrated at the post-secondary level, with 74.4% of the 3,278 respondents with valid educational information classified as having post-secondary education, compared with 21.3% with secondary education and only 4.3% with primary

education or below. Educational information was missing for only 34 respondents, representing 1.0% of the overall analytical sample, and missingness for this variable was relatively limited. The high proportion classified as post-secondary educated warrants careful examination of how the JSLC-derived educational variable was constructed before multivariable analysis, particularly because this distribution may reflect the coding or aggregation of educational qualifications rather than conventional tertiary education alone. More broadly, Table 1 establishes a heterogeneous adult population across age, sex, union status and household headship, showing substantially less dispersion in the derived educational classification. These sociodemographic characteristics should be incorporated into subsequent analyses of socioeconomic position, health-insurance coverage and functional difficulty, particularly when determining whether the proposed double disadvantage of lower socioeconomic position and being uninsured persists after adjustment for demographic and social differences.

The distribution of socioeconomic position among the 3,312 Jamaican adults revealed that the largest proportion was classified as wealthy (Quintiles 4 and 5), accounting for 44.8% ($n = 1,485$) of the analytical sample. In comparison, 36.1% ($n = 1,197$) were classified as poor (Quintiles 1 and 2), the remaining 19.0% ($n = 630$) occupied the middle socioeconomic group (Quintile 3). the wealthy group exceeded the poor group by 8.7 percentage points, indicating that adults from the upper two per capita population quintiles were more highly represented in the sample than those from the lowest two quintiles. Nevertheless, more than one-third of respondents belonged to the poor socioeconomic group, providing a substantial analytical population for examining whether socioeconomic disadvantage is associated with functional-health difficulties and whether the relationship is compounded by lack of health insurance. The distribution provides adequate representation across the socioeconomic spectrum for subsequent comparisons of functional health among poor, middle and wealthy Jamaicans, permitting focused contrasts between the lowest and highest socioeconomic groups.

Table 1: Sociodemographic Characteristics of Jamaican Adults Aged 18 Years and Older, JSLC 2023

Characteristics	Category	Frequency (n)	Per cent (%)
Sex	Male	1,578	47.6
	Female	1,734	52.4
	Total	3,312	100.0
Union status	Married	697	21.0
	Common-law	395	11.9
	Visiting	594	17.9
	Single	1,626	49.1
	Total	3,312	100.0
Educational level	Primary and below	141	4.3
	Secondary	698	21.3
	Post-secondary	2,439	74.4
	Valid total	3,278	100.0
Head of household	No	1,593	48.1
	Yes	1,719	51.9

	Total	3,312	100.0
Age cohort	Youth: 18-24 years ¹	415	12.5
	Young adults: 25-44 years	1,078	32.5
	Middle age: 45-59 years	849	25.6
	Elderly: 60-74 years	691	20.9
	Senior: ≥75 years	279	8.4
	Total	3,312	100.0
SocioeconomicGroup			
	Poor (Quintiles 1 & 2)	1197	36.1
	Middle (Quintile 3)	630	19.0
	Wealthy (Quintiles 4 & 5)	1485	44.8
	Total	3312	100.0

Note. $N = 3,312$ adults aged ≥ 18 years. Percentages for educational attainment are valid percentages because 34 respondents (1.0%) had missing educational data. Head-of-household values were recoded for presentation as 0 = No and 1 = Yes. ¹The original variable labels this category as 15-24 years; however, because the dataset was filtered to $\text{AGEYRS} \geq 18$, the observed category in this analytical sample represents respondents aged **18-24 years**. Percentages may not sum to exactly 100.0 because of rounding. Source: 2023 Jamaica Survey of Living Conditions (JSLC) Dataset.

Health Status, Morbidity, Healthcare Utilisation, Insurance and Functional Health

Table 2 demonstrates that injury requiring medical attention was relatively uncommon among Jamaican adults in the analytical sample, with only 1.0% ($n = 33$) reporting such an incident compared with 99.0% who did not. This indicates that medically consequential injuries represented a relatively small component of reported health problems during the applicable JSLC reference period. The low prevalence should nevertheless not be interpreted as evidence that injuries are unimportant at the population level, since the measure specifically captures incidents that met the survey's criterion of requiring medical attention. Furthermore, individuals experiencing injuries without seeking formal medical care may not necessarily be represented by this measure. Injury should be regarded as a distinct health indicator rather than a comprehensive measure of morbidity.

Reported illness other than injury was also uncommon according to the applicable JSLC morbidity question, with 95.7% ($n = 3,169$) reporting no illness. Other illness was reported by 2.2%, chronic illness by 2.0%, and both chronic and other illness by 0.1% of respondents. Taken together, 4.3% of adults reported some form of illness under this survey question. This figure should be distinguished carefully from the prevalence of diagnosed chronic conditions presented subsequently because the two sets of variables appear to capture different concepts or reference periods. An individual may have an established diagnosis of hypertension or diabetes without necessarily reporting an illness episode under the more immediate morbidity question.

The findings illustrate the importance of employing multiple measures of health rather than equating recent illness reporting with underlying health status. A population may display a low prevalence of recent illness simultaneously containing substantial numbers of adults living with established chronic diseases or functional limitations. This distinction is particularly important

for the proposed socioeconomic study because wealth and insurance may influence disease diagnosis, healthcare contact and illness recognition as well as underlying health. Subsequent analyses should examine recent morbidity, diagnosed chronic disease and functional health as conceptually distinct outcomes rather than combining them indiscriminately. Such an approach may reveal whether socioeconomic disadvantage is more strongly associated with functional impairment than with the reporting or diagnosis of illness.

Table 2: Injury and Recent Morbidity among Jamaican Adults Aged ≥18 Years, JSLC 2023

Health characteristic	Category	n	%
Injury requiring medical attention	Yes	33	1.0
	No	3,279	99.0
Illness other than injury	Chronic illness	65	2.0
	Other illness	74	2.2
	Both chronic and other illness	4	0.1
	No illness	3,169	95.7
Total		3,312	100.0

Note. Percentages are based on the total analytical sample ($N = 3,312$).

