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Predictors Of Psychological Well-Being Among Persons With Physical Disabilities In Southern Nigeria: The Roles Of Gender Self-Confidence And Social Inclusion

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ABSTRACT

Background: Gender self-confidence may protect the well-being of persons with physical disabilities, but Nigerian evidence is sparse.

Objectives: This study examined whether gender self-definition (GSD), gender self-acceptance (GSA), social inclusion, employment, and educational level predict psychological well-being among adults with physical disabilities in Southern Nigeria.

Method: A cross-sectional survey of 1,865 participants used Ryff's 18-item Scales, the Hoffman Gender Scale scored by subscale, and a 10-item social inclusion measure. Missing data were multiply imputed (m = 20) and pooled using Rubin's rules.

Results: Well-being was significantly below the scale midpoint (d = -0.64). Entered simultaneously, GSD positively predicted well-being (beta = .24, $p < .001$) and GSA inversely (beta = -.19, $p < .001$), a suppressor pattern given their intercorrelation (r = .85). These opposing coefficients emerged only when the two subscales were entered together; in separate models, GSD retained a smaller positive effect (b = 0.06, p = .002) while GSA was non-significant (p = .496). The GSA result should therefore be interpreted as a statistical artefact of very high collinearity rather than as evidence of a substantive inverse effect. Educational level and age showed small negative associations.

Conclusion: Gender self-definition and self-acceptance should not be regarded as independent determinants of psychological well-being. Conventional demographic characteristics such as education and employment likewise offered little protection. These conclusions are necessarily tentative: the final model explained only 2.4% of the variance in well-being, and replication with longitudinal data is required before drawing any intervention or policy inferences.

Keywords: Gender Self-Definition, Gender Self-Acceptance, Psychological Well-Being, Social Inclusion, Physical Disability, Nigeria

Introduction

Close to 12% of Nigerians aged 15 and above live with some form of disability, a figure drawn from the 2018 National Demographic and Health Survey that substantially exceeds earlier estimates (Ishola et al., 2025). For persons with physical impairments, the social consequences of disability in Nigeria are compounded by cultural attitudes, limited enforcement of disability legislation, and restricted access to education and employment (Oliver, 1990; World Health Organization, 2001). These conditions raise urgent questions about the factors that support or undermine psychological well-being in this population. Gender identity is one such factor. How individuals define and relate to their own gendered selfhood may influence their sense of purpose, autonomy, and belonging, dimensions that sit at the heart of eudaimonic well-being. Yet the predictive role of gender self-confidence dimensions in the well-being of physically disabled Nigerians remains, to the best of the present authors' knowledge, unexamined.

Psychological well-being, in Ryff's (1989) model, is a multidimensional construct comprising self-acceptance, autonomy, environmental mastery, purpose in life, personal growth, and positive relations with others. High well-being in this sense is not merely the absence of distress; it reflects a person's capacity for self-directed functioning and meaningful engagement with the world. Ryff and Keyes (1995) confirmed the six-factor structure, and subsequent work has connected eudaimonic well-being to health outcomes, social participation, and adaptive functioning in diverse populations (Ryff, 2014). For persons with physical disabilities, several of these dimensions are plausibly constrained by participation restrictions and social exclusion. Whether psychological resources, such as a secure and clearly defined gender identity, can partially offset that constraint is the central question this paper addresses.

The Hoffman Gender Scale (HGS; Hoffman et al., 2000) was developed to move beyond traditional sex-role inventories and to assess gender identity in terms of two theoretically distinct components. Gender Self-Definition (GSD) refers to the degree to which an individual constructs their self-concept around their gender identity, that is, how central and salient being a man or woman is to their sense of who they are. Gender Self-Acceptance (GSA) refers to the degree to which an individual accepts and is comfortable with their gender identity. Although the two subscales are positively correlated, they are conceptually distinct: a person may define themselves strongly in terms of gender without necessarily feeling comfortable with that identity, and vice versa. Hoffman (2006a) reported that gender self-confidence was positively associated with subjective well-being, particularly among African American men, and Hoffman (2006b) found that gender self-definition and acceptance were differentially related to feminist and ethnic identities in women. More recently, Grigiene et al. (2022) found that higher gender self-confidence was protective against suicide risk in Lithuanian men, suggesting that the HGS may capture a psychologically meaningful resource beyond gender role conformity.

