2022

The Impact of Poverty and Gender-Based Disaster Education on Household Preparedness Planning in Male Latino Migrant Workers

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This is to certify that the doctoral study by

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Abstract

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

January 2023

Abstract

Natural disasters cause catastrophic damage to a community through death, injury, and property loss. Urban areas are predisposed to these events due to their built environment and the dense population of vulnerable groups. Urban male Latino migrant workers are an at-risk population with multiple social determinants of health that should be considered when implementing risk reduction plans. Programs that do not target this entire community only enhance the vulnerability of this group. This study examined the relationship between poverty and household preparedness in this community, controlling for gender. The socioecological model provided the foundation for this retrospective secondary analysis. Statistical analysis included chi-squared testing and binominal logistic regression. Households with poorer incomes were less likely to be aware of preparedness information ($p < .05$). Similarly, poor households were less likely to know about emergency alerts ($p < .05$). They could not assemble 3 days of supplies at home to shelter in place ($p < .05$), and there was no difference in the ability to pack a go bag for evacuations; both poor and not poor households were less likely to perform this task ($p < .05$). Males were significantly less likely than females to gather supplies to shelter in place ($p < .05$) and evacuate ($p < .05$). The study findings highlight the need for poverty reduction and whole community initiatives. Positive social change is impacted by reducing variances in disaster preparedness programs, tailoring public health efforts to the needs of this community, and ultimately helping to promote healthy outcomes in urban male Latino migrant workers and their families.

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Section 1: Foundation of the Study and Literature Review

Background

The impact of climate change is heightened in urban communities related to the urban sprawl, dense population, and economic concerns, which are public health concerns because most of the world lives in cities (Gencer et al., 2018). The urban male Latino migrant worker community is at an even greater risk for disaster. Multiple obstacles restrict participation in community preparedness activities, influencing individual household preparedness in the urban male Latino migrant worker community. Hispanic immigrants are the most prominent and fastest-growing minority group in the United States (Maldonado et al., 2016). Limited English proficiency, knowledge deficit, poverty, governmental policies, and political climate impede this community's ability to be prepared for a disaster (Burke et al., 2012). Low levels of household preparedness inhibit effective disaster planning and preparation of poor households for disaster emergencies.

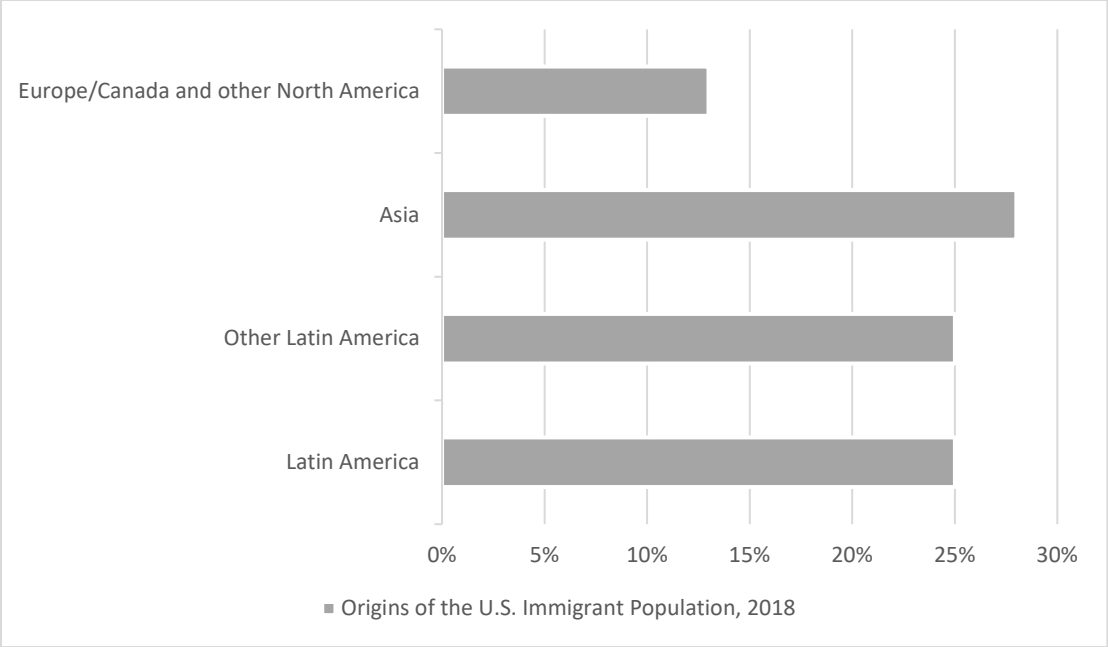
The Bureau of Labor Statistics (2019) reported that in 2018, 17 percent of the U.S. workforce were migrant workers; of those migrant workers, half were of Hispanic or Latino ethnicity (see Figure 1). Over 90% of Latino migrant workers lived in metropolitan areas in 2018 and were more likely to live in overcrowded homes in homogeneous groups (Pew Research Center, 2019; U.S. Census, 2019). Latino migrant workers only earned 87% of the median salary of native-born Hispanics in 2018 (Bureau of Labor Statistics, 2019). In 2018, the Bureau of Labor Statistics reported that Latino migrant workers were heavily employed in the service industry and had higher poverty

rates (see Figure 2). Metro areas are saturated with opportunities to gain employment in these service occupations that migrant workers dominate: produce and live animal farms, food processing plants, restaurants, construction sites, and domestic/custodial work opportunities (Bureau of Labor Statistics, 2019; Costa, 2020; PEW Research Center, 2019; U.S, Census, 2019; Costa, 2020).

Throughout each stage of the disaster life cycle, racial and ethnic minorities suffer worse outcomes than the general population and present more complex issues. Disasters have tremendous economic consequences for low-income households. This population cannot adapt to the shocks and losses that plague these events, and failure to do so can obstruct and extend the recovery phase of the disaster cycle (Botzen et al., 2019). Urban male Latino migrant worker communities frequently experience poverty-related barriers to disaster readiness, such as lack of healthcare, social isolation, and inability to gather supplies for survival (Pew Research Center, 2019).

Figure 1

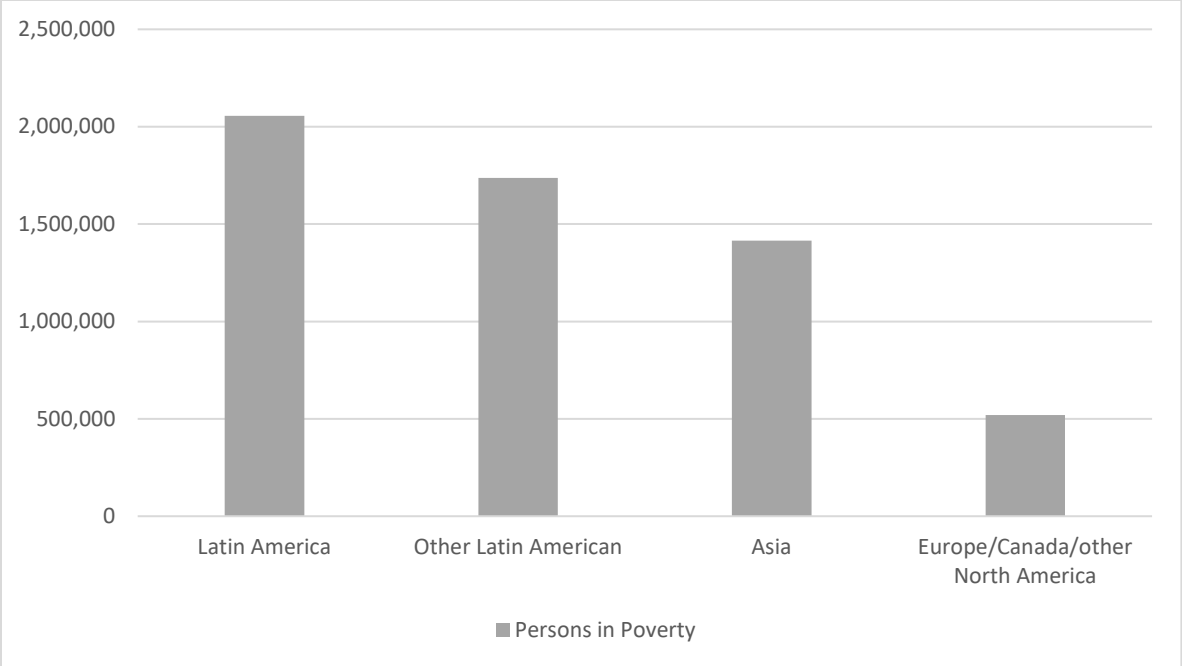
Origins of the U.S. Immigrant Population, 2018



Note. Other Latin America includes Central America, South America, and the Caribbean. Asia includes Central, East, Southeast, and South Asia (Pew Research Center, 2019).

Figure 2

Poverty by Region of Birth, 2018



Note. Other Latin America includes Central America, South America, and the Caribbean. Asia includes Central, East, Southeast, and South Asia (Pew Research Center, 2019).

Multiple disaster response agencies have documented and illustrated successful household disaster preparedness activities, but few have controlled for poverty and the impact of targeted education in their recommendations. This study has attempted to fill this gap by synthesizing current literature, examining research methods, and illustrating poverty's impact on mitigating the effects of disasters and the development of household disaster plans in the urban male Latino migrant population. Disaster education encourages participation in household preparedness activities and disaster planning initiatives, thus increasing an individual's capacity to respond during an emergency (Rosenbaum & Long, 2018). Extensive cultural competency training is vital to successful

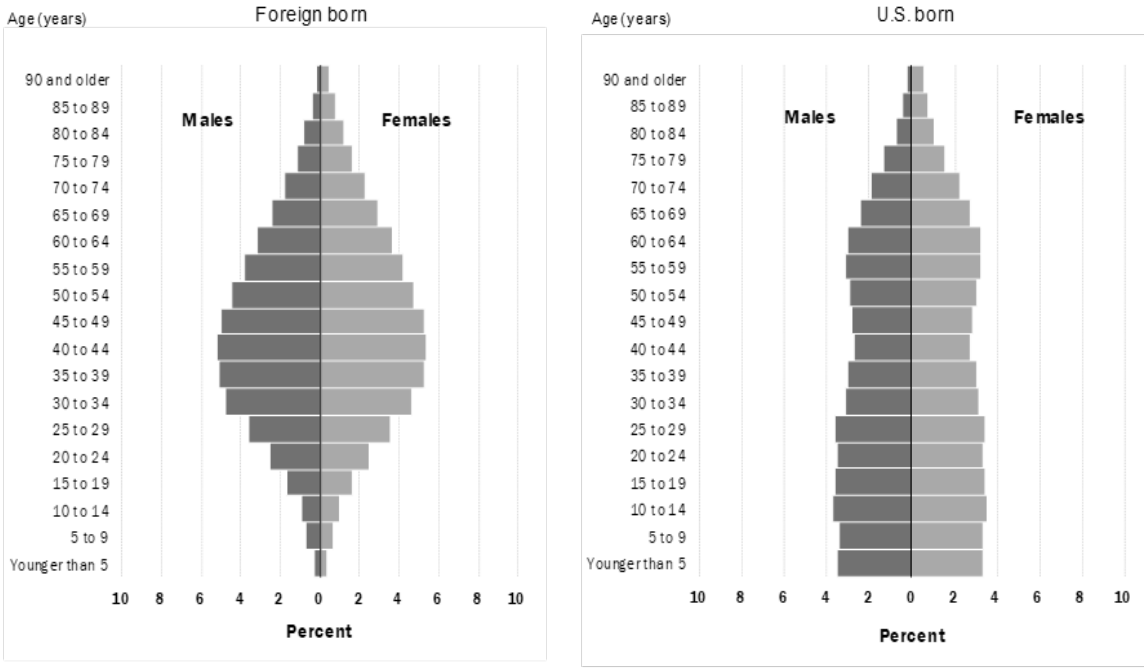
future community disaster training that will determine how cultural differences influence attitudes and behaviors that can potentially alter disaster recovery (Riley-Jacome et al., 2014). Studies have determined that utilizing trusted institutions and community partners to create emergency alerts and disaster education materials effectively operationalizes emergency preparedness planning in this community (Burke et al., 2012; Rosenbaum & Long, 2018).

The impact of gender-based education on household preparedness in the Latino migrant worker community must also be considered when designing public health programming to protect this community. Disaster preparation activities and response to disaster risk vary greatly between males and females (Villarreal & Meyer, 2019). The susceptible subpopulations within the urban Latino migrant community have been leveraged by targeting disaster education programs for women and school-aged children. This targeted education creates an imbalance in public health programs available to single, young adult, or elderly males without children or residing in a nonfamilial congregate setting with other migrants (Bronfman, 2019; Moreno & Shaw, 2018; Torani et al., 2019). In 2018, half of the Latino migrant workers were male (see Figure 3), and 39% of this population were single (see Figure 4); both subpopulations are unable to benefit from public health programming directed at women and children (Pew Research Center, 2019). Disaster concerns heavily burden this patriarchal community, and household planning explicitly designed for females of this population and excluding males in their households may result in delayed protective actions that can potentially endanger the entire family (Cvetković et al., 2018; Enarson et al., 2018; Villarreal &

Meyer, 2020; Wandschneider et al., 2020). Preparedness programs that exclude poor males in an already marginalized population will further limit their ability to react to and recover from disasters. Community disaster education, which includes the entire community, reduces disaster risk, and improves risk perception modulating death, injury, and property destruction.