Table 3 reveals substantial variation in the distribution of diagnosed chronic conditions, with hypertension emerging as by far the most frequently reported condition. Approximately 23.0% ($n = 761$) reported a history of hypertension, including 3.8% reporting it within the last 12 months and 19.2% reporting a diagnosis extending beyond the preceding 12 months. Diabetes was the second most prevalent condition at 9.7% ($n = 320$), followed by arthritis at approximately 7.0% ($n = 231$) and asthma at approximately 5.8% ($n = 191$). Heart disease was reported by approximately 1.9%, cancer, sickle cell disease and the identified mental-health conditions occurred at considerably lower frequencies. The distribution consequently indicates that cardiovascular and metabolic conditions constitute particularly prominent components of diagnosed morbidity within this adult sample.

The temporal categories provide additional insight because, for most conditions, substantially more respondents reported diagnoses dating from more than 12 months ago than diagnoses occurring within the preceding year. For hypertension, for example, 19.2% reported the condition from more than 12 months previously compared with 3.8% during the last 12 months; the corresponding figures for diabetes were 8.0% and 1.7%. This pattern is consistent with the enduring nature of chronic non-communicable diseases, although the cross-sectional data cannot establish disease duration beyond the categories supplied by the JSLC. Relatively low reported frequencies were observed for COPD, dementia, epilepsy, kidney disease and depression, but these estimates should not automatically be interpreted as the underlying population prevalence of these conditions. Diagnosis-dependent measures may be influenced by healthcare access, screening, awareness and respondents' knowledge of their medical conditions.

These disease frequencies are particularly relevant to the socioeconomic-health study because they raise the possibility of a **diagnosis-access paradox**. Wealthier or insured adults could potentially have greater contact with healthcare professionals and greater opportunities for hypertension, diabetes, cancer or other conditions to be formally detected, whereas economically

disadvantaged or uninsured adults may experience illness or functional limitations without equivalent diagnostic recognition. A finding of similar or even greater diagnosed morbidity among wealthier respondents would not necessarily demonstrate that poorer adults possess better underlying health. Comparing chronic disease history with the functional-health measure can help distinguish **diagnosed morbidity from experienced functional impairment**, thereby strengthening the interpretation of socioeconomic inequalities. Subsequent analyses should determine whether chronic disease prevalence and functional difficulty display similar or contrasting gradients across socioeconomic and insurance groups.

Table 3: Distribution of Selected Diagnosed Chronic Conditions among Jamaican Adults Aged ≥18 Years, JSLC 2023

Chronic condition	Within last 12 months n (%)	More than 12 months ago n (%)	Combined reported history n (%)¹	No n (%)
Hypertension	125 (3.8)	636 (19.2)	761 (23.0)	2,549 (77.0)
Diabetes	55 (1.7)	265 (8.0)	320 (9.7)	2,990 (90.3)
Arthritis	54 (1.6)	177 (5.3)	231 (7.0)	3,076 (92.9)
Asthma	31 (0.9)	160 (4.8)	191 (5.8)	3,116 (94.1)
Other specified disease ²	16 (0.5)	39 (1.2)	55 (1.7)	3,252 (98.2)
Other mental disorder	8 (0.2)	45 (1.4)	53 (1.6)	3,257 (98.3)
Cancer	3 (0.1)	35 (1.1)	38 (1.1)	3,272 (98.8)
Sickle cell disease	3 (0.1)	30 (0.9)	33 (1.0)	3,277 (98.9)
Depression	12 (0.4)	17 (0.5)	29 (0.9)	3,280 (99.0)
Heart disease	10 (0.3)	53 (1.6)	63 (1.9)	3,247 (98.0)
Kidney disease	4 (0.1)	17 (0.5)	21 (0.6)	3,287 (99.2)
Dementia	5 (0.2)	15 (0.5)	20 (0.6)	3,291 (99.4)
Epilepsy	5 (0.2)	15 (0.5)	20 (0.6)	3,291 (99.4)
COPD	2 (0.1)	11 (0.3)	13 (0.4)	3,298 (99.6)

Note. $N = 3,312$. ¹Combined reported history was calculated by summing the categories “Yes, in the last 12 months” and “Yes, more than the last 12 months”; percentages may differ by 0.1 percentage point from the sum because of rounding. “Don't know” and “No response” categories are not displayed because of their very small frequencies. ²The original SPSS output did not provide a disease name for this variable; its JSLC variable label should be verified before publication. Conditions are not mutually exclusive, so percentages should not be summed across rows.

Among the 160 respondents for whom the healthcare-utilisation question was applicable and valid, 66.9% ($n = 107$) reported visiting a doctor, nurse, pharmacist or other specified healthcare practitioner, whereas 33.1% ($n = 53$) did not. These percentages should not be interpreted as indicating that 66.9% of all 3,312 adults utilised healthcare because 95.2% of the complete sample had system-missing values for this conditional question. The appropriate denominator for this descriptive result is the 160 valid respondents rather than the total adult sample. The pattern nevertheless indicates that approximately two-thirds of respondents reaching this stage of the

health questionnaire sought professional healthcare. Before using this variable in regression modelling, the survey's skip logic should be examined to determine precisely which respondents were eligible to answer the question.

Among the 76 respondents with valid information concerning the place of their last healthcare visit, doctor's offices represented the most frequently reported location, accounting for 52.6% ($n = 40$). Public health centres accounted for a further 31.6% ($n = 24$), and private health centres represented 9.2% ($n = 7$). The remaining respondents reported UWI (5.3%, $n = 4$) or a private hospital (1.3%, $n = 1$), although the extremely small numbers in these categories require considerable interpretive caution. Taken together, doctors' offices and private health centres accounted for 61.8% of valid responses, although a doctor's office should not automatically be assumed to represent private care unless the JSLC documentation establishes this classification. The distribution nevertheless demonstrates diversity in healthcare settings among those for whom the location question was applicable.

Healthcare utilisation may constitute an important mechanism connecting socioeconomic circumstances to observed health outcomes, but the conditional structure of these variables creates an important methodological challenge. In particular, respondents who were not recently ill or injured may never have been asked the utilisation questions, meaning that system-missing observations may represent **structural missingness rather than ordinary missing data**. Treating all 3,152 system-missing cases as people who did not seek healthcare would produce a serious classification error. For the proposed socioeconomic study, these healthcare variables should consequently be analysed within their appropriate eligible subsamples and used primarily as secondary outcomes or explanatory indicators after the questionnaire routing has been verified. This approach will prevent the study from confusing healthcare need, healthcare-seeking behaviour and questionnaire eligibility.