Social inclusion is a further candidate predictor. Feeling accepted, valued, and connected within one's social environment is theoretically linked to the belongingness needs that Baumeister and Leary (1995) identified as fundamental to human motivation. Among persons with disabilities, perceived social inclusion may support the eudaimonic dimensions of positive relations and environmental mastery. However, inclusion may operate conditionally rather than as a straightforward main effect, protecting well-being under some circumstances without raising it uniformly. Whether perceived social inclusion functions as a direct positive predictor of well-being, alongside the gender self-confidence dimensions and demographic variables, is examined here.

Several recent studies, published between 2024 and 2026, help to sharpen these arguments. In Northwest Ethiopia, Shumet et al. (2024) surveyed 269 adults with physical disabilities and found that about nine in ten reported some degree of stigma; stigma rose with psychological distress ($r = .42$) and functional impairment ($r = .50$) and fell as

perceived social support increased (r = -.31). A related pattern emerged in Saudi Arabia, where Al Harthy et al. (2025) studied 205 adults with disabilities who belonged to sports clubs. Social inclusion there was strongly associated with better mental health (r = .66) and with lower anxiety and depression, and men reported higher inclusion than women, a difference that hints at gendered access to community life. However, the protective value of social resources may not be uniform. Working with 293 adults with physical disabilities, Rohrbeck et al. (2024) showed that emotional support weakened the link between disability and psychological distress among younger participants but not among older ones, which implies that age may shape how much people gain from their relationships. Gender identity, too, appears to be reworked rather than simply eroded by disability. In a comparative qualitative study of 41 men, Wilton and Fudge Schormans (2025) described how disability disrupted breadwinner roles and made help-seeking feel like a threat to manhood, yet several of the men rebuilt their masculine identity on different terms. Closer to home, Azubuike et al. (2025) reviewed Nigerian policy and service evidence and concluded that physical inaccessibility, attitudinal discrimination, and heavy out-of-pocket costs continue to keep many persons with disabilities away from health care, despite the protections of the Discrimination Against Persons with Disabilities (Prohibition) Act of 2018. Taken together, these studies suggest that stigma, inclusion, and gendered self-appraisal are bound up with well-being in this population. Most of the quantitative evidence, though, comes from outside Nigeria, and none of these studies examined confidence in one's gender identity alongside perceived inclusion as predictors of eudaimonic well-being.

Evidence from Southern Nigeria specifically points to restricted social participation and poor quality of life among persons with mobility-related disability, with employment and education implicated as important contextual predictors (Okoye et al., 2022; Uchenwoke et al., 2023). The social model of disability frames these restrictions as socially produced rather than inherent to impairment (Oliver, 1990; Shakespeare, 2014), which directs attention towards social and psychological resources that may protect well-being within disabling environments. Prior research has not, however, examined gender identity dimensions and social inclusion as simultaneous predictors of eudaimonic well-being in a Nigerian physically disabled sample. This study addresses that gap by testing hypotheses derived from gender self-confidence theory and the eudaimonic well-being framework.

A reason is needed for treating the two subscales separately in a Nigerian sample, since most of the supporting evidence comes from outside Nigeria. Hoffman et al. (2000) identified the difference based on responses from North Americans, and most validation work has been done mainly in North American and European settings (Grigiene et al., 2022; Hoffman, 2006a, 2006b). However, there are two reasons why it is still worth testing here. First, the idea of separating the two concepts is not limited to one culture: understanding what gender means for someone's sense of self is logically different from feeling at ease with it, and both could work anywhere that gender influences social roles. Communities in southern Nigeria, where gender expectations around providing, marriage, and household work remain important, might be a better test of this separation than places where such expectations are less strong. Second, disability makes the connection between the two more complicated. When a disability stops someone from playing a gendered role, clear definitions and feeling comfortable with one's identity may not always align, as the wider literature on disability identity has noted (Bogart, 2014, 2015). Therefore, we see this separation as a hypothesis to test, rather than something already proven for this group, and we will discuss what the results mean for its wider use in the end.

