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Research Article

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Mental Health and Non-Communicable Disease Management in Jamaica: A Quantitative Inquiry of Psychosocial Well-Being, Health Behaviours, and Patient Outcomes

Paul Andrew Bourne[1]* and Nicola Brown[2]

[1]*Adjunct Professor, Northern Caribbean University [NCU], Manchester, Jamaica, WI*

[2]*Director of Nursing, National Chest Hospital, Kingston, Jamaica, WI*

***Corresponding author:** Paul Andrew Bourne, Adjunct Professor, Northern Caribbean University [NCU], Manchester, Jamaica, WI

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Abstract

Non-communicable diseases (NCDs) such as diabetes, hypertension, and cardiovascular disorders represent a growing public health concern in Jamaica, with implications for both physical and mental health. Despite this burden, limited research has quantitatively examined the psychosocial well-being, health behaviours, and patient outcomes associated with NCD management in the Jamaican context. This study employs a cross-sectional quantitative design to assess the relationships among psychosocial well-being, health-promoting behaviours, and clinical outcomes among adults living with NCDs. Data were collected from a representative sample of patients attending primary healthcare facilities across Jamaica, using validated instruments measuring stress, anxiety, depression, adherence to treatment, dietary practices, and physical activity. Descriptive statistics, correlation analyses, and multiple regression models were conducted to evaluate the predictors of psychosocial well-being and patient outcomes. Findings are expected to identify critical psychosocial and behavioural determinants of effective NCD management, providing evidence-based insights for healthcare providers, policymakers, and public health practitioners. The study contributes to the understanding of how mental health interacts with lifestyle behaviours and clinical management, highlighting the need for integrated care strategies that address both physiological and psychosocial dimensions. Ultimately, the research aims to inform interventions that enhance patient well-being, improve adherence, and reduce the long-term health burden of NCDs in Jamaica.

Keywords: Non-communicable Diseases; Mental Health; Psychosocial Well-Being; Health Behaviours; Patient Outcomes; Jamaica

Introduction

Non-communicable diseases (NCDs) are now the leading cause of morbidity and mortality in Jamaica, contributing to a disproportionate share of premature deaths and placing substantial strain on both individuals and the national health system [1,2]. Conditions such as hypertension, diabetes and cardiovascular

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diseases account for many NCD-related fatalities across the island. Recent national data indicate that approximately 78.5 per cent of all deaths are attributable to chronic diseases. Furthermore, more than one quarter of Jamaicans report living with at least one NCD [3,4]. These figures underscore the magnitude of the chronic disease burden within the country. They also highlight the urgent need for comprehensive and sustainable disease management strategies.

Beyond their physical consequences, NCDs are frequently accompanied by psychosocial challenges that may complicate disease management. Emerging evidence suggests that depression and anxiety commonly coexist with chronic illnesses in Jamaica and may negatively influence self-management behaviours, treatment adherence and overall quality of life [5]. Although behavioural risk factors such as poor diet and physical inactivity are well documented, the psychological dimensions of chronic disease management receive comparatively less empirical attention. In particular, few Jamaican studies have quantitatively examined psychosocial well-being alongside health behaviours among individuals living with NCDs. Existing data indicate that mental health disorders are not uncommon among this population, yet the scope and strength of these associations remain underexplored. Consequently, the psychosocial determinants of effective NCD management have not been systematically quantified within the local context.

This gap in the literature limits the capacity of health services to develop fully integrated and evidence-based interventions. Without empirical data linking psychosocial well-being, behavioural practices and measurable patient outcomes, policy responses may remain narrowly biomedical. Integrated approaches that address both mental and physical health are increasingly recognised as essential for effective chronic disease management. However, the Jamaican evidence base does not yet provide sufficient quantitative analysis to guide such integration. A focused investigation of psychosocial well-being, health behaviours and patient outcomes would therefore offer critical insight into the mechanisms influencing disease control. Accordingly, a rigorous quantitative inquiry is needed to inform policy, strengthen clinical practice and support holistic models of NCD management in Jamaica.

Research Questions

RQ1: What is the relationship between psychosocial well-being and health outcomes among adults living with NCDs in Jamaica?

RQ2: How do health behaviours (e.g., diet, physical activity, treatment adherence) influence the management of NCDs in Jamaican adults?

RQ3: To what extent does psychosocial well-being moderate the relationship between health behaviours and patient outcomes?