Figure 3

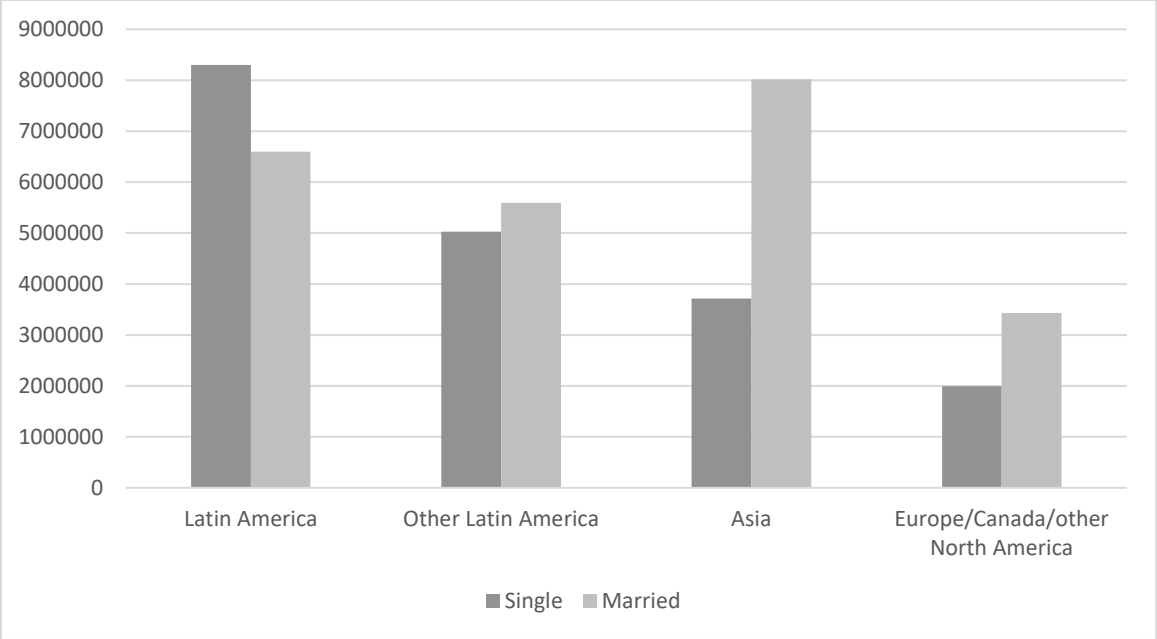
Age and Gender Distribution for Nativity Groups: 2018



Note. 2018 Nativity, age, and gender (Pew Research Center, 2019).

Figure 4

Marital Status of Migrants in U.S. by Nativity, 2018



Note. Other Latin America includes Central America, South America, and the Caribbean. Asia includes Central, East, Southeast, and South Asia. Single status includes never married, widowed, divorced, and separated.

Problem Statement

The poverty and gender-based disaster education in the urban male Latino migrant worker community erect considerable barriers to the benefits of disaster education and effective household disaster planning. The barrier that poverty and targeted education for females erects in this population was addressed in this study. Latino immigrants face economic hardships, and low social status in the United States increases their vulnerability to disaster (Mendez et al., 2020). This gap in preparedness planning has prompted this literature search and data exploration.

In 2015, half of the 26.3 million immigrant workers in the United States were of Latino descent (Moyce & Schenker, 2018). Although the physiologic impact of poverty may be irreversible, the wealth gap is best managed through culturally competent programs within their community. Culturally competent programs foster creativity and innovation, which improve disaster response and mitigation (Cedeño et al., 2016) by identifying and developing the core preparedness skills deficient in poor, at-risk communities with community partner participation to enhance disaster education benefits (McKenzie, 2019). Public health professionals cannot ignore poverty's influence on an individual's ability to obtain education and prepare for a disaster because any new behaviors learned through disaster education programs will not be sustainable. Disaster education increases disaster risk awareness among households, promotes preparedness activities, and provides materials required to prepare for and adapt to natural hazards in the community and public health emergencies (Hoffmann & Blecha, 2020).

Natural disaster risk reduction measures cannot sufficiently protect households and communities from natural hazards (Hoffmann & Blecha, 2020). Household preparedness and the disaster readiness of this community are paramount as they are at the greatest risk for disaster. Disaster education is vital to disaster risk mitigation at the household and community level as it promotes disaster preparedness and resilience even without disaster experience (Hoffmann & Muttarak, 2017). Poverty alone does not impair disaster resilience; however, it diminishes access to and effectiveness of disaster education in improving household preparedness and disaster readiness in urban male Latino migrant worker populations.

Although no community is immune to disasters, the urban multi-hazard environment to which Latino migrant workers are exposed requires heightened disaster preparedness for all its citizens (Bronfman et al., 2019). The urban environment has an increased disaster risk related to rapid urbanization, population density, and compromised infrastructure (Bronfman et al., 2019). Disaster education is a valuable tool in risk management because it provides the knowledge, skills, and motivation required to take action to mitigate disasters (Torani et al., 2019). Education is integral to successful programming as those with knowledge of disaster emergencies and access to community resources can effectively protect their households and other community members (Torani et al., 2019). Understanding the influence of poverty and gender roles is key to designing effective disaster mitigation initiatives and education to safeguard this community during natural and man-made disaster emergencies. Reducing disaster vulnerability in women is essential in reducing disaster risk in the community (Ginige et al., 2009). Measures such as gender mainstreaming exclude males and further isolates an already marginalized community.

Males typically have greater opportunities to interact with the public and have more opportunities to benefit from community programs (Arici et al., 2019). However, males in the Latino migrant worker community are burdened by language barriers, poverty, fear of law enforcement, and decreased social standing, which limit their access to public health and disaster preparedness initiatives. Almost 39% of the Latino migrant workers are single males (see Table 4); however, women have been the focus of many preparedness initiatives (Pew Research Center, 2018). Targeting females for education

enhances understanding of natural disaster planning and adopting protection measures for females only (Cvetkovic et al., 2018; Enarson et al., 2018; Moreno & Shaw, 2018; Villarreal & Meyer, 2020). Men often determine the protective action taken by families in this community, thus underscoring the urgency of increasing the education of males in this community. The education of males in this community will help improve their household's and/or their future household's ability to prepare and respond to a disaster. This phenomenon was explored in this study.

Purpose of the Study

This retrospective quantitative study aimed to examine the impact of poverty- and gender-based disaster education on household preparedness planning in urban male Latino migrant workers. This study examined the relationship between the independent variables of disaster education and income and the dependent variable of participation in household preparedness activities. The covariate was gender. This study analyzed data from the 2018 National Household Survey conducted by the Federal Emergency Medical Agency (FEMA).

Research Questions

In this study, I sought to answer three research questions. The central theme explored in the study was the nexus between gender, poverty, preparedness activity uptake, and access to disaster education. The socioecological model (SEM) guided the design of the three detailed research questions and their corresponding hypotheses:

RQ1: Is there an association between access to preparedness information and poverty for urban Latino migrant workers when controlling for gender?

H_o1: There is no relationship between access to disaster education for urban Latino migrant workers and poverty when controlling for gender.

H_A1: There is a relationship between access to disaster education for urban Latino migrant workers and poverty when controlling for gender.

RQ2: Is there a relationship between poverty and the initiation of specific household preparedness planning activities in urban Latino migrant workers when controlling for gender?

H_o2: There is no correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

H_A2: There is a correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

RQ3: Is there an association between the poverty of urban Latino migrant workers, preparedness activity uptake, and household preparedness after completing disaster education when controlling for gender?

H_o3: There is no association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

H_A3: There is an association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

Theoretical Framework

This literary analysis examined empirical research to support the study's theoretical framework. The guiding model for this study was the SEM, which explored the relationship between an individual and a phenomenon utilizing personal and environmental factors within the study population. The SEM divides an individual's environment into five different systems. In the center, the first level of the model is composed of the individual's beliefs, attitudes, and feelings. The microsystem is the second layer, the most effective system, consisting of family, peers, and friends. The third layer is the mesosystem: school, workplace, places of worship, and the neighborhood. The fourth layer, the exosystem, is the political system, laws, and mass media. Lastly, the outermost level, the macrosystem, represents dominant beliefs and ideologies. The levels of this model are symbiotic, as cultural norms, resources, and policy all intertwine and influence the interactions and relationships between the nesting circles (Kilanowski, 2017). The symbiosis of the SEM emphasizes that effective and sustainable disaster education programming should include increasing disaster knowledge, improving access to all for preparedness programming, increasing community-based preparedness initiatives, and subsidizing resources required to create emergency home kits. The SEM illustrates the individual's relationship with their environment to highlight barriers and aids intervention implementation using a systems approach (Bronfenbrenner, 1977). The model is integral to successful preparedness education programs in this study population.

Exploring each level of the SEM represented the range of barriers and supportive adjuncts to preparedness (i.e., poverty) and suggested sequential targets for mitigation

efforts. Each of the levels of the SEM simultaneously influences the other and has the potential to influence disaster vulnerability and improves disaster outcomes. For this study, the SEM model helped identify the factors contributing to the poor household preparedness of urban male Latino migrant workers. The model also has the potential to assist in developing programs that address the research problem and mitigate disaster threats. Effective and sustainable public health practices will require employing multiple levels simultaneously.

Nature of the Study

For this study, I used a quantitative correlational methodology. The quantitative method demonstrates the relationship and the degree of association between two or more variables (Apuke, 2017). This explanatory design clarified the effect of the cofounding variable of poverty and the levels of reciprocity between two or more variables (Apuke, 2017). Responses from a national phone survey were employed for statistical analysis to determine if the study hypothesis is statistically significant.

Quantitative research requires representing phenomena as numerical values to perform statistical analysis. This approach allowed for a greater understanding of poverty's impact on household preparedness in urban male Latino migrant worker communities despite attempted disaster education. Quantitative data analysis discloses causal trends and relationships within and between the variables, encouraging a proper understanding of the study data and formulating meaningful research questions and significant study hypotheses (Albers, 2017). Correlational research helps determine prevalence and relationships among variables, making predictions and improving or

initiating public health intervention (Curtis et al., 2016). The independent variable in this study was disaster education. Disaster education is an important motivator for participating in disaster preparedness initiatives. Educated individuals are more likely to participate in preparedness activities without previous disaster experience; this highlights the power of education in disaster risk reduction for all community members (Hoffmann & Muttarak, 2017). The study's dependent variable was participation in preparedness activities. The covariate poverty will support the delineation of poor versus not poor in data analysis and illustrate its relationship to the dependent and independent variables. All data for this study were extracted from the National Household Survey, which is reported annually by FEMA, and analyzed utilizing statistical software.

Definition of Key Terms Related to the Study

The following community-based terms and disaster terminology used in this study are defined to clarify their relationship to the study variables and their use throughout this document:

Latino: A person native to Latin America or of Latin American ancestry. Latin America extends from northern Mexico through Central America and includes South America. Latino is used interchangeably with Hispanics in surveys and research studies (Martinez & Gonzalez, 2020). Hispanic includes Latinos from Spanish-speaking Latin American countries. Latinos are the largest minority population in the United States (Pew Research Center, 2019).

Migrant worker: Individuals who migrate from their home country seeking residency for employment (Loganathan et al., 2019; Moyce & Schenker, 2018). Nearly

half of all transnational migrants work in the United States and are a vulnerable subset of the population, working long days for low pay, limited training, and unsafe work conditions predominately in the service industry; 48.8% of these workers are of Hispanic origin (Moyce & Schenker, 2018).

Urban: Areas that are densely populated and developed territories and encompass residential, commercial, and other nonresidential urban land uses (U.S. Census Bureau, 2019). More than 80.8% of the U.S. population resides in urban areas; the urban population is defined in terms of population density, contiguity, and urban measures often impacted by consideration of socioeconomic indicators of connectivity such as commuting zones (U.S. Census Bureau, 2020; see also Balk et al., 2018).

Poverty: The official poverty threshold for a family of four was an annual income of $25,701 in 2018 when the poverty rate was 11.8% (Pew Research Center, 2019).

Disaster: Traumatic and stressful events that are experienced collectively expose people to life threats and potential or actual injuries. Disasters result in sudden and remarkable economic losses, relocation, and a lengthy housing and infrastructure reconstruction period throughout the community (Bakić, 2019).

Disaster life cycle: Includes the concepts of mitigation, preparedness, response, and recovery illustrated in a circular flywheel as each of the phases from prevention to recovery has a considerable influence on the continuum of the cycle and improves disaster management capabilities (FEMA, 2021).

Disaster mitigation: All activities that reduce or eliminate the probability of a disaster occurring or reducing the hazard's impact. Mitigation activities such as maintaining surveillance and monitoring programs, establishing, and testing contingency plans, restricting access to hazardous materials, and installing security measures will reduce mortality and the overall effect of disasters (Shreve & Kelman, 2014). All functions are essential to prevent and manage a disaster emergency.

Household preparedness: Family and home-based disaster planning and preparation for emergencies (Bronfman et al., 2019). Improving individual emergency response in the home aids in the reduction in human casualties and contributes to post-disaster household planning (Chen et al., 2019). Activities include making emergency contact lists, evacuation plans, and assembling emergency supplies for sheltering-in-place and go-kits specific to local natural hazards.

Disaster readiness: Developing a disaster plan, arranging critical resources, and agility and capacity to prevent or mitigate adverse effects of disasters (Su et al., 2021). Disaster readiness enhances identifying disaster risk, preventing secondary disasters, and improving outcomes.