Table 4: Healthcare Utilisation and Place of Last Healthcare Visit among Jamaican Adults Aged ≥ 18 Years, JSLC 2023

Healthcare characteristic	Category	n	Valid %
Visited doctor, nurse, pharmacist or other practitioner	Yes	107	66.9
	No	53	33.1
	Valid cases	160	100.0
Place of last healthcare visit	Doctor's office	40	52.6
	Public health centre	24	31.6
	Private health centre	7	9.2
	UWI	4	5.3
	Private hospital	1	1.3
	Valid cases	76	100.0

Note. The healthcare-utilisation variables are conditional items and should **not** be interpreted using $N = 3,312$ as their denominator. Only 160 respondents had valid information on whether they visited a healthcare provider, and only 76 had valid information concerning the location of their last healthcare visit. Valid percentages are reported. The precise JSLC skip patterns should be verified from the questionnaire before inferential analysis.

Table 5 identifies a pronounced imbalance in health-insurance coverage, with 79.2% ($n = 2,622$) of Jamaican adults classified as uninsured compared with only 20.8% ($n = 690$) who reported health-insurance coverage. Thus, almost four out of every five respondents in the analytical sample lacked health insurance according to the constructed measure. This distribution is especially important for the proposed study because insurance status represents one of the two central socioeconomic exposures underlying the hypothesised double-disadvantage mechanism. The large uninsured group also provides sufficient cases for examining whether functional-health patterns differ between insured and uninsured adults across socioeconomic strata. However, descriptive insurance coverage alone cannot establish whether insurance protects health because insurance acquisition may itself vary systematically according to age, employment, income, existing morbidity and anticipated healthcare needs.

Functional-health status demonstrates a different pattern, with 78.1% ($n = 2,588$) reporting no difficulty and 21.9% reporting at least some degree of functional difficulty. Specifically, 11.4% ($n = 378$) experienced some difficulty, 5.3% ($n = 176$) experienced a lot of difficulty and 5.1% ($n = 170$) were classified as unable to perform the relevant function at all. , almost one in ten adults (10.4%) occupied the two most severe functional-health categories of either experiencing a lot of difficulty or being unable to perform the function. The presence of a sizeable minority experiencing functional limitation demonstrates why functional health provides information that is not captured adequately by the recent-illness variable, under which only 4.3% reported an illness. Functional difficulty may offer a broader indication of health-related limitation than recent illness reporting alone.

Most importantly, the combination of the insurance and functional-health distributions establishes the empirical basis for testing the proposed **double-disadvantage hypothesis**. The next stage should cross-classify the previously constructed socioeconomic groups—poor (Quintiles 1-2), middle (Quintile 3) and wealthy (Quintiles 4-5)—against health-insurance status and functional health to determine whether limitations are disproportionately concentrated among socioeconomically disadvantaged uninsured adults. Age must be controlled particularly carefully because the earlier Table 1 showed that **29.3% of the sample was aged 60 years or older**, and functional difficulty is expected to increase substantially with ageing. Multivariable modelling should subsequently determine whether the relationship between socioeconomic position, insurance status and functional health persists after adjustment for age, sex, education, employment and other theoretically relevant characteristics. If poor uninsured adults exhibit significantly greater functional-health difficulties than wealthy insured adults after these adjustments, the finding would provide direct empirical support for the study's central proposition that socioeconomic and insurance disadvantages may jointly structure functional-health inequalities in Jamaica.

Table 5: Health Insurance Coverage and Functional Health among Jamaican Adults Aged ≥18 Years, JSLC 2023

Health characteristic	Category	n	%
Health insurance	Uninsured	2,622	79.2
	Insured	690	20.8
	Total	3,312	100.0
Functional health	No difficulty	2,588	78.1
	Some difficulty	378	11.4
	A lot of difficulty	176	5.3
	Cannot do at all	170	5.1
	Total	3,312	100.0

Note. $N = 3,312$. Health insurance was coded 0 = uninsured and 1 = insured. Functional health was coded 0 = no difficulty, 1 = some difficulty, 2 = a lot of difficulty and 3 = cannot do at all. The construction of the Functional_Health variable should be explicitly documented in the Methods section, particularly if it represents a derived measure rather than an individual functional domain.

Socioeconomic Differences in Health and Social Characteristics among Jamaican Adults

Table 6 indicates that functional-health status did not differ significantly across socioeconomic groups, $\chi^2(6) = 6.697$, $p = .350$, Cramer's $V = .032$. The proportion reporting no functional difficulty was remarkably similar among poor adults (78.0%), middle-income adults (76.5%) and wealthy adults (78.9%). Severe functional limitation also varied only modestly, with 5.8% of poor adults reporting that they could not perform the relevant function at all compared with 5.6% of middle-income and 4.4% of wealthy adults. Although the poor group displayed slightly higher proportions in the two most severe categories than the wealthy group, the overall differences were not statistically significant, and the effect size was negligible. These findings provide no evidence at the bivariate level that socioeconomic position alone is strongly associated with the present functional-health measure among Jamaican adults.

A markedly different pattern emerged for health-insurance coverage, which was strongly associated with socioeconomic position, $\chi^2(2) = 198.108$, $p < .001$, Cramer's $V = .245$. Only 9.6% of adults in the poor socioeconomic group were insured, compared with 17.1% of those in the middle group and 31.4% of wealthy adults. Correspondingly, 90.4% of poor adults lacked health insurance, compared with 82.9% of middle-income adults and 68.6% of wealthy adults. The 21.8-percentage-point difference in insurance coverage between poor and wealthy adults demonstrates a pronounced socioeconomic gradient in access to this form of financial protection. Among the variables in Table 6, health insurance represents by far the clearest marker of socioeconomic stratification.

Illness status, however, was not significantly associated with socioeconomic position, $\chi^2(2) = 3.075$, $p = .215$, Cramer's $V = .030$. Reported illness affected 3.9% of poor adults, 3.5% of middle-income adults and 5.0% of wealthy adults; more than 95% of each socioeconomic group was classified as not ill. Interestingly, the wealthy group recorded the highest proportion reporting illness despite simultaneously having substantially greater health-insurance coverage,

although the difference was statistically non-significant. This pattern reinforces the distinction between reported illness, healthcare access and underlying health because greater socioeconomic resources may increase opportunities for disease recognition or reporting without necessarily indicating poorer functional health. Taken together, Table 6 suggests that the principal socioeconomic inequality observed at this stage concerns **health-insurance coverage rather than either recent illness or functional-health status**, providing an important foundation for testing whether insurance modifies the relationship between socioeconomic position and functional health in multivariable analysis.