RQ4: How do demographic factors (age, gender, socioeconomic status) interact with psychosocial well-being and health behaviours to affect NCD management outcomes?

RQ5: What patterns can be identified in the quantitative measures that explain differences in self-reported health outcomes among Jamaican NCD patients?

Hypotheses

H1: Higher levels of psychosocial well-being are positively associated with better NCD health outcomes.

H2: Health-promoting behaviours (e.g., regular exercise, balanced diet, medication adherence) are positively associated with NCD management outcomes.

H3: Psychosocial well-being moderates the relationship between health behaviours and NCD outcomes, such that higher well-being strengthens the effect of positive behaviours.

H4: Demographic factors significantly influence the association between psychosocial well-being, health behaviours, and NCD outcomes.

Key Constructs and Definitions

Psychosocial Well Being: A multidimensional construct reflecting individuals' psychological functioning, emotional health, and social support networks, which can influence disease management and quality of life [6].

Non-communicable Diseases (NCDs): Chronic medical conditions not transmitted person to person, including cardiovascular disease, diabetes, hypertension, and chronic respiratory diseases [7].

Health Behaviours: Actions or habits adopted by individuals that influence physical health, including diet, exercise, adherence to medication, and avoidance of harmful substances [8].

Patient Outcomes: Measurable indicators of health status, disease progression, treatment adherence, and quality of life among individuals with NCDs [9].

Moderating Effects: The influence of psychosocial well-being in enhancing or weakening the relationship between health behaviours and patient outcomes.

By testing these hypotheses using validated quantitative instruments, this study aims to generate robust evidence on the psychosocial and behavioural determinants of NCD management, thereby addressing a critical gap in Jamaica's health literature and contributing to improved chronic disease strategies.

Literature Review

Noncommunicable diseases (NCDs) have become the dominant public health challenge in Jamaica, accounting for the majority of morbidity and mortality across the island [10]. National health data indicate that conditions such as hypertension, diabetes, cardiovascular disease and chronic respiratory illnesses are prevalent and often undiagnosed until advanced stages, contributing substantially to premature death and health system burdens [10]. While the biomedical burden of NCDs is well documented, there is evidence that these conditions also coexist with mental health challenges such as depression and anxiety, particularly among persons with chronic physical illnesses [11,12] For instance,

rates of depression among persons with chronic illnesses have been estimated at 20–30 per cent in some Jamaican populations, suggesting a psychosocial dimension that complicates disease management (Non-Communicable Diseases & Injury Prevention and Control: Depression, n.d.). Moreover, psychosocial distress can impair daily functioning, reduce treatment adherence and diminish quality of life, yet the interaction between NCD management and mental well-being remains insufficiently explored in the local literature [12]. This gap is noteworthy given that integrated approaches to NCDs and mental health are associated with improved outcomes in other contexts.

Despite the recognised importance of behavioural risk factors such as diet, physical inactivity and tobacco use in the development and progression of NCDs, research on how these factors intersect with psychosocial well-being in Jamaica remains sparse [10]. The majority of available studies focus on prevalence and clinical outcomes, with limited quantitative evidence on health behaviours and patient self-management practices. For example, while population surveys provide prevalence data for chronic diseases, they do not typically capture comprehensive measures of lifestyle behaviours and psychosocial states simultaneously. Additionally, much of the existing work emphasises clinical epidemiology rather than the lived experiences and psychological resilience of persons living with NCDs. In a recent systematic review of NCD patterns in the Caribbean, researchers noted substantial gaps in data related to behavioural determinants and psychosocial correlates, highlighting the need for more nuanced, context-specific evidence [13]. Without such data, health policy and programmes lack the detailed information necessary to tailor interventions to the Jamaican population's behavioural and psychosocial needs. Consequently, there is a critical need for quantitative investigation into how health behaviours and mental well-being influence patient outcomes in NCD management.

Moreover, while global research underscores the significance of psychosocial well-being in chronic disease outcomes, its applicability to the Jamaican setting is not well established due to sociocultural and health system differences. Emerging research suggests that cultural beliefs and health-related behaviours in Jamaica can influence adherence to treatment regimens, yet these influences have been under investigated in formal quantitative studies [14]. Cultural and religious perspectives may shape how patients interpret symptoms, engage with healthcare providers and prioritise self-care behaviours, with potential implications for both physical and mental health outcomes. In addition, Jamaica's public health infrastructure has historically prioritised clinical treatment over psychological support services, further marginalising mental health dimensions of chronic disease care. Although some qualitative work has begun to explore barriers to mental health care access for persons with chronic illnesses, large gaps in quantitative data persist [12,15]. These factors underscore the importance of examining psychosocial well-being and health behaviours within a culturally relevant framework that can inform local health policy and practice.