Significance

The results of this study are important to disaster planning because current research on the impact of poverty and gender-based disaster education on household preparedness in males within the urban male Latino migrant worker community is limited. This project can assist in developing meaningful public health programs that aim to increase household preparedness in urban male Latino migrant worker communities.

This population is at risk for poor outcomes during a disaster related to the urban environment, poverty, low English proficiency, and isolating political climate (Mendez et al., 2020). Women have a heightened risk for poor health outcomes during a disaster (Bhadra, 2017). Gender dynamics is an important area to explore in this population as females are often less informed about disasters and cannot successfully plan for household emergencies (Cvetković et al., 2018). However, the access to disaster education must be equal between the sexes to reflect this population's demographics. One-third of migrants are single heads of households, and half are male (PEW Research Center, 2019); thus, including both sexes in disaster education and emergency planning is of great importance.

Disaster preparedness has become a serious public health concern because of the increase in disasters and disastrous health outcomes. Climate change has increased the rate and intensity of natural disasters impacting the distribution of infectious diseases, extreme weather events, and secondary disasters (Rossati, 2017). Many urban male Latino migrant workers reside in low-income, flood-prone, multi-hazard communities (Chai et al., 20021). Households without disaster plans are ill-equipped to safely shelter-in-place or evacuate to designated safe zones during an emergency (Wilcox et al., 2021). This study highlighted the need for household disaster preparedness education that reaches males and females to encourage whole community resiliency in other at-risk communities. This education can help protect the most vulnerable populations from natural disasters and aid in the prevention of injury and death.

Assumptions and Limitations

In analyzing the impact of poverty on the ability of males in the urban migrant worker community to participate in household preparedness activities despite receiving preparedness education, the study relied on the secondary datasets collected by FEMA via the FEMA National Household Survey. The following assumptions characterized this study: All the data collected by FEMA on this survey will contain data representative of all survey participants allowing for analysis of racial, economic, accessibility of education, type of preparedness, behavior uptake, and barriers to participation for the year 2018. Because FEMA administers the survey via telephone in English and Spanish to a random sampling of approximately 5,000 adult respondents, it was assumed that this is a national representative sample and generalizable to the U.S. population. Another assumption was that the survey data were collected and reported promptly to the public. FEMA reports that the organization delays publishing this annual survey to coincide with the summary results for the subsequent National Household Survey iteration (FEMA, 2021).

A limitation of this study was that the survey was only offered in English and Spanish. This limitation excluded migrants from Latin American countries who do not speak English or Spanish proficiently from the study; this shrank the pool of data available for a thorough analysis of the Latino migrant population. The study also only explored the surveys of Latino American respondents and omitted other migrant workers from other racial groups. Another limitation was the restriction of survey data to a single year, 2018. The short period limited the data for analysis related to issues such as disaster

experiences, immigration trends, and the current U.S. economy. Although the study had multiple limitations, the results are widely applicable and generalizable in other migrant communities during this period.

Scope

This doctoral study explored the impact of poverty and lack of access to preparedness programs on household preparedness in urban male migrant Latino workers after disaster education. The scope of this study is a descriptive retrospective cross-sectional study, and the findings are generalizable to urban male Latino migrant worker communities. This study focused on data collected from the National Household Survey participants, which measured individual disaster preparedness levels through preparedness motivators, attitudes, and participation in preparedness programs. It is essential to understand the barriers to household preparedness in this community related to its heightened vulnerability and poor disaster outcomes. As the severity of disasters increases, public health policies should also be strengthened with the underlying goal of protecting vulnerable populations (Mendez et al., 2020). Further analysis of barriers to preparedness: poverty, race, obstacles, and access to preparedness initiatives will help to determine the best type of community programming to facilitate improvements in household preparedness and disaster readiness in this at-risk population.

This study utilized a secondary dataset collected by FEMA via telephone surveys in English and Spanish. The study was limited because it was only offered in English and Spanish, which disqualified urban Latino migrants from this study from various Spanish dialects and indigenous languages of Latin America and the Caribbean. The study also

utilized Pew Research Center and the U.S. Census datasets, which help clarify the independent and dependent variables that bind this study by highlighting population characteristics, defining poverty, and underscoring the susceptibility of urban male Latino migrant worker communities to disaster.

The generalizability of this study is limited to the United States; the FEMA dataset was only collected from respondents who reside in the United States. The data analysis for this study can contribute to a quantitative foundation for understanding this phenomenon and indicate the public program development required to improve household preparedness in other communities of color. The findings of this study may also have similar results if applied to other vulnerable populations. Generalizability allows research studies to inform interventions and make inferences on target populations based on the study sample results (Lesko et al., 2017).

Literature Review

There are substantial research studies on Latino migrant workers and disaster preparedness, mainly because this community is an at-risk community predisposed to poor health outcomes. Most published studies focus on providing disaster education, removing barriers to disaster notification, and disaster mitigation programming. The previous studies offer insight into the vulnerabilities of this community, successful methods of delivering targeted information to this hard-to-reach population, and highlight the importance of disaster education in enhancing disaster preparedness. There is a limited body of knowledge on how poverty undermines disaster education and the impact

of targeting subpopulations such as women and children in urban Latino migrant worker communities on household preparedness and disaster readiness.

This literature review summarizes the historical barriers for urban Latino migrant workers in disaster education and readiness. It provided an overview of the influence of poverty and gender roles on household disaster planning. There was particular focus of this review that focused on community-based participatory research (CBPR) and targeted programming to increase community preparedness and decrease health disparities in Latino communities. Additionally, the attitudes and motivators that require careful consideration for overcoming these obstacles were discussed. Finally, as the aim of this study was to build on the foundation of established public health practices, I explored a summary of successful programs and lessons learned in increasing disaster preparedness in programming to help bridge the gap in studies addressing specific study barriers.

Literature Search Strategy

The search strategy utilized in this portion of the study began with establishing an outline of literature review components, which informed the keywords used for search databases. Keywords included *migrant workers, Latinos, natural disasters, household preparedness, disaster preparedness, preparedness activities, urban disaster risk, disaster education, community resilience,* and *gender roles.* Also included were *community based participatory research (CBPR) in emergency planning* and *community planning in at-risk communities.* I searched the keywords individually and collectively. The ProQuest, Thoreau, Eric, Google Scholar, and Science Direct databases were searched. Sources of information included peer-reviewed journal articles, books, and

government statistics. These sources justified a current and relevant problem in public health, which supports the framework of the study. Many of the sources used in the study were published within the last 5 years. Older sources were also utilized to provide the historical background for the public health topic. Zotero's reference software (https://www.zotero.org) was used to organize the source material and eliminate the possibility of duplicate material.

Demographics of the U.S. Migrant Workers

In 2018, 44.8 million immigrants were living in the United States; this accounted for 13.7% of the population (Pew Research Center, 2021). Most immigrants migrate from their home country for the opportunity to improve their quality of life through employment, education, and the protection promised by host countries. More than 50% of foreign-born individuals in the United States are from Latin American countries (Pew Research Center, 2021). About half of the Latino migrant workers in 2018 were male, and 39% of this population was single and unable to benefit from public health programming directed at the most vulnerable in this community, women, and children (Pew Research Center, 2019). Disaster concerns dominate this patriarchal community, and household planning by females may conflict with males in their households resulting in delayed protective actions that can potentially endanger the entire family (Cvetković et al., 2018; Enarson et al., 2018; Villarreal & Meyer, 2020; Wandschneider et al., 2020). This fact may further isolate males in this already marginalized community, impairing their ability to react to and recover from disasters. In 2018, a large percentage of this population is younger or working age; 61.9% are between 18 and 54, and the median age

was 31 (U.S. Census Bureau, 2019). Only 53% of U.S. immigrants reported English proficiency or that they speak English well (Pew Research Center, 2020). The average age of migrant workers is striking, as the median age of the U.S. population was 53 in 2018 (Pew Research Center, 2021). Urban communities are the primary hosts to 95% of Latino migrant workers as the demand for laborers is greater in metropolitan areas (U.S. Census Bureau, 2019). Almost half of all immigrant populations in the United States are employed in service fields, construction, or logistical occupations (U.S. Census Bureau, 2019). Violence, human trafficking threats, and federal immigration policies for those who recently immigrated to the United States traumatize them, increasing the risk of mental health issues and erecting yet another barrier to obtaining community resources (Simha, 2019).

Barriers to Care and Decreased Social Capital of Urban Male Latino Migrant Workers.

Hispanics are the largest minority group in the United States (Pew Research Center, 2020). Hispanics are disproportionately impacted daily by poor conditions at work and home which are heavily influenced by social determinants of health, cultural values, socioeconomic status, social support systems, and access to health care (Velasco-Mondragon et al., 2016). Immigrants are subject to changes in the political climate of the receiving country, which creates uncertainty and irregularity in the treatment of workers (Moyce, 2018). Immigrants in Latin American communities within the United States have limited access to health services and community-based resources; 30% reported no insurance coverage before the Affordable Care Act, compared to 11% reported by non-

Hispanic Whites (Velasco-Mondragon et al., 2016). In the United States, health insurance is a crucial determinant of access to health care services; these services influence overall health and are influenced by mainstream community health needs (Lewis et al., 2019). Lack of access to health care results in lower utilization of preventive care services in this community. Low-income communities with lower education attainment have a heightened risk for chronic conditions such as heart disease, diabetes, and obesity (Office of Disease Prevention and Health Promotion [ODPHP], n.d.)

Housing, education, and healthcare limit access to fundamental human rights. U.S. immigration policies and documentation status establish a hierarchy of well-being that further marginalizes this community by restricting essential resources (Castrejon, 2020). These policies allow for the exploitation and isolation of urban Latino migrant workers as the rights and access of citizen workers dwarf those of migrant workers (Castrejon, 2017). Families are also fearful of accessing public benefits and often have difficulty keeping appointments due to lack of transportation and fear of immigration checks at hospitals (Lewis et al., 2019; Simha, 2019). Twenty-eight percent of Latino migrant workers reside near major highways contributing to respiratory, cardiovascular, and pregnancy-related complications and increased cancer rates (Healthy People 2020). Hispanic workers perform a disproportionate amount of unskilled and high-risk jobs (59%) as compared to White Americans (38.1%) in construction, repair services, manufacturing, and personal and household services (Hargreaves et al., 2019). Latinos have higher cardiovascular death rates among agricultural and construction workers, with a higher risk of death from occupational carbon monoxide exposure (Hargreaves et al.,

2019; Pega et al., 2021). In 2018, 71% of Hispanics reported they speak English at home, or speak English "very well," and educational attainment was reported in lower percentages among foreign-born Hispanics (Pew Research Center, 2020). Limited English proficiency and educational attainment limit access to the community and healthcare services, inhibiting their ability to improve their physical surroundings.

Understanding the vulnerability of Latino migrant workers enhances the knowledge of their compounded susceptibility to disasters and predisposition to poor disaster outcomes (Méndez et al., 2020). These issues should be considered when building a preparedness program that includes the entire population, thus decreasing disaster vulnerability in at-risk communities. Restructuring the design of disaster prevention agendas, mitigation abilities, and recovery planning efforts to meet the needs of this community will help decrease disaster vulnerability. Forced evacuations and destruction of homes during a disaster increase social isolation and weaken family ties (Moyce, 2018). At-risk communities lose the most during disasters and have lower percentages of disaster recovery, experiencing permanent loss.

Poverty in Urban Latino Migrant Communities

Poverty is a pertinent public health issue in the United States (ODPHP, n.d.). Of the almost 60 million foreign-born Hispanics, 18% (or 10,753,200) lived in poverty, earning under $24,999 annually in 2018 (Pew Research Center, 2021). The impact that poverty has on socioeconomic vulnerability and a household's ability to respond to disaster demands a social-ecological approach to poverty reduction and disaster recovery efforts (Davies et al., 2018). Poor communities are at greater risk for natural disasters due

to increased exposure to environmental hazards, social vulnerability, and lack of socioeconomic resilience, which results in inferior coping and recovery abilities (Davies et al., 2018; Hallegatte et al., 2020). Latino migrant workers rarely experience a convergence of incomes with U.S.-born Latinos (Abramitzky & Boustan, 2017). Migrant workers often engage in hazardous occupations for less pay, longer hours, and in worse conditions than U.S.-born Latinos and are subject to human rights violations, poor health outcomes, and workplace injuries and fatalities (Hallegate et al., 2020; Moyce & Schenker, 2018). Migrant laborers contribute to the economies of their home countries by sharing new trade skills developed and their divided fiduciary responsibilities, further predisposing them to poverty in the United States (Moyce & Schenker, 2018).

Barriers to Disaster Preparedness and Household Preparedness

Households prepared for disasters are more likely to report having the proper supplies, communicating emergency plans, and taking preemptive actions during a disaster. Awareness of local disaster risks and the factors that influence household emergency planning are critical motivators for participation in public health disaster planning at the household and community level (Kruger et al., 2020; Rosenbaum &Long, 2018). Disaster education provides the knowledge required to take action to reduce disaster vulnerability (Torani et al., 2019). Universal access to disaster education is necessary to improve vulnerabilities in at-risk communities. Detachment is another barrier to disaster preparedness. Migrant workers often travel to multiple cities throughout the United States for work, leading to decreased knowledge of local hazards and resources, lack of transportation, and limited access to community protection (Kruger

et al., 2020; Lewis et al., 2019; Rosenbaum & Long, 2018). Engaging members of the community in planning and response activities, improving coping capacities and resilience to overcome economic concerns, health, and transportation issues, knowledge of local evacuation plans, potential employment loss, and distrust of authorities are goals for successful disaster preparedness (Lewis et al., 2019; Wickramage et al., 2018). Language barriers, low levels of education, social position, or other cultural issues impact disaster training's availability and receptivity (Kula et al., 2021). Immigrants with lower education and limited language skills risk occupational injury (Moyce & Schneker, 2018). Safety training, disaster information postings or warning signs, and legal information may not be available in the workers' primary language, affecting the ability to educate new workers.