Four hypotheses were proposed. First, persons with physical disabilities in Southern Nigeria would report psychological well-being significantly below the scale midpoint. Second, GSD would positively predict psychological well-being, reflecting the protective function of a clearly defined and salient gender identity. Third, GSA would positively

predict psychological well-being, reflecting the adaptive value of comfort and acceptance with one's gender. Fourth, perceived social inclusion, employment, and educational level would each predict psychological well-being after GSD and GSA were controlled.

Method

Design and Participants

A cross-sectional correlational survey was conducted. Participants were 1,865 adults with self-reported physical disabilities, recruited through disability associations, rehabilitation centres, and community networks in selected states of Southern Nigeria (Abia, Bayelsa, Ekiti, Imo, Osun and Rivers States), as part of a TETFund National Research Fund project. Ages ranged from 15 to 75 years (M = 37.5, SD = 12.5). The sample was closely balanced by gender (men n = 951; women n = 912; two did not report gender). Gender was coded as a binary indicator (woman = 1, man = 0). Duration of disability averaged 22.2 years (SD = 14.9). Marital status was distributed as: single (n = 872), married (n = 766), separated (n = 103), divorced (n = 70), and widowed (n = 47). Employment was recorded as: unemployed (n = 890), self-employed (n = 496), or civil and public service (n = 121), with the remainder missing. Educational level ranged from primary through postgraduate.

Measures

Psychological Well-Being

Psychological well-being was assessed with the 18-item version of Ryff's Scales of Psychological Well-Being (Ryff, 1989; Ryff & Keyes, 1995). Seven-point response options were used. Positively worded items were reverse-scored so that higher composite means indicate greater well-being, and a prorated mean served as the outcome. Internal consistency for the composite was Cronbach's alpha = .68, in keeping with documented limitations of the brief form (Abbott et al., 2006; Garcia et al., 2023). Results are reported at the composite level. Because this coefficient falls below the conventional .70 threshold, supplementary evidence was examined. The Spearman-Brown corrected odd-even split-half coefficient was .80 and corrected item-total correlations ranged from .11 to .45, with no item contributing negatively. Disaggregation by item wording was informative: alpha was .79 across the ten positively worded items and .72 across the eight negatively worded items, with mean inter-item correlations of .27 and .25 respectively, both within the range recommended for broad constructs; yet the two blocks correlated only r = -.10 with each other. The modest overall coefficient therefore appears to reflect a wording-related method factor rather than generalised item weakness, consistent with what Abbott et al. (2006) and Garcia et al. (2023) have reported for these items. Composite-level inference is retained on that basis, while subscale-level interpretation is not attempted anywhere in this paper. Attenuation due to imperfect reliability remains a real constraint on the size of all associations reported below.

Gender Self-Definition and Gender Self-Acceptance

Gender self-confidence was measured with the 14-item Hoffman Gender Scale (HGS; Hoffman et al., 2000). Items are positively worded and scored so that higher values reflect stronger and more positive gender identity. Following the original instrument structure, the 14 items were scored as two 7-item subscales: Gender Self-Definition (GSD; items 1 to 7, alpha = .91), which assesses how central one's gender identity is to one's self-concept, and Gender Self-Acceptance (GSA; items 8 to 14, alpha = .94), which assesses comfort and satisfaction with one's gender identity. A prorated mean was computed for each subscale. The two subscales were substantially correlated in this sample (r = .85), a degree of overlap that is noted as a methodological consideration in the Results and Discussion sections.

Social Inclusion

Perceived social inclusion was assessed with the 10-item Experiences of Social Inclusion Scale (Leemann et al., 2022), which covers experienced belonging, significance, trust, and influence within one’s social environment. Items were scored so that

higher values reflect stronger perceived inclusion, and a prorated mean was used (alpha = .91). Leemann et al. (2022) developed and validated the instrument on a Finnish population sample, reporting a unidimensional structure and good internal consistency. Psychometric performance in the present sample was strong: Cronbach's alpha was .91, the mean inter-item correlation was .50, corrected item-total correlations ranged from .43 to .78, and the Spearman-Brown corrected split-half coefficient was .93. A principal components analysis returned a dominant first component (eigenvalue = 5.59, 55.9% of variance) with the second component well below unity (eigenvalue = 0.84), supporting unidimensional scoring in this population. To our knowledge, this is the first reported use of the scale in a Nigerian disability sample, and further validation across Nigerian populations would be desirable.

Demographic and Economic Variables

Employment was coded as a binary indicator (employed = 1, unemployed = 0). Educational level was an ordinal seven-point code from primary through postgraduate. Age was recorded in years. Marital status was coded as a binary indicator (married = 1, not married = 0). Gender was coded as a binary indicator (woman = 1, man = 0). No separate socio-economic status scale was collected; employment and educational level served as the available economic indicators.

Procedure

Ethical approval to conduct this study was obtained from the Imo State University Research and Innovation Directorate on the 8th of December, 2025 (approval reference number IMSU/OW/RI/2025/002). With no conflict of interest, questionnaires were administered face-to-face by trained research assistants. Participation was voluntary and anonymous, with written informed consent obtained before administration. Respondents could withdraw at any point. The dataset was cleaned before analysis, with out-of-range and logically inconsistent values set to missing and a cleaning log was retained. Completed questionnaires were stored in locked cabinets at the lead institution, and the electronic dataset was held in password-protected files accessible only to named members of the research team. No personal identifiers were recorded on the instruments, and data are retained in de-identified form in line with institutional policy. This study forms part of a larger funded project in which a single participant dataset supports several analyses addressing distinct research questions. The analyses, results, and conclusions reported in this paper are not published or under consideration elsewhere.

Analytic Strategy

Missing values ranged from 0.1% on gender to 19.2% on employment, with 10.3% missing on age. Psychological well-being had no missing data given the prorated mean approach. All predictors were multiply imputed using iterative chained equations across 20 datasets, with estimates pooled by Rubin's rules and Barnard-Rubin degrees of freedom (Rubin, 1987; Schafer & Graham, 2002; van Buuren & Groothuis-Oudshoorn, 2011), retaining all 1,865 sampled participants. Hypothesis 1 was tested with a one-sample t-test against the scale midpoint of 4.0, applied to the complete well-being scores. Hypotheses 2 to 4 were tested using hierarchical regression. Model 1 entered GSD and GSA. Model 2 added social inclusion. Model 3 added employment, educational level, age, gender, and marital status. GSD and GSA are highly intercorrelated (r = .85), and their simultaneous entry creates conditions for suppressor effects, which are discussed where relevant. Reporting follows APA (2020) conventions. The imputation model included every analysis variable, namely GSD, GSA, social inclusion, age, gender, marital status, educational level, employment, and the well-being outcome, so that the imputation and analysis models were congenial. Binary and ordinal variables were rounded to their permissible ranges after imputation. Imputation quality was assessed by comparing observed and imputed distributions and by inspecting the fraction of missing information (FMI). Imputed and observed means were closely aligned for the variables with appreciable missingness (employment: observed 0.41, imputed 0.39; age: observed 37.1 years,

imputed 39.1 years), and FMI values were modest for all coefficients (maximum .21 for employment, .10 for age, and below .05 for the gender self-confidence terms), indicating that the imputation added little instability to the pooled estimates. Multicollinearity was assessed through variance inflation factors, tolerance values, and condition indices, and the sensitivity of the gender self-confidence coefficients to model specification was examined by re-estimating the model with each subscale entered alone and with a composite HGS score. Sensitivity of the study was evaluated post hoc: with N = 1,865 and eight predictors, the design affords 80% power to detect an effect as small as f^2 = .008 for the overall model and a semi-partial correlation of .065 for an individual predictor, so the study is amply powered to detect even trivially small associations. This sensitivity is itself relevant to interpretation, since statistical significance at this sample size does not imply practical importance.

Results

Preliminary Analyses

Descriptive statistics, internal consistency coefficients, and bivariate correlations are presented in Tables 1 and 2 (appendix A). At the bivariate level, correlations of well-being with GSD and GSA were both small and in opposite directions (r = .04 and r = -.03, respectively), and the correlation of well-being with social inclusion was negligible (r = -.02). The two gender self-confidence subscales were strongly intercorrelated (r = .85), which is an important qualifier for interpreting the regression results.

Hypothesis 1: Baseline Level of Psychological Well-Being

A one-sample t-test confirmed that the mean well-being score was significantly below the scale midpoint of 4.0, t(1864) = -27.74, p < .001, d = -0.64. This moderate effect indicates that, on average, participants reported psychological well-being meaningfully below the midpoint of the scale. Hypothesis 1 was supported.

Hypotheses 2 and 3: Gender Self-Definition and Gender Self-Acceptance

Table 3 (Appendix B) presents the hierarchical regression results. Model 1 entered GSD and GSA simultaneously. Together, the two subscales accounted for 1.4% of the variance in well-being (R-squared = .014). GSD was a positive and significant predictor, b = 0.130, SE = 0.026, p < .001 (standardised beta = .22). GSA was a negative and significant predictor in the opposite direction, b = -0.112, SE = 0.023, p < .001 (standardised beta = -.19). These opposite-signed effects require careful interpretation. At the bivariate level, GSD and PWB are only weakly positively correlated (r = .04) and GSA and PWB are weakly negatively correlated (r = -.03). When entered simultaneously, the strong intercorrelation between GSD and GSA (r = .85) creates a suppressor dynamic: each subscale partially removes the shared variance it holds with the other, amplifying the unique predictive contribution of each in opposite directions. Hypothesis 2, that GSD would positively predict well-being, was supported. Hypothesis 3, that GSA would positively predict well-being, was not supported; the direction was opposite to the prediction. Confidence intervals clarify the precision of these estimates: GSD, b = 0.130, 95% CI [0.079, 0.181]; GSA, b = -0.112, 95% CI [-0.158, -0.067]. The discrepancy between near-zero bivariate correlations (r = .04 and r = -.03) and these substantial regression coefficients is itself the diagnostic signature of suppression rather than an anomaly requiring separate explanation. Because GSD and GSA share roughly 72% of their variance, each coefficient represents the association between the residual of one subscale, after the other has been partialled out, and well-being. That residual is a different construct from the subscale as measured, which is why it behaves differently. Watson et al. (2013) make the general point that such effects can be informative about what a measure contains, but they also caution that the resulting coefficients describe components of a measure rather than the measure itself.

The GSD finding is theoretically interpretable. A clearly defined and salient gender identity may

provide a stable organising framework for the self in a social environment where gender roles structure much of everyday community life. This resonates with research linking identity clarity to better psychological adjustment (Grigiene et al., 2022; Hoffman, 2006a). The GSA finding is more difficult to interpret on theoretical grounds and may partly reflect the statistical suppression described above rather than a substantive inverse effect. Given the high intercorrelation between the subscales, the regression coefficients in Model 1 should be read as the unique contribution of each dimension after partialling out the other, rather than as simple independent effects. This distinction is returned to in the Discussion.

Hypothesis 4: Social Inclusion, Employment, and Education

Adding social inclusion in Model 2 improved model fit marginally (R-squared = .016). Social inclusion was not significant at the conventional threshold, b = -0.043, p = .055, though the direction was negative. In Model 3, which entered the full predictor set, social inclusion remained marginally non-significant, b = -0.041, p = .063. Educational level was a small but significant negative predictor, b = -0.034, SE = 0.017, p = .041. Age was also a small negative predictor, b = -0.004, SE = 0.002, p = .037. Employment pointed in a positive direction without reaching significance, b = 0.084, p = .094. Gender and marital status were not significant. The full model accounted for 2.4% of variance in well-being. GSD and GSA remained significant in the full model (GSD: b = 0.145, p < .001, beta = .24; GSA: b = -0.100, p < .001, beta = -.19). Hypothesis 4 received partial support through the educational level and age effects.

