Evaluating the Global Burden and Evolution of Major Depressive Disorder Associated with Adverse Life Experiences: Implications for Healthcare and Nursing Practice

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Abstract

Background: To address the global health challenge posed by Major Depressive Disorder (MDD) linked to adverse life experiences (ALEs)

Objective: This study examines the temporal trends, geographical distribution, and future projections of MDD burden associated with ALEs in 204 countries and territories, informing healthcare planning and nursing education.

Methods: This study analyzed global data from 1990-2021, examining three primary ALEs: childhood sexual abuse, bullying victimization, and intimate partner violence. We employed descriptive statistics, age-period-cohort modeling (APCM), and Bayesian analysis to assess temporal trends and project future burden. The analysis included calculation of Disability-Adjusted Life Years (DALYs), age-standardized death rates (ASDR), and population attributable fractions (PAF).

Results: The global age-standardized rates in 2021 were 6.32% for childhood sexual abuse, 7.96% for bullying victimization, and 21.99% for intimate partner violence. From 1990 to 2021, DALYs associated with intimate partner violence showed the most substantial increase (83%). ASDR rates increased significantly for MDD linked to bullying victimization (22%) and intimate partner violence (9%). Geographical analysis revealed significant variations, with some countries showing marked decreases (e.g., Singapore, China) while others demonstrated notable increases (e.g., United States, Norway) in MDD burden. APCM analysis identified peak DALYs rates at age 42 for childhood sexual abuse-related MDD and age 50 for intimate partner violence-related MDD. Projections through 2046 indicate a continued upward trend in MDD burden, with intimate partner violence-related cases expected to increase by 17.98%.

Conclusions: The study described temporal patterns of ALEs related MDD from 1990 to 2021, and predicted the DALYs numbers in the next 25 years. These findings have important implications for healthcare planning and nursing education, suggesting the need for targeted interventions and enhanced mental health services.

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Abstract

Objectives: To address the global health challenge posed by Major Depressive Disorder (MDD) linked to adverse life experiences (ALEs), this study examines the temporal trends, geographical distribution, and future projections of MDD burden associated with ALEs in 204 countries and territories, informing healthcare planning and nursing education.

Methods: This study analyzed global data from 1990-2021, examining three primary ALEs: childhood sexual abuse, bullying victimization, and intimate partner violence. We employed descriptive statistics, age-period-cohort modeling (APCM), and Bayesian analysis to assess temporal trends and project future burden. The analysis included calculation of Disability-Adjusted Life Years (DALYs), age-standardized death rates (ASDR), and population attributable fractions (PAF).

Results: The global age-standardized rates in 2021 were 6.32% for childhood sexual abuse, 7.96% for bullying victimization, and 21.99% for intimate partner violence. From 1990 to 2021, DALYs associated with intimate partner violence showed the most substantial increase (83%). ASDR rates increased significantly for MDD linked to bullying victimization (22%) and intimate partner violence (9%). Geographical analysis revealed significant variations, with some countries showing marked decreases (e.g., Singapore, China) while others demonstrated notable increases (e.g., United States, Norway) in MDD burden. APCM analysis identified peak DALYs rates at age 42 for childhood sexual abuse-related MDD and age 50 for intimate partner violence-related MDD. Projections through 2046 indicate a continued upward trend in MDD burden, with intimate partner violence-related cases expected to increase by 17.98%.

Conclusion: The study described temporal patterns of ALEs related MDD from 1990 to 2021, and predicted the DALYs numbers in the next 25 years. These findings have important implications for healthcare planning and nursing education, suggesting the need for targeted interventions and enhanced mental health services.

Keywords: Major Depressive Disorder, Adverse Life Experiences, Disease Burden, Global Health, Mental Health Nursing

Introduction

Major Depressive Disorder (MDD) represents one of the most prevalent and debilitating psychiatric conditions globally, significantly impacting individuals' quality of life and placing substantial burden on healthcare systems[1]. As a complex mental health condition, MDD is characterized by persistent feelings of sadness, loss of interest, and various cognitive and physical symptoms that substantially impair daily functioning[2]. Recent evidence has increasingly highlighted the significant role of adverse life experiences (ALEs) in the development and progression of MDD. These experiences, particularly childhood sexual abuse, bullying victimization, and intimate partner violence, have been identified as crucial risk factors[3]. The relationship between ALEs and MDD is particularly concerning in the context of mental health nursing, as it necessitates specialized approaches to care and intervention[4].

The impact of childhood sexual abuse on mental health outcomes has been well-documented,

with studies showing strong associations with the development of MDD later in life[5]. Similarly, bullying victimization has emerged as a significant concern, particularly among younger populations, with lasting effects that can persist into adulthood[6]. Intimate partner violence represents another critical ALE that has been strongly linked to MDD. Recent studies have shown that individuals exposed to intimate partner violence have significantly higher rates of depression and poorer mental health outcomes[7]. The relationship between these experiences and MDD is particularly relevant in the context of nursing care, as healthcare providers often serve as first-line responders for individuals experiencing such trauma.

The global burden of MDD has shown concerning trends in recent years. Research indicates that the prevalence and impact of MDD vary significantly across different geographical regions and populations[8]. These variations are influenced by multiple factors, including socioeconomic conditions, healthcare access, and cultural contexts[9]. From a nursing perspective, understanding the relationship between ALEs and MDD is crucial for developing effective interventions. Recent studies have emphasized the importance of trauma-informed care approaches in mental health nursing[10]. The integration of such approaches into nursing practice requires comprehensive understanding of both the immediate and long-term impacts of ALEs on mental health outcomes.

The current study aims to address several critical gaps in our understanding of the relationship between ALEs and MDD. First, while previous research has established links between individual ALEs and MDD, comprehensive analysis of temporal trends and geographical distribution has been limited. Second, future projections of MDD burden related to ALEs are crucial for healthcare planning but have been understudied[11]. Furthermore, this study seeks to provide valuable insights for nursing education and practice. The findings will contribute to the development of more effective, evidence-based approaches to mental health nursing care[12]. Understanding the projected trends through 2046 will be crucial for preparing the next generation of mental health nurses to address these challenges effectively.

Methods

Design and subject population

The current study draws upon data from the Global Burden of Disease (GBD) 2021 study, with a specific aim to measure the health burden of MDD linked to ALEs across 204 nations and regions. Elaborate descriptions of the analytical methodology employed by the GBD study are accessible within the current scholarly literature[13].

Our analysis adopted a worldwide lens, inclusive of all countries and territories as defined

within the GBD dataset. The investigation centered on MDD, singling out ALEs such as intimate partner violence, childhood sexual abuse, and bullying victimization as critical risk factors. To gauge the impact of these ALEs, we utilized disability-adjusted life years (DALYs) as the main outcome measure. The data were retrieved from the Global Health Data Exchange website (last accessed on 4 Oct 2024).

Given that the research involves the secondary analysis of open-access data and does not include direct interaction with human subjects, the acquisition of ethical approval from an institutional review board was deemed unnecessary. In the course of data analysis, we strictly followed the Guidelines for Accurate and Transparent Health Estimates Reporting to guarantee the accuracy and replicability of our findings[14].

Risk factors and burden of disease metrics

The GBD 2021 study identified three principal categories of risk factors for MDD: environmental and occupational hazards, behavioral risks, and metabolic risks. Emerging evidence suggests an increasing trend in the disease burden of mental health conditions related to childhood sexual abuse, bullying victimization, and intimate partner violence from 1990 onwards[15]. In light of this, our study concentrated on these three ALEs as significant contributors to the incidence of MDD.

In our assessment of risk factors and the overall disease burden, we employed an array of comprehensive metrics. These included summary exposure values (SEV) to quantify exposure levels, DALYs to capture the total years lost to ill-health, disability, or early death, age-standardized DALYs (ASDR) to facilitate comparisons across different populations, the population attributable fraction (PAF) to estimate the proportion of disease burden attributable to specific risk factors, and the age-standardized PAF (ASPAF) to account for age differences in the population. The data for these metrics, encompassing both their numerical values and 95% confidence intervals (CI) for precision, were meticulously gathered from the reputable Global Health Data Exchange website, ensuring a robust and standardized approach to our analysis.

Statistical analysis

To analyze the temporal trends of MDD associated with ALEs, we utilized descriptive statistics, calculating the annual percentage change (APC) and the average APC (AAPC) [16]. We further applied an age-period-cohort model (APCM) to assess the effects of age, period, and cohort on the disease burden, presenting results as net drift for overall trends, local drifts for age-specific changes, and relative risk (RR) for period and cohort comparisons.

Joinpoint regression analysis was also performed to identify trend changes in age-standardized rates and the PAF for DALYs. Concurrently, we implemented a Bayesian APC model with integrated

nested Laplace approximations (via R packages INLA and BAPC) to predict ASDR for MDD due to ALEs from 2021 to 2046, using an inverse gamma prior and a second-order random walk to account for data overdispersion[17, 18].

Moreover, we incorporated an innovative decomposition technique to elucidate the effects of population expansion, aging dynamics, and variations in risk factors on the DALYs attributed to MDD[19, 20]. This approach advances previous techniques by minimizing the impact of the sequence of decomposition and the choice of reference group[21-23].

The entirety of these sophisticated analyses was executed using R version 4.2.0, which guaranteed a robust and meticulous examination of the data.