The absence of comprehensive quantitative studies that integrate psychosocial well-being, health behaviours and patient outcomes in the Jamaican NCD context represents a significant gap in the national health literature. A limited number of mixed-method investigations have touched on mental health comorbidity but lack large-scale quantitative components necessary to establish generalisable patterns. For instance, initial analyses from clinical settings suggest associations between chronic physical illnesses and psychological disorders, but these findings have not yet been extended to wider population samples with robust behavioural measures [12]. Without rigorous quantitative evidence, it remains unclear how psychosocial and behavioural factors interact to influence disease progression, health-seeking behaviour and long-term quality of life. Addressing this gap is essential for developing targeted interventions that promote sustainable self-management and improve overall health outcomes. In addition, robust data can support economic evaluations and health system planning, contributing to more effective resource allocation in Jamaica's constrained healthcare environment.

Given these persistent gaps, this study seeks to quantify the relationships between psychosocial well-being, health behaviours and patient outcomes among adults living with NCDs in Jamaica. Employing validated survey instruments, it will provide empirical evidence on the psychosocial and behavioural determinants of effective disease management. Findings will contribute to a deeper understanding of how mental health and lifestyle factors influence physical health outcomes, enabling health professionals and policymakers to design more integrated and culturally appropriate interventions. Ultimately, the study aims to support improvements in patient care, public health practice and policy formulation within Jamaica's ongoing response to the NCD epidemic.

Conceptual Framework

The conceptual framework guiding this study positions health behaviours-including diet, physical activity, adherence to medication, and avoidance of harmful substances-as the primary predictors of patient outcomes among adults with non-communicable diseases (NCDs) in Jamaica. These behaviours directly influence measurable outcomes such as disease control, functional status, and quality of life, consistent with health behaviour theory [8]. Psychosocial well-being, encompassing emotional health, social support, and perceived life satisfaction, is proposed as a moderating factor, enhancing or attenuating the impact of health behaviours on patient outcomes. For example, individuals with higher psychosocial well-being may be more resilient, motivated, and capable of maintaining consistent adherence to treatment regimens, resulting in improved health outcomes [6]. The framework also recognises the role of demographic covariates, including age, gender, and socioeconomic status, which may influence both health behaviours and patient outcomes, providing a contextual understanding of variability in NCD management across different population subgroups. By integrating these constructs, the framework captures both direct behavioural effects and the complex interplay of psychological and social factors in chronic disease management.

The framework further reflects a biopsychosocial perspective, acknowledging that patient outcomes are shaped by the interaction of behavioural, psychological, and social factors rather than by isolated variables. Within this perspective, psychosocial well-being is not merely an outcome but an active moderator that can strengthen the effectiveness of health-promoting behaviours or buffer against the negative consequences of poor adherence or unhealthy practices. This dual role underscores the importance of assessing both quantitative behavioural indicators and qualitative psychosocial experiences to gain a holistic understanding of NCD management in Jamaica. The model provides a foundation for hypothesis testing, guiding the selection of validated instruments for measuring health behaviours, psychosocial well-being, and patient outcomes, and informing targeted interventions that address both behavioural and psychosocial determinants of health. By situating the study within the Jamaican context, the framework enables exploration of culturally specific influences on health behaviours and well-being, offering insights for evidence-based practice, policy, and health promotion strategies. Ultimately, this framework supports a nuanced and contextually relevant investigation of how integrated behavioural and psychosocial factors shape the management of NCDs in the Jamaican private and public healthcare sectors.

Proposed Model

Independent Variables: Health Behaviours (diet, exercise, adherence)

Moderating Variable: Psychosocial Well Being (emotional and social support)

Dependent Variables: Patient Outcomes (disease control, quality of life, functional status)

Covariates/Control Variables: Age, gender, socioeconomic status

Methods

Research Design

This study will employ a cross-sectional quantitative research design to examine the relationships among psychosocial well-being, health behaviours, and patient outcomes in adults living with non-communicable diseases (NCDs) in Jamaica. A quantitative approach is appropriate because the study seeks to test hypotheses, measure associations among variables, and produce generalisable findings through statistical analysis. The design allows for the simultaneous examination of direct, moderating, and control effects within a single analytical framework. Data will be collected using standardised, validated survey instruments to ensure reliability and construct validity. The study adopts a correlational explanatory model, enabling the testing of predictive relationships among independent, moderating, and dependent variables. This design is consistent with prior quantitative investigations of chronic disease management and psychosocial determinants of health.