Public Health Programming Addressing Disaster Readiness in Urban Male Latino Migrant Workers

Community partnerships are a successful method of addressing readiness in this community. Training and disaster planning conducted within partnerships helped build community resilience and social connectedness and led to financial support from federal and state agencies to expand preparedness programming in Latino immigrant communities (Cuervo et al., 2017; Fields et al., 2021; Hardin et al., 2020). This education enhances household and community readiness in urban male Latino migrant worker populations. Targeting at-risk communities improve whole community preparedness by engaging the most vulnerable populations in their native language and communities and involving community stakeholders to ameliorate disaster outcomes. Utilizing community

leaders solidifies community relationships and builds trust, enabling successful household disaster planning (Fussell et al., 2018; Kocot & Szetela, 2020; Papawijitsil et al., 2021).

Every community is unique, requiring specialized disaster mitigation and preparedness planning. Creating individualized programs for the specific needs and hazards within a particular geographic area is essential to engage and sustain community participation in the planning and implementation of emergency preparedness initiatives (Kocot & Szetela, 2020; Ramsbottom et al., 2018). Acknowledging a community's socioeconomic status and cultural norms such as gender roles eliminates additional obstacles to household disaster planning and readiness.

CBPR in Urban Latino Migrant Worker Communities

CBPR design is successful in community disaster programming. CBPR involves a collective inquiry allowing researchers and community stakeholders to engage as equal partners throughout the research process, share power in education, and change in practice, especially in marginalized communities (Salma & Giri, 2021; Tremblay et al., 2018; Zlotnick, 2021). CBPR uses community members to deliver culturally sensitive and culturally competent education. CBPR programs successfully identify those with health and social service needs and connect them to resources essential to addressing poverty-related barriers to household disaster planning (Coffman et al., 2017; Riza et al., 2020). Culturally sensitive programming hosted by trusted community-based organizations and workspace settings strengthens receptivity to disaster education and participation in preparedness activities (Hughes et al., 2020; Riza et al., 2020; Rosenbaum & Long, 2018).

Climate Change and Increased Vulnerability of Urban Communities

Climate change has increased the rate and frequency of natural disasters (Rossati, 2017). Urban communities have a heightened risk for disasters. More than half of the world lives in cities, and the rate of urbanization exacerbates health disparities and social inequities (Gencer et al., 2018; Kuddus et al., 2020). Urban communities are at greater risk of natural disasters because of their proximity to the coast, built environment, and population density (Kita, 2017; Shahidul et al., 2020; Xu et al., 2021). This threat highlights the need for community resilience and strengthening disaster risk response and recovery (Boxier et al., 2021; Xu et al., 2021). In 2018, there were over 300 natural disaster events with over 11,000 deaths (FEMA.gov, 2020).

Programs associated with poverty reduction and improving the social standing of marginalized communities decrease disaster vulnerability. The resilience capacity of the urban community plays an essential role in disaster risk, response, and recovery (Kita, 2017; Shahidul et al., 2020; Xu et al., 2021). Disaster risk is strongly linked to social and economic factors and less to the type and intensity of the event (Haque, 2020).

Importance of Disaster Education in Improving Household Preparedness

Disaster education is effective at all stages of the disaster life cycle, but its biggest impact is in preparation. Lack of disaster knowledge is the greatest barrier to household preparedness (Chen et al., 2019; Glago, 2019). Disaster education in vulnerable populations such as women and children aim to provide knowledge, skills, motivation, and encouragement to act, improving disaster planning and the response of an entire household through alternative means (Moreno & Shaw, 2018; Nojang & Jensen, 2020;

Torani et al., 2019). Risk perception increases household preparedness. Households least likely to perform pre-disaster planning activities are low-income, single-mother head of household, and households with seniors (Sasaki et al., 2019). Households with one or more members with functional and access needs are more likely to prepare for a disaster by utilizing community resources and from Americans with Disabilities (ADA) and increased education (Bronfman et al., 2019; Chen et al., 2019; Elisala et al., 2020). Increasing resources to the entire household and community support systems can increase disaster readiness and improve participation in preparedness activities, similar to ADA programming.

Disaster Vulnerability in Urban Male Latino Migrant Workers

Women and men respond differently to disaster risk; this is heightened after completion of disaster education and exposure to natural disasters, resulting in increased protective action in planning for the physical safety of the members of their household (Cvetkovic et al., 2018; Enarson et al., 2018; Villarreal & Meyer, 2020). Women and children have been the central focus of contemporary disaster planning and preparedness initiatives, giving women a greater understanding of natural disaster planning and the adoption of protection measures (Cvetkovic et al., 2018; Enarson et al., 2018; Moreno & Shaw, 2018; Villarreal & Meyer, 2020). Married males with school-age children in the home are better prepared for disaster due to exposure to the safety information at school and community health services for maternofetal and pediatric health programming (Bronfman, 2019; Moreno & Shaw, 2018; Torani et al., 2019). Unmarried males under 30 and over 60 without children have the lowest household preparedness and disaster

readiness rates (Cvetkovic et al., 2018; Enarson et al., 2018; Moreno & Shaw, 2018; Villarreal & Meyer, 2020).

The lack of education of male members in this community will decrease their ability to prepare and respond to a disaster. Half of all Latino migrant workers are male; thirty-nine percent of this population are unmarried and unable to benefit from targeted public health programming directed at females (Pew Research Center, 2019). Education of subpopulations of this community may result in postponed preparedness planning and delayed disaster response based on the head of household dynamics (Enarson et al., 2018; Cvetković et al., 2018; Villarreal & Meyer, 2020; Wandschneider et al., 2020). Targeted and not whole community education may further endanger males in this already marginalized community impairing their ability to react to and recover from disasters.

Summary

Urban communities are at increased risk of natural disasters; this threat highlights the need for community resilience and strengthening disaster risk response and recovery (Xu et al., 2021). Hispanic immigrants are the fastest-growing minority group (Maldonado et al., 2016); low social status, economic hardships, language barriers, and fear of deportation in this community create a barrier to community preparedness initiatives and improved disaster mitigation. Disaster education programs engaging vulnerable populations within the Latino migrant community, such as women and children, aim to provide knowledge and skills to improve an entire household's disaster planning and response (Moreno & Shaw, 2018; Torani et al., 2019). However, educating subpopulations will result in delayed or limited protective actions that can potentially

endanger the entire family as large percentages of this community are unmarried and or without school-aged children (Cvetković et al., 2018; Enarson et al., 2018; Villarreal & Meyer, 2020; Wandschneider et al., 2020). This study explored the impact of poverty and targeted disaster education on household preparedness in urban male Latino migrant worker communities to seek to fill the gap in the literature and lay the foundation for future studies. Section 2 will present the study's research design and data collection information.

Section 2: Research Design and Data Collection

Introduction

The increased frequency and intensity of natural disasters have made disaster preparedness a public health concern. The current climate crisis challenges influence disasters and public health emergencies by expanding the event's frequency, severity, and duration (Salas et al., 2020). Natural disasters are humanitarian and economic concerns because of the looming threat of human and financial loss combined with the cost of recovery (Haddow et al., 2016). No geographic location is safe from disasters, and disaster risk-reduction measures such as preparedness activities are vital for preserving all communities (Haddow et al., 2016).

Urban communities are more susceptible to natural disasters compared to rural areas. The physical infrastructure and social structures of urban areas expose these communities to natural and man-made hazards (Bronfman et al., 2019). The increased rate of natural disasters has underscored the need to enhance disaster risk perception, improve risk mitigation strategies, and create policies to safeguard human lives and protect infrastructure (Botzen et al., 2019). Risk mitigation strategies such as disaster education are essential in at-risk communities, such as migrant Latino workers, who have an increased vulnerability during disasters proliferating morbidity and mortality concerns during emergencies. Targeted education should be avoided so subpopulations are not excluded from obtaining information on disaster management and household preparedness planning that could save lives. This study aimed to explore the impact of

poverty and gender-based disaster education on household disaster planning in urban male Latino migrant workers.

Research Design and Rationale

The research design used for this quantitative study was secondary data analysis. In secondary data analysis, the primary user collects data for purposes other than the researcher's study (Wickham, 2019). In this analysis, investigators must be knowledgeable about their research area; no dataset will be custom-made for any one study (Wickham, 2019). The low cost of secondary studies, ease of access to primary data, and speed of secondary data analysis greatly enhanced this study. FEMA's National Household Survey is conducted annually to assess the growth of disaster readiness and resilience in communities across the United States (FEMA, 2021). This survey collects raw data from over 5,000 U.S. residents and is analyzed by FEMA to provide a snapshot of individual preparedness disaster attitudes and preparedness motivators (FEMA, 2021). The data representative of the independent variables, disaster education and income; the dependent variable, participation in household preparedness activities; and the confounding variable, gender, were compiled from the National Household Survey for data analysis.

Methodology

For this study, I used a quantitative research approach. A quantitative study is appropriate when the study aims to attain knowledge and understanding. Quantitative methods anticipate what must be measured in advance (Noyes et al., 2019). Quantitative data help formulate a hypothesis, explain a phenomenon, and determine generalizability

and relationships between variables to make predictions using the scientific method (Noyes et al., 2019). The quantitative methodology employs techniques and assumptions to study social processes by analyzing numeric data (Ahmad et al., 2019). Qualitative studies contrastingly produce a narrative understanding of a subject through case studies and interviews (Noyes et al., 2019). Quantitative research is used to observe phenomena or occurrences affecting individuals relying on the analysis of observed data from surveys or experiments to examine a phenomenon within the sample population (Ahmad et al., 2019).

This study examined the effect of poverty and targeted disaster education on household preparedness in urban male Latino migrant workers; a quantitative approach was the optimal choice. The National Household Survey is a federal survey that measures individual preparedness attitudes and behaviors and investigates what factors influence individuals to begin preparing for a future hazard. The data from this survey were utilized to examine the relationship between poverty and household preparedness planning, controlling for gender.

Cross-Sectional Study Design

This quantitative study applied correlational research variables using a cross-sectional study design. Cross-sectional studies are observational studies that simultaneously measure exposures and outcomes in study participants in a population at a single point in time (Wang & Cheng, 2020). Cross-sectional research quickly provides actionable data for preliminary evidence in planning advanced studies (Wang & Cheng, 2020).

Study Population

The study sample was drawn from the 5,000 U.S. residents participating in the FEMA's National Household Survey in 2018. I selected this survey due to its focus on race, income, preparedness education, and uptake of preparedness activities. FEMA representatives conducted the study by telephone, as they have done in other years. All participants were called via their landline or cellular device utilizing pre-recorded introductions in English and Spanish. Live Spanish translators conducted the study and obtained consent from the respondents. The subjects that resided in multifamily homes were randomly chosen for the household study participant by designating the adult aged 18–99 years who will celebrate their birthday next. After consenting, each respondent was then informed that the questions comply with the Privacy Act of 1974, which were approved by the Office of Management and Budget, and that all personal identifiers would be removed from their responses; respondents were also provided a number to contact a FEMA representative if they had any questions (FEMA, 2021).

The survey collected demographic information such as sex, age, state, county, and zip code. The FEMA researchers used the survey results to build a hazard profile based on natural and man-made geographic hazards based and codes associated with their location (i.e., tornado section, flood section, nuclear event, etc.). This profile emphasized intersections among the codes to illustrate multi-hazard regions of the country. The core questionnaire began with examining access to disaster information methods used to obtain information on increasing disaster preparedness in the past six months. Disaster is an event that threatens lives, disrupts public or emergency services such as water and

power, or damages property (Botzen et al., 2019). FEMA categorized this disaster information into four themes: basic survival or obtaining food, water, and shelter or evacuation during an emergency, planning, and preparing, which includes creating an emergency plan and measures to employ during specific kinds of hazards (i.e., flood, wildfires), protecting property involves preserving property, gathering important documents, and procurement of insurance, and another theme.

The income section of the survey was a major focus in the data analysis of this study. During data analysis individuals living under the poverty line and those living above the poverty line were compared. The poverty guideline for this study was based on household size, 1–8 persons in the household (PEW, 2019). The monthly wages ranged from $60 to over $20,000. The purpose of the income separation was to compare access to disaster education, and the participation of the two levels of income in preparedness activities. This data analysis aimed to determine the role of poverty in access to and involvement in household preparedness behaviors.

Individual characteristics were also included in the data analysis. The survey questionnaire inquired about the race of the respondent. The survey queried race using the choices of Hispanic origin to include Mexican, Puerto Rican, Cuban, or another Spanish origin. This section was used to extract only Latino respondents from the diverse population sample of this national survey.