Results

Global Prevalence and the Burden of MDD Attributable to ALEs

Our investigation commenced with an in-depth exploration of the global prevalence of ALEs, which includes intimate partner violence, childhood sexual abuse, and bullying victimization. As detailed in **Table 1**, the global age-standardized rates for these ALEs in 2021 were as follows: childhood sexual abuse at 6.32% (95% CI: 5.88%-6.92%), bullying victimization at 7.96% (95% CI: 3.76%-14.69%), and intimate partner violence at 21.99% (95% CI: 14.45%-24.18%). Analyzing the period from 1990 to 2021, we observed a significant reduction in the SEV rates for childhood sexual abuse, with a rate of change of -0.09 (95% CI: -0.15 to -0.02). In contrast, trends for bullying victimization and intimate partner violence did not reach statistical significance during this era.

Progressing from the analysis of exposure rates, we conducted an assessment of the disease burden due to MDD arising from ALEs, using DALYs as the primary metric. As indicated in **Table 1**, from 1990 to 2021, there was a significant uptick in the number of DALYs for MDD associated with childhood sexual abuse, bullying victimization, and intimate partner violence. The steepest increase was observed in cases related to intimate partner violence, amounting to an additional 83% (95% CI: 69%-97%). In terms of the ASPAF, the change in MDD attributed to bullying was not statistically significant, whereas the ASPAF for the other two ALEs showed a statistically significant decrease. With respect to ASDR rates, MDD linked to bullying victimization and intimate partner violence exhibited marked upward trends, with increases of 22% (95% CI: 15%-33%) and 9% (95% CI: 1%-16%) respectively. However, the change in ASDR rates for depression resulting from childhood sexual abuse did not achieve statistical significance.

Global spatial and temporal Disparities in the burden of MDD attributable to ALEs from 1990

to 2021

To investigate the global geographical disparities in the burden of MDD related to ALEs, we analyzed AAPC for MDD associated with childhood sexual abuse, bullying victimization, and intimate partner violence, respectively. Our analysis from 1990 to 2021 revealed significant decreases in the burden of MDD due to childhood sexual abuse in China, Singapore, Cuba, Estonia, and Denmark, with AAPC rates ranging from -0.43 to -0.27. In contrast, increases were noted in the United States, Canada, Norway, Mexico, and Lebanon, with rates from 0.18 to 0.77 (**Figure 1A** and **Supplementary Table S1**). For MDD stemming from bullying victimization, the most pronounced reductions were observed in Bosnia and Herzegovina, Singapore, Cuba, China, and Denmark, with AAPC values from -0.23 to -0.30. Conversely, Niger, Oman, Burkina Faso, Mali, and Djibouti witnessed notable upsurges, with rates from 0.79 to 1.06 (**Figure 1B** and **Supplementary Table S2**). Regarding MDD associated with intimate partner violence, the most significant decreases were found in Singapore, Maldives, Ethiopia, China, and Brazil, with AAPC ranging from -0.29 to -0.39. In contrast, Honduras, Jamaica, Paraguay, Ireland, and Sweden exhibited substantial increases, with rates from 0.57 to 0.90 (**Figure 1C** and **Supplementary Table S3**).

To assess the temporal patterns in the burden of MDD attributable to ALEs, we utilized the Joinpoint regression analysis. **Table 2** reveals a rising trend in ASDR rates for MDD stemming from bullying victimization and intimate partner violence, contrasted with a declining pattern for MDD associated with childhood sexual abuse over the 1990 to 2021 timeframe. The ASPAF of DALY rates demonstrated a downward trend for MDD related to both childhood sexual abuse and intimate partner violence. Conversely, MDD connected to bullying victimization showed no significant alterations. From 2010 onwards, there has been a general upward trend in ASDR rates for all three risk factors, except for MDD related to bullying victimization from 2019 to 2021, which did not achieve statistical significance (0.51% (95% CI: -0.15% to 1.18%)). Regarding the ASPAF of DALY rates, a decreasing trend was evident for all three risk factors starting from 2016. However, for MDD due to bullying victimization between 2016 and 2019, the trend remained statistically stable (-0.02% (95% CI: -0.79% to 0.75%)). This in-depth analysis highlights the complex and dynamic nature of the global burden of MDD resulting from ALEs.

APCM analysis of DALYs for MDD Attributable to ALEs from 1900 to 2021

In our subsequent analysis, we utilized the APCM to delve into the DALYs associated with MDD triggered by ALEs. Our findings, as depicted in **Figure 2**, reveal that the DALYs rate for MDD resulting from child sexual abuse exhibits a distinctive U-shaped pattern, with a decrease before the

age of 20 and after 70, and a stable phase in the intervening age range. A parallel trend is noted for MDD linked to intimate partner violence (**Figure 4A**), where a decline is evident before the age of 30 and after 70. The Longitudinal Age Curves presented in our study pinpoint a peak in the DALYs rate at approximately 42 years, marking a critical age threshold. This peak is followed by a gradual decline that continues until the age of 80, beyond which there is a slight upward trend, suggesting that the burden of MDD may increase again in the later years of life. This pattern is echoed in the DALYs for MDD associated with intimate partner violence (**Figure 4B**), which reaches its zenith around 50 years and subsequently decreases until about 92 years, before a sharp increase is observed.

Examining the period RR, we find that for MDD stemming from child sexual abuse, the DALYs rate peaks around 2008, followed by a significant reduction and a subsequent upswing after 2018. A comparable pattern is evident for MDD related to intimate partner violence (**Figure 4C**). However, the cohort RR analyses for both child sexual abuse (**Figure 2D**) and intimate partner violence-related MDD (**Figure 4D**) do not convey a consistent overall trend in the DALYs rate, indicating that the impact of ALEs on MDD may vary across different birth cohorts. Furthermore, Figure 3 illustrates that for MDD resulting from bullying victimization, the DALYs rate displays an overall decline up to approximately 42 years of age, followed by a gradual rise. The Longitudinal Age Curves also indicate that the DALYs rate for this subset reaches a peak around 23 years, after which it slowly decreases. Notably, despite a temporary downward trend in the period RR between 2006 and 2012, the overall trend suggested by both the period RR and cohort RR data is upward, underscoring the increasing burden of MDD attributable to ALEs over time.

Projecting and dissecting the burden of MDD due to ALEs from 2019 to 2046

In an effort to forecast the impact of ALEs on the burden of MDD, we conducted a predictive analysis of ASDR rates for MDD, extending from 2021 through 2046. Based on the projected trends in ASDR for MDD associated with childhood sexual abuse (**Figure 3A**), bullying victimization (**Figure 3B**), and intimate partner violence (**Figure 3C**) spanning the years 1990 to 2046, the forecasts point to a persistent rise in the burden of MDD attributable to these ALEs.

Furthermore, we endeavored to estimate the total number of DALYs attributable to MDD resulting from these three ALEs (**Table 3**). The results imply a significant uptick in the DALY counts by 2046, with each ALEs category showing an increase from their 2021 benchmarks. The most dramatic surge is anticipated for MDD caused by intimate partner violence, with a projected increase of 17.98%. For MDD arising from childhood sexual abuse, we anticipate an 8.75% rise, primarily influenced by modifications in the risk factor rate (2.97%) and population expansion (5.76%). The

burden of MDD associated with bullying victimization is expected to grow by 4.82%, due to a change in the risk factor rate of 0.94% and population growth of 4.17%, partially counterbalanced by a 0.29% reduction resulting from shifts in age structure. In the instance of MDD linked to intimate partner violence, the forecasted growth from 2046 compared to 2021 is 17.98%, with the increase apportioned among changes in the risk factor rate (8.27%), population growth (9.24%), and age structure (0.47%) respectively.

Discussion

This comprehensive study offers a detailed examination of the global burden of MDD in relation to ALEs, with a particular focus on the implications for nursing practice. Our findings provide the most current global epidemiological data, which is vital for informing public health policies aimed at mitigating the impact of MDD associated with ALEs. Moreover, these insights are essential for customizing treatment plans to meet individual patient needs, ensuring alignment with the personalized care that is central to modern nursing.

The etiology of MDD is multifaceted, with a spectrum of risk factors that span genetic, biochemical, psychosocial, and environmental domains[24, 25]. The COVID-19 pandemic has had a profound effect on the incidence of mental health disorders, including a significant increase in MDD prevalence of approximately 27.6%[26]. Our results highlight the substantial and escalating impact of ALEs such as childhood sexual abuse, bullying victimization, and intimate partner violence on the global burden of MDD, which is consistent with previous research identifying these ALEs as critical risk factors for the development of MDD[5, 6, 27].

Our research reveals a high global prevalence of ALEs, with intimate partner violence being the most commonly reported. The observed decline in childhood sexual abuse rates between 1990 and 1999 is a positive trend; however, the stable rates of bullying victimization and intimate partner violence underscore the persistent nature of these challenges. These findings emphasize the ongoing need for public health interventions and targeted nursing care strategies to effectively address ALEs[7].

The global spatial and temporal disparities in the burden of MDD attributable to ALEs underscore the heterogeneity of these issues across different regions. Notable reductions in the burden of MDD due to childhood sexual abuse in certain countries, such as China and Singapore, suggest that targeted interventions and policy changes can lead to favorable outcomes. Conversely, increases in other regions, including the United States and Canada, highlight the enduring challenges in mental health care. The diverse trends observed for MDD stemming from bullying victimization and intimate partner violence necessitate context-specific approaches to address these ALEs.

