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Global Trends and Disparities in Social Isolation

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Key Points

Question

How did the global prevalence and trajectories of social isolation change among within-country income groups between 2009 and 2024?

Findings

In this repeated cross-sectional study of 159 countries, the global prevalence of social isolation increased by 13.4% over the 16-year study period (from 19.2 to 21.8), with the entire increase occurring after 2019. The disparity in isolation prevalence between high-income and low-income groups peaked in 2020 at 10.8 percentage points (high-income, 15.6% vs low-income, 26.4%).

Meaning

This study suggests that targeted interventions to address disparities in isolation prevalence and increasing isolation levels are warranted.

Abstract

Importance

Social isolation is consequential for human health and well-being. However, global trends and trends across countries, regions, and socioeconomic strata remain inadequately characterized, limiting targeted policy responses.

Objectives

To quantify global changes in social isolation from 2009 to 2024 across within-country income groups and evaluate cross-country and regional variation in isolation levels and trends.

Design, Setting, and Participants

This cross-sectional study used data from 2009 to 2024 from the Gallup World Poll, a globally representative repeated cross-sectional survey with consistent methodology across more than 150 countries. A random sample of approximately 1000 adults (age ≥ 15 years) within each country was selected at each annual assessment. Global trends in isolation were examined for the full sample and for top and bottom income groups, defined within each country.

Main Outcomes and Measures

The prevalence of social isolation at each time point within each country was assessed as the proportion of respondents who answered “no” to having relatives or friends available to help in times of trouble. Household income was assessed in local currency and coded into 5 quintiles.

Results

The study findings are based on data from 2 483 935 person-level assessments (mean [SD] age, 41.7 [17.9] years; 53.1% women) across 16 time points and 159 countries. Prepandemic global mean isolation levels were stable. A marked increase in isolation occurred between 2019 and 2020, concurrent with the onset of the COVID-19 pandemic, and was disproportionately seen in lower-income groups ($\beta = 2.6$ percentage points [95% CI, 0.9-4.4 percentage points]; $P = .003$; an 11.0% increase). From 2020 to 2024, isolation continued to increase, with steeper increases among higher-income groups ($\beta = 1.9$ [95% CI, 0.7-3.1]; $P < .001$; a 12.3% increase). The global prevalence of social isolation increased by 13.4% from 2009 to 2024 (from 19.2% [95% CI, 17.3%-21.6%] to 21.8% [95% CI, 19.4%-24.2%]), with the entire increase occurring after 2019. The disparity in isolation prevalence between high- and low-income groups peaked in 2020: 26.4% (95% CI, 23.6%-29.2%) of lower income groups were isolated vs 15.6% (95% CI, 13.6%-17.7%) of higher income groups. By 2024, global isolation was 2.6 percentage points (95% CI, 0.7-4.5 percentage points) above prepandemic levels and the income disparity was 8.6 percentage points (95% CI, 5.1-12.1 percentage points). A total of 54 countries experienced worsening isolation and widening disparities, while 41 saw improvements.

Conclusions and Relevance

In this cross-sectional study, social isolation was found to have increased globally after the COVID-19 pandemic, with the initial increase disproportionately seen in lower-income populations and subsequent increases broadening across socioeconomic strata. Targeted interventions for vulnerable groups and research examining country-level policies are urgently needed to mitigate high isolation levels and reduce inequities.

This cross-sectional study uses data from over 2 million person-level assessments across 16 time points and 159 countries to examine changes in the global prevalence and trajectories of social isolation among within-country income groups between 2009 and 2024.

Introduction

Public health and policy organizations worldwide—including the US surgeon general, the Organisation for Economic Co-operation and Development, and the World Health Organization—have warned of a “crisis in social connectedness,” citing its detrimental effects on individuals and communities.^{1,2} A growing literature has established that social isolation is associated with adverse mental and physical health outcomes through both direct and stress-exacerbating

pathways,^{3,4} and that isolation increased in several countries during the COVID-19 pandemic.^{5,6,7} However, relatively little is known about global trends in isolation or variability in these trends across countries, world regions, or socioeconomic strata.^{8,9,10}

Social isolation is embedded in broader social structures and shaped by macro-level conditions that influence social relations across demographic subgroups.¹¹ Although some research suggests that lower-income groups compensate for economic hardships by forming strong social networks,^{12,13} most evidence indicates heightened risks of isolation due to discrimination, structural barriers, and resource limitations.^{14,15} Less-advantaged socioeconomic groups face disproportionate exposure to unfair treatment and exclusion,^{16,17} spatial marginalization or segregation from more advantaged peers,^{18,19} and social networks that are less equipped to provide psychosocial or material support.^{20,21} Furthermore, the widening income inequality observed in many countries in recent decades may have exacerbated these vulnerabilities, compounding their effects on social connectedness.^{22,23} However, global time trends in social isolation across socioeconomic groups remain largely unexplored.