Multicollinearity Diagnostics and Alternative Specifications

Variance inflation factors for the Model 3 predictors ranged from 1.00 to 4.01, with GSD (VIF = 4.01, tolerance = .25) and GSA (VIF = 3.74, tolerance = .27) the highest, and the maximum condition index was 4.10. These values fall below the conventional cut-offs of 10 for VIF and .10 for tolerance, and below the more conservative VIF threshold of 5, so the model is estimable. They are nonetheless elevated relative to the remaining predictors, and Vatcheva et al. (2016) caution that coefficients can become unstable well before formal thresholds are breached.

Three alternative specifications were therefore estimated. With GSD entered alone, alongside the covariates but without GSA, it remained a significant positive predictor but at less than half the magnitude, b = 0.059, 95% CI [0.022, 0.097], p = .002. With GSA entered alone, it was not significant, b = -0.011, 95% CI [-0.043, 0.021], p = .496. A composite HGS score was likewise non-significant, b = 0.022, p = .252. These comparisons are decisive for interpretation. The negative GSA coefficient exists only in the presence of GSD and cannot be replicated when the subscale is examined on its own, whereas GSD retains a small independent association with well-being under every specification. We therefore treat the GSA finding as a suppression artefact and place no substantive weight on it.

Practical Significance

The full model accounted for 2.4% of the variance in psychological well-being, equivalent to Cohen's f^2 = .025, which is small by conventional benchmarks. Roughly 97% of the variation in well-being in this sample is therefore attributable to factors not measured here, plausibly including disability severity and type, pain, comorbid conditions, household income, and the quality rather than the reported extent of social relationships. Statistical significance in this study is substantially a function of sample size, as the sensitivity analysis above makes clear. The findings should accordingly be read as identifying associations that merit further investigation, not as establishing determinants of well-being of practical magnitude.

Discussion

This study examined gender self-definition, gender self-acceptance, social inclusion, and demographic variables as predictors of psychological well-being among adults with physical disabilities in Southern Nigeria. Three substantive findings emerged. First, well-being was significantly below the scale midpoint, confirming a population-level deficit. Second, when GSD and GSA were entered simultaneously, a striking differential pattern appeared: GSD was a positive predictor of well-being while GSA was a negative predictor, despite the two subscales being strongly intercorrelated. Third, educational level and age each showed small negative associations, while social inclusion and employment showed non-significant trends.

The baseline finding that $t(1864) = -27.74$, $d = -0.64$, is consistent with evidence that adults with physical disabilities in Southern Nigeria face participation restrictions, limited employment, and social exclusion that undermine eudaimonic functioning (Okoye et al., 2022; Uchenwoke et al., 2023). The deficit is moderate rather than extreme, which may reflect adaptive coping and social support that many participants maintain alongside structural barriers. The result nonetheless underscores that physical disability in this setting carries a meaningful psychological burden at the population level. Recent evidence from elsewhere in sub-Saharan Africa points the same way. Among adults with physical disabilities in Northwest Ethiopia, stigma was close to universal and rose with psychological distress, while stronger perceived social support went with lower stigma (Shumet et al., 2024). The deficit observed here may therefore owe as much to the social climate surrounding impairment as to the impairment itself.

The GSD and GSA findings are the most analytically complex result in this paper and require careful handling. At the bivariate level, both subscales are essentially unrelated to well-being ($r = .04$ and $r = -.03$). When entered together in regression, however, they produce substantial and opposing coefficients. This pattern is a classic indicator of a suppressor effect, arising because two highly correlated predictors ($r = .85$) partial out their shared variance in ways that amplify each one's unique residual association with the outcome (MacKinnon et al., 2000). The practical implication is that the regression coefficients for GSD and GSA in Table 3 should be interpreted as the contribution of each dimension *after removing* the variance shared with the other, not as independent direct effects.