The APCM analysis of DALYs for MDD attributable to ALEs reveals distinct age patterns and cohort differences, with U-shaped trends observed for MDD related to childhood sexual abuse and intimate partner violence. These trends suggest a lasting impact of these ALEs on mental health outcomes across the lifespan, with a peak burden occurring in middle age, indicating this period as particularly critical for the development of MDD following ALEs.

Our projections through 2046 indicate a persistent rise in the burden of MDD attributable to ALEs, with the most dramatic surge anticipated for MDD caused by intimate partner violence. These findings underscore the urgency of addressing the root causes of ALEs and strengthening mental health care systems, particularly within the nursing profession, which has seen a significant evolution in its role in addressing MDD. There is a growing emphasis on community-based interventions and preventive care, which is crucial in the context of ALEs where early intervention and support can significantly impact long-term outcomes[4, 28].

The economic implications of MDD are substantial, encompassing direct medical costs, indirect costs due to lost productivity, and intangible costs related to reduced quality of life[29]. The complex relationship between socioeconomic development and MDD burden suggests that better healthcare access does not necessarily correlate with reduced MDD prevalence, underscoring the need for comprehensive approaches to prevention and treatment[30]. Despite the availability of various treatment options, significant gaps persist in the care pathway for MDD, with many episodes going undiagnosed and delays in treatment initiation, particularly in resource-poor settings[25, 31].

Recent technological advances, such as virtual and extended reality-enhanced behavioral activation, present new possibilities for intervention and treatment that could be particularly valuable in addressing MDD related to ALEs[32]. From a nursing perspective, the study's findings have several important implications, emphasizing the need for trauma-informed care approaches in mental health nursing[10]. Nurses must be trained to recognize and respond to the signs of ALEs, providing compassionate and evidence-based care. Additionally, the study underscores the importance of nursing education in understanding the complex relationship between ALEs and MDD and in implementing interventions that promote resilience and recovery[12].

In conclusion, the present study contributes valuable insights into the global burden of MDD attributable to ALEs and the nursing implications of these findings. The projected trends necessitate a comprehensive and multifaceted approach to mental health care, with nurses playing a pivotal role in the prevention, treatment, and management of MDD. It is imperative that future research and practice continue to address the complex interplay between ALEs and MDD, and that nurses are equipped with the knowledge and tools to provide the highest standard of care for individuals

affected by these disorders. This research underscores the urgency for a collaborative effort across disciplines to mitigate the impact of ALEs on mental health and to enhance the quality of life for those living with MDD.

Conflicts of interest

No conflicts of interest.

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Table 1. The summary of exposure values and the burden of disease for major depressive disorder resulting from adverse life experiences.

Metric	Measure	Year				Percentage Change (95% CI)	
		1990 (95% CI)		2021 (95% CI)			
SEV							
Childhood sexual abuse	All ages (%)	6.97	(6.49 - 7.62)	6.35	(5.93 - 6.95)	-0.09	(-0.16 - -0.02)
	Age-standardized (%)	6.94	(6.47 - 7.60)	6.32	(5.88 - 6.92)	-0.09	(-0.15 - -0.02)
Bullying victimization	All ages (%)	8.79	(3.95 - 16.74)	7.68	(3.62 - 14.20)	-0.13	(-0.19 - -0.05)
	Age-standardized (%)	7.86	(3.52 - 15.09)	7.96	(3.76 - 14.69)	0.01	(-0.06 - 0.10)
Intimate partner violence	All ages (%)	23.41	(14.67 -25.86)	22.15	(14.51 - 24.38)	-0.05	(-0.13 - 0.10)
	Age-standardized (%)	23.61	(14.71 - 26.04)	21.99	(14.45 - 24.18)	-0.07	(-0.14 - 0.07)
DALYs							
Childhood sexual abuse	Numbers (*n*)	912184	(451529 - 1553633)	1499510	(724965 - 2574376)	0.64	(0.54 - 0.75)
	PAF (all ages, %)	0.04	(0.02 - 0.06)	0.03	(0.02 - 0.05)	-0.15	(-0.20 - -0.10)
	ASPAF (%)	0.04	(0.02 - 0.06)	0.03	(0.02 - 0.05)	-0.15	(-0.20 - -0.10)
	All-age rate ($1/10^5$)	17.10	(8.47 – 29.13)	19.00	(9.19 - 32.62)	0.11	(0.04 - 0.18)
	ASDR ($1/10^5$)	18.25	(9.04 – 31.33)	18.08	(8.75 – 30.97)	-0.01	(-0.06 - 0.05)
Bullying victimization	Numbers (*n*)	2093686	(848129 - 4089845)	3465279	(1463536 - 6550367)	0.66	(0.55 - 0.79)
	PAF (all ages, %)	0.09	(0.04 - 0.15)	0.07	(0.04 - 0.13)	-0.14	(-0.20 - -0.07)

	ASPAF (%)	0.08	(0.03 - 0.13)	0.08	(0.04 - 0.14)	0.05	(-0.01 - 0.14)
	All-age rate ($1/10^5$)	39.25	(15.90 – 76.68)	43.91	(18.55 – 83.01)	0.12	(0.05 - 0.21)
	ASDR ($1/10^5$)	36.37	(14.79 – 71.28)	44.32	(18.72 – 83.89)	0.22	(0.15 - 0.33)
	Numbers (*n*)	1525792	(4588 - 3406068)	2793203	(9305 - 6127727)	0.83	(0.69 - 0.97)
Intimate partner violence	PAF (all ages, %)	0.06	(0.00 - 0.14)	0.06	(0.00 - 0.13)	-0.05	(-0.12 - 0.01)
	ASPAF (%)	0.06	(0.00 - 0.14)	0.06	(0.00 - 0.13)	-0.06	(-0.13 - 0.00)
	All-age rate ($1/10^5$)	28.61	(0.09 – 63.86)	35.40	(0.12 – 77.65)	0.24	(0.14 - 0.33)
	ASDR ($1/10^5$)	30.90	(0.09 – 69.41)	33.57	(0.11 – 73.57)	0.09	(0.01 - 0.16)

Abbreviations: SEV, summary exposure values; DALYs, disability adjusted life years; PAF, population attributable proportion; ASDR, age-standardized DALYs rate; ASPAF, age-standardized population attributable proportion.

Table 2. The JoinPoint analysis to trace the evolution of disease burden for major depressive disorder caused by adverse life experiences from 1990 to 2021.

Metric	Trend 1		Trend 2		Trend 3		Trend 4		Trend 5		1990-2021
	Period	APC (95% CI) (%)	Period	APC (95% CI) (%)	Period	APC (95% CI) (%)	Period	APC (95% CI) (%)	Period	APC (95% CI) (%)	AAPC (95% CI) (%)
ASDR											
Childhood sexual abuse	1990-1993	1.10 (0.93, 1.27)	1993-2005	0.12 (0.10, 0.14)	2005-2010	-1.74 (-1.84, -1.64)	2010-2016	0.17 (0.10, 0.24)	2016-2021	0.45 (0.37, 0.52)	-0.03 (-0.06, 0.00)
Bullying victimization	1990-1993	1.64 (1.28, 1.99)	1993-2006	0.76 (0.72, 0.80)	2006-2009	-1.91 (-2.57, -1.26)	2009-2019	0.98 (0.91, 1.04)	2019-2021	0.51 (-0.15, 1.18)	0.64 (0.55, 0.72)
Intimate partner violence	1990-1993	-0.21 (-0.24, -0.17)	1994-2005	-0.04 (-0.06, -0.02)	2005-2010	-2.18 (-2.27, -2.10)	2010-2019	0.07 (0.04, 0.10)	2019-2021	9.53 (9.25, 9.82)	0.37 (0.34, 0.39)
ASPAF of DALYs rates											
Childhood sexual abuse	1990-1995	-0.10 (-0.14, -0.06)	1995-2004	0.11 (0.09, 0.13)	2004-2016	-0.09 (-0.11, -0.08)	2016-2019	-0.45 (-0.63, -0.26)	2019-2021	-7.92 (-8.08, -7.75)	-0.59 (-0.61, -0.57)
Bullying victimization	1990-1994	0.45 (0.19, 0.72)	1994-2013	0.74 (0.71, 0.77)	2013-2016	0.94 (0.16, 1.72)	2016-2019	-0.02 (-0.79, 0.75)	2019-2021	-7.92 (-8.62, -7.22)	0.07 (-0.05, 0.18)
Intimate partner violence	1990-2002	-0.01 (-0.03, 0.01)	2002-2006	-0.2 (-0.35, -0.04)	2006-2010	-0.54 (-0.70, -0.39)	2010-2017	-0.36 (-0.41, -0.30)	2017-2021	-0.20 (-0.30, -0.10)	-0.21 (-0.24, -0.17)

Abbreviations: 95% CI, 95% confidence interval; AAPC, average annual percent change; APC, annual percent change; ASMR, age-standardized mortality rate; ASDR, age-standardized DALYs rate; PAF, population attributable proportion; DALYs, disability adjusted life years; ASPAF, age-standardized population attributable proportion.

Table 3. Projections of the incidence and contribution to disability-adjusted life years for major depressive disorder resulting from adverse life experiences, 2021–2046.

Major depressive disorder	Number of DALYs (*n*)		Changes between 2021 and 2046 (%)				
	2021	2046	Overall change	Alterations in risk factors	Demographic transitions	Shifts in age composition	Variations in population size
Childhood sexual abuse	1499510	14620459	8.75	2.97	5.78	0.02	5.76
Bullying victimization	3465279	20161663	4.82	0.94	3.88	-0.29	4.17
Intimate partner violence	2793203	53023683	17.98	8.27	9.71	0.47	9.24

Abbreviations: DALYs, disability adjusted life years.

Table S1 Average annual percentage changes (AAPC) of disability-adjusted life years for major depressive disorder attributing to childhood sexual abuse, from 1990 to 2021 across 204 countries and territories.

location_name	val	lower	upper
Afghanistan	0.04	-0.16	0.28
Albania	0.05	-0.16	0.32
Algeria	0.04	-0.15	0.26
American Samoa	-0.04	-0.26	0.25
Andorra	0.02	-0.15	0.21
Angola	-0.01	-0.18	0.19
Antigua and Barbuda	-0.03	-0.2	0.16
Argentina	-0.04	-0.24	0.18
Armenia	0.09	-0.07	0.32
Australia	-0.2	-0.32	-0.06
Austria	-0.18	-0.33	-0.01
Azerbaijan	0	-0.17	0.2

Bahamas	-0.05	-0.22	0.17
Bahrain	-0.11	-0.28	0.14
Bangladesh	-0.09	-0.28	0.15
Barbados	-0.01	-0.18	0.2
Belarus	-0.03	-0.22	0.19
Belgium	0.16	-0.04	0.44
Belize	0.06	-0.15	0.33
Benin	0.05	-0.1	0.24
Bermuda	-0.18	-0.34	0.02
Bhutan	-0.05	-0.27	0.22
Bolivia (Plurinational State of)	-0.12	-0.27	0.06
Bosnia and Herzegovina	-0.26	-0.39	-0.09
Botswana	-0.02	-0.18	0.18
Brazil	-0.14	-0.26	0.01
Brunei Darussalam	0.03	-0.15	0.26

Bulgaria	-0.15	-0.29	0.04
Burkina Faso	-0.01	-0.19	0.19
Burundi	-0.21	-0.35	-0.05
Cabo Verde	0.08	-0.11	0.31
Cambodia	-0.02	-0.22	0.22
Cameroon	0.05	-0.12	0.26
Canada	0.38	0.16	0.65
Central African Republic	0	-0.17	0.22
Chad	0.03	-0.13	0.22
Chile	-0.17	-0.33	0
China	-0.43	-0.54	-0.3
Colombia	-0.17	-0.34	0.02
Comoros	-0.04	-0.2	0.15
Congo	-0.08	-0.23	0.1
Cook Islands	-0.01	-0.26	0.27

Costa Rica	0.06	-0.09	0.23
Croatia	-0.21	-0.36	-0.04
Cuba	-0.31	-0.44	-0.15
Cyprus	0.04	-0.12	0.24
Czechia	-0.19	-0.33	-0.01
C te d'Ivoire	0.03	-0.14	0.23
Democratic People's Republic of Korea	-0.14	-0.3	0.09
Democratic Republic of the Congo	-0.02	-0.19	0.16
Denmark	-0.27	-0.4	-0.12
Djibouti	0.02	-0.16	0.23
Dominica	-0.01	-0.17	0.2
Dominican Republic	-0.01	-0.18	0.21
Ecuador	-0.09	-0.25	0.12
Egypt	0.14	-0.06	0.41
El Salvador	0.01	-0.1	0.22

Equatorial Guinea	-0.07	-0.236	0.14
Eritrea	-0.04	-0.21	0.16
Estonia	-0.29	-0.43	-0.14
Eswatini	-0.1	-0.25	0.06
Ethiopia	-0.13	-0.27	0.04
Fiji	0.01	-0.2	0.27
Finland	-0.12	-0.28	0.08
France	-0.11	-0.29	0.11
Gabon	-0.04	-0.21	0.16
Gambia	0.01	-0.13	0.19
Georgia	0.02	-0.16	0.25
Germany	0.12	-0.07	0.36
Ghana	0.02	-0.13	0.19
Greece	-0.01	-0.17	0.2
Greenland	-0.0	-0.2	0.14

Grenada	-0.05	-0.21	0.21
Guam	0.01	-0.25	0.38
Guatemala	-0.07	-0.24	0.13
Guinea	0.07	-0.09	0.27
Guinea-Bissau	0.05	-0.11	0.26
Guyana	0.08	-0.12	0.35
Haiti	-0.02	-0.17	0.13
Honduras	0.06	-0.1	0.23
Hungary	-0.26	-0.4	-0.09
Iceland	-0.16	-0.3	-0.01
India	-0.14	-0.31	0.08
Indonesia	0.01	-0.19	0.26
Iran (Islamic Republic of)	0.07	-0.11	0.27
Iraq	0.07	-0.13	0.36
Ireland	0.1	-0.1	0.33

Israel	-0.05	-0.2	0.16
Italy	-0.02	-0.16	0.16
Jamaica	-0.08	-0.26	0.13
Japan	0.1	-0.08	0.31
Jordan	-0.06	-0.24	0.15
Kazakhstan	-0.02	-0.2	0.23
Kenya	-0.05	-0.18	0.12
Kiribati	-0.1	-0.26	0.08
Kuwait	0.14	-0.05	0.39
Kyrgyzstan	-0.1	-0.27	0.1
Lao People's Democratic Republic	-0.11	-0.33	0.18
Latvia	-0.22	-0.37	-0.02
Lebanon	0.18	-0.03	0.43
Lesotho	-0.08	-0.25	0.11
Liberia	0.02	-0.1	0.2

Libya	0.13	-0.093	0.38
Lithuania	-0.09	-0.3	0.13
Luxembourg	-0.22	-0.33	-0.06
Madagascar	-0.02	-0.19	0.19
Malawi	0	-0.18	0.21
Malaysia	-0.02	-0.25	0.26
Maldives	-0.19	-0.4	0.09
Mali	-0.03	-0.18	0.15
Malta	0	-0.15	0.21
Marshall Islands	-0.04	-0.26	0.24
Mauritania	-0.03	-0.2	0.18
Mauritius	-0.11	-0.31	0.22
Mexico	0.28	0.07	0.51
Micronesia (Federated States of)	-0.07	-0.29	0.17
Monaco	0.03	-0.1	0.22

Mongolia	0.04	-0.15	0.28
Montenegro	-0.03	-0.21	0.18
Morocco	0.04	-0.15	0.25
Mozambique	0.06	-0.15	0.31
Myanmar	-0.01	-0.31	0.35
Namibia	-0.02	-0.18	0.18
Nauru	0	-0.23	0.29
Nepal	0.03	-0.2	0.3
Netherlands	-0.02	-0.19	0.18
New Zealand	-0.01	-0.17	0.19
Nicaragua	0.02	-0.18	0.23
Niger	0.05	-0.12	0.23
Nigeria	-0.12	-0.23	0
Niue	0.01	-0.21	0.3
North Macedonia	-0.0	-0.2	0.15

	8	7	
Northern Mariana Islands	0.08	-0.18	0.45
Norway	0.33	0.12	0.58
Oman	0.1	-0.12	0.38
Pakistan	-0.06	-0.28	0.19
Palau	0	-0.26	0.31
Palestine	0.03	-0.16	0.28
Panama	-0.01	-0.17	0.21
Papua New Guinea	-0.07	-0.32	0.28
Paraguay	-0.04	-0.24	0.17
Peru	-0.19	-0.32	-0.04
Philippines	-0.2	-0.41	0.08
Poland	0.02	-0.17	0.26
Portugal	-0.12	-0.26	0.05
Puerto Rico	-0.05	-0.3	0.28
Qatar	-0.0	-0.2	0.27

Republic of Korea	1 0.13	3 -0.08	0.37
Republic of Moldova	-0.17	-0.35	0.05
Romania	-0.03	-0.22	0.22
Russian Federation	-0.09	-0.21	0.04
Rwanda	-0.16	-0.29	0.01
Saint Kitts and Nevis	-0.03	-0.19	0.18
Saint Lucia	-0.01	-0.2	0.22
Saint Vincent and the Grenadines	0.04	-0.16	0.26
Samoa	-0.11	-0.35	0.2
San Marino	0.05	-0.11	0.23
Sao Tome and Principe	0.01	-0.15	0.19
Saudi Arabia	0.08	-0.12	0.34
Senegal	0.03	-0.15	0.23
Serbia	-0.17	-0.32	0.01
Seychelles	-	-	0.2

	0.09	0.32	5
Sierra Leone	0.1	-0.08	0.31
Singapore	-0.39	-0.5	-0.27
Slovakia	-0.13	-0.3	0.05
Slovenia	-0.27	-0.41	-0.11
Solomon Islands	-0.06	-0.25	0.17
Somalia	0.02	-0.15	0.22
South Africa	-0.04	-0.17	0.13
South Sudan	0.07	-0.12	0.29
Spain	-0.03	-0.21	0.2
Sri Lanka	-0.24	-0.45	0.06
Sudan	0.05	-0.16	0.28
Suriname	0.04	-0.15	0.28
Sweden	0.17	0	0.38
Switzerland	-0.11	-0.28	0.13
Syrian Arab Republic	0.1	-	0.3