Understanding how social isolation and loneliness have changed over time within and across countries and income groups is crucial for several reasons. Urbanization and the rise of digital lifestyles have transformed the structure of daily life. Technological advances have created new opportunities to combat isolation, such as digital communication tools that facilitate long-distance connections, participation in online communities, and access to virtual support networks.^{24,25,26} Urban environments also offer diverse cultural, social, and professional opportunities that can foster meaningful connections.²⁷

On the other hand, these same forces can intensify social isolation. Increasing mobility for work has physically dispersed families and social networks,²⁸ while societal norms emphasizing individualism have diminished communal values.²⁹ Remote work, increasing amounts of screen time, and the decline of shared community spaces have reduced face-to-face interactions and weakened community ties.^{30,31} Collectively, these shifts have constrained opportunities for in-person engagement, potentially exacerbating experiences of isolation and loneliness.^{32,33}

The COVID-19 pandemic further accelerated these trends, bringing renewed attention to the dynamics of social relationships. Although studies have examined pandemic-associated increases in isolation in some countries,^{34,35} there remains a significant gap in understanding longer-term cross-national patterns and differences across socioeconomic groups. In addition, it is unclear whether isolation levels are returning to prepandemic norms. This study seeks to bridge these gaps by examining global isolation trends across 159 countries from 2009 to 2024, with consideration

of potential differences between high-income and low-income populations, defined within countries. Our approach allows for characterizing overarching global patterns and comparison of country-specific and region-specific trajectories.

Methods

Data for this cross-sectional study were obtained from the Gallup World Poll, a repeated cross-sectional survey representing more than 98% of the world's adult population.³⁶ A probability-based nationally representative sample of adults (age, ≥ 15 years), with a sample size of approximately 1000, were surveyed annually in each country. We analyzed annual data from 159 countries spanning 16 time points from 2009 to 2024. The mean (SD) number of assessments was 14.7 (2.3). The data are widely available and deidentified and thus did not require ethical approval as a secondary analysis of deidentified survey data in accordance with the Common Rule 45 CFR 46.104(d)(4). This study followed the Strengthening the Reporting of Observational Studies in Epidemiology ([STROBE](#)) reporting guideline.

Measures

Income Group

Household income was assessed in local currency and coded into 5 quintiles within each country. To maximize sample size and robustness of comparisons, we compared the bottom 2 quintiles (bottom 40%) with the top 2 quintiles (top 40%).^{37,38,39}

Social Isolation

At each time point, participants were asked, "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" Response options were "yes" or "no." The proportion of "no" responses—indicating social isolation—was calculated at the country level for each income group. Specifically, the weighted count of socially isolated individuals in each income group was divided by the weighted total number of individuals in the group using Gallup's final survey weights. Survey weights account for unequal probabilities of selection, nonresponse, and population demographic characteristics using poststratification methods.³⁶

Although this measure is based on a single item, it is widely used in large-scale international surveys and has face validity as an indicator of a core element of social isolation—perceived lack of supportive relationships. This aligns with leading conceptualizations of social isolation, which emphasize the absence of available and reliable social ties.^{40,41} Descriptive statistics for each time point are shown in eTable 1 in [Supplement 1](#).

Statistical Analysis

Hierarchical linear models were estimated in R, version 4.4.3 (R Project for Statistical Computing), using the glmmTMB package.^{42,43} To determine the most appropriate trajectory, we first estimated unweighted maximum-likelihood models that contained different combinations of 3 growth terms: (1) a linear slope (coded 0-15 for 2009-2024), (2) a pandemic step change (0 before 2020, 1 from 2020 onward), and (3) a postpandemic slope adjustment (0 up to 2020, increasing by 1 each subsequent year). Nested structures were compared with likelihood-ratio χ^2 tests, and nonnested structures with the Akaike Information Criterion and Bayesian Information Criterion. The specification retaining all 3 growth terms fit best. We then re-estimated this model with precision weights equal to the inverse sampling variance ($1/SE^2$) to give greater influence to reliable country-year estimates and downweight noisier ones.⁴⁴ An unconstrained 4×4 variance-covariance matrix captured random effects for the intercept and each slope, and we extracted country-level best linear unbiased predictions (BLUPs) from the final weighted model to visualize national trajectories.⁴⁴ Robustness was assessed in 2 ways: comparing fixed-effect estimates from the weighted and unweighted fits to ensure weighting did not materially alter results (stability defined as $|\Delta\beta| < 1$ weighted SE) and re-estimating the weighted model with all random-effect covariances fixed to zero (diagonal G-matrix). Both checks confirmed the stability and robustness of the findings (eTables 2 and 3 in [Supplement 1](#)). A priori, the significance level was set at $\alpha = .05$ (2-sided).