Within those limits, the GSD finding is theoretically coherent. Gender self-definition, understood as the degree to which gender is central and salient to one's self-concept, may provide an organising framework that stabilises self-acceptance and social role clarity in a community context where gender roles are prominent. Identity clarity has been linked to better adjustment across psychological literature (Grigiene et al., 2022; Hoffman, 2006a), and a person who has a clear sense of their gendered selfhood may navigate participation restrictions with greater equanimity than one whose self-concept lacks that anchor. This does not mean that higher gender salience is uniformly beneficial, but in a collectivist Nigerian setting where gendered social roles are meaningful, the finding has a plausible theoretical basis. Recent qualitative work adds a note of caution. Wilton and Fudge Schormans (2025) found that disability unsettled men's breadwinner roles and made asking for help feel costly to their sense of manhood, although masculine identity was often rebuilt rather than lost. If similar processes operate in Southern Nigeria, a clearly defined gender identity could support some persons and strain others, depending on whether their disability allows the associated roles to be carried out.

The inverse GSA coefficient is genuinely difficult to interpret substantively and should not be taken at face value without replication. The alternative-specification analyses reported above indicate that it should not be interpreted substantively at all. When GSA is entered without GSD it bears no relationship to well-being ($p = .496$), and the same is true of the composite scale. Any interpretation of the negative coefficient would therefore be an

interpretation of residual variance rather than of gender self-acceptance as measured. We had considered whether high acceptance might reflect a resigned accommodation to gender expectations that disability then frustrates, but the data provides no independent support for that reading, and we do not pursue it. It is recorded here only as a hypothesis that a purpose-built study, incorporating direct measures of role discrepancy and disability identity (Bogart, 2014, 2015), could test properly. The GSD and GSA subscales were not designed to be discriminated within a single regression model; the original HGS validation work (Hoffman et al., 2000) examined them separately. Entering both simultaneously in the presence of a high intercorrelation is analytically legitimate but creates conditions where the resulting coefficients are sensitive to small sample fluctuations and difficult to interpret in isolation. Any conclusions drawn from the GSA finding should be treated as tentative pending replication with a sample and design specifically tailored to discriminate the two subscales.

It would be premature to draw intervention implications from this pattern. Although GSD retained a small positive association with well-being across specifications, the association is weak in absolute terms, the design is cross-sectional, and the zero-order correlation with well-being was negligible. What the results support is a case for further investigation of gender self-definition as a possible psychological resource in this population, not a recommendation that services should seek to strengthen it. Any such recommendation would require longitudinal evidence that changes in gender self-definition preceded changes in well-being, and ideally experimental or intervention evidence, neither of which this study provides.

Social inclusion showed a consistent negative trend across models ($p = .055$ to $.063$) without reaching the conventional significance threshold. One reading of this pattern is that perceived social inclusion matters conditionally rather than unconditionally, cushioning the psychological cost of disability under some circumstances without independently lifting well-being above what other factors already predict. That possibility cannot be tested within the present cross-sectional design, which examined inclusion only as a main effect, and it would require a model specifying the conditions under which inclusion is protective.

Educational level showed a small negative association with well-being, which may reflect aspiration-attainment gap whereby higher credentials do not translate into commensurate employment for persons with physical disabilities in Southern Nigeria. Employment, though non-significant, consistently trended positive. Taken together, these effects point to the economic dimension of well-being among physically disabled Nigerians as an area deserving serious policy attention, particularly given that nearly half the analytic sample reported being unemployed. The small negative association with age also merits attention. Rohrbeck et al. (2024) observed that emotional support buffered the link between physical disability and distress for younger but not older adults, so older participants in the present sample may have had fewer effective social resources to draw on. Structural conditions matter as well: Azubuike et al. (2025) documented inaccessible facilities and high out-of-pocket costs in Nigerian health services, barriers that are likely to weigh most on persons with disabilities who have no regular income.

Some limitations apply to this paper. The cross-sectional design precludes causal inference. The well-being measure showed modest reliability (alpha = .68) and unreliable subscales, which will have attenuated all associations and complicates interpretation of the already-weak bivariate correlations. The high GSD-GSA intercorrelation ($r = .85$) limits the interpretability of the simultaneous regression analysis, and the suppressor effect should be investigated in future studies that use a design specifically intended to discriminate the two subscales, perhaps with additional measures of identity clarity, role acceptance, and disability-specific coping. Disability severity was not differentiated, and recruitment through disability networks may have oversampled more socially integrated individuals, and common-method

variance is a concern throughout. Recruitment deserves particular comment. Participants were reached through disability associations, rehabilitation centres, and community networks, which means that persons who are affiliated to such organisations were systematically more likely to enter the sample than those who are isolated, housebound, or unknown to any service. Since affiliation is plausibly correlated with both social inclusion and well-being, the sample may under-represent the most excluded members of the population and the associations reported here may be conservative in some respects and distorted in others. No sampling frame for persons with physical disabilities exists in Nigeria, so probability sampling was not available to us, but the resulting limits on external validity should be borne in mind. Findings generalise most safely to disabled Nigerians who are connected to some form of organised support.

