

## **Agricultural Worker Health and Health Disparities**

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Agricultural workers in the United States represent a very vulnerable community. They are exposed to several adverse occupational conditions which pose both an immediate as well as a long-term threat to their physical and mental well-being<sup>1</sup>. They are forced to work in the fields under extremely high temperatures which greatly enhances their risk for developing heat related illnesses such as heat exhaustion and heat stroke. They are also subjected to repeated exposures to dangerous pesticides which may lead to short term consequences such as acute pesticide poisoning or long-term consequences such as cancer and cardiovascular disease. They lack proper training and education while operating heavy farm machinery which in turn increases their risk for workplace injuries. Many of the occupational hazards experienced by agricultural workers also lead to an increased risk for developing other health problems. They are more susceptible to the development of musculoskeletal problems, respiratory illness, reproductive health problems and health problems associated with climate change<sup>2,3,4,5,6</sup>. These adverse working conditions pose significant health challenges and contribute to the health inequities faced by agricultural workers. Due to the significant health threats faced by them, previous research has identified agricultural work as one of the three most dangerous forms of employment<sup>7</sup>.

**Overview of the health status of Farm workers:** Much of the recent research on chronic diseases is focused on ethnic and racial populations without giving much attention to how these conditions impact the agricultural worker population. For example, cardiovascular disease (CVD) is one of the leading causes of morbidity and mortality in the US<sup>8</sup>. Primary risks of CVD such as type 2 diabetes, hypertension, smoking, and obesity have been shown to be higher in racially and ethnically diverse population, including Latinos<sup>9,10</sup> of which a large majority have been identified to work as agricultural workers. Despite the elevated rates of chronic illness in the Latino population, very little research has focused on the Latino agricultural worker population. A study conducted in southwest US, found that more than 20 percent of agricultural workers in the study had received a diagnosis of hypertension and more than 16 percent had received a diabetes diagnosis<sup>11</sup>. However, this study relied on self-reported data and did not account for other social factors such as immigration status. Another study conducted in Oregon using cross-sectional data from Latino vineyard and winery agricultural workers (n=3382) found hypercholesterolemia in 21.6 percent and obesity in 22.8 percent of the agricultural workers. These conditions were found to be the most prevalent risk factors for CVD in this population. Additionally, this study found that men and women between the ages of 45-64 years of age were more likely to have all four CVD risk factors in comparison to those individuals who were between 18-44 years of age<sup>12</sup>.

**Occupational hazards faced by Farm workers:** Despite the evidence that agricultural workers face constant exposures to neurotoxicants from pesticides, the relationship between health disparities and agricultural workers' lifetimes of exposure to toxic pesticides remain underexplored and poorly understood, perpetuating toxic ignorance about the relationships between pesticides and agricultural worker health<sup>13</sup>. The temperature conditions also put agricultural workers at an increased risk. For example, a recent study found that as temperature increases there is a reduction in mean physical activity<sup>14</sup>. More importantly, Mitchell et al. 2018 also indicate that younger

males, especially if working piece rate, a longer shift length, and irrigating or having a variety of tasks are at higher risk of health-related illness (HRI). Moreover, data collected through the CAWHS survey showed elevated rates of self-reported, cumulative, farm work related career incidence of paid claims for occupational injuries under workers compensation. The rates were found to be 27 percent for males and 11 percent for females<sup>15</sup>. Many of the individuals who participated in the CAWHS study were young Mexican men who had presented with an elevated prevalence of indicators of chronic disease such as obesity, high blood pressure, and high serum cholesterol. The literature on the occupational hazards faced by agricultural workers is vast and has been the primary focus of research of the agricultural worker population with less attention given to chronic diseases and other preventable health outcomes.