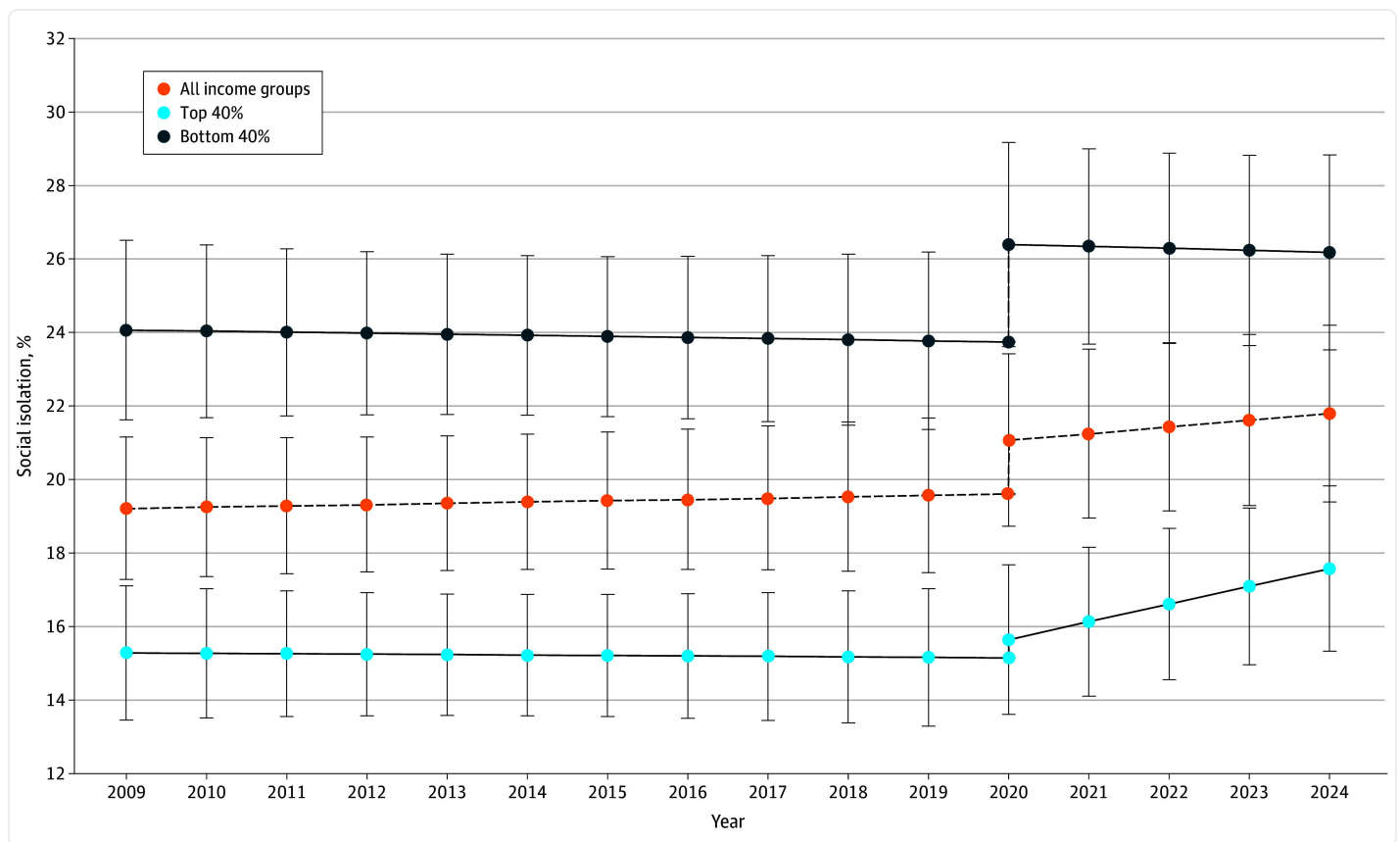
Results

Models of global time trends in social isolation prevalence were based on data from a total of 2 483 935 participants (mean [SD] age, 41.7 [17.9]; 53.1% women and 46.9% men) from 159 countries between 2009 and 2024. The first trend structure considered was a simple linear slope across all 16 time points. It showed a 0.15-unit mean global increase in social isolation per year (95% CI, 0.03-0.26; $P < .001$), suggesting that by 2024, an additional 2.2% of the population in each country reported being socially isolated, compared with 2009 levels. Two alternative trend structures were then examined: an inflection point model allowed for a change in the linear slope after 2020, and a step-change model allowed for a break or shift in the trajectory between 2019

and 2020 (concurrent with the onset of the COVID-19 pandemic). In the full sample (all income groups), both models showed an improvement over the linear slope model, with the larger improvement coming from the step-change model ($\chi^2_4 = 102.00$; $P < .001$) than from the slope-change model ($\chi^2_4 = 53.60$; $P < .001$). Akaike information criterion and Bayes information criterion values indicated that the step-change model provided a better fit than the inflection point model for the full sample (eTable 4 in [Supplement 1](#)).

Next, we fit a final model that combined the 2 above models, allowing both a step-change and a discontinuity in the slope after 2020. The likelihood ratio test indicated that this model was an improvement over the linear slope model ($\chi^2_8 = 139.2$; $P < .001$), the step-change only model ($\chi^2_4 = 37.20$; $P < .001$), and the slope-change only model ($\chi^2_4 = 85.60$; $P < .001$). A plot of the global trend from the final model is shown in [Figure 1](#), and the results are described below and shown in eTable 5 in [Supplement 1](#).

Figure 1. Fitted Global Trend in Social Isolation for the Total Population and by Income Group.



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Estimates are from the final best-fitting model. Errors bars indicate 95% CIs of each point estimate.

