

JENNIFER L. SIEGEL
jennifer.siegel@ssw.umaryland.edu
4714 Oliver Street
Riverdale, Maryland
(616) 915-3301

EDUCATION

- May 2022** **Doctor of Philosophy in Social Work**
University of Maryland Baltimore - *Baltimore, Maryland*
Dissertation Title: *Examining Depression and Social Emotional Development in Migrant and Seasonal Farmworker Families.*
Committee: Nalini Negi (chair), Brenda Jones Harden, Jayshree Jani, Fernando Wagner, & Jodi Berger Cardoso
- May 2011** **Master of Social Work**
Michigan State University - *Lansing, Michigan*
- May 2009** **Bachelor of Social Work**
Calvin College - *Grand Rapids, Michigan*

RESEARCH INTERESTS

Examining structural conditions impacting behavioral health disparities among diverse populations. Specifically interested in structural conditions impacting mental health and substance use patterns among immigrant and refugee youth and families. Expertise in qualitative and quantitative research methods as well as program monitoring and evaluation.

TEACHING EXPERIENCE

- 2021** **University of Maryland School of Social Work (instructor)**
SOWK 775: Social Work Clinical Practice with Immigrants and Refugees
- 2018** **University of Maryland School of Social Work (co-instructor)**
SOWK 645: Human Behavior and Social Environment
- 2017** **University of Maryland School of Social Work (guest lecturer)**
SOWK 766: International Social Welfare
- 2010 – 2013** **Calvin College (guest lecturer)**
SOWK 360: Social Welfare Policy Analysis
SOWK 372: Generalist Practice with Organizations and Communities

ACADEMIC HONORS AND AWARDS

- 2021** **Susan Zuravin PhD Scholarship**
University of Maryland Baltimore, School of Social Work, Baltimore,
MD
- 2018** **Early Career Leadership Panel Award**
National Hispanic Science Network, Rockville, MD

PEER REVIEWED PUBLICATIONS

Siegel, J. (2022). The COVID-19 pandemic: Health impact on unaccompanied migrant children. *Social Work*. Advance online publication. <https://doi.org/10.1093/sw/swac014>

Negi, N.J. & **Siegel, J.** (2022). Social service providers navigating the rapid transition to telehealth with Latinx immigrants during the COVID-19 pandemic. *American Journal of Orthopsychiatry*. Advance online publication. <http://dx.doi.org/10.1037/ort0000626>

McCarthy, L., **Siegel, J.**, & Ware, O. (2021). Supporting social work field instructors: Empowerment as a strategy for preventing burnout. *Journal of Social Work*. *Journal of Social Work*. <https://doi.org/10.1177/14680173211056817>

Hassan, R.G III, Evans, K., & **Siegel, J.** (2021). #ImmigrantRights #SWTwitterAdvocacy: Using Twitter as an advocacy platform in social work education. *Journal of Community Practice*. <https://doi.org/10.1080/10705422.2021.1961179>

Negi, N.J., **Siegel, J.**, Sharma, P., & Fiallos, G. (2021). “The solitude absorbs and it oppresses”: ‘Illegality’ and its implications on social isolation, loneliness and health. *Social Science & Medicine*, 273. <https://doi.org/10.1016/j.socscimed.2021.113737>

Negi, N.J., **Siegel, J.**, Calderon, M., Thomas, E. & Valdez, A. (2019). “They dumped me like trash”: The social and psychological toll of victimization on Latino day laborers' lives. *American journal of community psychology*, 65(3-4), 369–380. <https://doi.org/10.1002/ajcp.12406>

BOOK CHAPTERS UNDER REVIEW

Siegel, J., McCarthy, L., Ware, O., Bak, S., & Alexander, I. Burnout and Empowerment of Field Instructors. In Little, S. & Loessner, L. (Eds.), *Social Work Field Instruction in Modern Practice: A Handbook*, NASW Press. *Revise and resubmit status*.

MANUSCRIPTS UNDER REVIEW

Siegel, J., Negi, N.J., Bacio, L.A., Mammadli, T., & Kobrin, D. Social Services with Latinx Immigrant Youth and Families During the COVID-19 Pandemic: A Qualitative Analysis. *Manuscript submitted for publication*.

Siegel J., Negi, N.J., Endy, K., & Wagner, F.A. Comparing the health outcomes of immigrant and non-immigrant children during the Obama and Trump presidencies. *Manuscript submitted for publication.*

Avellaneda, F., **Siegel, J.**, Negi, N.J., Parrish, D.E., & Perez, S.P. 'My Hands are Tied': Social services with Latinx immigrants in Houston during the COVID-19 pandemic. *Manuscript submitted for publication.*

MANUSCRIPTS IN PREPARATION (*analysis completed, writing up manuscript*)

Siegel, J. & Negi, N.J. Systematic Review on Factors Associated with Mental Health of Unaccompanied Migrant Youth. To be submitted January 2021 to the *Journal of Immigrant and Refugee Studies*.