**Health status of Agricultural workers in California:** A recent study conducted in Sonoma county in California found that agricultural workers had significantly poorer health access and health outcomes in comparison to the general adult population of Sonoma County<sup>16</sup>. More specifically, Moore et al. (2016) found that Sonoma county agricultural workers were more than three times as likely to report poor or fair health in general as other Sonoma County adults. In addition, agricultural workers were significantly more likely to be obese and diagnosed with high blood pressure levels. The study also found that the prevalence of diabetes was three times higher among the Farm worker population. The researchers identified significant health disparities between Sonoma County agricultural workers and Sonoma County adults overall. Another study with migrant and seasonal agricultural workers did not differ in likelihood of smoking, diabetes, hypertension, or hypercholesterolemia. In adjusted analyses, females were more likely to be obese (OR = 3.29) and have diabetes (OR = 4.74) compared with males ( $P < .05$ ); and males were more likely to be current smokers (OR = 7.50) as compared with females ( $P < .05$ )<sup>17</sup>.

**Healthcare Disparities faced by Farm workers:** The research on the health status of agricultural workers suggest that the nature and social structure of the occupation may contribute to the health disparities faced by agricultural worker populations. When examining the social conditions of agricultural workers, research has found that US-born agricultural workers had more secure work, worked less onerous tasks, and earned more per hour than other categories of agricultural workers. In comparison, undocumented Indigenous workers had more precarious work, worked more onerous tasks, and were more likely to do piece work, than undocumented Latino workers<sup>18</sup>. The evidence to date suggests that a relationship exists between agricultural workers' seasonal working patterns, lifestyle, diet, overall risk of chronic disease, and the amount of time that they have been in California<sup>19</sup>. In general, their health appears to decline the longer they are in the US. Lopez-Cevallos et al., 2019 found that Latino men living in the US ten years or more experience higher prevalence of hypertension (OR=1.72, 95%CI:1.17-2.54), and obesity (OR=2.08, 95% CI: 1.57-2.76). While Latina agricultural worker women living the US ten years or more experience an increased prevalence of obesity (OR=1.81, 95% CI: 1.07-3.06). Previous research indicates a decrease in physical health in Latino-origin adults who are more acculturated<sup>19</sup>. This evidence seems to contradict the Hispanic Health Paradox, which suggest that Latino immigrants experience more positive health status than non-Latino white Americans. However, there is support of the paradox in regard to cardiovascular health in Latinos<sup>9</sup>. Castañeda et al. (2015) suggest that future

research should take into consideration multidimensional approach to studying the health of agricultural workers.

**Opportunities for future research:** In addition to decreased physical health, previous research suggest that agricultural worker populations also experience a decline in their psychological health. The uncertainty and instability to work in the U.S. and an inability to travel back and forth to their home countries to visit family and friends was continually identified as a theme related to their experiences of stress and depression<sup>20</sup>. Despite the historical presence of immigrant men, primarily from Mexico, to the US for agricultural labor<sup>21</sup> there is very little research that examines agricultural worker mental health. One recent study with men (n=40) in an agricultural community in California's San Joaquin Valley found that all participants reported symptoms of depression as measured by the Center for Epidemiological Studies Depression Scale<sup>22,23</sup> suggest that the experience of both situational life events and persistent and daily chronic strain infringes on self-concept, including mastery or control over life and self-worth, and contributes to stress and subsequent poor mental health outcomes (e.g., depression) among agricultural workers. In addition, fear and worry about the personal consequences of current US immigration policy and rhetoric appear to be associated with higher anxiety levels, sleep problems, and blood pressure changes among US-born Latino adolescents; anxiety significantly increased after the 2016 presidential election<sup>24</sup>.

Research suggest that many of the health conditions currently being faced by the farm worker community are preventable in nature. However, they face significant challenges to seeking medical care which often contributes to their poor overall health outcomes<sup>7,25,26</sup>. In addition to access to health care insurance, migrant agricultural workers face significant financial challenges, fear of deportation, long working hours, and lack of transportation<sup>27</sup>. Furthermore, Ralston and Escandell (2012) suggest that language barriers, discrimination, and lack of knowledge of the U.S. healthcare system are also contributing factors to not seeking medical care which can then lead to unfavorable health outcomes<sup>28</sup>. Overall, the literature suggests an increase in chronic diseases with a primary focus on CVD and its risk factors. Recommendations for future research indicate the need to examine biological, behavioral and social factors and the interactions of these factors to have a better understanding on how to target effective interventions and propose policies that aim to improve the health of agricultural worker populations<sup>21</sup>.

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