Final Model

In 2009, the global mean isolation prevalence was 19.2% (95% CI, 17.3%-21.2%; $P < .001$), and the gap between the top and bottom income groups was 8.8 percentage points (5.7-11.8 percentage points; $P < .001$). In relative terms, the bottom income group had 1.6 times higher levels of isolation than the top income group (24.1% socially isolated [95% CI, 21.6%-26.5%]) vs 15.3% [95% CI, 13.5%-17.1%]). The mean change in isolation from 2009 to 2024 was 2.6 percentage points (95% CI, 0.7-4.5 percentage points), a 13.4% increase from 19.2% (95% CI, 17.3%-21.2%) to 21.8% (95%

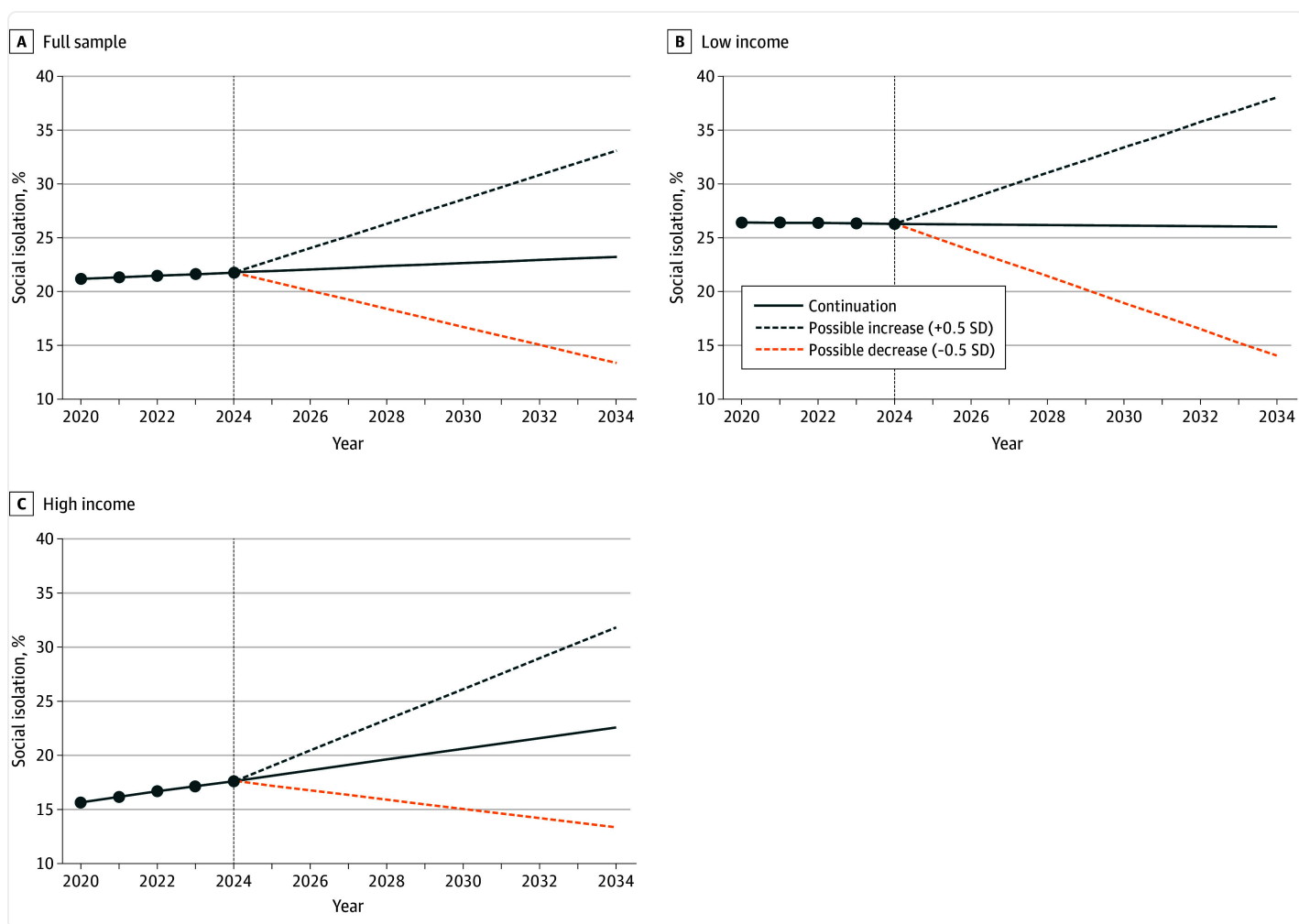
CI, 19.4%-24.2%), equivalent to 0.2 SD units. By 2024, the income gap in social isolation was 8.6 percentage points (95% CI, 5.1-12.1 percentage points), with 26.2% (95% CI, 23.5%-28.8%) of lower-income individuals reporting isolation, compared with 17.6% (95% CI, 15.3%-19.8%) of higher-income individuals. The magnitude of this difference between high- and low-income groups was 0.7 SD units.

Prior to the COVID-19 pandemic (2009-2019), global isolation remained stable ($\beta = 0.4$ [95% CI, -1.3 to 2.0]; $P = .68$ for linear slope). However, a disruption occurred between 2019 and 2020, with social isolation levels increasing 1.5 percentage points (95% CI, 0.3-2.7 percentage points; $P = .01$), a 7.7% increase. This increase was driven by lower-income groups ($\beta = 2.6$ [95% CI, 0.9-4.4]; $P = .003$; an 11.0% increase), with higher-income groups showing no significant change ($\beta = 0.5$ [95% CI, -0.5 to 1.5]; $P = .35$).