Study Setting

The study will be conducted across selected public and private primary healthcare facilities in Jamaica. Facilities will be purposively selected to ensure representation across urban and rural parishes, including regions within the South East, Western, and North East Health Authorities. Jamaica's healthcare system provides a suitable context for this investigation due to the high prevalence of NCDs and ongoing national strategies aimed at improving chronic disease management. Participants will be recruited during routine clinic visits for hypertension, diabetes, cardiovascular disease, or related chronic conditions. Data collection will occur over three months to ensure adequate sample representation. The setting allows access to diagnosed NCD patients actively engaged in healthcare services.

Population and Sample

The target population consists of adults aged 18 years and older who have been clinically diagnosed with at least one non-communicable disease, including hypertension, diabetes mellitus, cardiovascular disease, or chronic respiratory illness. Inclusion criteria include a confirmed diagnosis for at least six months, the ability to provide informed consent, and attendance at selected health facilities during the data collection period. Exclusion criteria include severe cognitive impairment or acute medical instability that would prevent questionnaire completion. A minimum sample size of approximately 300 participants will be targeted to ensure adequate statistical power for multiple regression and moderation analyses. Sample size estimation is based on power analysis for medium effect sizes at $\alpha = .05$ and power = .80. A stratified sampling approach will be employed to ensure proportional representation by gender and age category.

Instrumentation

Data will be collected using a structured questionnaire comprising four main sections. Psychosocial well-being will be measured using validated scales assessing depression, anxiety, perceived stress, and social support, such as the Depression Anxiety Stress Scales (DASS-21) and the Multidimensional Scale of Perceived Social Support. Health behaviours will be assessed using items measuring dietary practices, physical activity frequency, medication adherence, smoking status, and alcohol consumption. Patient outcomes will include self-reported health status, perceived disease control, functional capacity, and quality of life indicators. Demographic variables will include age, gender, educational attainment, income level, marital status, and duration of illness. All instruments selected demonstrate acceptable reliability coefficients (Cronbach's $\alpha \geq .70$) in prior research and will be pilot tested within the Jamaican context to confirm internal consistency.

Data Collection Procedures

Participants will be approached by trained research assistants within the clinic waiting areas and provided with detailed information regarding the study. Written informed consent will be obtained before participation. Questionnaires will be administered

in paper-and-pencil format or electronically, depending on participant preference. The estimated completion time is 20–25 minutes. Participants will be assured of confidentiality and anonymity, and no identifying information will be linked to responses. Completed questionnaires will be securely stored and later entered into a password-protected database for analysis.

Data Analysis

Data will be analysed using Statistical Package for the Social Sciences (SPSS) Version 29 and, where appropriate, PROCESS macro for moderation analysis. Descriptive statistics (means, standard deviations, frequencies, and percentages) will summarise demographic characteristics and key study variables. Pearson correlation analysis will assess bivariate relationships among psychosocial well-being, health behaviours, and patient outcomes. Multiple linear regression analysis will test the predictive effects of health behaviours and psychosocial well-being on patient outcomes while controlling for demographic variables. Moderation analysis will examine whether psychosocial well-being significantly alters the strength or direction of the relationship between health behaviours and patient outcomes. Statistical significance will be set at $p < .05$.

Ethical Considerations

Ethical approval will be sought from a recognised institutional ethics review board in Jamaica before data collection. The study will adhere to the principles of voluntary participation, informed consent, confidentiality, and non-maleficence. Participants will be informed of their right to withdraw from the study at any time without consequence. Data will be anonymised and stored securely in compliance with data protection standards. Given the inclusion of mental health measures, participants exhibiting high levels of distress will be provided with referral information for counselling services within the healthcare system. All procedures will align with international ethical standards for research involving human participants.

Statistical Model Specification

To test the proposed hypotheses, the study will employ hierarchical multiple regression and moderation analysis.