	1	0.08	7
Taiwan (Province of China)	0.06	-0.18	0.34
Tajikistan	-0.1	-0.26	0.1
Thailand	0.01	-0.19	0.25
Timor-Leste	-0.16	-0.36	0.11
Togo	0.05	-0.12	0.23
Tokelau	0	-0.22	0.29
Tonga	-0.03	-0.23	0.26
Trinidad and Tobago	-0.08	-0.27	0.16
Tunisia	0.08	-0.11	0.31
Turkey	0.11	-0.14	0.38
Turkmenistan	-0.1	-0.25	0.09
Tuvalu	0.02	-0.2	0.29
Uganda	0	-0.16	0.19
Ukraine	-0.12	-0.28	0.08
United Arab Emirates	-	-	0.2

	0.03	0.24	5
United Kingdom	-0.14	-0.28	0.02
United Republic of Tanzania	0.03	-0.12	0.22
United States of America	0.77	0.57	1.02
United States Virgin Islands	0	-0.18	0.22
Uruguay	0.15	-0.05	0.39
Uzbekistan	-0.08	-0.24	0.13
Vanuatu	-0.08	-0.29	0.18
Venezuela (Bolivarian Republic of)	0.02	-0.15	0.24
Viet Nam	-0.07	-0.29	0.2
Yemen	0.09	-0.11	0.33
Zambia	0.1	-0.1	0.33
Zimbabwe	0.05	-0.11	0.24

Table S2 Average annual percentage changes (AAPC) of disability-adjusted life years for major depressive disorder attributing to bullying victimization, from 1990 to 2021 across 204 countries and territories.

location_name	val	lower	upper
Afghanistan	0.42	0.21	0.69
Albania	0.11	0.01	0.24
Algeria	0.33	0.13	0.69
American Samoa	0.02	-0.08	0.13
Andorra	-0.02	-0.1	0.06
Angola	0.15	0	0.34
Antigua and Barbuda	0.09	0	0.22
Argentina	0.2	-0.07	0.6
Armenia	0.36	0.15	0.74
Australia	0.04	-0.11	0.24
Austria	-0.05	-0.2	0.28
Azerbaijan	0.15	0.02	0.28
Bahamas	0.02	-0.11	0.21
Bahrain	-0.0	-0.1	0.04

	7	5	
Bangladesh	0.03	-0.09	0.19
Barbados	0.1	-0.06	0.3
Belarus	0	-0.1	0.09
Belgium	0.22	-0.03	0.63
Belize	0.17	0	0.42
Benin	0.47	0.19	0.95
Bermuda	-0.1	-0.2	0
Bhutan	0.21	0.04	0.51
Bolivia (Plurinational State of)	-0.04	-0.17	0.14
Bosnia and Herzegovina	-0.3	-0.39	-0.21
Botswana	0.69	0.41	1.2
Brazil	0.09	0	0.21
Brunei Darussalam	0.18	0.03	0.45
Bulgaria	-0.16	-0.28	0.03
Burkina Faso	0.9	0.55	1.48
Burundi	0.54	0.24	0.92
Cabo Verde	0.3	0.16	0.48
Cambodia	0.12	-0.07	0.4

Cameroon	0.37	0.24	0.53
Canada	0.49	0.22	0.96
Central African Republic	0.21	0.07	0.37
Chad	0.57	0.28	0.97
Chile	-0.16	-0.32	0.07
China	-0.26	-0.33	-0.2
Colombia	0.06	-0.11	0.35
Comoros	0.23	0.06	0.45
Congo	-0.05	-0.15	0.03
Cook Islands	0.07	-0.09	0.31
Costa Rica	0.37	0.15	0.78
Croatia	-0.11	-0.33	0.3
Cuba	-0.27	-0.36	-0.16
Cyprus	0.18	0.09	0.29
Czechia	-0.06	-0.23	0.21
C te d'Ivoire	0.31	0.12	0.6
Democratic People's Republic of Korea	-0.1	-0.2	0
Democratic Republic of the Congo	0.29	0.14	0.48

Denmark	-0.23	-0.34	-0.11
Djibouti	0.79	0.41	1.44
Dominica	0.15	-0.03	0.41
Dominican Republic	0.12	0.01	0.26
Ecuador	0.19	0.02	0.44
Egypt	0.42	0.2	0.82
El Salvador	0.12	-0.05	0.4
Equatorial Guinea	0.75	0.46	1.19
Eritrea	0.45	0.18	0.79
Estonia	-0.12	-0.3	0.18
Eswatini	0.55	0.28	1.02
Ethiopia	0.31	0.09	0.64
Fiji	0.13	-0.02	0.39
Finland	0.04	-0.1	0.28
France	-0.09	-0.3	0.24
Gabon	0.03	-0.07	0.14
Gambia	0.51	0.26	0.86
Georgia	0.16	0.03	0.29
Germany	0.2	0	0.5

Ghana	2 0.43	0.11	6 1.07
Greece	0.25	0.1	0.55
Greenland	0.15	0.01	0.39
Grenada	0.1	-0.04	0.31
Guam	0.03	-0.06	0.15
Guatemala	0.54	0.37	0.8
Guinea	0.76	0.46	1.22
Guinea-Bissau	0.59	0.33	0.94
Guyana	0.28	0.03	0.7
Haiti	0.23	0.08	0.42
Honduras	0.23	0.05	0.5
Hungary	-0.14	-0.33	0.18
Iceland	-0.03	-0.22	0.39
India	0.02	-0.06	0.14
Indonesia	0.34	0.26	0.45
Iran (Islamic Republic of)	0.25	0.17	0.38
Iraq	0.27	0.1	0.59
Ireland	0.32	0.09	0.78
Israel	0.06	-0.0	0.28

Italy	-0.09	-0.075	-0.02
Jamaica	0.09	-0.05	0.3
Japan	0.15	0.07	0.24
Jordan	0.18	-0.05	0.58
Kazakhstan	0.05	-0.05	0.16
Kenya	0.21	0.1	0.36
Kiribati	-0.01	-0.16	0.22
Kuwait	0.21	0.02	0.53
Kyrgyzstan	-0.01	-0.13	0.12
Lao People's Democratic Republic	0.12	-0.02	0.34
Latvia	-0.06	-0.24	0.29
Lebanon	0.28	-0.06	0.74
Lesotho	0.16	0.03	0.32
Liberia	0.48	0.24	0.83
Libya	0.18	0.02	0.43
Lithuania	-0.08	-0.2	0.06
Luxembourg	-	-	0.1

	0.17	0.36	7
Madagascar	0.31	0.15	0.52
Malawi	0.21	0.01	0.57
Malaysia	0.16	-0.04	0.46
Maldives	-0.13	-0.27	0.09
Mali	0.82	0.56	1.22
Malta	0.1	-0.07	0.38
Marshall Islands	-0.03	-0.13	0.07
Mauritania	0.5	0.14	1.18
Mauritius	0.16	-0.01	0.44
Mexico	0.51	0.4	0.65
Micronesia (Federated States of)	0.04	-0.08	0.17
Monaco	0.03	-0.05	0.11
Mongolia	0.16	-0.03	0.49
Montenegro	-0.02	-0.11	0.08
Morocco	0.45	0.09	0.99
Mozambique	0.55	0.34	0.84
Myanmar	0.3	0.1	0.6

	1		2
Namibia	0.2	0.02	0.51
Nauru	0.15	0	0.38
Nepal	0.17	0.04	0.34
Netherlands	-0.06	-0.28	0.2
New Zealand	0.15	0.02	0.31
Nicaragua	0.4	0.15	0.75
Niger	1.06	0.68	1.61
Nigeria	0.24	0.08	0.49
Niue	0.06	-0.06	0.2
North Macedonia	0.08	-0.17	0.46
Northern Mariana Islands	0.16	0.06	0.29
Norway	0.1	0.04	0.17
Oman	0.92	0.49	1.72
Pakistan	0.33	0.15	0.65
Palau	0.09	0	0.19
Palestine	0.35	0.17	0.55
Panama	0.14	0.03	0.29
Papua New Guinea	0.09	-0.05	0.26
Paraguay	0.35	0.21	0.52
Peru	-	-	0.0

	0.09	0.2	2
Philippines	-0.01	-0.08	0.08
Poland	0.26	0.16	0.39
Portugal	-0.06	-0.23	0.31
Puerto Rico	-0.04	-0.14	0.07
Qatar	0.12	-0.03	0.33
Republic of Korea	0.28	0.13	0.46
Republic of Moldova	-0.09	-0.21	0.02
Romania	0.2	-0.03	0.66
Russian Federation	0.19	0.11	0.29
Rwanda	0.18	0.04	0.37
Saint Kitts and Nevis	0.1	-0.05	0.38
Saint Lucia	0.19	-0.01	0.53
Saint Vincent and the Grenadines	0.19	0.05	0.45
Samoa	-0.08	-0.17	0.03
San Marino	0	-0.06	0.06
Sao Tome and Principe	0.22	0.09	0.37

Saudi Arabia	0.56	0.38	0.82
Senegal	0.47	0.23	0.77
Serbia	-0.17	-0.25	-0.07
Seychelles	0.04	-0.11	0.29
Sierra Leone	0.44	0.26	0.71
Singapore	-0.29	-0.37	-0.19
Slovakia	0.18	-0.02	0.79
Slovenia	-0.19	-0.38	0.15
Solomon Islands	0.14	-0.05	0.44
Somalia	0.68	0.34	1.12
South Africa	0.17	0.1	0.28
South Sudan	0.16	-0.04	0.45
Spain	0.06	-0.2	0.4
Sri Lanka	-0.1	-0.24	0.15
Sudan	0.13	-0.01	0.3
Suriname	0.18	0.01	0.44
Sweden	-0.1	-0.18	0

Switzerland	-0.03	-0.2	0.26
Syrian Arab Republic	0.07	-0.03	0.16
Taiwan (Province of China)	0.07	-0.1	0.28
Tajikistan	0.07	-0.09	0.29
Thailand	0.3	0.08	0.62
Timor-Leste	0.07	-0.07	0.28
Togo	0.39	0.24	0.58
Tokelau	0.06	-0.02	0.16
Tonga	0.08	-0.08	0.31
Trinidad and Tobago	0.05	-0.14	0.36
Tunisia	0.23	0.06	0.49
Turkey	0.32	0.07	0.78
Turkmenistan	-0.02	-0.11	0.1
Tuvalu	0.27	0.1	0.61
Uganda	0.6	0.34	1.07
Ukraine	0.01	-0.08	0.11
United Arab Emirates	0.28	-0.05	0.81

United Kingdom	-0.17	-0.22	-0.11
United Republic of Tanzania	0.43	0.16	0.88
United States of America	0.76	0.63	0.94
United States Virgin Islands	0.1	0	0.21
Uruguay	0.25	0.02	0.62
Uzbekistan	0.04	-0.06	0.17
Vanuatu	0.1	-0.06	0.41
Venezuela (Bolivarian Republic of)	0.4	0.22	0.73
Viet Nam	0.06	-0.05	0.2
Yemen	0.24	0.07	0.54
Zambia	0.29	0.1	0.63
Zimbabwe	0.23	0.05	0.57

Table S3 Average annual percentage changes (AAPC) of disability-adjusted life years for major depressive disorder attributing to intimate partner violence, from 1990 to 2021 across 204 countries and territories.

location_name	val	lower	upper
Afghanistan	0.08	-0.21	0.53
Albania	0.42	-0.04	1.08
Algeria	0.08	-0.26	0.62
American Samoa	0.12	-0.21	0.59
Andorra	0.27	-0.19	0.89
Angola	0.17	-0.18	0.72
Antigua and Barbuda	0.22	-0.23	0.86
Argentina	0.1	-0.34	0.83
Armenia	0.3	-0.21	1.17
Australia	0.23	-0.16	0.81
Austria	-0.1	-0.42	0.43
Azerbaijan	-0.02	-0.34	0.45
Bahamas	0.25	-0.16	0.98
Bahrain	-	-	0.3

	0.08	0.35	6
Bangladesh	0.17	-0.15	0.54
Barbados	0.28	-0.16	1.06
Belarus	0.33	-0.19	1.18
Belgium	0.39	-0.1	1.09
Belize	0.29	-0.23	1.2
Benin	0.04	-0.31	0.57
Bermuda	0.07	-0.31	0.66
Bhutan	-0.09	-0.39	0.43
Bolivia (Plurinational State of)	0.14	-0.19	0.53
Bosnia and Herzegovina	0.02	-0.33	0.53
Botswana	0.21	-0.13	0.66
Brazil	-0.29	-0.47	-0.07
Brunei Darussalam	0.2	-0.24	0.85
Bulgaria	0.2	-0.15	0.77
Burkina Faso	-	-	0.5

	0.03	0.38	1
Burundi	-0.14	-0.39	0.18
Cabo Verde	0.18	-0.25	0.9
Cambodia	0.24	-0.12	0.81
Cameroon	-0.03	-0.29	0.3
Canada	-0.28	-0.54	0.04
Central African Republic	0.06	-0.3	0.54
Chad	0.11	-0.19	0.54
Chile	0.03	-0.35	0.51
China	-0.3	-0.48	-0.06
Colombia	-0.24	-0.47	0.06
Comoros	0.03	-0.36	0.58
Congo	0.02	-0.27	0.43
Cook Islands	0.25	-0.09	0.73
Costa Rica	0.29	-0.12	0.79
Croatia	-	-	0.2

	0.16	0.47	4
Cuba	-0.2	-0.49	0.24
Cyprus	0.12	-0.29	0.77
Czechia	-0.16	-0.42	0.19
C te d'Ivoire	0.08	-0.22	0.52
Democratic People's Republic of Korea	-0.13	-0.44	0.33
Democratic Republic of the Congo	-0.08	-0.33	0.26
Denmark	0.06	-0.24	0.56
Djibouti	0.08	-0.2	0.53
Dominica	0.19	-0.21	0.78
Dominican Republic	0.23	-0.13	0.83
Ecuador	0.55	0.12	1.18
Egypt	0.24	-0.16	0.74
El Salvador	0.34	-0.09	1.11
Equatorial Guinea	-0.05	-0.32	0.32
Eritrea	0	-0.3	0.4

Estonia	-0.15	-0.42	0.25
Eswatini	0.32	-0.07	0.94
Ethiopia	-0.3	-0.48	-0.14
Fiji	0.18	-0.17	0.72
Finland	0.23	-0.14	0.82
France	0.3	-0.13	0.95
Gabon	0.15	-0.15	0.52
Gambia	0.08	-0.3	0.59
Georgia	-0.02	-0.42	0.63
Germany	0.38	-0.04	0.97
Ghana	0.1	-0.28	0.68
Greece	0.21	-0.2	0.83
Greenland	0.22	-0.23	0.82
Grenada	0.16	-0.28	0.78
Guam	0.26	-0.11	0.82
Guatemala	0.1	-	0.5

		0.26	4
Guinea	0.14	-0.22	0.62
Guinea-Bissau	0.11	-0.29	0.76
Guyana	0.44	-0.09	1.17
Haiti	0.25	-0.09	0.74
Honduras	0.9	0.3	1.75
Hungary	0.04	-0.34	0.73
Iceland	-0.06	-0.49	0.72
India	0.12	-0.12	0.47
Indonesia	0.23	-0.12	0.82
Iran (Islamic Republic of)	0.16	-0.15	0.61
Iraq	-0.2	-0.51	0.23
Ireland	0.66	0.13	1.49
Israel	0.07	-0.27	0.47
Italy	0.29	-0.01	0.69
Jamaica	0.78	0.19	1.76

Japan	0.31	-0.08	0.86
Jordan	-0.19	-0.45	0.23
Kazakhstan	0.24	-0.27	1.06
Kenya	0.12	-0.1	0.42
Kiribati	0	-0.24	0.35
Kuwait	0.23	-0.17	0.75
Kyrgyzstan	0.16	-0.24	0.75
Lao People's Democratic Republic	-0.11	-0.44	0.46
Latvia	0.07	-0.25	0.5
Lebanon	0.48	0.01	1.31
Lesotho	0.06	-0.22	0.52
Liberia	0.11	-0.19	0.52
Libya	0.22	-0.2	0.79
Lithuania	0.22	-0.18	0.81
Luxembourg	-0.08	-0.39	0.43
Madagascar	0.1	-0.2	0.55

Malawi	0.16	-0.17	0.63
Malaysia	0.11	-0.33	0.67
Maldives	-0.37	-0.6	0.02
Mali	0.17	-0.15	0.64
Malta	0.06	-0.32	0.68
Marshall Islands	0.07	-0.26	0.49
Mauritania	0.04	-0.29	0.58
Mauritius	0.02	-0.36	0.61
Mexico	0.41	0.08	0.77
Micronesia (Federated States of)	0.04	-0.26	0.48
Monaco	0.23	-0.23	0.9
Mongolia	0.08	-0.21	0.48
Montenegro	0.29	-0.21	0.91
Morocco	0.12	-0.25	0.69
Mozambique	0.01	-0.3	0.4

Myanmar	-0.02	-0.35	0.44
Namibia	-0.07	-0.36	0.31
Nauru	0.24	-0.13	0.69
Nepal	0.35	-0.05	0.93
Netherlands	0.06	-0.28	0.46
New Zealand	-0.09	-0.38	0.32
Nicaragua	0.2	-0.16	0.7
Niger	0.03	-0.3	0.52
Nigeria	-0.16	-0.33	0.06
Niue	0.12	-0.22	0.54
North Macedonia	0.25	-0.19	0.89
Northern Mariana Islands	-0.4	-0.04	0.96
Norway	0.04	-0.21	0.35
Oman	0.19	-0.21	0.71
Pakistan	0.03	-0.2	0.46

Palau	0	-0.37	0.31
Palestine	-0.14	-0.4	0.15
Panama	0.19	-0.21	0.75
Papua New Guinea	0.02	-0.25	0.42
Paraguay	0.66	0.14	1.49
Peru	0	-0.3	0.41
Philippines	0.05	-0.25	0.5
Poland	0.04	-0.27	0.44
Portugal	0.1	-0.27	0.68
Puerto Rico	0.29	-0.14	0.81
Qatar	-0.01	-0.34	0.42
Republic of Korea	0.04	-0.34	0.61
Republic of Moldova	0.09	-0.29	0.58
Romania	0.44	-0.02	1.19
Russian Federation	-0.09	-0.34	0.22