Between 2020 and 2024, global increases in isolation remained stable (linear slope: $\beta = 0.72$ [95% CI, -0.52 to 1.96]; $P = .25$; a 3.4% increase), with an increase among the higher-income group (linear slope: $\beta = 1.9$ [95% CI, 0.7-3.1]; $P = .001$; a 12.3% increase), and with relative stability among lower-income groups (linear slope: $\beta = -0.2$ [95% CI, -1.9 to 1.4]; $P = .80$; an 0.8% increase). The income disparity in social isolation was largest in 2020 ($\beta = 10.8$ [95% CI, 7.3-14.2]; $P < .001$; a 22.4% increase from 2009), and by 2024 had returned to levels that were 1.9% lower than in 2009 ($\beta = 8.8$ [95% CI, 5.7-11.8]; $P < .001$). In 2020, 26.4% (95% CI, 23.6%-29.2%) of lower income groups were isolated vs 15.6% (95% CI, 13.6%-17.7%) of higher income groups.

To stimulate discussion of implications, 10-year global projections for the full sample and for low-income and high-income groups are presented in [Figure 2](#). The trajectories linearly extrapolate the post-COVID19 (2020-2024) slope under 3 scenarios: (1) continuation of the observed trend; (2) slope increases (+0.5 SD); and (3) slope decreases (-0.5 SD). The ± 0.5 -SD thresholds were derived from the cross-country distribution of 2020-2024 slopes, ensuring that the alternative paths reflect plausible bounds based on observed variability. Projections suggest that global mean levels would reach 23.1% (95% CI, 19.8%-26.5%) by 2034 if they continue the current trajectory, 33.0% (95% CI, 29.6%-36.3%) with worsening, and 13.3% (95% CI, 9.9%-16.7%) with improvement.

Figure 2. Projections for Social Isolation Trajectories .



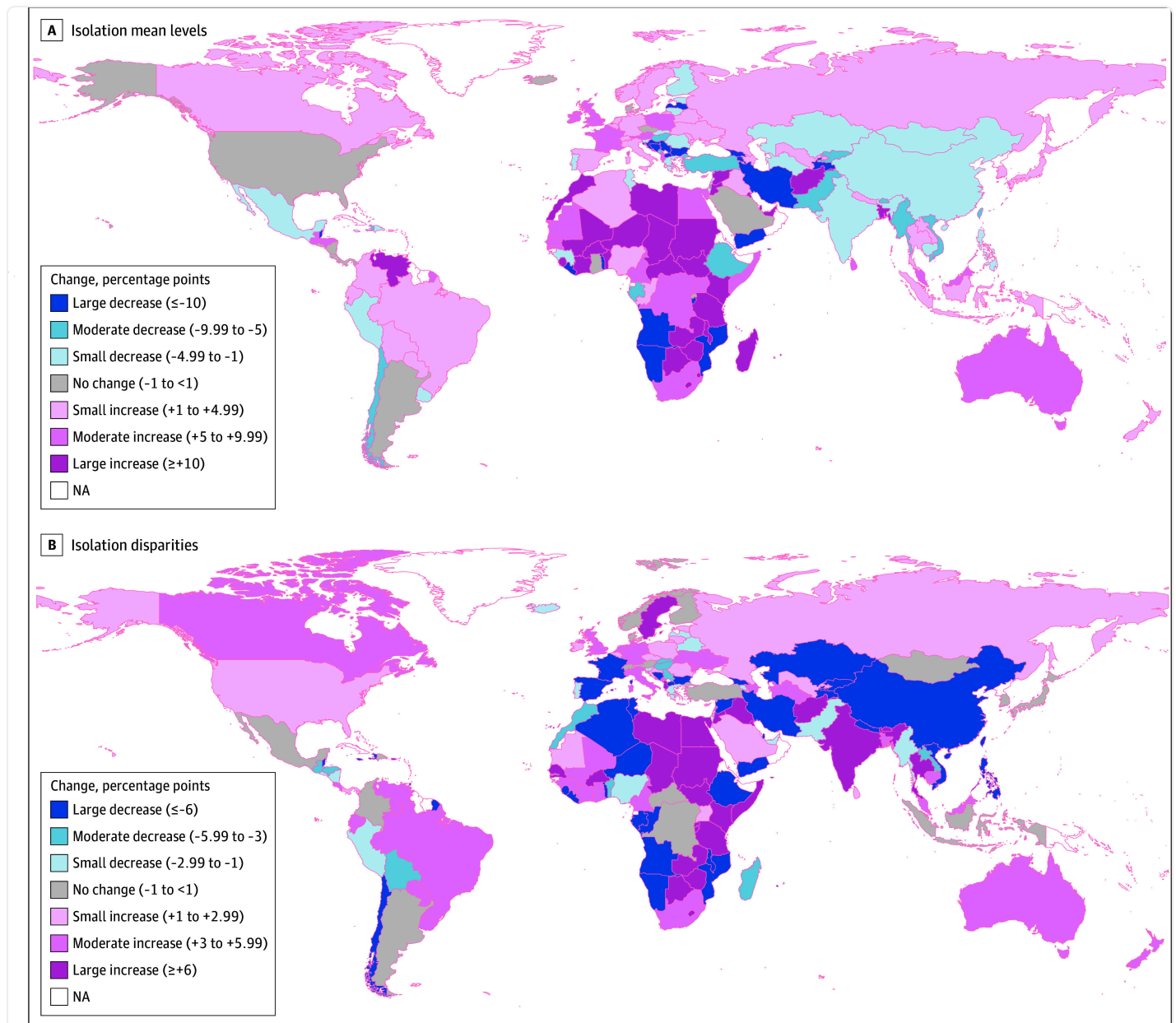
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Variability Across Countries and World Regions