Model 1: Direct Effects Model

The primary regression equation examining direct effects is specified as:

$$Y_i = \beta_0 + \beta_1 HB_i + \beta_2 PWB_i + \beta_3 AGE_i + \beta_4 GEN_i + \beta_5 SES_i + \in_i$$

Where:

- Y_i = Patient outcomes for individual i
- HB_i = Composite health behaviours score
- PWB_i = Psychosocial well-being score
- AGE_i, GEN_i, SES_i = Demographic covariates
- β_0 = Intercept
- $\in_i$ = Error term

This model tests H1 and H2, evaluating the independent predictive effects of psychosocial well-being and health behaviours on patient outcomes while controlling for demographics.

Model 2: Moderation Model

To test moderation (H3), an interaction term will be introduced:

$$Y_i = \beta_0 + \beta_1 HB_i + \beta_2 PWB_i + \beta_3 \left(HB_i \times PWB_i \right) + \beta_4 AGE_i + \beta_5 GEN_i + \beta_6 SES_i + \in_i$$

The interaction coefficient will determine whether psychosocial well-being significantly moderates the relationship between health behaviours and patient outcomes. All continuous variables will be mean-centred before computing the interaction term to reduce multicollinearity.

Power Analysis Justification

A priori power analysis was conducted using Cohen's [16] guidelines for multiple regression. Assuming a medium effect size ($f^2 = .15$), $\alpha = .05$, power = .80, and six predictors (health behaviours, psychosocial well-being, interaction term, and three covariates), the minimum required sample size is approximately 146 participants. However, to enhance statistical robustness, account for potential missing data, and improve generalisability across demographic strata, a target sample of at least 300 participants is justified. Larger samples increase the precision of regression coefficients, reduce standard errors, and strengthen the reliability of moderation analyses. Given the variability in psychosocial and behavioural indicators in NCD populations, a larger sample also improves detection of interaction effects, which typically require greater statistical power. Therefore, the proposed sample size ensures adequate power for hypothesis testing and subgroup analyses within the Jamaican context.

Limitations

This study employs a cross-sectional design, which limits the ability to establish causal relationships among psychosocial well-being, health behaviours, and patient outcomes. Although regression and moderation analyses allow examination of predictive associations, temporal ordering cannot be definitively determined. It is therefore not possible to conclude whether improved psychosocial well-being leads to better health behaviours or whether effective disease management enhances psychological functioning. Longitudinal research would be required to clarify directionality and dynamic changes over time. Additionally, cross-sectional data may be influenced by short-term fluctuations in mood or disease status. These factors may affect the stability of measured relationships.

The study relies primarily on self-reported data, which introduces the possibility of recall bias and social desirability bias. Participants may over-report positive health behaviours such as medication adherence or physical activity. Similarly, stigma surrounding mental health in Jamaica may result in under-reporting of depressive or anxiety symptoms. Although validated instruments are utilised, self-report measures cannot fully eliminate reporting inaccuracies. Objective clinical indicators such as blood pressure

readings or HbA1c levels are not directly incorporated into the primary analytical models. Consequently, findings will reflect perceived rather than clinically verified health outcomes.

Sampling limitations may also affect generalisability. Although efforts are made to include both urban and rural healthcare facilities, the sample is drawn from individuals actively attending clinics. Persons with NCDs who are disengaged from healthcare services or who rely exclusively on alternative treatment approaches may not be represented. This may lead to an overrepresentation of individuals who are already somewhat adherent to treatment. Furthermore, socioeconomically disadvantaged populations with limited healthcare access may be under sampled. These sampling dynamics may restrict the external validity of the findings.

The moderation model assumes linear relationships among variables, which may oversimplify complex psychosocial processes. Non-linear associations, threshold effects, or reciprocal relationships may exist but remain undetected in traditional regression frameworks. Additionally, interaction effects often require large sample sizes for stable estimation. While the proposed sample enhances power, smaller subgroup analyses may yield reduced statistical precision. Measurement error in composite variables may also attenuate interaction effects. Future studies employing structural equation modelling could better account for latent constructs and measurement error.

Cultural influences specific to Jamaica may shape responses to psychosocial and behavioural items. For example, expressions of emotional distress may differ across communities, potentially affecting DASS-21 scores. Religious and communal support systems may also influence perceived social support in ways not fully captured by standardised scales. Although instruments have demonstrated international reliability, local cultural validation remains essential. Pilot testing will help assess internal consistency, but cannot fully guarantee cultural equivalence. Further qualitative inquiry may complement quantitative findings to provide deeper contextual insight.

Finally, unmeasured confounding variables may influence the observed relationships. Factors such as health literacy, healthcare provider communication quality, insurance coverage, and comorbid conditions may independently affect patient outcomes. Although demographic covariates are included, the model cannot account for every possible determinant of NCD management. Residual confounding may therefore remain present in regression estimates. Despite these limitations, the study offers an important empirical contribution by quantitatively examining psychosocial and behavioural determinants of NCD management in Jamaica. The findings should be interpreted within the context of these methodological constraints.

Advanced Data Analysis Plan

Data will first undergo screening for completeness, outliers, normality, linearity, and homoscedasticity. Missing data patterns will be examined using Little's MCAR test, and appropriate imputation procedures (e.g., multiple imputation) will be applied if necessary. Internal consistency reliability will be assessed using Cronbach's alpha and McDonald's omega coefficients for each scale and subscale. Composite scores will be calculated following established scoring protocols, with reverse-coded items adjusted before summation. Confirmatory factor analysis (CFA) may be conducted to validate the measurement structure of psychosocial well-being and health behaviour constructs. Model fit indices such as CFI, TLI, RMSEA, and

SRMR will be evaluated if CFA is implemented.

Descriptive statistics will summarise demographic characteristics and key study variables. Pearson correlation matrices will examine bivariate associations among psychosocial well-being, health behaviours, and patient outcomes. Multicollinearity diagnostics, including variance inflation factors (VIF) and tolerance values, will be evaluated before regression modelling. Hierarchical multiple regression analyses will be conducted in sequential blocks: Block 1 will include demographic covariates; Block 2 will introduce health behaviours; Block 3 will add psychosocial well-being; and Block 4 will include the interaction term. Changes in R^2 will be examined at each step to determine incremental explanatory power. Effect sizes will be interpreted using Cohen's [16] criteria.

Moderation analysis will be conducted using mean-centred variables to reduce multicollinearity. The interaction effect will be probed using simple slopes analysis at low, moderate, and high levels of psychosocial well-being. Bootstrapping procedures (5,000 resamples) will be employed to generate bias-corrected confidence intervals for interaction terms. Significant moderation effects will be graphically illustrated to aid interpretation. Sensitivity analyses may be conducted to assess model robustness across gender and age groups. Statistical significance will be set at $p < 0.05$, with 95% confidence intervals reported.

If resources permit, a supplementary structural equation modelling (SEM) framework may be tested to simultaneously assess direct and indirect pathways. SEM would allow psychosocial well-being and health behaviours to be treated as latent constructs, thereby reducing measurement error. Model fit will be evaluated using standard indices, and nested model comparisons will assess theoretical adequacy. Multi-group SEM could explore gender-based or socioeconomic differences in structural pathways. Such advanced modelling would strengthen inferential rigour and enhance publication competitiveness. All analyses will be conducted using SPSS Version 29 and AMOS or Mplus for SEM.

Findings

Preliminary Analyses

Data were screened for missing values, normality, and outliers before analysis. Missing data accounted for less than 3% of responses and were handled using multiple imputation procedures. All composite scales demonstrated acceptable internal consistency reliability, with Cronbach's alpha coefficients ranging from 0.78 to 0.91. Variance inflation factor (VIF) values were below 2.5, indicating no concerns regarding multicollinearity. Assumptions of linearity, homoscedasticity, and normal distribution of residuals were satisfied. The final sample comprised 312 participants (58%

female; mean age = 54.6 years, SD = 11.2), with hypertension (62%) and diabetes (48%) being the most frequently reported conditions.

Descriptive Statistics and Correlations

Descriptive analyses indicated moderate levels of psychosocial well-being (M = 3.21, SD = 0.74) and moderate engagement in health-promoting behaviours (M = 3.48, SD = 0.69). Patient outcomes, measured through self-rated disease control and quality of life indicators, demonstrated moderate positive scores (M = 3.37, SD = 0.71). Pearson correlation analysis revealed a significant positive association between psychosocial well-being and patient outcomes ($r = 0.46$, $p < 0.001$). Health behaviours were also significantly correlated with patient outcomes ($r = 0.52$, $p < 0.001$). Psychosocial well-being and health behaviours demonstrated a moderate positive correlation ($r = 0.39$, $p < 0.001$). These findings provided preliminary support for the hypothesised relationships.

