

# Social Determinants of Brain Health in Frontotemporal Dementia in a Low- and Middle-Income Country: Preliminary Evidence From Peru

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Individuals with FTD in Peru experience substantial cumulative social disadvantage across the life course, highlighting the importance of integrating social determinants of brain health into dementia research, clinical care, and public health strategies in low- and middle-income countries (LMIC).

| INTRODUCTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | METHODS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RESULTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CONCLUSIONS        |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <p>Although genetic factors play a central role in frontotemporal dementia (FTD), social determinants of brain health (SDOH), including socioeconomic conditions, education, and life-course adversity, may influence disease vulnerability and outcomes; however, these factors remain understudied in FTD, particularly in LMIC.</p> <p>Peru is characterized by pronounced socioeconomic inequities, rural-urban disparities, and cumulative social adversity, which may shape dementia vulnerability and outcomes.</p> <p>This study aimed to describe the SDOH among individuals with FTD in Peru</p> | <p>We conducted a cross-sectional descriptive study in individuals with a clinical diagnosis of FTD as part of LimaFTD network, using an adapted Social Determinants of Brain Health Questionnaire (SDOBH-Q), comprising 15 sections and 80 items. The questionnaire assessed early-life conditions, education, income, migration, trauma, discrimination, stress, and access to health care.</p> <p>Descriptive statistics were used to summarize participant characteristics and SDOH exposures.</p> <p>The study was approved by the Ethics Committee of the Instituto Nacional de Ciencias Neurológicas (INCN), Peru</p> | <p>Participants had a mean age of 62.3 years (SD 8.4), 62.5% were male, and 80% were married. Most were born in rural areas (75%) and attended public primary schools (81.3%). Median years of education among participants was 14 (IQR 11-16), whereas parental education was substantially lower (father: mean 8.1 years; mother: median 2.5 years). Median current family income was USD 893 (IQR 595-2083); 68.7% were homeowners.</p> <p><b>Figure 1. Frequency of Life-Course Social Determinants of Brain Health in Frontotemporal Dementia in Peru</b></p> <table><tr><th>Social Determinant</th><th>Frequency (%)</th></tr><tr><td>Social security insurance coverage</td><td>31.3</td></tr><tr><td>Child labor before age 18</td><td>50</td></tr><tr><td>Bilingualism</td><td>50</td></tr><tr><td>Public health insurance coverage</td><td>56.3</td></tr><tr><td>Home ownership</td><td>68.7</td></tr><tr><td>Difficulty meeting basic needs</td><td>68.8</td></tr><tr><td>History of migration</td><td>75</td></tr><tr><td>Chronic stress across the life course</td><td>87.5</td></tr><tr><td>Lifetime traumatic experiences</td><td>93.8</td></tr><tr><td>Lifetime exposure to discrimination</td><td>100</td></tr></table> | Social Determinant | Frequency (%) | Social security insurance coverage | 31.3 | Child labor before age 18 | 50 | Bilingualism | 50 | Public health insurance coverage | 56.3 | Home ownership | 68.7 | Difficulty meeting basic needs | 68.8 | History of migration | 75 | Chronic stress across the life course | 87.5 | Lifetime traumatic experiences | 93.8 | Lifetime exposure to discrimination | 100 | <p>Individuals with FTD in Peru experience substantial cumulative social disadvantage throughout the life course. These preliminary findings underscore the importance of integrating SDOH into FTD research and dementia care in LMICs and support the need for context-sensitive prevention, diagnosis, and policy strategies.</p> <p><b>REFERENCES</b></p> <p>Nuytemans K, Franzen S, Et. Al . Gaps in biomedical research in frontotemporal dementia: A call for diversity and disparities focused research. <i>Alzheimers Dement.</i> 2024 Dec;20(12):9014-9036.</p> <p>Walsh S, Klee M, Hui EK, Et. Al. . Social determinants of dementia: A scoping review. <i>Alzheimers Dement.</i> 2025 Jul;21(7):e70524.</p> <p><b>CONTACT</b></p> <p>sheila.castro-suarez@gbhi.org</p> <p><b>ALZHEIMER'S ASSOCIATION   AAIC 26</b></p> |
| Social Determinant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Frequency (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Social security insurance coverage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 31.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Child labor before age 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Bilingualism                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Public health insurance coverage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 56.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Home ownership                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 68.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Difficulty meeting basic needs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 68.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| History of migration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Chronic stress across the life course                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 87.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Lifetime traumatic experiences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 93.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Lifetime exposure to discrimination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |               |                                    |      |                           |    |              |    |                                  |      |                |      |                                |      |                      |    |                                       |      |                                |      |                                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |