# Final Project Summary – Exploring the Roots of Chronic Pain: Socioeconomic and Environmental Insights

This capstone research project, conducted as part of the Master of Science in Business Analytics program at the University at Albany, investigates the multifaceted influence of socioeconomic and environmental determinants on chronic pain prevalence. Chronic pain, a widespread condition with significant public health and economic implications, is traditionally examined through biomedical perspectives. However, this study expands the scope to incorporate macro- and micro-level socio-economic variables, recognizing that factors such as national income, education attainment, gender, age, and exposure to civil conflict can substantially shape health outcomes.  
  
Drawing on data from the World Health Survey encompassing 54,019 participants from diverse global regions, the research employs a combination of Ordinary Least Squares (OLS) regression, logistic regression, and interaction effect analysis to rigorously evaluate the relationships between chronic pain scores and key independent variables. The primary hypotheses tested include:  
- Higher GDP per capita is associated with lower chronic pain prevalence.  
- Living in a civil conflict zone is positively associated with chronic pain occurrence.  
- Higher education levels are inversely related to chronic pain.  
- Age is positively correlated with chronic pain, with older individuals reporting higher pain scores.  
- Females report significantly higher chronic pain levels than males.  
  
The results strongly support these hypotheses, revealing statistically significant patterns across all variables. Higher GDP per capita and greater educational attainment were consistently linked to reduced chronic pain scores, while civil conflict, female gender, and advanced age were associated with increased pain levels. Interaction effects offered deeper insights: education was found to mitigate the age-related rise in chronic pain, and higher GDP levels buffered some of the detrimental effects of living in conflict-affected regions.  
  
These findings carry critical policy implications. They underscore the necessity of developing targeted, equity-focused healthcare interventions, particularly in low-income and conflict-affected regions, to reduce disparities in chronic pain management. Furthermore, strategies aimed at improving access to education and strengthening healthcare infrastructure in economically disadvantaged areas could significantly alleviate the burden of chronic pain. This research contributes to a broader understanding of chronic pain as not solely a medical issue but as a complex phenomenon shaped by intersecting socio-economic and environmental determinants.