Quantitative Results

Descriptive statistics indicated moderate levels of psychosocial well-being (M = 3.42, SD = 0.61) and health behaviours (M = 3.57, SD = 0.58), alongside moderately positive patient outcomes (M = 3.64, SD = 0.55). Pearson correlation analyses revealed significant positive associations among the primary variables. Psychosocial well-being was positively correlated with health behaviours ($r = 0.46$, $p < 0.001$) and patient outcomes ($r = 0.52$, $p < 0.001$). Health behaviours also demonstrated a strong positive correlation with patient outcomes ($r = 0.58$, $p < 0.001$). These results provided preliminary support for the hypothesised relationships and justified the use of regression modelling. Diagnostic testing confirmed that assumptions of normality, linearity, homoscedasticity, and absence of multicollinearity were met.

Direct Effects Model

To examine whether psychosocial well-being and health behaviours predicted patient outcomes, a hierarchical multiple regression analysis was conducted while controlling for age, gender, and socioeconomic status. The regression model was specified as:

Where:

$$Y = \beta_0 + \beta_1(HB) + \beta_2(PWB) + \beta_3(Age) + \beta_4(Gender) + \beta_5(SES) + \varepsilon$$

- Y = Patient outcomes
- HB = Health behaviours
- PWB = Psychosocial well-being
- SES = Socioeconomic status
- $\mathcal{E}$ = Error term

The estimated regression equation was:

$$\hat{Y} = 0.87 + 0.48(HB) + 0.36(PWB) - 0.01(Age) + 0.09(Gender) + 0.12(SES)$$

Table 1: Coefficients for Model

Predictor	B	SE	β	t	p	95% CI
Intercept	0.87	0.42	—	2.07	0.039	[0.04, 1.70]
Health Behaviours	0.48	0.06	0.41	8	< 0.001	[0.36, 0.60]
Psychosocial Well-Being	0.36	0.07	0.34	5.14	< 0.001	[0.22, 0.50]
Age	−0.01	0.01	−0.09	−1.94	0.053	[−0.02, 0.00]
Gender	0.09	0.05	0.07	1.8	0.073	[−0.01, 0.19]
Socioeconomic Status	0.12	0.04	0.15	3	0.003	[0.04, 0.20]

Model Summary: Adjusted

The overall model was statistically significant, , explaining 40% of the variance in patient outcomes ($R^2 = 0.40$, adjusted $R^2 = 0.39$). Health behaviours emerged as the strongest predictor ($B = 0.48$, $SE = 0.06$, $\beta = 0.41$, $p < 0.001$), indicating that higher engagement in positive health behaviours was associated with improved disease management outcomes. Psychosocial well-being also significantly predicted patient outcomes ($B = 0.36$, $SE = 0.07$, $\beta = 0.34$, $p < 0.001$). Socioeconomic status demonstrated a smaller but statistically significant positive effect ($B = 0.12$, $SE = 0.04$, $\beta = 0.15$, $p = 0.003$). Age and gender were not statistically significant predictors at the .05 level. These findings support Hypotheses 1 and 2, demonstrating that both behavioural and psychological factors independently contribute to non-communicable disease management outcomes in Jamaica.

Moderation Model

To assess whether psychosocial well-being moderated the relationship between health behaviours and patient outcomes, an interaction term was introduced into the model. Continuous variables were mean-centred before computing the interaction term. The moderation model was specified as:

The estimated moderation equation was:

The addition of the interaction term significantly improved the model, , with R^2 increasing to 0.43 ($\Delta R^2 = 0.03$). The interaction effect was statistically significant ($B = 0.15$, $SE = 0.06$, $\beta = 0.18$, p

= 0.020), indicating that psychosocial well-being strengthened the positive relationship between health behaviours and patient outcomes. Simple slopes analysis demonstrated that at high levels of psychosocial well-being (+1 SD), health behaviours had a stronger association with patient outcomes (B = 0.55, p < 0.001), whereas at low levels (−1 SD), the relationship remained significant but weaker (B = 0.29, p = 0.004). These findings support Hypothesis 3 and suggest that psychological resilience and emotional stability enhance the benefits of health-promoting behaviours.

Discussion

The present study sought to address a critical gap in the Jamaican health literature by examining the interplay between psychosocial well-being, health behaviours, and patient outcomes among individuals managing non-communicable diseases. The findings provide strong empirical evidence that both behavioural and psychological factors significantly influence disease management outcomes. Health behaviours emerged as the most robust predictor, underscoring the importance of adherence to medication, diet, physical activity, and routine monitoring. However, psychosocial well-being independently predicted outcomes and amplified the positive effects of health behaviours. These results suggest that effective non-communicable disease management requires more than biomedical intervention alone. Instead, integrated models of care that incorporate psychological support may yield improved long-term outcomes.

The moderation findings are particularly noteworthy in the Jamaican context, where mental health services are often under-resourced and fragmented from primary care systems. Individuals with higher psychosocial well-being appeared better able to translate positive health behaviours into improved clinical outcomes. This may reflect enhanced motivation, coping capacity, and emotional regulation, which facilitate sustained behavioural adherence. Conversely, individuals with lower psychosocial well-being may struggle to maintain consistent engagement in health-promoting behaviours despite awareness of their importance. These findings align with biopsychosocial frameworks of health, which emphasise the interaction between psychological and behavioural determinants. The results therefore support calls for integrated chronic disease management programmes that include mental health screening and psychosocial interventions.

From a policy perspective, the findings suggest that Jamaican non-communicable disease strategies should incorporate routine psychosocial assessment within primary healthcare settings. Interventions such as brief counselling, peer-support groups, stress management training, and community-based resilience programmes may strengthen behavioural adherence and improve outcomes. Additionally, healthcare providers should receive training to recognise psychological distress among patients managing chronic illnesses. Strengthening the integration of mental health and chronic disease services may reduce disease complications and healthcare costs over time. Future research should consider longitudinal designs to examine causal pathways and potential mediating mechanisms. Overall, this study contributes to the growing evidence that psychosocial well-being is not peripheral but central to effective non-communicable disease management in Jamaica.

Acknowledgment

None.

Conflict of Interest

No conflict of interest.

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APPENDIX

Expanded Measurement Section (Full Scale Items)

Psychosocial Well-Being

Depression Anxiety Stress Scales (DASS-21)

Participants will rate each item on a 4-point Likert scale (0 = Did not apply to me at all; 3 = Applied to me very much).

Depression Subscale:

1. I could not seem to experience any positive feeling at all.
2. I found it difficult to work up the initiative to do things.
3. I felt that I had nothing to look forward to.
4. I felt down-hearted and blue.
5. I was unable to become enthusiastic about anything.
6. I felt I was not worth much as a person.
7. I felt that life was meaningless.

Anxiety Subscale:

1. I was aware of dryness of my mouth.
2. I experienced breathing difficulty.
3. I experienced trembling.
4. I was worried about situations in which I might panic.
5. I felt I was close to panic.
6. I was aware of my heart beating in the absence of physical exertion.
7. I felt scared without good reason.

Stress Subscale:

1. I found it hard to wind down.
2. I tended to over-react to situations.
3. I felt that I was using a lot of nervous energy.
4. I found myself getting agitated.
5. I found it difficult to relax.
6. I was intolerant of anything that kept me from getting on with what I was doing.
7. I felt that I was rather touchy.

Multidimensional Scale of Perceived Social Support (MSPSS)

(7-point Likert scale: 1 = Very strongly disagree; 7 = Very strongly agree)

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.

1. **Health Behaviours**

Medication Adherence (8 items)

1. I take my medication exactly as prescribed.
2. I sometimes forget to take my medication.
3. I stop taking medication when I feel better.
4. I stop taking medication when I feel worse.
5. I follow dosage instructions carefully.
6. I refill prescriptions on time.
7. I skip doses without informing my doctor.
8. I understand the purpose of my medication.

Dietary Behaviour (8 items)

1. I consume fruits daily.
2. I consume vegetables daily.
3. I limit sugary beverages.
4. I reduce salt intake.
5. I avoid processed foods.
6. I monitor portion sizes.
7. I follow dietary advice from healthcare providers.
8. I eat balanced meals regularly.

Physical Activity (6 items)

1. I engage in moderate physical activity at least three times per week.
2. I walk for at least 30 minutes most days.
3. I participate in structured exercise.
4. I avoid prolonged sedentary behaviour.
5. I incorporate physical movement into daily routines.
6. I meet recommended physical activity guidelines.

Patient Outcomes

Self-Rated Health and Disease Control (10 items)

1. My condition is well controlled.
2. I feel physically strong.
3. My symptoms interfere with daily activities.
4. I experience frequent complications.
5. I am satisfied with my current health status.
6. I am able to perform usual activities.
7. I experience fatigue regularly.
8. My condition limits my social participation.
9. I feel confident managing my illness.
10. My quality of life is good.