Growth parameters (BLUPs) derived from the final weighted model were used to plot trajectories of isolation by income group for each country (eFigures 1-159 in [Supplement 1](#)). Four key values were derived for cross-country comparison of trajectories: change in mean level, 2009-2024; change in disparity, 2009-2024; final status 2024 level; and final status 2024 disparity. Global variability with respect to change in mean levels and disparities are visualized in [Figure 3](#) (with rankings for countries, regions, and countries within regions shown in eTables 6-8 in [Supplement 1](#), and trend types summarized in eTable 9 in [Supplement 1](#)). Among the 159 countries analyzed, 87 experienced an increase in social isolation (≥ 1 unit), 12 remained stable (< 1 unit change), and 60

showed a decrease (≥ 1 unit). With respect to disparities, 75 of 159 showed an increase, 17 had no change, and 67 showed a decrease. A total of 54 countries experienced worsening isolation and widening disparities, while 41 saw improvements. Trajectories of 4 example countries showing increases in both levels and disparities are shown in [Figure 4](#).

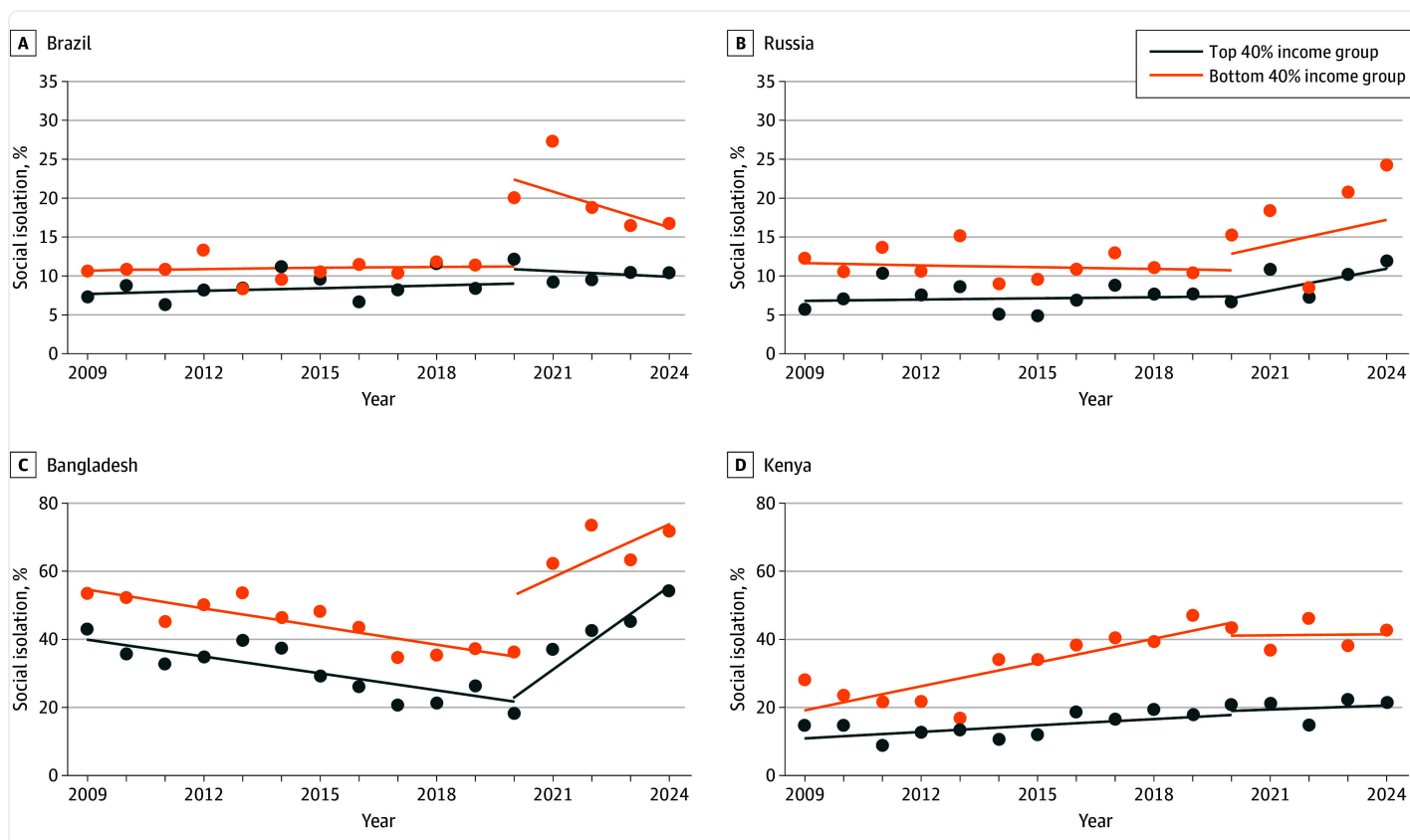
Figure 3. Global Variability With Respect to Change in Isolation Mean Levels and Disparities .



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Units are percentage point magnitudes of change from 2009 to 2024, derived from fitted trajectories. NA indicates not available.

Figure 4. Trajectories of Social Isolation Trends in 4 Countries .