Table 6: Functional Health, Health Insurance and Illness Status by Socioeconomic Group among Jamaican Adults Aged ≥18 Years, JSLC 2023

Health characteristic	Poor Q1-Q2 n (%)	Middle Q3 n (%)	Wealthy Q4-Q5 n (%)	Total n (%)	χ^2 (df)	<i>p</i>	Cramer's V
Functional health					6.697 (6)	.350	.032
No difficulty	934 (78.0)	482 (76.5)	1,172 (78.9)	2,588 (78.1)			
Some difficulty	124 (10.4)	77 (12.2)	177 (11.9)	378 (11.4)			
A lot of difficulty	69 (5.8)	36 (5.7)	71 (4.8)	176 (5.3)			
Cannot do at all	70 (5.8)	35 (5.6)	65 (4.4)	170 (5.1)			
Health insurance					198.108 (2)	<.001	.245
Uninsured	1,082 (90.4)	522 (82.9)	1,018 (68.6)	2,622 (79.2)			
Insured	115 (9.6)	108 (17.1)	467 (31.4)	690 (20.8)			
Illness status					3.075 (2)	.215	.030
Not ill	1,150 (96.1)	608 (96.5)	1,411 (95.0)	3,169 (95.7)			
Ill	47 (3.9)	22 (3.5)	74 (5.0)	143 (4.3)			

Note. Percentages are calculated within socioeconomic group. Poor = per capita population Quintiles 1-2; Middle = Quintile 3; Wealthy = Quintiles 4-5. *N* = 3,312. Pearson chi-square tests are reported. No expected cell counts were below five for these analyses.

Educational attainment was significantly associated with socioeconomic position, $\chi^2(4) = 75.453$, $p < .001$, although the magnitude of the association was relatively small, Cramer's *V* = .107. Post-secondary education increased systematically across the socioeconomic hierarchy, from 66.4% among poor adults to 74.2% among the middle group and 81.0% among wealthy adults.

Conversely, primary education or below declined from 6.3% among poor respondents to 3.7% among middle-income adults and 2.9% among wealthy respondents. Secondary education displayed a similar inverse gradient, decreasing from 27.3% in the poor group to 16.1% among wealthy adults. These findings establish education as an important socioeconomic correlate and indicate that subsequent analyses of health should distinguish the independent association of per capita socioeconomic position from that of educational attainment.

Household headship was also significantly differentiated by socioeconomic group, $\chi^2(2) = 80.001$, $p < .001$, Cramer's $V = .155$. Among poor adults, only 43.8% were household heads, compared with 47.3% of middle-income respondents and 60.4% of wealthy adults. Conversely, 56.2% of poor adults were not household heads compared with only 39.6% of wealthy adults. The approximately 16.6-percentage-point difference in household headship between the lowest and highest socioeconomic groups suggests that economic position is associated with respondents' structural position within the household. Although Cramer's V indicates only a modest association, household headship should be considered in subsequent models because it may reflect differences in age, household responsibility, resource control and economic independence.

Union status also differed significantly across socioeconomic groups, $\chi^2(6) = 61.229$, $p < .001$, although the association was weak, Cramer's $V = .096$. Marriage became more prevalent with rising socioeconomic position, increasing from 17.6% among poor adults to 21.7% among the middle group and 23.5% among wealthy adults, singlehood declined from 54.0% to 46.1% between the poor and wealthy groups. Common-law unions displayed the opposite pattern, accounting for 14.1% of poor respondents but only 8.9% of wealthy respondents, whereas visiting relationships were more common among wealthy adults (21.5%) than poor adults (14.3%). The findings consequently demonstrate that socioeconomic position is associated not merely with material resources but also with educational attainment, household structure and partnership arrangements. These social differences are important potential confounders because some of the apparent association between socioeconomic position and health may arise from the distinct demographic and social composition of poor, middle and wealthy Jamaicans.

Table 7: Educational Attainment, Household Headship and Union Status by Socioeconomic Group among Jamaican Adults Aged ≥ 18 Years, JSLC 2023

Sociodemographic characteristic	Poor Q1-Q2 n (%)	Middle Q3 n (%)	Wealthy Q4-Q5 n (%)	Total n (%)	χ^2 (df)	p	Cramer's V
Educational level					75.453 (4)	<.001	.107
Primary and below	75 (6.3)	23 (3.7)	43 (2.9)	141 (4.3)			
Secondary	323 (27.3)	138 (22.2)	237 (16.1)	698 (21.3)			
Post-secondary	787 (66.4)	462 (74.2)	1,190 (81.0)	2,439 (74.4)			

Head of household					80.001 (2)	<.001	.155
No	673 (56.2)	332 (52.7)	588 (39.6)	1,593 (48.1)			
Yes	524 (43.8)	298 (47.3)	897 (60.4)	1,719 (51.9)			
Union status					61.229 (6)	<.001	.096
Married	211 (17.6)	137 (21.7)	349 (23.5)	697 (21.0)			
Common-law	169 (14.1)	94 (14.9)	132 (8.9)	395 (11.9)			
Visiting	171 (14.3)	104 (16.5)	319 (21.5)	594 (17.9)			
Single	646 (54.0)	295 (46.8)	685 (46.1)	1,626 (49.1)			

Note. Percentages are calculated within socioeconomic group. Educational attainment is based on 3,278 valid cases because 34 respondents had missing educational data; all other analyses contain 3,312 valid cases.

Employment status differed significantly across socioeconomic groups among the 1,395 respondents with valid employment information, $\chi^2(10) = 37.764, p < .001$, Cramer's $V = .116$. Private-sector employment represented the largest overall category at 46.6% and was comparatively similar across poor (46.1%), middle-income (44.1%) and wealthy adults (47.8%). More pronounced socioeconomic differences emerged among own-account workers, who represented 46.8% of poor adults and 45.7% of the middle group but only 36.1% of wealthy adults. Employment in local government increased from 5.1% among poor adults to 9.3% among wealthy adults, and employment in other government agencies increased from 0.9% to 3.1%. These patterns suggest that socioeconomic position is associated with the nature of employment even though private-sector wage employment remains prominent across all three groups.