Conclusion

Despite this study's constraints, it is the first, as far as can be determined, to examine GSD and GSA as separate predictors of eudaimonic psychological well-being in a Nigerian population with physical disabilities. The differential pattern observed, while complex and requiring cautious interpretation, raises theoretically important questions about which aspects of gender self-confidence may matter for well-being in this context and why. Clarifying those questions, through longitudinal designs and a better-validated outcome instrument, represents the most productive next step for this line of inquiry. Two cautious conclusions follow. The consistently low baseline level of well-being indicates a population need that existing socio-demographic advantages, such as education or employment, do not appear to meet, which argues for accessible mental health provision for this group. Beyond that, the gender self-confidence findings should be treated as provisional. They rest on a cross-sectional design, explain a very small share of variance, and are materially shaped by collinearity between the two subscales. Replication in an independent Nigerian sample, preferably longitudinal and using a better-validated well-being measure, is a precondition for any firm theoretical or policy claim.

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Appendix A

Table 1: Characteristics of the Study Sample (N = 1,865)

Variable	Statistic	Value
Age in years	M (SD)	37.5 (12.5)
Disability duration (years)	M (SD)	22.2 (14.9)
Well-being (item mean)	M (SD)	3.44 (0.87)
Gender Self-Definition	M (SD)	4.07 (1.47)
Gender Self-Acceptance	M (SD)	4.09 (1.67)
Social inclusion (item mean)	M (SD)	3.58 (1.28)
Gender	n	Men 951; Women 912
Marital status	n	Single 872; Married 766; Separated 103; Divorced 70; Widowed 47
Employment	n	Unemployed 890; Self-employed 496; Civil/public service 121

Note. Counts use observed values. Missing predictor data were multiply imputed (m = 20) for all inferential analyses. GSD = gender self-definition; GSA = gender self-acceptance.

Table 2: Descriptive Statistics, Reliabilities, and Bivariate Correlations

Variable	M	SD	1	2	3	4	5
1. Well-being	3.44	0.87	(.68)				
2. Gender Self-Definition	4.07	1.47	.04	(.91)			
3. Gender Self-Acceptance	4.09	1.67	-.03	.85	(.94)		
4. Social inclusion	3.58	1.28	-.02	.69	.66	(.91)	
5. Age	37.5	12.5	-.07	.06	.08	.02	--
6. Education	2.89	1.35	-.05	.14	.09	.15	.17

Note. N = 1,865. Cronbach's alpha coefficients are shown in parentheses on the diagonal. GSD = gender self-definition; GSA = gender self-acceptance. Correlations with |r| >= .06 are statistically significant at p < .05 given the sample size.

Appendix B

Table 3: Hierarchical Regression Predicting Psychological Well-Being (Pooled Across 20 Imputed Datasets)

Predictor	Model 1	Model 2	Model 3
Gender Self-Definition (GSD)	.130***	.147***	.145***
Gender Self-Acceptance (GSA)	-.112***	-.104***	-.100***
Social inclusion		-.043	-.041
Employment			.084
Educational level			-.034*
Age			-.004*
Gender (woman)			.023
Married			.012
R-squared	.014	.016	.024
Delta R-squared		.002	.008

*Note. N = 1,865 across 20 imputed datasets; estimates pooled by Rubin's rules. Entries are unstandardised regression coefficients. The high intercorrelation between GSD and GSA (r = .85) creates a suppressor pattern in Models 1 to 3; coefficients reflect the unique contribution of each subscale after partialling out the other. * p < .05. *** p < .001.*

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