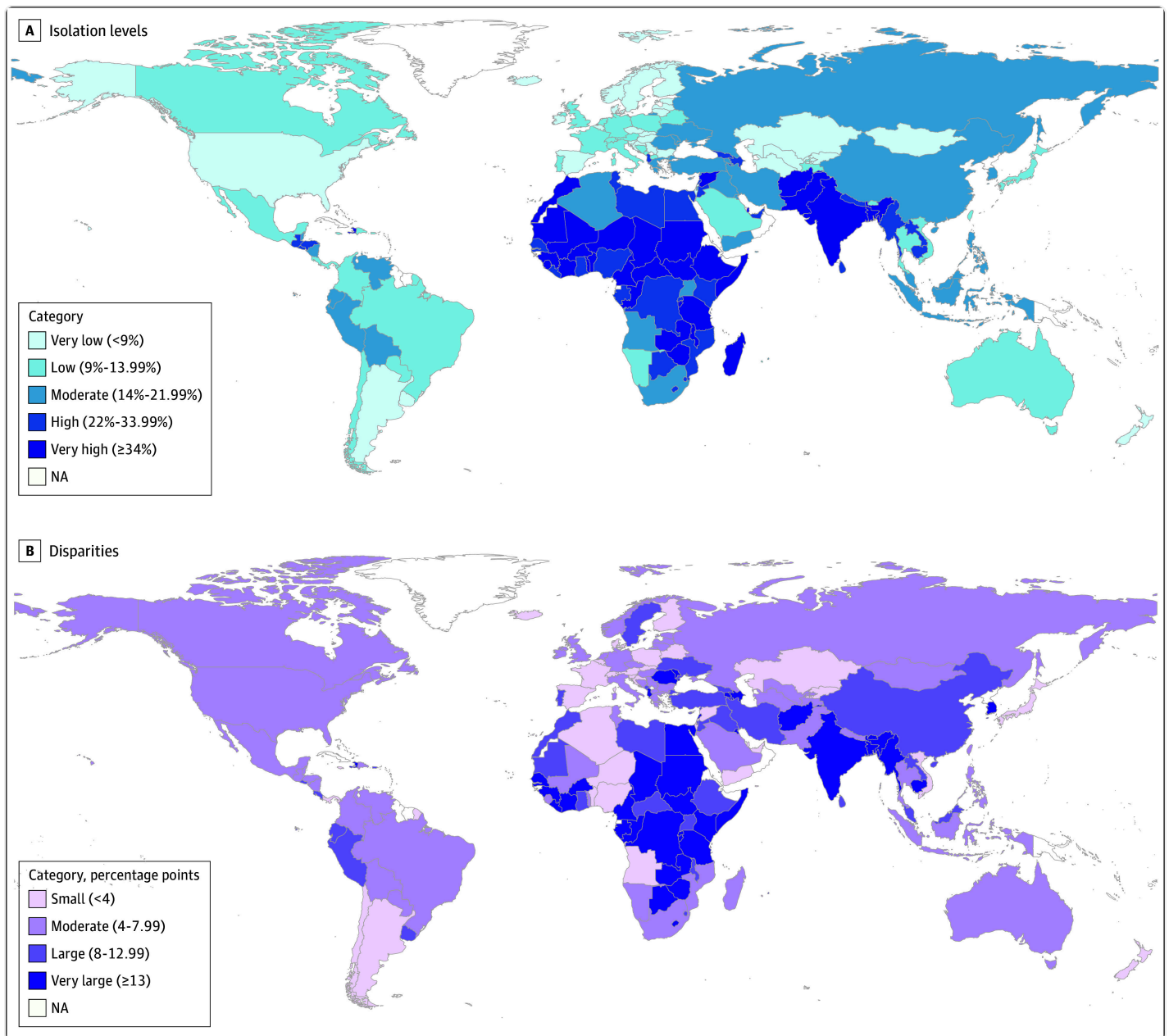
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Fitted trajectories are derived from empirical Bayes estimates of the final best fitting model, with raw data overlaid.

Country-specific intercept and slope coefficients (BLUPs) were averaged across countries within each region to produce region-level trajectories (eFigures 160-169 in [Supplement 1](#)). A list of world regions with descriptive statistics and rankings for trajectory parameters is shown in shown in eTable 7 in [Supplement 1](#). Between 2009 and 2024, sub-Saharan Africa, Middle East and North Africa, and South Asia had the largest increase in mean levels, while Russia and the Former Soviet Union, Europe, and Southeast Asia had the largest decreases. With respect to changes in disparities, South Asia and Australia and New Zealand showed the largest increases, while the Middle East and North Africa and Southeast Asia showed the largest decreases.

Cross-country variability in final status 2024 levels and disparities is visualized in [Figure 5](#) (with data and rankings for countries, regions, and countries within regions shown in eTables 10-12 in [Supplement 1](#)). South Asia, sub-Saharan Africa, and Middle East and North Africa had the highest mean levels, and North America, Australia and New Zealand, and Europe had the lowest (eTable 11 in [Supplement 1](#)). With respect to 2024 disparities, South Asia and sub-Saharan Africa had the highest and Australia and New Zealand and Europe had the lowest.

Figure 5. Global Variability in 2024 Isolation Levels and Disparities .



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Units are prevalence estimates (percentage socially isolated) in 2024, derived from fitted trajectories. NA indicates not available.