Lastly, I used the survey's household and community disaster readiness sections to illustrate the level of preparedness, type of preparedness planning, and the timing in

proximity to disaster education that preparedness activities are initiated and implemented. These sections elicited information on the following:

- Access: The question “How did you receive the preparedness information?” was chosen to ascertain access to formal education from local government or an event or training on disaster preparedness.
- Actions: This question “After receiving the information about how to get better prepared, did you take any steps to prepare for disaster?” prompted descriptions of the actions taken, if any, after the receipt of disaster education from emergency management and public health professionals.
- Implementation: Four questions were chosen from the behavior section in the emergency planning, supplies, and drills for respondents’ segments of the survey. Participation in preparedness actions is an important topic that was helpful to determine the level of household preparedness in the community before an emergency. The timing of the implementation of preparedness activities is integral to the success and mastery of disaster planning in individual households.
- Efficacy and self-confidence: These sections were used to highlight the levels of confidence in preparing for disaster, as well as the underlying reason this population may be unable to take steps to prepare; the responses included: Unaware of actions to take, cost of preparedness measures, and inability to gather supplies further refined the responses. In this segment of the survey, barriers to household preparedness were explored.

Sampling Procedures Used for the Original Data Set

Every year, FEMA surveys the public to assess the nation's progress in building a culture of preparedness and reports the results publicly. FEMA also reviews the perceptions and experiences that influence people to take steps to become more prepared. The National Household Survey tracks progress in personal disaster preparedness by investigating the American public's preparedness actions, attitudes, and motivations. FEMA administers the survey in English and Spanish and then publicly reports the results. The survey includes a nationally representative sample and hazard-specific oversamples, including earthquake, flood, wildfire, hurricane, winter storm, extreme heat, tornado, and urban event (FEMA, 2021).

Power Analysis

Before the data collection process, I performed a power analysis before conducting a data analysis. A power analysis provides a researcher with the minimal sample size required to detect the effect at the preferred level of significance (Kemal, 2020). Sample size helps determine the study's power, avoid a Type II error, and reject the null hypothesis (Uttley, 2018). In this study, I endeavored to exploit a conventional threshold significance level of all the components necessary to determine power. The *p* value < .05 was used; a small p- value improves the ability to reject the null (Di Leo & Saranelli, 2020). An alpha level of 0.05, power is conventionally set at .80 (Utleu, 2018; Brydges, 2019), rejecting the null 80% of the time.

G*Power, a free software platform (https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-

arbeitspsychologie/gpower.html), was used to conduct the power analysis. G*Power is useful for estimations of sample size and to conduct power analysis (Kang, 2021). This study used the significance level of 0.05 for interpreting the *p* or α, the statistical power and β will be 0.80, and 0.5 or medium effect size. Using G*Power to conduct a power analysis to calculate an appropriate sample size using the values listed above, the computed total sample size was 314 for the two-tailed *z*-test for binary logistic analysis.

Operationalization of Variables

The independent variables used in this study included disaster education and income. The outcome or dependent variable was participation in household preparedness activities. The control variable for this study was gender.

Independent Variable

The independent variables in this study were disaster education and income. Disaster education is an important motivator to participating in disaster preparedness initiatives. Educated individuals are more likely to participate in preparedness activities without previous disaster experience; this highlights the power of education in disaster risk reduction for all community members (Hoffmann & Muttarak, 2017). The monthly income of respondents ranged from $60 to over 20,000 and were classified and coded based on the annual poverty threshold. Gross familial income of $1,012.00 or less was characterized as living below the poverty line and incomes of $2,000 to $20,000 above the poverty line.

Dependent Variables

The study's dependent variable was participation in preparedness activities. The type of preparedness activities and level of involvement was researched. The development of a household preparedness plan, methods that would be utilized to obtain emergency information, and the ability to assemble supplies and prepare the household for disaster were explored. Engagement in preparedness activities and implementation of after attending disaster education were the desired outcomes of disaster preparedness programming hosted by public health professionals. The responses were converted into categorical variables for data analysis.

Data Analysis Plan

The 2018 FEMA dataset includes a variety of additional variables that were not considered for this study. The variables and data points exploited from the National Household Survey dataset were associated with the study's research questions and hypothesis testing. The dataset contains the race, language, income, preparedness education, and preparedness activity uptake data required to address the public health problem selected for this study. This survey can also help create disaster preparedness programs and interventions based on defining characteristics from other vulnerable communities in future studies.

The personal finance section of the question bank was included in the data analysis. For correlational purposes, the Latino respondents who completed the survey in Spanish, were split between those living under the poverty line and those living above the poverty line. The first income segment included those Latino workers below the poverty

threshold based on the poverty guidelines outlined by the U.S. Census Bureau annually. In 2018 households with single occupants earning $12,140 annually and less were defined as living in poverty; these incomes varied by $4,320 per household member (U.S. Census Bureau, 2020). The National Household Survey questionnaire recorded the monthly salaries of the heads of households and family members. The wages ranged from $60-over 20,000. For data analysis, the categories associated with monthly incomes between $60- $1,999 were selected to isolate households meeting the qualification of living in poverty, with gross incomes of $1,012.00 or less.

The second income segment included Latino workers earning income above the poverty line. The wages ranged from $2,000 to $20,000 monthly. The purpose of separating the income brackets was to compare the values of households living below the poverty line to the access to disaster education and the participation of the two income levels in preparedness activities when controlling for gender. The data analysis for this study aimed to determine the role of poverty in access to and involvement in household preparedness behaviors.

The racial demographics of the respondents were also used in the data analysis. The survey queried race using the choices of Hispanic origin to include Mexican, Puerto Rican, Cuban, or other Spanish origins. The study endeavored to extract only Latino respondents from the diverse population sample of this national survey. Caucasian American and African American survey data were also used to highlight the variation of preparedness activity uptake for each major racial group in the United States.

Lastly, the study employed the survey's household and community disaster readiness sections to illustrate the level of preparedness, the type of preparedness planning, and the timing related to the initiation of disaster education and preparedness activities. Access: How did you receive the preparedness information? This question was chosen to ascertain access to formal education from local government or an event or training on disaster preparedness. Actions: After receiving the information about getting better prepared, did you take any steps to prepare for disaster? If any, this question describes the actions taken after receiving disaster education from emergency management and public health professionals.

A major concern for this study was ensuring that the dependent variable was not influenced by outside variables that the study did not control. Internal validity is the degree to which the results embody the phenomenon's occurrence in the study population (Patino & Ferreira, 2018). Once the internal validity is confirmed, the researcher must ask if the results would apply to similar people in different settings, determining external validity (Patino & Ferreira, 2018). Managing missing data within the dataset is critical to effective data management. Incomplete cases for the study variables were thoroughly examined, and the Missing Completely at Random and data Missing at Random classified values were not eligible for data analysis. Dummy variables or categorical variables were added to blank fields to allow the statistical software to complete the data analysis, in this study No Response/Refused to Answer was recorded as "No Ans." Listwise deletion would remove the observations with incomplete information, compromising the power analysis, and coding was necessary.

The logistic regression (L.R.) model was used in this study to analyze the variables' relationship and their predictability in answering the research questions. L.R. illustrates the relationship between a binary independent predictor variable and a categorical dependent variable (Boateng & Abaye, 2019; Ranganathan et al., 2017). This model quantifies the association between the variables with odds ratios or the odds that an outcome will occur. L.R. focuses on the occurrence of a phenomenon rather than when it happens (Boateng & Abaye, 2019). The datasets, formats, and codebooks were downloaded from the FEMA website, and statistical analysis was conducted using IBM SPSS Software version 28 for MacOS Monterey.

Research Questions and Hypotheses

The following research questions were used in this quantitative study to examine the impact of poverty and targeted disaster education on household preparedness in the male migrant Latino worker community.

RQ1: Is there an association between access to preparedness information and poverty for urban Latino migrant workers when controlling for gender?

H_o1: There is no relationship between access to preparedness information for urban Latino migrant workers and poverty when controlling for gender.

H_A1: There is a relationship between access to preparedness information for urban Latino migrant workers and poverty when controlling for gender.

RQ2: Is there a relationship between poverty and the initiation of specific household preparedness planning activities in urban Latino migrant workers when controlling for gender?

H_o2: There is no correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

H_A2: There is a correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

RQ3: Is there an association between the poverty of urban Latino migrant workers, preparedness types activity uptake, and household preparedness after completing disaster education when controlling for gender?

H_o3: There is no association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

H_A3: There is an association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

Threats to Validity

A major concern for a researcher was verifying that the study variables can be shown not to be influenced by factors outside the study because this could impact the study's validity.

Internal Threat to Validity

Selection bias could be a potential threat to internal validity. This study is most in danger of selection bias. Selection bias occurs when the participants in two study groups fail to represent the larger population. Limiting this type of bias is essential because it has major implications for the result of the study. Selection bias or collider bias can potentially distort the relationship between the variables and decrease random selection (Griffith et al., 2020). The most effective means of limiting this bias is to use appropriate random sampling methods during the study design stage (Griffith et al., 2020).

External Threat to Validity

Threats to external validity are vital in considering before reporting the study's findings. Population validity was a possible threat to external validity in this study. Population validity is the ability to generalize across all subgroups (Ocumpaugh, 2014). Populational validity is a threat to external validity. The researcher can generalize to the population, decreasing the study's credibility (Ocumpaugh, 2014). External validity examines whether the study findings can be generalized to other contexts (Andrade, 2018). To increase population validity, the researcher must include multiple characteristics of the study population.

Ethical Considerations

Ethical considerations are an important aspect of research that should guide all research studies (Burles & Bally, 2018). The researcher ensured that ethical considerations were a priority throughout the study. The following methods were exploited to safeguard the validity and reliability of the study. The publicly reported

survey data remained de-identified at all times throughout the study. The dataset did not include names or any identifying data. Consent for the study participants was reasonably deduced as FEMA reports that consent is obtained after the survey's introduction. The researcher upheld the highest virtue of academic integrity by respecting individual privacy at all study levels and acknowledging that the improper disclosure of confidential information can be detrimental to the participants. The researcher did not allow or make any unauthorized transmissions, inquiries, modifications, or purging of the confidential information in the dataset. The results of the data analysis did not permit the identification of participants. This study was submitted to IRB; the IRB granted permission to use this dataset for this study. The use of the data did not result in a negative impact on the participants.

Summary

This study used a quantitative, cross-sectional study design to study the relationship between participation in household preparedness activities and income after disaster education when controlling for gender. The statistical analysis included data collected from the 2018 FEMA National Household Survey. The relationship between access to disaster education and information and income was examined using binary logistic regression. The relationship between disaster education and the type of household preparedness activities was assessed using ordinal logistic regression. Binary logistic regression was used to analyze the relationship between income and involvement in preparedness activities. A p value of $< .05$ represented significance in all data analysis

tables. Chi-square tests were used to determine that there was sufficient evidence to reject the null at the 0.05 level. Section 3 will present the study results and findings.

Section 3: Presentation of the Results and Findings

Introduction

This study aimed to determine the impact of poverty and gender-based disaster education on household preparedness planning in urban male Latino migrant workers. I examined the relationship between gender, poverty, access to disaster education, and preparedness activity uptake, as articulated in the following three research questions:

RQ1: Is there an association between access to preparedness information and poverty for urban Latino migrant workers when controlling for gender?

H_o1: There is no relationship between access to preparedness information for urban Latino migrant workers and poverty when controlling for gender.

H_A1: There is a relationship between access to preparedness information for urban Latino migrant workers and poverty when controlling for gender.

RQ2: Is there a relationship between poverty and the initiation of specific household preparedness planning activities in urban Latino migrant workers when controlling for gender?

H_o2: There is no correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

H_A2: There is a correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

RQ3: Is there an association between the poverty of urban Latino migrant workers, preparedness types activity uptake, and household preparedness after completing disaster education when controlling for gender?

H_o3: There is no association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

H_A3: There is an association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

In this chapter, I describe the data collection for the study and the results of the retrospective, quantitative analysis of the dataset.

Data Collection of Secondary Dataset

The secondary dataset utilized for this study was the 2018 National Household Survey. This survey monitors personal preparedness behaviors through trends in U.S. preparedness actions, attitudes, and motivators. The annual telephonic survey was administered to a random sampling of 5,000 respondents. Within the 2018 National Household Survey, the study was limited to respondents that fit the demographics of the study population. Respondents in the sample of Hispanic origin who completed the survey in Spanish were selected for this study. No variables contained more than 15%

missing data throughout the survey. The data in the income variable where respondents reported that they did not know or refused to answer was renamed “no ans” before the analysis was conducted. There were 1,017 Hispanic respondents of the 5,000 U.S. households that participated. Of the Hispanic respondents, 564 conducted the survey in Spanish only and thus were included in the final selection for this study. The measurable preparedness activities included in this study were: awareness of disaster education, the assembling of emergency supplies in a go bag for rapid evacuation, gathering supplies in the home to shelter in place for 3 days, a known method to obtain real-time disaster alerts, and the development of a household disaster plan. Planning, stockpiling, and disaster drills are recommended mitigation initiatives to improve household and community disaster outcomes (Blake et al., 2017; Bronfman et al., 2019; Chen et al., 2019). Response organizations recommend these activities be implemented and assessed frequently to ensure disaster readiness (Bronfman et al., 2019).

The income and disaster education (independent variables) and gender (covariate variable) of the respondents were also included in the data analysis to determine if they are predictors of participation in preparedness behaviors (dependent variable). Preparedness activities enable communities to respond effectively to disasters, and every citizen deserves the opportunity to prepare, especially those without the financial means and capacity that may require support (Blake et al., 2017). Community resilience requires programming to fit a community’s profile as each area is unique and has varying risks, resources, and networks. This profile must be a part of disaster education. Successful preparedness program activities require the elimination of barriers that income and

restricted community connections can yield (Johnston et al., 2022); this is the underpinning of this study. The National Household Survey recorded the demographics of each participant, which was used to striate the data during retroactive quantitative analysis.