Employer status was also disproportionately concentrated among wealthy respondents, accounting for 3.8% of that group compared with only 0.9% of poor respondents and 0.4% of the middle group. In contrast, own-account work was substantially more common among poor and middle-income adults, potentially indicating greater dependence on self-employment or informal economic activity among persons in lower socioeconomic strata. The employment distribution provides another dimension of socioeconomic differentiation that cannot be captured fully by per capita population quintiles alone. However, the very small numbers of unpaid workers and some employer categories produced three expected cell counts below five, meaning that the conventional chi-square assumptions were not completely satisfied. For subsequent multivariable analysis, it would be methodologically preferable to consolidate very small employment categories into broader theoretically meaningful groups where the JSLC classifications permit this.

The employment findings also have important implications for the study's proposed examination of health insurance and functional health. Wealthier adults were more frequently represented in government employment and employer categories, whereas poor adults were more heavily represented among own-account workers, and these occupational arrangements may differ substantially in their access to employer-sponsored or contributory health insurance. Employment status could partly explain the strong socioeconomic gradient in insurance coverage identified in Table 6, where only 9.6% of poor adults were insured compared with 31.4% of wealthy adults. Rather than treating employment solely as a generic control variable, the subsequent analysis should examine whether employment structure contributes to the pathway connecting socioeconomic position with insurance coverage. Taken together, Tables 6-8 indicate that the **strongest unadjusted socioeconomic disparity identified thus far is not functional health or recent illness, but access to health insurance, embedded within broader inequalities in education, household position, union arrangements and employment structure.**

Table 8: Employment Status by Socioeconomic Group among Employed Jamaican Adults Aged ≥18 Years, JSLC 2023

Employment category	Poor Q1-Q2 n (%)	Middle Q3 n (%)	Wealthy Q4-Q5 n (%)	Total n (%)
Employee of local government	22 (5.1)	19 (7.8)	67 (9.3)	108 (7.7)
Other government agencies	4 (0.9)	5 (2.0)	22 (3.1)	31 (2.2)
Private-sector business	199 (46.1)	108 (44.1)	343 (47.8)	650 (46.6)
Unpaid worker	1 (0.2)	0 (0.0)	0 (0.0)	1 (0.1)
Employer	4 (0.9)	1 (0.4)	27 (3.8)	32 (2.3)
Own-account worker	202 (46.8)	112 (45.7)	259 (36.1)	573 (41.1)
Total	432 (100.0)	245 (100.0)	718 (100.0)	1,395 (100.0)

Chi-square: $\chi^2(10) = 37.764$, $p < .001$; Cramer's $V = .116$.

Note. Percentages are calculated within socioeconomic group among the 1,395 respondents with valid employment-status information. Three cells (16.7%) had expected frequencies below five, with a minimum expected count of 0.18; , the Pearson chi-square result should be interpreted cautiously. The very small unpaid-worker and employer cells may warrant category consolidation before final inferential modelling.

Multivariable Predictors of Functional Difficulty

The binary logistic regression model was statistically significant overall, $\chi^2(13) = 686.541$, $p < .001$, indicating that the set of demographics, socioeconomic and social variables collectively improved prediction of functional difficulty beyond the intercept-only model. The Nagelkerke R^2 of .290 suggests that the model accounted for approximately 29.0% of the variation in the probability of functional difficulty; the Cox and Snell R^2 was .189. Model calibration was acceptable according to the Hosmer-Lemeshow test, $\chi^2(8) = 10.253$, $p = .248$, because the non-

significant result indicates no statistically detectable discrepancy between observed and model-predicted outcomes across the grouped probabilities. Classification accuracy increased from 78.0% in the intercept-only model to 81.5% after the predictors were introduced, although the model identified adults without functional difficulty considerably better than those with functional difficulty. Specifically, 95.2% of respondents without functional difficulty were correctly classified compared with only 32.8% of respondents with functional difficulty, indicating that overall accuracy should not be interpreted as evidence of equally strong discrimination between the two outcome categories.

Age emerged as the strongest independent predictor of functional difficulty, with each additional year of age associated with a 6.1% increase in the odds of experiencing functional difficulty, AOR = 1.061, 95% CI [1.053, 1.068], $p < .001$. Sex and educational attainment were also independently associated with the outcome, as males had approximately 39.8% lower odds of functional difficulty than females, AOR = 0.602, 95% CI [0.495, 0.733], $p < .001$. Relative to adults with primary education or below, those with secondary education had approximately 44.4% lower odds of functional difficulty, AOR = 0.556, 95% CI [0.367, 0.843], $p = .006$; adults with post-secondary education had approximately 58.2% lower odds, AOR = 0.418, 95% CI [0.275, 0.636], $p < .001$. Single adults had 44.1% higher adjusted odds of functional difficulty than married adults, AOR = 1.441, 95% CI [1.138, 1.826], $p = .002$, whereas visiting and common-law relationships were not independently associated with functional difficulty. Urban residence reached the conventional boundary of statistical significance, AOR = 1.259, 95% CI [1.000, 1.585], $p = .050$, suggesting that any urban-rural difference should be interpreted cautiously rather than treated as a robust association.

Of particular importance to the study's central socioeconomic hypothesis, neither socioeconomic group nor health-insurance status independently predicted functional difficulty after adjustment for the other variables in the model. Compared with poor adults, middle-income respondents had statistically similar odds of functional difficulty, AOR = 1.112, 95% CI [0.854, 1.447], $p = .432$; wealthy adults also did not differ significantly, AOR = 0.897, 95% CI [0.716, 1.124], $p = .344$. Health insurance likewise showed virtually no independent association with functional difficulty, AOR = 0.987, 95% CI [0.771, 1.263], $p = .916$, despite the strong bivariate socioeconomic gradient in insurance coverage identified previously. These findings suggest that the observed distribution of functional difficulty is explained more strongly by **age, sex and education than by current socioeconomic quintile or insurance status**, and they do not support a simple independent “double disadvantage” effect in this main-effects model. Importantly, however, this model does **not yet test the central interaction hypothesis**; a formal Socioeconomic Group $\times$ Health Insurance interaction is required before concluding that the combined disadvantage of poverty and being uninsured is absent.