Rwanda	-0.08	-0.33	0.25
Saint Kitts and Nevis	0.15	-0.23	0.83
Saint Lucia	0.25	-0.18	0.92
Saint Vincent and the Grenadines	0.22	-0.23	0.83
Samoa	0	-0.33	0.49
San Marino	0.32	-0.15	0.99
Sao Tome and Principe	0.03	-0.28	0.54
Saudi Arabia	0.17	-0.19	0.76
Senegal	0.09	-0.24	0.63
Serbia	0.06	-0.33	0.73
Seychelles	0.15	-0.26	0.8
Sierra Leone	0.12	-0.17	0.47
Singapore	-0.39	-0.61	-0.04
Slovakia	0.14	-0.22	0.73
Slovenia	-0.1	-0.4	0.27

Solomon Islands	7 0.09	4 -0.2	0.51
Somalia	0.24	-0.12	0.71
South Africa	0.22	-0.2	0.82
South Sudan	0.23	-0.15	0.68
Spain	0.44	-0.04	1.19
Sri Lanka	-0.22	-0.48	0.14
Sudan	0.12	-0.2	0.63
Suriname	0.41	-0.11	1.1
Sweden	0.57	0.09	1.36
Switzerland	0.07	-0.35	0.77
Syrian Arab Republic	0.31	-0.13	0.99
Taiwan (Province of China)	0.27	-0.13	0.91
Tajikistan	0.28	-0.14	0.84
Thailand	0.15	-0.22	0.62
Timor-Leste	-0.28	-0.48	-0.02
Togo	0.05	-0.3	0.56

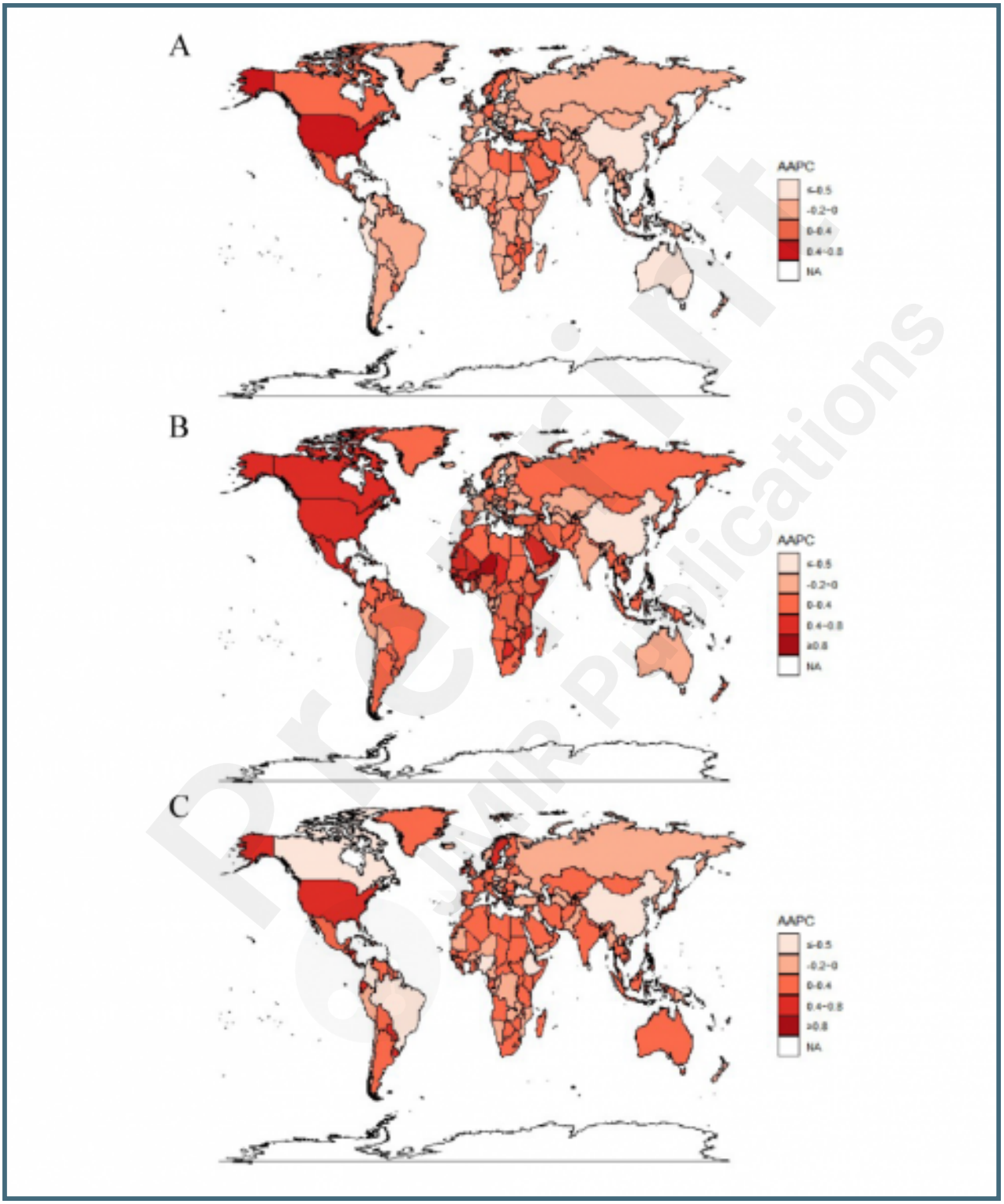
Tokelau	0.07	-0.23	0.47
Tonga	0.08	-0.28	0.57
Trinidad and Tobago	0.23	-0.24	0.91
Tunisia	0.3	-0.13	0.88
Turkey	0	-0.31	0.39
Turkmenistan	0.01	-0.38	0.62
Tuvalu	-0.03	-0.32	0.35
Uganda	0.26	-0.05	0.77
Ukraine	-0.12	-0.45	0.31
United Arab Emirates	0.02	-0.33	0.6
United Kingdom	0.32	0.02	0.72
United Republic of Tanzania	0.25	-0.11	0.79
United States of America	0.51	0.16	0.95
United States Virgin Islands	0.2	-0.19	0.86
Uruguay	0.55	0	1.41
Uzbekistan	0.0	-	0.7

	3	0.37	3
Vanuatu	0.09	-0.22	0.52
Venezuela (Bolivarian Republic of)	0.13	-0.27	0.66
Viet Nam	0.2	-0.16	0.72
Yemen	0.01	-0.32	0.47
Zambia	-0.03	-0.28	0.29
Zimbabwe	0.11	-0.21	0.49

