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Violence and Mental Health: Does Disability Make a Difference?

To the Editor:

Violence is understood to be a major determinant of poor mental and physical health.[1] While the detrimental health effects of violence and the high levels of violence experienced by people with disability are well documented,[2] we do not know whether the mental health impacts of exposure to violence differ between people with and without disability. In this study, we specifically look at physical violence and assess whether the association between exposure to physical violence and changes in mental health are modified by disability status using a large population-based Australian longitudinal study. Given the differences in the type of violence experienced by men and women experience,[3] analyses were stratified by gender.

We used longitudinal data from The Household, Income and Labour Dynamics in Australia (HILDA) Survey, waves one (2001) to 16 (2016). The sample size after 16 waves was 17,694, and response rates are above 90% for respondents who have continued in the survey and above 70% for new respondents being invited into the study.[4] HILDA received ethical approval from the Australian Government Department of Health and Ageing Ethics Committee and the University of Melbourne's Human Research Ethics Committee.

Participants were asked whether they had been a "Victim of physical violence (e.g., assault) in the previous 12 months." This was a binary variable.

Participants responded to whether they had experienced " a long-term health condition, impairment or disability that restricts you in your everyday activities, and has lasted, or is likely to last, for 6 months or more. " To deal with temporal ordering of violence and disability we used four time-invariant disability categories: never disabled, always disabled, become disabled (censored after first wave of disability), and became not disabled (censored after first wave of not disability). Observations start when participants enter the study, with participants allowed to miss waves.

Mental health is measured using the Mental Health Inventory (MHI-5).[5] Each item is scored using five response categories, and the total scores are transformed into a scale ranging from 0 to 100; higher scores reflect better mental health.

We modeled age, education, employment status, household weekly equivalized income, and household structure as time-varying confounders. These were selected based on a directed acyclic graph and informed by previous literature.

A total of 93,835 observations across 19,472 participants had complete data and were included in analyses. Linear fixed-effects regression models with cluster robust confidence intervals were used to estimate the association between being a victim of physical violence and mental health within individuals, with disability (fitted as time-invariant) interacted with exposure to physical violence. Analyses were conducted separately for men and women.

Table. Fixed Effects With Cluster Robust Confidence Intervals: Analysis of Mental Health From Waves A-P of the HILDA Survey by Category of Time-invariant Disability[a]

	Never Disabled	Always Disabled	Became Disabled[b]	Became Not Disabled[c]
Men				
Participants	6,377	653	2,087	805
Observations	31,200	1,509	9,366	1,841
Not a victim of violence (ref)				
Victim of violence	−1.5 (−4.0, 1.0)	−10.7 (−19.2, −2.2)	−4.8 (−8.5, −1.2)	−16.0 (−27.0, −5.0)
Women				
Participants	6,270	582	1,945	756
Observations	30,283	1,583	8,677	1,779
Not a victim of violence (ref)				
Victim of violence	−2.8 (−5.2, −0.5)	−5.4 (−17.8, 7.0)	−8.0 (−13.2, −2.8)	−0.8 (−13.2, 11.7)

[a]Observations start when participants enter the study, all groups could miss waves. [b]Consecutive waves of reporting not disability, then censored after first wave of disability. [c]Consecutive waves of reporting disability, then censored after first wave of not disability.

Descriptive statistics of the analytic sample are presented in the eTable; http://links.lww.com/EDE/B598. The Table shows the difference in mental health for being victim of violence results across all strata of disability status. There was an effect of violence on mental health among men who had transitioned from being disabled to not disabled, men who had always been disabled, women who had become disabled, and men who had become disabled.

Strengths of this study include the data being a large nationally representative sample, and the more causally robust fixed-effects analysis. Among the study limitations are that self-reported data may be susceptible to response bias (e.g., social desirability effects), dependent measurement error (errors in self-reported exposure and outcomes correlated due to individual-level factors), underreporting of violence, and people with severe disability, and perhaps those experiencing violence, may be less likely to participate in HILDA. While out of scope for this short report, future research could apply g-computation to analyze the dynamic interplay between our exposure (violence), effect modifier (disability), and confounders. Future research should endeavor to use improved measures of exposure to violence.

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The Prevalence of Type 1 Diabetes in Hispanic/Latino Populations in the United States: Findings from the Hispanic Community Health Study/Study of Latinos

To the Editor:

Estimates of type 1 diabetes in "All Hispanic" and Mexican-American populations were reported in 2013 using National Health and Nutrition Examination Survey (NHANES) data collected between 1999 and 2010,[1] but this study did not examine sufficient numbers of participants from diverse Hispanic/Latino groups to report group-specific estimates. However, there are no estimates of the population prevalence of type 1 diabetes mellitus in diverse Hispanic/Latino groups in the US. The Hispanic Community Health Study/ Study of Latinos is a community-based epidemiologic study of health and disease in Hispanic/Latino adults residing in four US communities. Participants included individuals of Cuban, Dominican, Mex-

ican, Puerto Rican, Central American, and South American backgrounds. The study design and implementation have been described in detail,[2] each study site and coordinating center received approval from their Institutional Review Board for the study protocol and informed consent was obtained for all participants at the baseline examination visit. Although presence of type 1 diabetes was not specifically ascertained, we differentiated type 1 from type 2 diabetes mellitus using the following methods mirroring NHANES: diagnosis before 30 years of age, currently treated with insulin, and insulin use within 1 year of diagnosis. Of the 16,415 participants examined at baseline (2008–2011), 16,290 participants (ages 18–74 years, 60% male) had complete data on age at diabetes diagnosis, current treatment with insulin and insulin within 1 year of diagnosis. Information on HbA1c was available for 16,091 participants. Data were analyzed using SAS version 9.3 (SAS Institute). All reported estimates were weighted to adjust for sampling probability and non-response using the existing study protocol.

The overall prevalence of type 1 diabetes in this study was 1.8/1000 persons (95% confidence interval [CI] = 0.95, 2.6/1000), i.e., similar to the estimates obtained through NHANES (2.6/1000) and the SEARCH for Diabetes in Youth Study (1.5/1000).[3] The prevalence of type 1 diabetes varied by Hispanic/Latino background, with individuals of Dominican backgrounds experiencing the highest prevalence (6.1/1000, 95% CI = 0.0, 12.4/1000) (Table). The authors feel confident that this estimation of type 1 diabetes identified individuals who were likely to have disease based on the measure of glycemic control, HbA1c. Overall, the average HbA1c among those identified as having type 1 diabetes was 9.62 (95% CI = 8.52, 10.71); HbA1c ranged from 11.52 (95% CI = 8.95, 14.08) in persons of Puerto Rican background to 8.22 (95% CI = 7.24, 9.20) in those of Mexican ethnicity. This is consistent with the range of HbA1c values observed in non-Hispanic white and African American individuals with type 1 diabetes.[4]

Although rare in the general population, type 1 diabetes represents a