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## Original Research

# Mechanisms linking high school graduation to health disparities in young adulthood: a longitudinal analysis of the role of health behaviours, psychosocial stressors, and health insurance



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## ABSTRACT

**Objectives:** This study examined three competing mechanisms in the link between educational attainment and health among young adults: (a) a health behaviour mechanism; (b) a psychosocial stressor mechanism; and (c) a health insurance mechanism. The central research question was the pervasiveness and specificity of these mechanisms in the link between low educational attainment and health outcomes during young adulthood.

**Study design:** A prospective longitudinal study was conducted with 808 men and women followed to age 33 years in the USA.

**Methods:** Health outcomes included major depressive disorder, obesity, chronic health conditions, and self-rated health. The focal predictor was educational attainment at age 21. The roles of the health behaviour mechanism (heavy episodic drinking, cigarette smoking, and meeting physical activity guidelines), the psychosocial stressor mechanism (stressful life events, perceived financial stress, and lack of control at work), and having health insurance (either through their employer or union or via family members) in the link between education and varying health outcomes were assessed using path analyses. **Results:** Lack of health insurance emerged as a statistically significant explanatory factor underlying the association of education with depression and self-rated health. Health behaviours, specifically smoking and physical activity, were statistically significant intervening factors for obesity and self-rated health.

**Conclusions:** The processes linking educational attainment to health inequalities begin unfolding during young adulthood. The salience of different mechanisms is specific to a

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health outcome rather than pervasive across multiple health outcomes. Public health policies with a broad spectrum of components, particularly focussing on smoking, physical activity, and lack of health insurance, are recommended to promote educational equalities in multiple health outcomes among young adults.

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## Introduction

Disparities according to educational level have been consistently documented<sup>1–4</sup> for a wide array of health outcomes, including physical health conditions such as diabetes and heart disease;<sup>5,6</sup> mental health;<sup>7,8</sup> and self-rated general health status.<sup>9</sup> However, it is unclear why educational attainment is inversely related to health.<sup>1,2</sup> Prior studies to date have suggested that at least three behavioural and psychosocial factors should be considered as possible mechanisms: (a) health risk behaviours, such as substance use and low physical activity;<sup>6,10–13</sup> (b) psychosocial stressors, such as stressful life events, financial distress, and unfavourable work conditions;<sup>10,14,15</sup> and (c) lack of access,<sup>16</sup> particularly to health care.<sup>6</sup>

Conceptual discussion of the role of these possible factors linking education and health,<sup>17</sup> and empirical findings<sup>1,10</sup> regarding the magnitude of the role played by these factors, has been inconsistent. Some have contended that such intervening factors might not account for the association between education and health at all, a contention consistent with a ‘fundamental cause’ approach to the link between education and health.<sup>17,18</sup> Adding to the confusion, empirical findings regarding each possible factor have been mixed. For example, in a cross-sectional sample of individuals aged 19–95 years, health risk behaviours, arguably one of the most widely examined mechanisms,<sup>12</sup> were found to explain 50% of the association between education and physical impairment.<sup>11</sup> Yet in another study, Lundborg<sup>19</sup> reported that in a US sample aged 25–74 years, the associations of education with self-assessed health and number of chronic conditions were virtually unaffected, even after adjusting for a similar list of health risk behaviours. Similarly, health insurance, another possible intervening factor, has been consistently linked to educational attainment<sup>20</sup> and varying health outcomes.<sup>21</sup> However, findings from studies explicitly examining the role of health insurance in the link between education and health have been inconclusive. In fact, some reports suggested that the role of health insurance might be insubstantial in the link between education and health.<sup>10,19</sup> Further clarification of the role of health insurance in disparities in health outcomes is particularly important given its prominence in the current policy debate.

Such mixed findings demand further inquiries in this topic area. First, prior studies have primarily focussed on a single domain of health outcome.<sup>2</sup> This limits the ability to draw a more definite conclusion about the pervasive vs specific role of different explanatory mechanisms, particularly when varying conclusions arise across studies. The present study examined

multiple mechanisms and health measures to reduce the possibility that differential conclusions might arise simply due to differences in study samples or analysis strategies by examining multiple mechanisms and multiple health outcomes in a single sample using a single analysis strategy.

Second, most relevant studies have examined middle-aged or older age groups; relatively few studies have focused on young adults.<sup>14</sup> Young adulthood is a critical period for preventive public health efforts,<sup>14,22</sup> because (a) the prevalence of important health problems—including physical health problems like obesity and mental health problems like depression—is substantial by the 30s;<sup>23</sup> (b) health trajectories that portend worsening health problems are established during this developmental period;<sup>24</sup> and (c) health disparities start widening at this age, including disparities by education.<sup>22</sup>

Finally, because most studies used cross-sectional data,<sup>1</sup> there is a need for prospective longitudinal data that can establish temporal sequencing among involved variables,<sup>1,2</sup> which would allay concerns about social selection or drift (i.e. pre-existing health problems impair an individual's ability to achieve higher levels of education).

The present study sought to address these gaps. Specifically, the present study capitalized on a rich trove of information in a contemporary longitudinal sample of young adults and tested the pervasiveness and specificity of the role of health risk behaviours, psychosocial stressors, and access to health insurance as explanatory mechanisms for educational inequalities in depression, obesity, number of chronic health conditions, and self-rated health status. Clarifying mechanisms in the link between education and health can provide concrete and practical intervention targets for public health efforts<sup>1,10</sup> involving the target group.

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## Methods

### Sample

Data were from the Seattle Social Development Project (SSDP), a panel study examining an extensive range of behavioural, mental, and physical health outcomes. In September 1985, 18 elementary schools in Seattle, Washington, were identified that overrepresented students from disadvantaged neighbourhoods. All fifth-grade students ( $n = 1053$ ) in these schools were invited to join the panel study. From this initial sampling pool, 808 students (77%) consented to participate in the SSDP longitudinal study. Fifty-one percent of these participants were male. The sample was ethnically diverse (47% European American, 26% African American, 22% Asian American, and

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