Baseline Study Variables and Demographic Characteristics

The 2018 National Household Survey included 5,000 U.S. residents randomly selected and who consented to the telephonic survey. The National Household Survey results are reported each year publicly and are accessible to download via the FEMA webpage (https://www.fema.gov/about/openfema/data-sets/national-household-survey). Table 1 summarizes the descriptive characteristics of the study sample.

Table 1

Table of Descriptive Statistics

Variables	Survey questions	Data code
	Demographics section	
Gender	What is your sex or gender?	0 = M 1 = F
Income	What is your total MONTHLY household income before taxes?	0 = Not poor 1 = No ans 2 = Poor
	Behaviors/emergency plans	
Aware of preparedness information	In the past six months, have you read, seen, or heard any information about how to get better prepared for a disaster?	1 = Yes 2 = No
Plan	Has your household developed and discussed an emergency plan that includes instructions for household members about where to go and what to do in the event of a local disaster?	1 = Yes 2 = No
Alerts	Do you know how you will get real-time alerts and warnings for disasters in your community?	1 = Yes 2 = No
Shelter in place	Do you have enough supplies set aside in your home to get you through three days or more without power or running water and without transportation?	1 = Yes 2 = No
Go bag	Do you have emergency supplies already packed that you can grab quickly in case you have to evacuate your home quickly?	1 = Yes 2 = No

Note. Table of descriptive statistics collected from the 2018 National Household Survey.

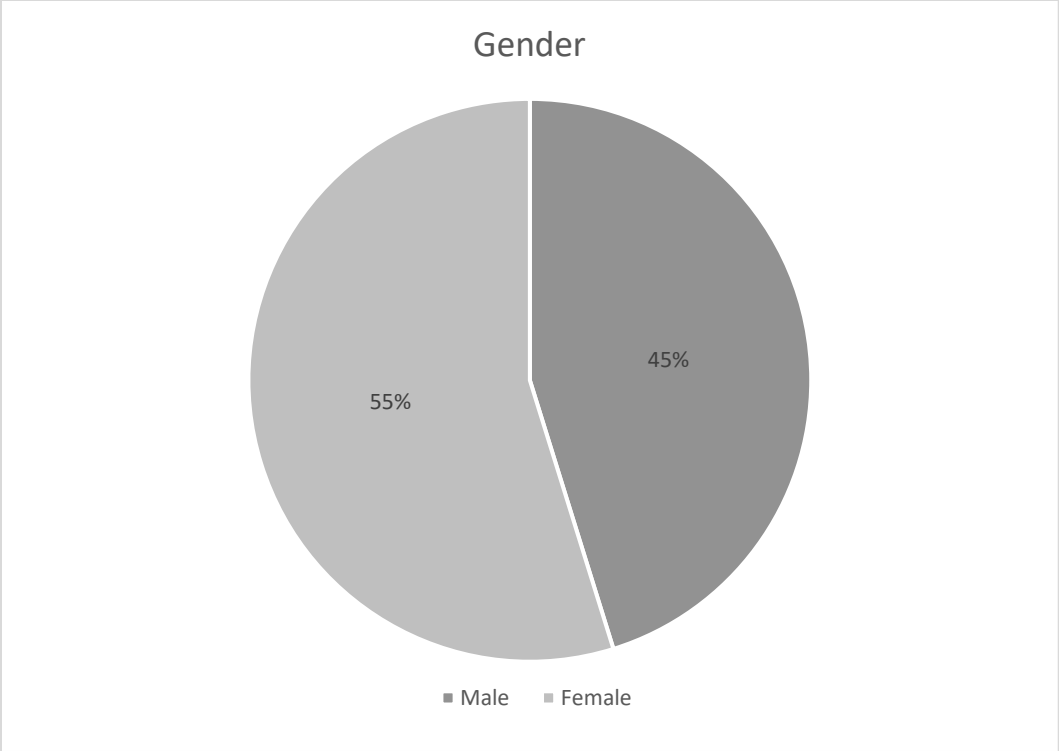
Results of the Study

Summary Descriptive Statistics That Characterize the Sample

The final dataset consisted of 564 Hispanic workers who chose the Spanish language survey (n = 564). Males were 45% (254) of the study sample (see Figure 5), 32.9% of the respondents reported living in poverty, earning < $60-$1,999 per month (see Figure 6). Although the survey did not inquire about the country of origin or citizenship status, the population characteristics: limited English proficiency, limited education, low-paying jobs, and housing tenure mirror the characteristics of the Latino migrant worker community. All respondents in this study sample chose to complete the survey in Spanish, 70% had a high school education or less, 58% lived in a rental unit, and 44% had no children. Unfortunately, 44% reported that they did not know or refused to answer the question about their monthly income; it is assumed that a larger portion of this sample lived in poverty. The respondents who declined to answer questions about their income were retained in the study for the gender analysis of preparedness activities.

Figure 5

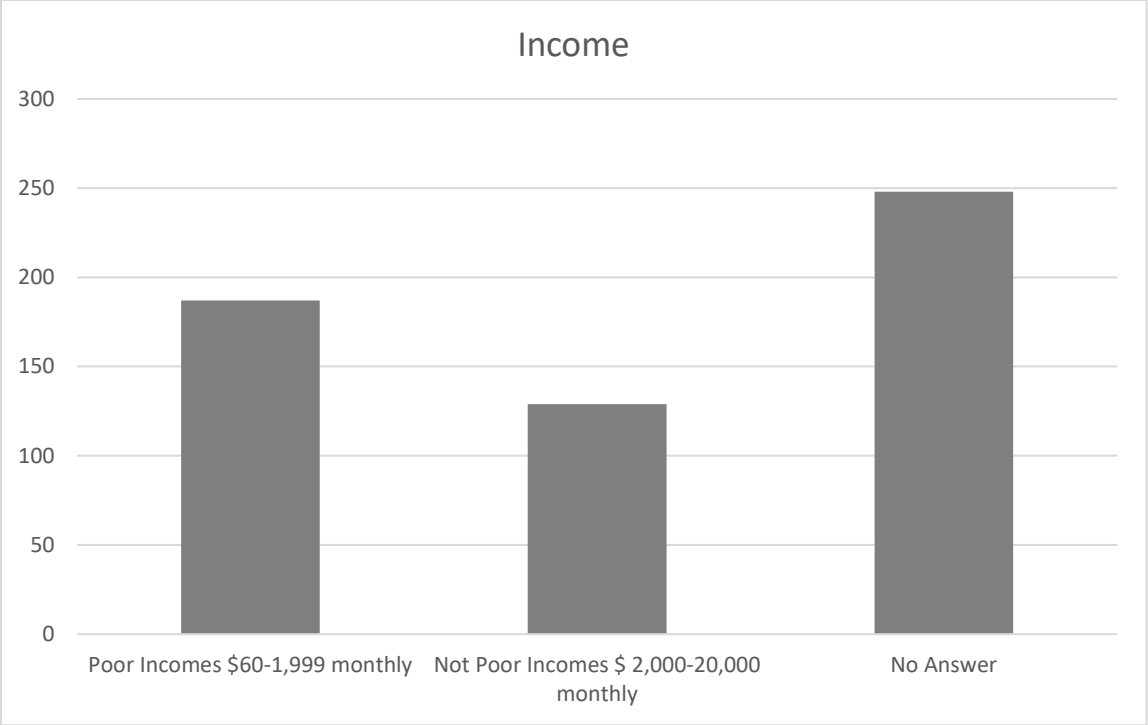
Pie Chart for Gender Variable



Note. The gender of participants collected from the 2018 National Household Survey.

Figure 6

Bar Chart of the Income Variable



Note. The income of respondents collected from the 2018 National Household Survey.

Inferential Statistics

The three research questions and hypotheses statements were analyzed in this study. The dependent variable of participation in household preparedness activities was a binary response variable. A binary logistic regression was conducted using SPSS. The independent variable, income, had three subcategories that were coded; the reference group utilized for the analysis was the "not poor" data point. This analysis was used to highlight the impact of poverty on preparedness activity uptake. All assumptions associated with logistic regression were present in this study, such as a binary dependent variable with two levels, having at least one independent predictor variable, and no multicollinearity among independent variables. In a binary logistic regression model, the variables should not be highly correlated because this multicollinearity affects the independence of the independent variable confidence intervals and hypothesis testing. (Senaviratna & Cooray, 2019). The variance inflation factor (VIF) was calculated to detect multicollinearity (see Table 2). The VIF calculated was .996 to 1.004 for all variables as each was binary and categorical; there were no outliers.

Table 2

Multicollinearity Tolerance and Inflation Factors

Variables	VIF (Tolerance)
Access to preparedness information	0.996
Alerts	1.004
Shelter in place	1.004
Go bag supplies	1.004
Plan	1.004

Note. VIF = Variance inflation factor; VIF > 10 indicates multicollinearity.

Statistical Analysis Findings Organized by Research Questions

Research Question 1

In RQ1, binomial logistic regression was used to analyze the relationship between access to education or preparedness information and poverty for urban Latino migrant workers in the 2018 National Household Survey dataset, controlling for gender.

H_o1: There is no relationship between access to preparedness information for urban Latino migrant workers and poverty when controlling for gender.

H_A1: There is a relationship between access to disaster education for urban Latino migrant workers and poverty when controlling for gender.

I used a binary logistic regression analysis to examine whether income and gender were associated with the likelihood of having access to preparedness information and education. A preliminary analysis suggested that the assumption for multicollinearity was met (tolerance = .996). The model was statistically significant $x^2(3, n = 564) = 11.90$, $p = .008$, indicating that it could distinguish between those with and without access to disaster education. The model explained that between 2.1% (Cox & Snell) and 2.8% (Nagelkerke) of the variance in the dependent variable correctly classified 56.4% of cases. As shown in Table 3, income but not gender significantly contributed to the model. For the poor or those living in poverty, the odds ratio of .50 suggests that participants were .50 times less likely to have access to preparedness information for every decrease in the level of income.

Table 3

Binary Logistic Regression: Access to or Awareness of Preparedness Information

							95% CI *OR*	
Variable	B	*SE*	Wald	*df*	*p*	*OR*	*LL*	*UL*
Gender (Male)	.275	.172	2.563	1	.109	1.317	.94	1.846
Poor	-.688	.223	9.538	1	.002	.503	.335	.778
No Ans	.334	.233	2.045	1	.153	1.396	.884	2.206
Constant	-.574	.204	7.942	1	.005	.563		

Note. RQ1 regression analysis results, data from the 2018 National Household Survey.

Research Question 2

In RQ2, binary logistic regression was performed to analyze the relationship between poverty and the initiation of specific household preparedness planning activities in urban Latino migrant workers when controlling for gender.

H_o2: There is no correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

H_A2: There is a correlation between poverty and the initiation of specific household preparedness planning activities for urban Latino migrant workers when controlling for gender.

Using a binary logistic regression analysis, I examined whether income and gender were associated with a specific type of preparedness education. The forms of preparedness activities studied were (a) access to emergency alerts, (b) supplies to shelter in place, and (c) supplies packed for a go bag to evacuate quickly. A preliminary analysis suggested that the assumption for multicollinearity was met (tolerance = 1.004) for all variables.

For emergency alerts, a binary logistic regression analysis was used to examine if income and gender were associated with the likelihood that urban male migrant Latino workers would have knowledge of how to get real-time alerts and warnings for disasters in their community. The model was statistically significant $x^2(3, n = 564) = 10.829$, $p = .013$, suggesting that it could distinguish between those with and without access to disaster access. The model explained that between 1.9% (Cox & Snell) and 2.6% (Nagelkerke) of the variance in the dependent variable correctly classified 57.6% of cases. Table 4 shows that income but not gender significantly contributed to the model. For the poor or those living in poverty, the odds ratio of .58 suggests that participants were .58 times less likely to know how to obtain real-time alerts and notifications for every decrease in the level of income.

Table 4

Binary Logistic Regression: Know How to Get Real-Time Alerts for Disasters

							95% CI *OR*	
Variable	B	*SE*	Wald	*df*	*p*	*OR*	*LL*	*UL*
Gender (Male)	-.198	.174	1.303	1	.254	.820	.583	1.153
Poor	.551	.230	5.716	1	.017	.577	.367	.906
No Ans	.687	.241	8.140	1	.004	1.988	1.240	3.186
Constant	-6.96	.211	10.905	1	< .001	.499		

Note. RQ2 results of regression analysis: Alerts, from 2018 National Household Survey.

For 3 days of shelter supplies, a binary logistic regression analysis was used to examine if income and gender were associated with the likelihood of urban male migrant Latino workers gathering 3 days of supplies to shelter in place. The model was statistically significant $x^2(3, n = 564) = 17.640$, $p < .001$, suggesting that it could distinguish between those with and without supplies to shelter in place for 3 days. The

model explained that between 3.1% (Cox & Snell) and 4.3% (Nagelkerke) of the variance in the dependent variable correctly classified 67.7% of cases. Table 5 shows that poverty and gender significantly contributed to the model. For the poor respondents, the odds ratio of .54 suggests that for every decrease in the level of poverty, participants were .54 times, and males were .58 less likely to gather 3 days of supplies to shelter in place.

Table 5

Binary Logistic Regression: Gathering 3 Days of Supplies to Shelter in Place

							95% CI *OR*	
Variable	B	*SE*	Wald	*df*	*p*	*OR*	*LL*	*UL*
Gender (Male)	-.613	.188	10.679	1	.001	.542	.375	.782
Poor	.552	.250	4.888	1	.027	.576	.353	.939
No Ans	.470	.262	3.220	1	.073	1.601	.958	2.676
Constant	-.891	.227	15.444	1	< .001	.410		

Note. RQ2 regression analysis results: 3 Days, from 2018 National Household Survey.