Table 9: Binary Logistic Regression Predicting Functional Difficulty among Jamaican Adults Aged ≥18 Years, JSLC 2023

Predictor	B	SE	Wald	<i>p</i>	Adjusted OR	95% CI for OR
Head of household	-0.032	0.109	0.087	.768	0.968	0.782-1.199
Male	-0.507	0.100	25.732	<.001	0.602	0.495-0.733
Secondary education	-0.587	0.212	7.639	.006	0.556	0.367-0.843
Post-secondary education	-0.872	0.214	16.619	<.001	0.418	0.275-0.636
Reference (Primary)	1.000					
Age, years	0.059	0.004	277.012	<.001	1.061	1.053-1.068
Health insurance (1=Yes)	-0.013	0.126	0.011	.916	0.987	0.771-1.263
Middle socioeconomic group	0.106	0.135	0.619	.432	1.112	0.854-1.447
Wealthy socioeconomic group	-0.109	0.115	0.896	.344	0.897	0.716-1.124
Reference (1=Yes)	1.000					
Single	0.366	0.121	9.176	.002	1.441	1.138-1.826
Visiting relationship	0.076	0.179	0.180	.671	1.079	0.759-1.533
Common-law relationship	0.001	0.185	0.000	.995	1.001	0.697-1.438
Reference (Married)	1.000					
Urban	0.230	0.117	3.853	.050	1.259	1.000-1.585
Semi-urban	-0.148	0.121	1.487	.223	0.863	0.680-1.094
Reference (Rural)	1.000					

Model statistics: $N = 3,278$; omnibus $\chi^2(13) = 686.541, p < .001$; $-2 \log \text{likelihood} = 2769.993$; Cox and Snell $R^2 = .189$; Nagelkerke $R^2 = .290$; Hosmer-Lemeshow $\chi^2(8) = 10.253, p = .248$; overall classification accuracy = 81.5%.

Note. The dependent variable was coded 0 = no functional difficulty and 1 = functional difficulty. The apparent reference categories are female, primary education or below, poor socioeconomic group, married, and rural residence, based on the dummy-variable specification supplied. Odds ratios are adjusted for all variables shown simultaneously. Thirty-four cases were excluded because of missing data, leaving 3,278 cases in the model.

Discussion

The principal contribution of this study is the demonstration that social inequality in functional health among Jamaican adults is more complex than a direct poor-versus-wealthy gradient. Socioeconomic position strongly differentiated insurance coverage, education, household headship, union status and employment structure, yet neither current economic group nor insurance status independently predicted functional difficulty after adjustment. Instead, age, sex and educational attainment emerged as the dominant explanatory characteristics, with single union status providing an additional independent association. This pattern suggests that functional limitations may represent the cumulative product of life-course exposures more effectively captured by ageing and education than by current household consumption ranking

alone. The results consequently refine rather than reject the social-determinants perspective by identifying which dimensions of social position were most strongly associated with functioning in the contemporary Jamaican sample.

The powerful age effect is consistent with both Jamaican and international evidence. Each additional year of age raised the adjusted odds of functional difficulty by 6.1%, meaning that seemingly modest annual changes can accumulate into substantial differences across decades of adulthood. Earlier Jamaican research has repeatedly identified age as an important determinant of health status and chronic-disease burden, including studies of general health and people living with diagnosed chronic conditions (Bourne, 2009). Regional evidence likewise links ageing and chronic non-communicable disease with increasing functional limitation and long-term-care need (Menéndez et al., 2005; PAHO, 2024). The finding reinforces the need to position functional-health policy within Jamaica's broader healthy-ageing and chronic-disease agendas rather than treating disability solely as a consequence of current poverty.

Sex represented the second particularly notable finding because males experienced approximately 40% lower adjusted odds of functional difficulty than females. This result closely parallels the study by Zunzunegui et al. (2009), in which older women across Latin American and Caribbean cities experienced poorer mobility, cognitive, self-rated and disability outcomes than men even after socioeconomic life-course exposures were considered. Alvarado et al. (2007) likewise found markedly higher lower-extremity limitation among older women, with prevalence ranging from 23.3% to 42.9% among women compared with 9.3% to 23.7% among men across the cities examined. The Jamaican results form part of a wider regional pattern in which women's longer survival, cumulative social exposures, reproductive histories, caregiving demands, musculoskeletal burdens and other biological and gendered processes may contribute to greater functional limitation.

Education displayed a particularly clear protective gradient, with secondary and post-secondary education associated with progressively lower adjusted odds of functional difficulty. Adults with post-secondary education had approximately 58% lower odds than those with primary education or below even after age, sex, economic position, insurance, union status, household headship and residence were considered. This finding agrees with Alvarado et al. (2007), who identified limited education as a predictor of poorer lower-extremity function in Latin American and Caribbean older adults. It is also consistent with international longitudinal work demonstrating that education has enduring relationships with functional limitation through pathways involving occupation and income across the life course (Kok et al., 2016). Education may be functioning in the Jamaican model as a cumulative marker of knowledge, occupational trajectory, social advantage, health literacy and lifetime resources rather than simply reflecting current purchasing capacity.

The educational result is particularly important because it complicates the interpretation of socioeconomic quintile. Current household economic position was associated significantly with education, as post-secondary attainment increased from 66.4% among poor adults to 81.0% among wealthy respondents, demonstrating that the two constructs overlap substantially. Nevertheless, wealth ceased to distinguish functional health once education and age were entered

simultaneously, suggesting that current per capita economic standing may not capture historical socioeconomic exposures as effectively as educational attainment. International research similarly warns against treating income, education and occupation as interchangeable indicators because each represents distinct dimensions and periods of socioeconomic experience (Kok et al., 2016). The Jamaican evidence supports using multiple socioeconomic indicators rather than concluding that the absence of an independent quintile effect implies the absence of socioeconomic inequality.

The lack of an independent insurance effect also requires careful interpretation. Insurance was one of the most socioeconomically stratified characteristics in the study, with insured prevalence more than three times as high among wealthy adults as among poor adults, yet insurance had essentially no adjusted association with existing functional difficulty. This may occur because insurance affects access to diagnosis, treatment and financial protection without necessarily reversing limitations that developed through decades of ageing, chronic disease and cumulative socioeconomic exposure. It may also reflect the availability of publicly funded healthcare in Jamaica, meaning that uninsured status is not equivalent to complete exclusion from formal healthcare even though access conditions can still differ. The appropriate conclusion is consequently that insurance inequality is socially important but that possession of insurance, by itself, does not explain cross-sectional differences in established functional difficulty.

