

# The impact of the COVID-19 pandemic and lockdowns on the health-related quality of life of people living with MS in Australia

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## Abstract:

**Objectives:** People living with multiple sclerosis (PwMS) in metropolitan Victoria, Australia experienced a 112-day, COVID-19 related lockdown in mid-2020. This lockdown severely limited civilian movement and access to services. Contemporaneously, Australian PwMS elsewhere experienced minimal restrictions. The resulting natural experiment was exploited by this study, which assessed the associations between lockdowns, COVID-19 related adversity, and health-related quality of life (HRQoL).

**Methods:** Quantitative and qualitative data was extracted from Australian MS Longitudinal Study surveys, which included the AQoL-8D multi-attribute utility instrument and a specialised COVID-19 questionnaire. This COVID-19 questionnaire required participants to indicate levels of COVID-19 related adversity across several health dimensions. Ordered probits were used to identify variables contributing to higher adversity rankings. Multiple regression was applied to determine the impact of adversity on HRQoL, defined using AQoL-8D health state utilities (HSUs). Qualitative data were examined thematically.

**Principle Results:** n=1666 PwMS (average age 58.5; 79.8% female; typical of MS-related studies) entered the study, with n=367 (22.0%) exposed to the 112-day lockdown. The lockdown was strongly associated with higher adversity rankings, as was disability severity, relapse-onset phenotypes, and lower age ( $p < 0.01$  for all variables). Higher adversity rankings were associated with reduced HSUs. Participants reporting major adversity, across measured health dimensions, had mean HSUs of 0.161 ( $p < 0.01$ ) lower than participants reporting no adversity and were more likely (OR: 2.716,  $p < 0.01$ ) to report a clinically significant HSU reduction, before versus during the COVID-19 pandemic. A clinically significant decrease in HSU was defined as  $\Delta > 0.08$ , based on the literature. Themes in qualitative data supported the quantitative findings.

**Major Conclusions:** This study demonstrated that COVID-19 related adversity can substantially reduce the HRQoL of PwMS. Directing resources to ameliorate instances of this effect should be a public health priority, with psychological interventions being paramount.

**Keywords:** Health-Related Quality of Life, COVID-19, Multiple Sclerosis, AQoL-8D, Australia, Health State Utility

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