For go bag preparation, a binary logistic regression analysis was used to examine if income and gender were associated with the likelihood of urban male migrant Latino workers packing supplies in a go bag for quick evacuation. The model was statistically significant $x^2(3, n = 564) = 18.594, p < .001$suggesting that it could distinguish between those with and without access to disaster access. The model explained that between 3.2% (Cox & Snell and 4.4% (Nagelkerke) of the variance in the dependent variable correctly classified 64.2% of cases. Table 6 shows that only gender significantly contributed to the model. Males were also .60 times less likely to gather 3 days of supplies to shelter in place.

Table 6

Binary Logistic Regression Predicting Go Bag Preparation to Evacuate

							95% CI *OR*	
Variable	B	*SE*	Wald	*df*	*p*	*OR*	*LL*	*UL*
Gender (Male)	-.505	.178	8.102	1	.004	.603	.426	.854
Poor	.614	.227	7.335	1	.007	.541	.347	.844
No Ans	.142	.233	.372	1	.542	1.153	.730	1.820
Constant	.444	.203	4.793	1	.029	1.559		

Note. RQ2 regression analysis results: Go Bag, from 2018 National Household Survey.

Research Question 3

In RQ3, binomial logistic regression was used to analyze the relationship between the poverty of urban Latino migrant workers, preparedness activity uptake, and household preparedness after completing disaster education when controlling for gender.

H_o3: There is no association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

H_A3: There is an association between the poverty of urban Latino migrant workers and preparedness activity uptake and household preparedness after disaster education when controlling for gender.

A binary logistic regression analysis was used to examine whether income and gender were associated with household preparedness uptake after disaster education. An investigation suggested that the assumption for multicollinearity was met (tolerance = 1.004) for all variables. The model was not statistically significant $x^2(3, n= 564) = 3.347$, p= .341, suggesting that it could not distinguish between those with and without a disaster plan after disaster education. Poverty and gender did not contribute to the model

(see Table 7). The model explained that between 0.6% (Cox & Snell) and 0.8% (Nagelkerke) of the variance in the dependent variable correctly classified 61% of cases.

Table 7

Binary Logistic Regression Predicting Disaster Planning After Disaster Education

							95% CI *OR*	
Variable	B	*SE*	Wald	*df*	*p*	*OR*	*LL*	*UL*
Gender (Male)	.010	.175	.003	1	.953	1.010	.717	1.423
Poor	.324	.221	2.150	1	.143	.723	.469	1.115
No Ans	.413	.234	3.112	1	.078	1.511	.955	2.390
Constant	.165	.200	.685	1	.480	1.180		

Note. RQ3 regression analysis results, data from 2018 National Household Survey.

Summary of the Results and Findings

This section examined the results of the analysis of secondary data collected from the 2018 National Household Survey conducted by FEMA. This section included the purpose of the study; the baseline representative and demographics of characteristics selected for the sample; the results of the descriptive statistics that appropriately characterize the sample; the research questions and hypotheses testing; and the key findings. The independent variable income, dependent variable participation in preparedness activities, and the confounding variable gender were analyzed. The Chi-square test for association and binary logistic regression were two of the statistical tests used to analyze the variables in the dataset.

The study examined three research questions and hypotheses, including Chi-square tests for association, binary logistic regression, confidence interval, and the odds ratio for the logistic regression model. RQ1 examined the association between access to disaster education and poverty for urban Latino migrant workers when controlling for

gender. The analysis for RQ1 revealed a statistically significant association between poor incomes and decreased access to disaster education. The logistic regression model showed no significant association between gender and access to disaster education.

The analysis for RQ2 examined the relationship between poverty and the initiation of specific household preparedness activities in urban Latino migrant workers when controlling for gender. The preparedness activities studied included obtaining real-time alerts, gathering supplies for 3 days to shelter in place, and arranging supplies for a go bag for rapid evacuation. The results showed a statistically significant association between poor respondents and decreased participation in two of the three preparedness activities, alerts and gather supplies to shelter in place. Males showed statistically significant associations for reduced participation in packing a go bag and gathering supplies to shelter in place. RQ3 examined the association between the poverty of urban Latino migrant workers, preparedness activity uptake, and household preparedness after completing disaster education when controlling for gender. The results showed no statistically significant association between income or gender and preparedness activities after disaster education.

In the final section, the interpretation of the data analysis section conducted in this section will be further examined. The results will be interpreted based on the contemporary literature selected for this study. The findings will also be surveyed using the lens of the SEM. Finally, the implications to positive social change, limitations of the study, and recommendations for future studies will be discussed.

Section 4: Application to Practice and Implications for Social Change

Introduction

The aim of this quantitative study was to examine poverty's impact on participation in preparedness activities in urban male migrant Latino workers when controlling for gender. This retroactive cross-sectional design was supported by the 2018 National Household Survey conducted by FEMA. The secondary dataset included income, the independent variable, participation in preparedness activities the dependent variable, and gender the cofounding variable. Knowledge of the impact of poverty and gender on this community's ability to prepare and recover from disasters is vital to successful public health program design. Although some researchers have examined disaster preparedness in this community, very few research studies examine the barrier that poverty and gender have on household preparedness and disaster planning. This study highlighted obstacles to household preparedness created by poverty and gender.

Summary of the Key Findings

In this study, I examined income as the independent variable, participation in preparedness activities as the dependent variable, and gender as the confounding variable. Each of the variables was a categorical binary variable. The Chi-square test for association and binary logistic regression were the statistical analyses used in SPSS to analyze the variables in the study dataset. A total of 564 respondents from the National Household Survey were included in the study. The results indicated that among the 564 respondents, 45% (254) of the study participants were male, and 55% (310) were female. Incomes ranging from $60 to $1,999 per month were coded as poor, and those ranging

from $2,000 to $20,000 were coded as not poor. In total, 33% (187) of the respondents were poor, 23% (129) were not poor, and 44% (248) refused to answer. Of the respondents who answered the questions on income, 59% were poor, and 41% were not poor.

The association between income and access to disaster education was examined. The results showed a significant association between poorer incomes and reduced awareness of preparedness information ($p < .05$). Similarly, the results for poor incomes had a statistically significant relationship with a decreased knowledge of emergency alerts ($p < .05$) and the inability to assemble 3 days of supplies at home for emergencies ($p < .05$). Respondents of all income levels were not likely to pack a go bag for evacuations ($p < .05$).

The relationship between gender and the dependent study variables was also explored. Males were significantly associated with reduced participation in assembling 3 days of supplies at home for emergencies ($p <.05$). Males were also less likely to pack a go bag for emergency evacuation ($p < .05$).

The relationship between disaster planning and completing disaster education was not statistically significant for either income or gender. The Chi-square analysis and logistic regression model results supported the alternative hypothesis. There was no relationship between income and disaster planning after education when controlling for gender. This section includes an interpretation of the findings, the limitations of the study, recommendations for future investigation, and the implications for professional practice and positive social change.

Interpretation of the Findings

To examine the impact of poverty and gender-based disaster education on household preparedness planning in urban male migrant Latino workers, I posed three research questions for this doctoral study and provided hypothesis testing. I hypothesized that poverty and gender-based disaster education were associated with decreased household preparedness planning in urban male Latino migrant workers. The data analysis results indicated that poverty reduced access to four out of five preparedness activities selected for this study. Males were significantly less likely to gather 3 days of supplies at home to shelter in place and less likely to assemble a go bag to evacuate their homes during an emergency.

For RQ1, I hypothesized a relationship between poverty and access to preparedness information when controlling for gender. The Chi-square test results for association and the logistic regression indicated a statistically significant association between poverty and reduced awareness of preparedness information ($p < .05$). Poor respondents were only half as likely to have access to preparedness information as those not considered living in poverty ($OR = .50$, 95% CI [.335, .778]). There was no significant association between gender and access to preparedness information. In RQ2, there was a hypothesized link between poverty and decreased access to emergency alerts, decreased capacity to assemble 3 days of supplies, reduced ability to pack a go bag, and reduced disaster planning after disaster education when controlling for gender. The results showed a statistically significant association between poverty and reduced access to alerts ($p < .05$). Poor respondents were less likely, by more than half, to have

knowledge of emergency alert notifications (*OR* = .58, 95% CI [.367, .906]). Males ($p < .05$) and those living in poverty ($p < .05$) were unlikely to gather 3 days of supplies at home. Males were less likely by more than half to collect 3 days of sheltering supplies (*OR* = .54, 95% CI [.375, .782]), and poor respondents were also more than half as less likely (*OR* = .58, 95% CI [.353, .939]). Males ($p < .05$) and both levels of income ($p < .05$) were found to be unlikely to pack a go bag for emergent evacuations. The males were also less likely to pack a go bag (*OR* = .60, 95% CI [.426, .854]). RQ3 hypothesized an association between poverty and the creation of household preparedness planning after disaster education. Arrangements were not carried out by either the poor or not-poor respondents. Finally, there was no association between poverty and disaster planning after disaster education when controlling for gender.

Interpretation of the Findings with Relation to the Peer-Reviewed Literature

Poverty Variable

Each research question for this study involved the independent variable of poverty. As hypothesized, there was a statistically significant relationship between poverty and access to disaster education, decreased knowledge of alerts, and gathering of supplies to shelter in place for 3 days for urban male Latino migrant workers and poverty when controlling for gender. Both levels of income had a significant relationship with packing a go bag. In RQ3, income was not associated with householding disaster planning after completing disaster education.

The findings of this study were consistent with those of Winsemius et al. (2018), who analyzed household survey data and hydrological riverine flood and drought data for

52 countries. The researchers found that poor people have increased exposure to droughts and urban floods and have limited access to recovery support. Winsemius et al. recommended that disaster risk management and poverty reduction initiatives be implemented to increase access to resources and social support while implementing flood zoning and land entitlement.

Similarly, Hallagatte (2020) conducted a literature review utilizing the World Bank reports identifying disaster vulnerability causes in poor communities. The study concluded that the poor are most at risk for disaster because these communities are densely populated in high-risk areas with more infrastructure hazards. These communities cannot adapt and mitigate the effects of disasters because of limited access to capital. Hallagatte highlighted the importance of poverty reduction activities. These initiatives were found to have a major role in reducing disaster risk and building resiliency.

Bangalore et al. (2019) examined the exposure of poor communities in Vietnam to flooding. This study focused on flood resilience through flood tolerance or adaptation. Poor communities have low levels of resiliency related to their inability to adapt. Bangalore et al. reported that a poor community's preparedness, mitigation, and recovery efforts could be stunted related to restrictions on resources such as home insurance, savings, and borrowing capacity. The researchers categorized nonstructural household preparedness activities such as emergency alerts, insurance, and land-use surveillance in a supplementary role to urban design principles for flood resilience. The relationship between human activities and hydrologic dynamics is key to establishing resiliency and

addressing vulnerability in these communities. The study concluded that urban planning efforts are required to improve vulnerability and repair natural hazards in the physical environment that heightens disaster risks (Bangalore et al., 2019; Liao et al., 2016).

Boon (2013) conducted a study that examined preparedness for a natural disaster and financial capacity in four regional Australian communities. The study employed a quantitative design using a survey (1008 respondents) and collected demographic statistics about each community. The key findings showed that preparedness was primarily linked to an individual's financial capacity (or capacity to meet the event's costs) and insurance coverage for the event's damage. The results were significant across all disaster types in each community; those with greater financial capacity were better prepared. Those with higher income levels were also positively correlated with aspects of preparedness that incur a financial cost, such as emergency kits and insurance coverage. Boon recommended greater intervention to protect those with diminished financial capacity by preventing and alleviating the economic impacts of natural disasters. Programs such as subsidization of home insurance, emergency kits, and community education help householders lessen the burden of disaster ramifications.

Gender Variable

Gender alone does not increase disaster vulnerability, but females are more vulnerable related to gender power relations and access to resources (Bradshaw, 2015). Bradshaw's (2015) literature review and survey of 1,856 disaster risk reduction professionals categorized preparedness themes. The study suggested that resources should be provided to men, as they are more likely to survive and will be left to care for

others. Bradshaw reported that contemporary preparedness goals include greater inclusivity to improve preparedness efforts and disaster outcomes throughout the entire community. Bradshaw wrote that unless disaster risk reduction and response activities specifically address gender inequalities, the root cause of female disaster vulnerability, female disaster outcomes will not improve.

Khan et al. (2020) conducted a study using primary data from 486 high-school children from Gilgit City, Pakistan. Risk perception was measured using four components: fear, attitude, awareness, and trust. Indicators were identified in a literature review, and an index-based approach was used to calculate overall risk perception. Khan et al. observed that fear of natural hazards was rated relatively higher by both genders, implying fear significantly improves the risk perception of male and female high school students. Both genders were found to perceive risk differently, and the study underlined the complexity of studying these fears in a multi-hazard environment. This study concluded that the multifaceted nature of disaster risk perception should also include gender risk considerations to improve response initiatives.

Petraroli and Baars (2021) reported the importance of examining how to minimize disaster vulnerabilities in women before a disaster occurs. Petraroli and Baars surveyed policymakers, rescue workers, and community members to identify these vulnerabilities within Japan's disaster preparedness procedures. The researchers reported that women did not have sufficient access to information about household preparedness but noted that men should be more informed about preparedness efforts as well. Gender norms and power dynamics isolate females, which can endanger them during disasters, but creating

women-only initiatives can further increase the divide. Gender-specific programming results in missed opportunities to educate vulnerable males in the community and limits whole community resilience. Petraroli and Baars recommended that new disaster education incorporate gendered disaster vulnerabilities instead of segregating preparedness planning. Ensuring safe shelter conditions and including women in disaster management and planning activities are essential to reversing gender disparities. The study suggests that alternative family paradigms and shifting gender roles will redefine roles during and after disasters, and it is important for community disaster planning to follow that shift.

Cvetković et al. (2018) studied adverse outcomes from the 2014 flooding in Serbia and the gender imbalance that marred the response by investigating women's and men's risk perceptions and preparedness. Twenty-five hundred in-person interviews were conducted across 19 municipalities in Serbia. Men were found to be more confident in their abilities to cope with flooding. However, women were found to have a deeper understanding of weather emergencies. Women were also more likely to organize go bags and gather sheltering supplies, manage financial matters, and were more willing to volunteer at reception centers. Cvetković et al. stated that emergency management agencies should increase citizen participation and shared responsibility during disaster emergencies. Both women and men are valuable resources to maximize preparedness, response, and recovery.

Theoretical Considerations

The SEM was the theoretical framework for this study. Bronfenbrenner (1977) created the SEM to describe human development. The model posits that the ecological system that an individual is nurtured in must be explored to understand human development. The rungs of the model are interconnected and illustrate the interplay between concepts on the individual, interpersonal, community, and policy levels. This model can be used to both explain and overcome the major barriers to household preparedness in this community. The application of the SEM to investigate the research problem can be used at the (a) individual level, gender, income, and beliefs; (b) interpersonal level, family, friends, and social support; (c) organizational level, workplace, school, and faith-based organizations; (d) community level, leaders, social institutions and relationships between organizations/systems level, and local disaster program/emergency managers; (e) policy level, national/state/local policies for disaster mitigation and immigration. The levels will address individually.

Individual Level

Although disasters can have catastrophic effects on any community and any portion of the world, some populations are more vulnerable than others to disaster occurrence and poor outcomes. In this study, I presented data that emphasized that those living below the poverty line have a heightened risk for disaster. Poor households and communities cannot recover quickly from disasters that potentiate their association with poor outcomes.

This study found that poor people had less access to disaster information and education and were less likely to participate in preparedness activities. Poor households and communities cannot recover quickly from disasters, which potentiates their association with poor outcomes. Poor people have less access to disaster information and education and were less likely to participate in preparedness activities (Torani et al., 2019). The study also found that although women are a vulnerable and hard-to-reach community, targeting disaster education that excludes males can have adverse effects.

Interpersonal Level

Marital status, family/household makeup, and social networks are essential connections to consider with the urban male Latino migrant worker community as they can help to reduce vulnerability. Increasing disaster education broadly throughout the community improves disaster recovery and community resilience. Several studies that link gender to the adoption of preparedness measures conclude that women prepare more than men, especially in creating a family disaster plan and the safety of household members (Torani et al., 2019). Married people or those who live with partners with strong social networks show higher levels of preparedness than those who do not (Torani et al., 2019). This point further solidifies the importance of including males in disaster planning; in 2018, the PEW reported that more than half of the urban migrant Latino worker community were young, single males.

Organizational Level

The mesosystem (i.e., the organizational level) includes social institutions such as workplace, school, faith-based and community-based organizations, and businesses. This

study uses workplaces, community-based organizations, and places of faith. Migrant workers come to the United States for economic opportunities. Workplaces, local businesses, and community-based organizations play a major role in underlining and managing this at-risk community's needs. Both genders should be considered valuable resources that combine complementary strengths to maximize preparedness, response, and recovery (Cvetković et al., 2018). Worksite education with bilingual trainers could reduce the disaster preparedness training disparities in the urban male Latino migrant worker population (Cvetković et al., 2018). CBPR programs for farmworkers and urban migrants in the communities where they live and work have proven highly successful (Rosenbaum & Long, 2018).

Community Level

The exosystem (community) consists of leaders, social institutions, and relationships between organizations. This study explored local disaster programs/emergency management and the relationship between individuals and their communities. The urban male Latino migrant worker population has diminished access to community resources related to poverty, language barriers, and decreased social standing (Velasco-Mondragon et al., 2016). Activities at this level in Spanish, hosted successfully by local organizations, can target portions of this population that traditional programming would leave out. Urban communities are significantly impacted during and after disasters underscoring the importance of individual household preparedness and large-scale community planning to mitigate disasters.

Increasing female participation in local disaster prevention committees and evacuation planning will assuage the fear of abuse and deportation during an emergency (Petraroli & Baars, 2021). Streamlined culturally appropriate disaster education, combined with emergency alert notifications broadcasted in Spanish, will increase access in this at-risk community (Burke et al., 2012).

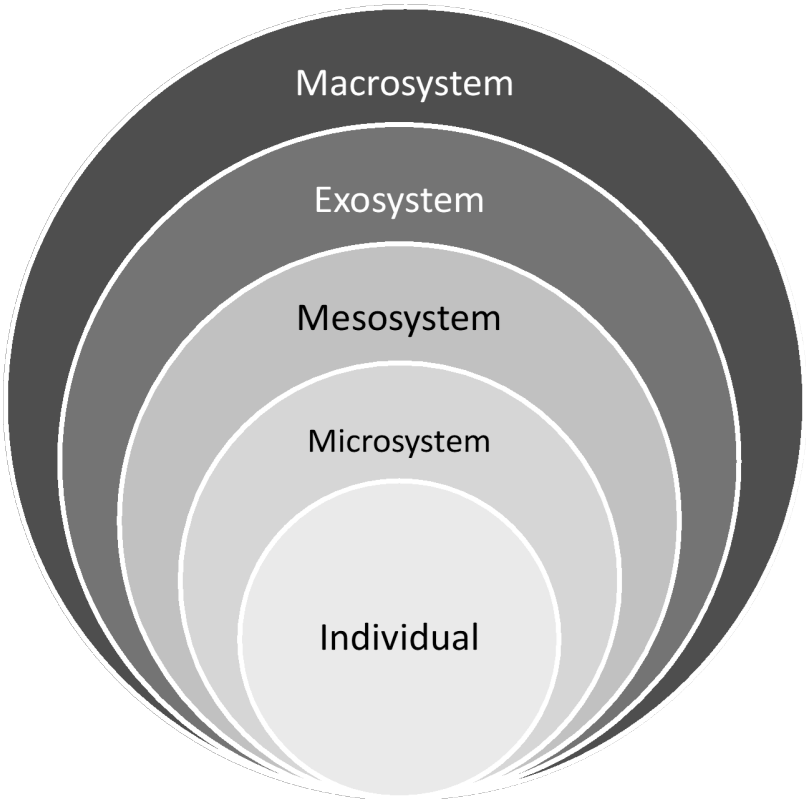
Policy Level

The final layer is the Macrosystem (public policy), consisting of national/state/local laws and policies. Anti-immigration rhetoric and fear of deportation create barriers at the community level. Laws and policies were created to establish fair wages, housing, and transportation standards for migrant workers. However, unfavorable amendments to the Immigration and Nationality Act, limitations to the Migrant Seasonal Agricultural Protection Act, and H-2B programs for non-agricultural workers further isolate and endanger this community. The federal response and preparedness initiatives, such as the Disaster Recovery Reform Act and the Stafford Disaster Relief and Emergency Assistance Act intended to support communities. This support may not extend resources to non-US citizens, especially those who may avoid government-sponsored programs. Disaster risk management and poverty reduction initiatives should be implemented to increase disaster mitigation access to resources, social service support, and new zoning projects (Winsemius et al., 2018; Hallagatte et al., 2020). Individuals with greater financial capacity are better prepared for disasters, and policymakers must reduce the economic impact of natural disasters and help to subsidize preparedness efforts (Boon, 2017).

Gender norms are embedded in many cultures throughout the world; it is reflected in institutional structures and legal frameworks (Bradley et al., 2021). Bradshaw reported that the root cause of female disaster vulnerability is gender inequality (Bradshaw 2015). The rights and protection of women's rights are embedded in every current humanitarian and public health initiative. They should continue until women have the same access to rights and resources as their male counterparts (Petraroli & Baars, 2021).

Figure 7

The Socioecological Model



Note. The framework for the five dimensions of the socioecological model.

Limitations of the Study

In this study, a secondary dataset was used to analyze the association between the independent variable (income), the dependent variable (participation in preparedness activities), and the confounding variable (gender). The National Household Survey is a telephonic survey conducted annually to investigate the American public's preparedness actions, attitudes, and motivations. The study was limited because the data was collected from U.S. residents only. Additionally, the National Household Survey is only offered in English and Spanish, which is concerning because Latinos may speak other indigenous languages of Latin America and the Caribbean. In many data fields, additional variables could have been considered to enhance the study's specificity but could not; be related to the large amounts of missing data. These missing data points, such as location data, limited the urban vs. rural analysis. The missing income data did not allow for parallel comparisons for poor vs. not poor for each gender.

The National Household Survey data were analyzed using IBM SPSS Statistic (Version 28) to ensure the quality of the data. The dataset required manipulation related to the degree of missing data and incomplete data fields, which could have led to errors endangering the validity and reliability of the study. Case deletion and recoding or data transformation were completed before the analysis to control for missing data. The results of this study may not be representative of the entire urban male Latino migrant worker community in the United States related to the amount of missing data. Although other countries may face similar issues within their migrant worker community—the results cannot be generalized outside of the United States.

Recommendations

This study used a quantitative method to examine the association between poverty and participation in preparedness activities when controlling for gender in urban Latino migrant workers. Variables such as education level, geographic location, and efficacy were not used in this study and may pose a challenge in determining the influence of poverty in this community. It is important to acknowledge the potential impact of these variables on the uptake of household preparedness activities. Individuals with lower levels of education are less likely to be prepared for a disaster (Kyne et al., 2020; Muttarak &Lutz, 2014; Zamboni & Martin, 2020). Location plays a major role in disaster vulnerability, as at-risk populations in disaster-prone communities can have disastrous outcomes (Gencer et al., 2018). This study recommends that these factors should also be investigated thoroughly using quantitative research studies that use other variables meaningful to this community to explore their value as extraneous variables and the impact they have on the effectiveness of current programming in improving disaster preparedness and outcomes.

Implications for Professional Practices and Social Change

In this retrospective cross-sectional quantitative study, poverty and gender were identified as impediments to household disaster preparedness and participation in preparedness activities. The SEM was the framework for this research. With the rate and intensity and weather events, household preparedness becomes an even greater public health concern. In 2018, there were millions of migrant Latino workers in the United

States; their location, language barriers, poverty, and current immigration laws increase their risk for disasters and predispose them to poor outcomes.

Positive social change can be affected in this community by creating change in preparedness programming that assists public health professionals in navigating the barriers that poverty and gender impose on household preparedness. Urban migrant Latino workers have an increased risk for disasters and an increased chance of poor outcomes related to a lack of disaster education and access to mitigation activities which often result in great losses during disasters (Hayward et al., 2021; Méndez et al., 2020). Expanding programming in these areas will save lives and prevent injury and loss of property. This study recognizes that whole community disaster programs must be available and include all at-risk subpopulations targeting its unique education and social service support needs to improve household preparedness for disaster emergencies. Enhanced urban zoning programs, disaster risk education, and governmental assistance for household preparedness planning are examples of public health support required to improve disaster outcomes in this population.

Social change can also be positively impacted by supplying public health workers with the knowledge they require to provide culturally competent public health programming that will improve disaster outcomes and increase health and safety within the community. The overarching goal is to decrease death, injury, and destruction of property among urban male Latino migrant workers and other disadvantaged communities. This study showed that poverty overall has a major impact on household preparedness activity uptake, and removing barriers to education such as language, social

standing, and cultural differences will improve disaster outcomes in this community. The goal of disaster education is increasing the knowledge and response potential of vulnerable individuals (Bronfman et al., 2019; Muttarak & Lutz, 2014; Torani, 2019). Suggested policy interventions include conducting culturally sensitive programs in their native language and using community members, and trusted locations will enhance learning and improve desired behavior uptake.

Conclusion

This study investigated the association between poverty and participation in preparedness activities in urban Latino migrant workers when controlling for gender. The results demonstrated a significant relationship between poverty and access to disaster education, decreased involvement in: knowledge of alerts, and gathering supplies to shelter in place for 3 days. Poverty impacted obtaining real-time alerts, gathering supplies to shelter in place, and having an awareness of preparedness information as poor respondents were less likely to participate in these activities. Gender impacted preparedness activity uptake as males were less likely to gather supplies for sheltering nor pack a go bag for rapid evacuations. However, neither income or gender significantly impacted household disaster planning after disaster education. These variables will be essential to future studies to determine the cause-and-effect relationship between poverty and participation in preparedness activities in urban Latino migrant workers when controlling for gender.

The result of this study is consistent with previous studies, which have concluded that poverty and gender are risk factors that increase vulnerability in urban male Latino

migrant workers. It is crucial to determine how to reduce this vulnerability through disaster education and increase participation in preparedness activities in this community. Poverty and targeted gender education create additional risks, and modifying public health programming improves disaster outcomes throughout this community. Lawmakers and public health advocates can further reduce obstacles to emergency preparedness by developing interventions that address the inequalities and social standing of urban male Latino migrant workers and females regardless of race.

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