The absence of a direct wealth effect differs somewhat from international studies documenting clear socioeconomic gradients in functional limitation. Brazilian research has reported socioeconomic inequalities in functional health according to education and household income, broader comparative evidence also demonstrates social stratification in functional outcomes among older populations (Lima-Costa et al., 2012; Shang et al., 2023). However, differences in age composition, outcome construction, socioeconomic measurement and model specification can substantially alter the apparent strength of a socioeconomic gradient. Studies restricted to older populations may detect wealth effects that are diluted in an all-adult sample containing many younger respondents with low prevalence of functional limitation. The present results should be viewed as evidence that current quintile did not independently predict the binary functional outcome in this particular Jamaican model, rather than as proof that economic resources are irrelevant to functional health.

The finding concerning single adults adds another dimension to the social patterning of function. Single respondents had 44.1% higher adjusted odds of functional difficulty than married respondents, whereas common-law and visiting relationships did not differ significantly from marriage after adjustment. International partnership literature frequently identifies health differences between married and unmarried populations, although these associations reflect both protective processes and selection into different relationship statuses. The present cross-sectional analysis cannot determine whether partnership resources protect functional health or whether individuals with better health are more likely to enter and remain in particular unions. Nevertheless, the independent single-status association indicates that family and partnership context deserves further examination alongside conventional socioeconomic indicators.

Urban residence produced a borderline association with functional difficulty that should be interpreted conservatively. Adults in urban areas had approximately 25.9% higher adjusted odds than rural adults, but the confidence interval began at 1.000 and the *p*-value was exactly .050. Earlier Jamaican research among women found important geographical differences in health, broader Jamaican analyses have also treated residential context as potentially relevant to health and healthcare access (Bourne et al., 2009). Urban residence can simultaneously provide better proximity to healthcare and expose populations to different environmental, occupational and lifestyle risks, making its net relationship with functioning theoretically ambiguous. Further disaggregation by parish, neighbourhood conditions or specific functional domains would be required before asserting a robust urban disadvantage.

Another notable feature of the findings is the contrast between recent illness and diagnosed or functional health. Only 4.3% reported illness under the relevant recent-morbidity measure, yet 21.9% experienced some degree of functional difficulty, and approximately 23.0% had a reported history of hypertension. Previous Jamaican work has cautioned against treating self-reported recent illness as a complete representation of objective or underlying health, because disease recognition, diagnosis and subjective interpretation affect what respondents report (Bourne, 2009). Functional difficulty provides complementary information by measuring restrictions in functioning rather than solely the presence of an illness label. This distinction may be particularly valuable for detecting health disadvantage among people who have not recently sought care or received formal diagnoses.

The chronic-disease profile further reinforces the importance of moving beyond a single morbidity measure. Hypertension was the most commonly reported chronic condition, followed by diabetes, arthritis and asthma; several neurological, mental-health, respiratory and other diseases occurred at much lower frequencies. Chronic diseases can contribute progressively to visual, cardiovascular, neurological and mobility impairments, making them plausible mediating factors between earlier socioeconomic exposures and later functional outcomes. WHO similarly emphasises that increasing non-communicable disease prevalence and longer survival are contributing to the global growth in disability. Future Jamaican analyses should investigate whether chronic-disease burden mediates educational and age differences in functional health rather than simply adding every chronic condition as an interchangeable regression control.

Implications for Public Health and Social Policy

The findings have important implications for Jamaican health policy because they identify ageing, female sex and low educational attainment as priority markers of functional-health vulnerability. Preventive programmes should incorporate routine functional assessment alongside chronic-disease screening, particularly among middle-aged and older adults who may not describe themselves as recently ill. Women warrant particular attention because the adjusted sex difference persisted even after extensive socioeconomic and demographic control and is consistent with evidence from other Caribbean and Latin American populations. Such interventions should address mobility, vision, hearing and cognitive functioning before limitations progress into dependence and increased long-term-care need. A functional-health

strategy would complement rather than replace Jamaica's existing focus on non-communicable disease prevention and management.

The educational gradient also suggests that functional-health promotion should be designed with socioeconomic accessibility in mind. Adults with primary education or below constituted a relatively small proportion of the sample but experienced substantially greater adjusted odds of functional difficulty than more educated adults. Health communication, chronic-disease self-management, rehabilitation information and preventive services should be sufficiently accessible to people with different levels of formal education and health literacy. WHO identifies exclusion from education and employment among the structural conditions contributing to health inequities experienced by people with disabilities. Reducing functional-health inequalities consequently requires policies extending beyond clinical treatment to education, employment security, accessible environments and social participation.

Insurance inequality remains a policy concern despite its absence as an independent predictor of functional difficulty. The finding that 90.4% of poor adults were uninsured compared with 68.6% of wealthy adults demonstrates a substantial socioeconomic disparity in financial protection and potential access to healthcare choices. Insurance policy should be evaluated using outcomes such as unmet healthcare need, delayed treatment, medication affordability, diagnostic access and catastrophic expenditure rather than judging its importance solely according to existing functional limitation. Functional health may represent the end product of many years of exposures and may consequently be relatively insensitive to current insurance status in a cross-sectional analysis. Longitudinal research is required to determine whether insurance reduces the incidence or progression of future functional limitations.

Strengths

A major strength of this investigation is its use of a large national Jamaican survey with information spanning socioeconomic, demographic, household, insurance and health dimensions. The adult analytical sample of 3,312 respondents permitted meaningful comparisons across lower, middle and higher socioeconomic groups; the multivariable analysis retained 3,278 complete cases. The study also improves upon purely descriptive approaches by reporting effect sizes and adjusted odds ratios alongside statistical significance. Importantly, the analysis distinguishes functional health from recent illness and diagnosed morbidity, avoiding the assumption that these concepts represent identical aspects of health. This multidimensional design strengthens the study's contribution to Jamaican social epidemiology and allows direct comparison with regional and international functional-health research.

Another strength lies in the analytical finding itself because the results resist an overly simplistic interpretation of socioeconomic inequality. Rather than presuming that poor adults must necessarily have worse functional health, the analysis demonstrates empirically that current socioeconomic quintile was non-significant; education, age and sex remained strongly associated with the outcome. This produces a more theoretically useful conclusion by distinguishing current material position from cumulative life-course social resources. The strong insurance gradient simultaneously shows that socioeconomic inequality remains evident in healthcare-related

resources even when it is not directly visible in the functional outcome. Such distinctions are particularly valuable for policy because interventions addressing functional health may need to target different mechanisms from those addressing financial access to healthcare.

Limitations

Several limitations require acknowledgement, beginning with the cross-sectional design, which prevents determination of temporal sequence or causal direction. Functional difficulty may influence employment, income, household resources and partnership status just as these social conditions may influence the development of functional limitation, producing potential reverse causation. The binary outcome also sacrifices information regarding the severity and specific domain of limitation, meaning that respondents with mild sensory difficulty and those with severe mobility impairment can enter the same broad outcome category. Self-reported disease, insurance and functional-health information may additionally be affected by recall, interpretation, diagnosis and reporting practices. Accordingly, adjusted odds ratios should be interpreted as associations within the observed survey rather than causal effects.

Measurement of socioeconomic position represents another limitation because per capita population quintiles capture current relative household economic position rather than lifetime wealth, accumulated assets, childhood circumstances or historical income trajectories. The classification of Quintiles 1-2 as poor and Quintiles 4-5 as wealthy is analytically convenient but should not be confused with an official poverty-line determination unless explicitly validated against Jamaica's formal poverty methodology. Educational attainment may likewise incorporate heterogeneous qualifications within the broad post-secondary category and should be described carefully in the final manuscript. The strong relationship between age and functional health also raises the possibility of residual non-linearity if a simple linear age term does not perfectly represent functional decline across adulthood. Future models could examine age splines, age interactions or stratified analyses among working-age and older adults.

The classification performance of the regression provides an additional methodological caution. Although overall accuracy reached 81.5%, the model correctly identified only 32.8% of respondents with functional difficulty, correctly classifying 95.2% of those without difficulty. The high overall percentage is partly attributable to the predominance of respondents without functional limitation and should not be interpreted as excellent predictive performance. Receiver-operating-characteristic analysis, area under the curve, alternative probability thresholds and additional discrimination statistics would provide a more complete evaluation of predictive capacity. Future research should also analyse the individual seeing, hearing, mobility and cognitive domains separately because their determinants may differ substantially.

Finally, the present model tested the independent main effects of socioeconomic group and insurance but did not formally test whether their combination produces excess functional-health risk. The non-significant coefficients for wealth and insurance cannot by themselves establish that a socioeconomic-position $\times$ health-insurance interaction is absent. A formal interaction term should be estimated before rejecting the proposed double-disadvantage hypothesis, ideally accompanied by predicted probabilities or marginal effects for poor uninsured, poor insured,

wealthy uninsured and wealthy insured adults. Three-way modification by sex may also be theoretically important, although such models should be fitted only after checking cell sizes and statistical power. Longitudinal data would ultimately provide stronger evidence regarding whether socioeconomic disadvantage and inadequate financial protection accelerate the development or progression of functional limitation.

Conclusion

This study provides contemporary evidence on the social patterning of functional difficulty among Jamaican adults using the 2023 Jamaica Survey of Living Conditions. Although health-insurance coverage was strongly stratified by socioeconomic position, neither current economic group nor insurance status independently predicted functional difficulty after adjustment for demographic, educational, union and geographic characteristics. Instead, advancing age, female sex and lower educational attainment emerged as the most important predictors; single adults also experienced significantly elevated odds relative to married respondents. These findings indicate that socioeconomic inequality in functional health is best understood as a multidimensional and life-course phenomenon rather than as a direct reflection of current household economic quintile alone. Jamaican health policy should consequently combine equitable healthcare financing with education-sensitive prevention, women's functional-health initiatives, chronic-disease management and healthy-ageing strategies aimed at preserving independence across the adult life course.

The findings also advance the Jamaican literature by demonstrating that social inequalities can appear differently depending on the health indicator under examination. Economic inequality was highly visible in insurance coverage and educational composition but comparatively weak in crude functional-health differences, whereas education and sex retained strong associations after adjustment. This pattern is consistent with international evidence showing that socioeconomic resources operate through multiple pathways and that women often experience greater functional limitation even after conventional socioeconomic differences are considered. The study argues against treating wealth, education, insurance and health as interchangeable measures of advantage and instead supports their examination as analytically distinct but interconnected dimensions. Future JSLC research should test socioeconomic-insurance interactions, examine individual functional domains and model chronic-disease pathways to determine how material and life-course inequalities become translated into functional health in Jamaica.

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Appendix

Proposed operationalisation of the variables

Construct	JSLC measure	Recommended operationalisation	Role
Adult	Age	≥18 years	Inclusion criterion
Age	Age in completed years	Continuous age for regression; categories for descriptive analysis	Covariate
Age cohort	Derived from age	18-24; 25-34; 35-44; 45-54; 55-64; ≥65	Covariate/descriptive
Sex	Sex	Male; Female	Covariate/effect modifier
Socioeconomic position	Per Capita Population Quintile	Q1-Q5	Main exposure
Poor	Per Capita Population Quintile	Q1 + Q2	Main exposure
Middle	Per Capita Population Quintile	Q3	Comparison group
Wealthy	Per Capita Population Quintile	Q4 + Q5	Main comparison
Health insurance	Insurance status	Insured = Yes; Uninsured = No	Main exposure/effect modifier
Seeing difficulty	Functional-health item	No difficulty; some difficulty; a lot of difficulty; cannot do	Outcome
Hearing difficulty	Functional-health item	Same four-level classification	Outcome
Walking/ climbing difficulty	Functional-health item	Same four-level classification	Outcome
Remembering/ concentrating difficulty	Functional-health item	Same four-level classification	Outcome
Any functional limitation	Derived	0 = none across all four domains; 1 = ≥1 difficulty	Outcome
Functional Health Burden (FHB)	Derived from four domains	0-4 domains affected	Primary outcome
Multiple functional limitations	Derived	0 = 0-1 domains; 1 = ≥2 domains	Secondary outcome

Education	Highest educational attainment	Primary/below; secondary; post-secondary	Covariate
Employment status	Current employment	Employed; unemployed; outside labour force, subject to JSLC coding	Covariate
Union status	Current union status	Married; common-law; visiting; single; separated/divorced; widowed, according to JSLC coding	Covariate
Household head	Head-of-household indicator	Yes/No	Covariate
Area of residence	Area code	KMA/other urban/rural, according to JSLC classification	Covariate
Parish	Parish code	14 parishes	Geographic covariate
Chronic morbidity	Diagnosed health-condition variables	None vs ≥ 1 chronic condition; disease-specific analyses where appropriate	Secondary outcome/covariate
Healthcare utilisation	Health-service use	Used healthcare vs did not use healthcare during specified JSLC reference period.	Secondary variable