Discussion

The results of this study indicate global increases in isolation among both high-income and low-income groups between 2009 and 2024, with substantial variability across countries and world regions. Prior to the COVID-19 pandemic, isolation levels remained stable, but a marked increase, likely due to the COVID-19 pandemic, occurred between 2019 and 2020, primarily seen in lower-income groups. From 2020 to 2024, isolation levels remained elevated and continued to increase for higher-income groups. Overall, the results show that a global increase in isolation occurred after 2019 with no evidence of a return to baseline thereafter. The size of the increase indicated that, on average, an additional 2.6% of the population in each country was socially isolated in 2024, compared with prepandemic levels (2009-2019). Put in the context of variability across countries, this increase is equivalent to one-fifth (22%) of an SD. These findings are consistent with prior research showing an increase in isolation in various country contexts after the pandemic.^{5,6,7} The current study extends this work by demonstrating the global magnitude of the increase and showing that the problem has continued to worsen rather than resolve between 2021 and 2024.

The magnitude of socioeconomic differences in isolation is notable, with 26.2% of lower-income individuals experiencing isolation, compared with 17.6% of higher-income individuals. In the context of variability across countries, this 8.6–percentage-point gap is equivalent to 0.7 SDs. These results extend theoretical^{45,46,47} and empirical^{20,31,48,49,50,51,52} work indicating that groups with more socioeconomic advantage have higher levels of social capital and less isolation.

To our knowledge, this study is among the first to demonstrate the global magnitude of income disparities in isolation and to show how these disparities are evolving around the world. Projection plots suggest that if current trends continue, global isolation levels will continue to increase by approximately 1.5 percentage points over the next decade—further diverging from prepandemic norms. However, the substantial cross-country variability in slopes suggests that global improvement is possible. A modest downward shift in trajectory (–0.5 SD) would put the world on a path to return to prepandemic isolation levels within roughly 3 years. Such a turnaround would likely require coordinated policy responses and collective action across countries.

Our analysis also illustrates the diversity of trajectories that exist across countries around the world. Comparison of world regions suggested that Russia and the Former Soviet Union showed the most overall combined improvement with respect to levels and disparities. Even though Russia and some former Soviet Union countries—such as Azerbaijan, Moldova, and Ukraine—showed increases in both levels and disparities, the overall trend for the Russia and the Former Soviet Union region was among the most favorable, owing to marked improvements in Armenia, Georgia,

Kazakhstan, Kyrgyzstan, and Tajikistan (eTable 7 in [Supplement 1](#)). The specific reasons for these trends remain to be elucidated but suggest a clear trajectory of social improvement in several former Soviet Union countries.

Sub-Saharan Africa and South Asia showed a trajectory of worsening levels and disparities. Trends in South Asia were accounted for by substantial increases in mean levels and disparities in Afghanistan, Bangladesh, and Sri Lanka, and little improvement in other countries across the region. Sub-Saharan Africa had a diversity of trends across countries but 19 experienced an increase in both levels and disparities (Botswana, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Eswatini, Kenya, Lesotho, Mali, Mauritania, Senegal, Somalia, South Africa, South Sudan, Sudan, Tanzania, Uganda, Zambia, Zimbabwe), compared with 9 showing improvement (Angola, Ethiopia, Gabon, Gambia, Liberia, Mauritius, Mozambique, Namibia, Togo). South Asia and sub-Saharan Africa also had the highest social isolation levels and disparities at the trajectory end point (2024), with Australia and New Zealand, Europe, and North America showing the lowest end point levels and disparities (eTable 11 in [Supplement 1](#)). Although Australia and New Zealand showed the second-largest increase in disparities from 2009 to 2024 (behind only South Asia), this change was associated with the absence of any evident disparity at baseline. As a result, the magnitude of the disparity in 2024 remained the lowest of any world region. By highlighting this diversity in social isolation levels and trends, we aim to raise awareness of cross-national comparisons, stimulate discussion on underlying factors, and encourage policy action to reduce levels and disparities.

Strengths and Limitations

This study has some strengths. A key strength is the study's ability to examine social isolation trends across 159 countries over a 16-year period. Although the study's broad geographic and temporal scope is a strength, it also presents limitations. One key limitation is the reliance on a single-item measure of isolation. Although this measure captures an essential aspect of social support, future research should explore additional dimensions of isolation and related constructs. Another limitation was that socioeconomic status focused on one dimension: income quintiles within each country. Consideration of other measures of socioeconomic status, such as educational level or occupational status, could add to this research.

The scope of our analyses and focus on cross-country comparisons also did not allow for consideration of how the analyses might differ across demographic subgroups (eg, age, gender, immigrant status, disability status, and intersections of demographic categories) or country-level predictors of trends. Future studies will be useful to elucidate demographic group differences and

country-level determinants to provide insight into more targeted approaches to addressing social isolation.

Conclusions

The findings of this repeated cross-sectional study suggest that social isolation has increased in many countries around the world. The findings also indicate that income disparities in isolation are large, with sizable variability across countries and over time, particularly in the years after the onset of the COVID-19 pandemic. The substantial income disparities observed underscore the need for targeted interventions, particularly in countries experiencing increasing isolation trends. Future research should examine country-specific factors, including policy changes, that may help to mitigate social isolation.

Supplement 1.

eMethods

eResults

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eFigure 2. Trends in Social Isolation for Congo (Kinshasa) by Income Group

eFigure 3. Trends in Social Isolation for Central African Republic by Income Group

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Associated Data

This section collects any data citations, data availability statements, or supplementary materials included in this article.

Supplementary Materials

Supplement 1.

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