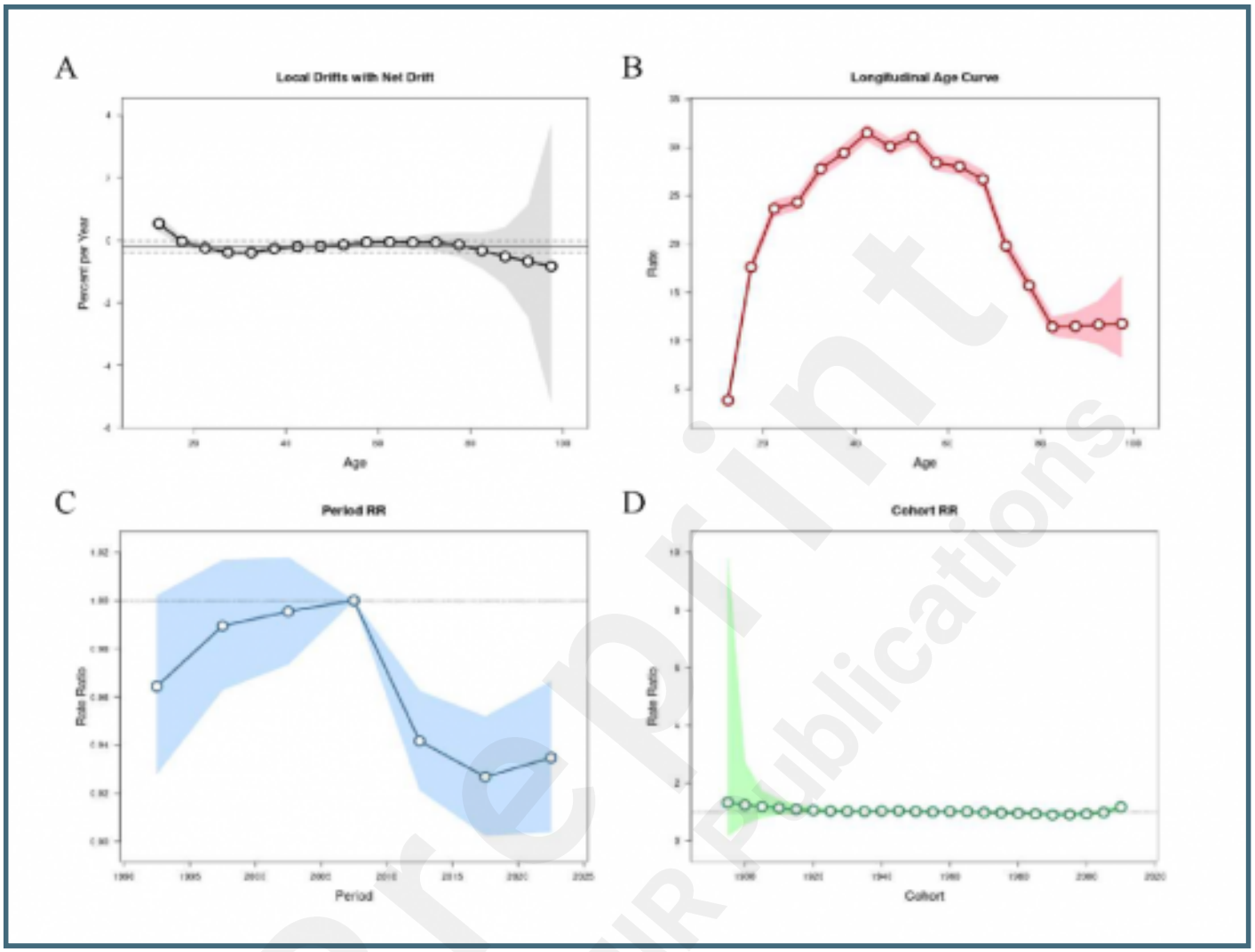
Supplementary Files

Figures

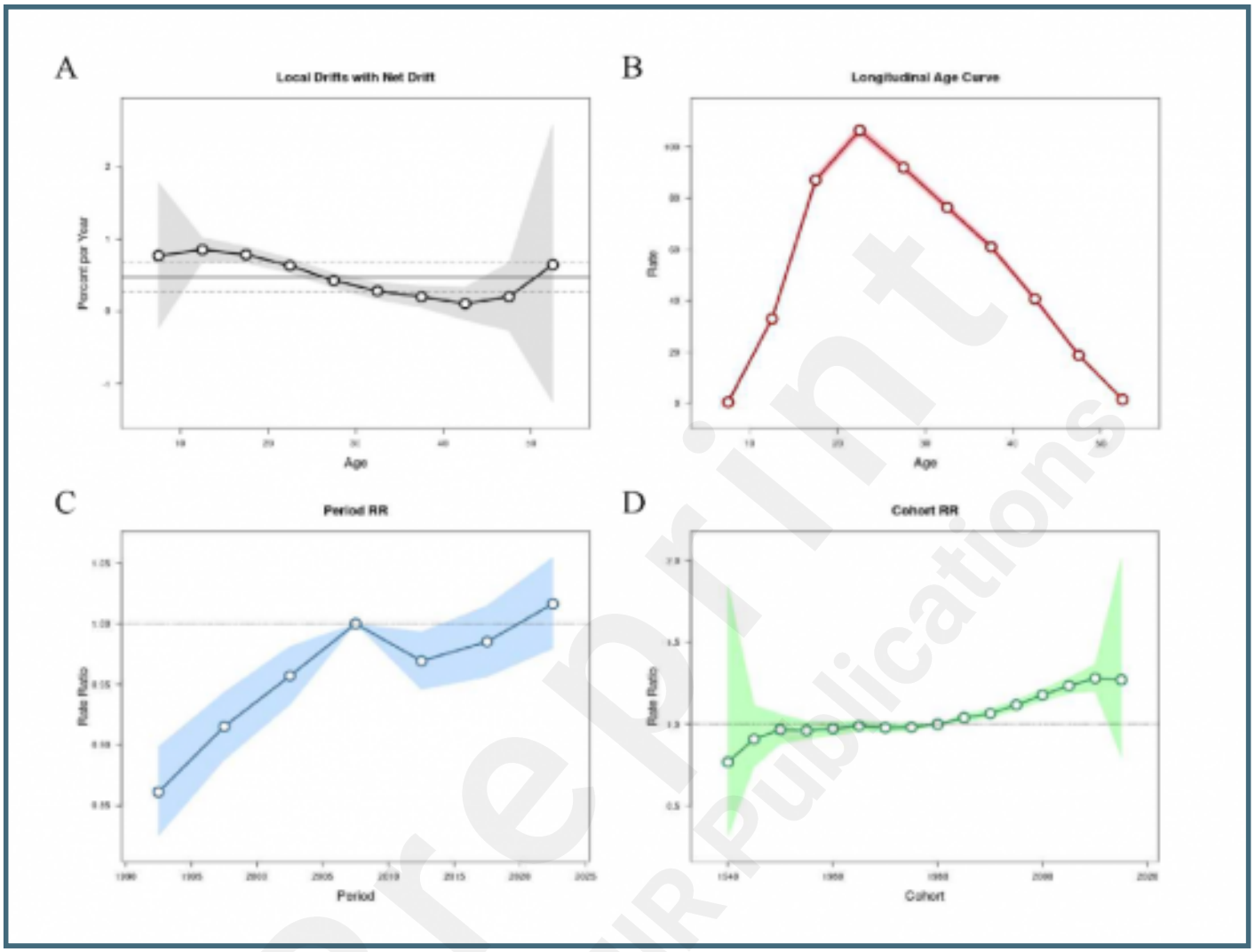
Global patterns in average annual percentage changes (AAPC) of disability-adjusted life years for major depressive disorder, attributing to adverse life experiences such as (A) childhood sexual abuse, (B) bullying victimization, and (C) intimate partner violence, from 1990 to 2021 across 204 countries and territories.



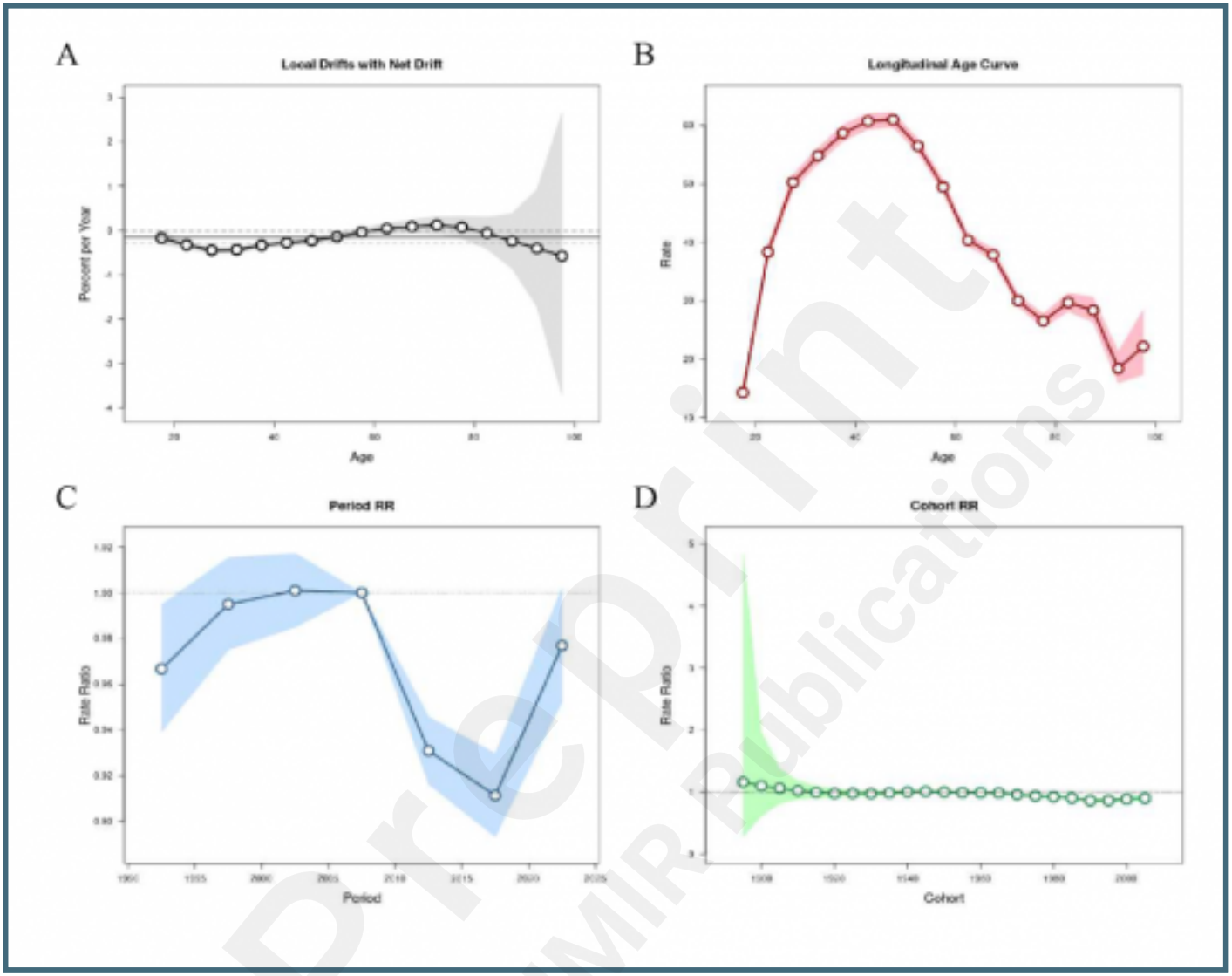
The of examination of the global impact of age, period, and cohort on disability-adjusted life years for major depressive disorder linked to childhood sexual abuse from 1990 to 2021. RR: Relative Risk.



The analysis of the global effect of age, period, and cohort on disability-adjusted life years for major depressive disorder due to bullying victimization from 1990 to 2021. RR: Relative Risk.



The investigation of the global effect of age, period, and cohort on disability-adjusted life years for major depressive disorder associated with intimate partner violence from 1990 to 2021. RR: Relative Risk.



Temporal trends in age-standardized death rates for major depressive disorder, attributed to adverse life experiences including (A) childhood sexual abuse, (B) bullying victimization, and (C) intimate partner violence, from 1990 to 2046.