CONFERENCE PRESENTATIONS

Siegel, J., Mammadli, T., Kobrin, D., & Negi, N.J. (2022, January). Social Service Providers Serving Immigrant Youth and Families during the COVID-19 Pandemic: A Qualitative Analysis. Oral Paper Presentation, Society for Social Work Research, Washington, D.C.

Negi, N.J. & **Siegel, J.** (2022, January). Immigrant-serving social service providers' work stress and mental health during the COVID-19 pandemic: A mixed methods study. In Roth, B. (Chair), Exposed vulnerabilities: Immigrant communities, structural inequalities, and the response of local organizations [Symposium]. Society for Social Research Annual Conference, Washington, D.C.

Siegel, J. Mattocks, N., & Unick, J. (2022, January). Using innovative time-study methods to evaluate the cost-effectiveness of telemedicine. In Mattocks, N. (Chair), Evaluation of a telemedicine intervention to improve adherence outcomes among individuals with severe mental illness [Symposium]. Society for Social Work and Research Annual Conference, Washington, D.C.

Avellaneda, F., **Siegel, J.**, & Parrish, D.E. (2021, November). "My hands are tied": Social Services during COVID-19 in Houston. Oral Paper Presentation, Council on Social Work Education, Orlando, Fl. (*withdrawn due to COVID-19 pandemic*).

Evans, K., Hasson III, R. G., & **Siegel, J.** (2021, November). Economic Justice for Undocumented Families: Policy and Clinical Implications. Interactive Workshop, Council on Social Work Education, Orlando, Fl. (*withdrawn due to COVID-19 pandemic*).

Evans, K., **Siegel, J.**, & Hasson III, R. G., (2021, September). Policy Analysis using The Code of Ethics. University of Maryland Baltimore, Faculty Center for Teaching and Learning Annual Teaching with Technology Conference (*virtual due to COVID-19 pandemic*).

Evans, K., **Siegel, J.**, & Hasson, R.G. (2020, November). Timely conversations: Integrating content on unaccompanied immigrant children in social work policy courses. Oral paper presentation, Council on Social Work Education (*virtual due to COVID-19 pandemic*).

Siegel J., Endy, K., Wagner, F. (2020, October). Migration policy narratives and the health of immigrant children: An empirical test of differences between 2012 and 2017. Oral paper

presentation, American Public Health Association Annual Meeting (*virtual due to COVID-19 pandemic*).

Siegel, J., Negi, N.J., Fiallos, G., & Sharma, P. (2020, January). “*The loneliness absorbs and oppresses*”: Social integration barriers, social isolation and health behaviors of Latino immigrant day laborers. Oral paper presentation, Society for Social Work and Research Annual Conference, Washington, D.C.

Hasson, R.G., Evans, K., & **Siegel, J.** (2019, October). A case study approach: Using biopsychosocial assessment framework with unaccompanied migrant children. Oral paper presentation, Council on Social Work Education, Denver, CO.

McCarthy, L., **Siegel, J.**, & Ware, O. (2019, October). Empowered social workers: Strategies for reducing burnout among social work field instructors. Oral paper presentation, Council on Social Work Education, Denver, CO.

Siegel, J. (2019, January). Female Genital Cutting in Sudan: Perceptions of the Practice and Implications for Social Workers. Poster presentation, Society for Social Work and Research Annual Conference, San Francisco, CA.

Negi, N.J., **Siegel, J.**, Fiallos, G., & Calderon, M. (2019, January). I Am Alone. Poster presentation at Society for Social Work and Research Annual Conference, San Francisco, CA.

Siegel, J., Negi, N.J., Fiallos, G., Calderon, M., & Thomas, E. (2018, October). Qualitative Risk and Protective Factors Associated to the Substance Use of Latino Day Laborers. Oral paper presentation, National Hispanic Science Network, Rockville, MD.

Negi, N.J., **Siegel, J.**, Fiallos, G., Calderon, M., & Thomas, E. (2018, August). “No One to Pull in the Reins”: Substance Use among Day Laborers. Oral paper presentation, Society for the Study of Social Problems (SSSP), Philadelphia, PA.

Siegel, J. (2018, June) Social Work Practice with Vulnerable Populations: Latino Immigrant Day Laborers. Oral paper presentation at the National Association of Social Workers (NASW), Washington, D.C.

RESEARCH EXPERIENCE

2021 – present

Graduate Research Assistant

University of Maryland, School of Social Work

Project: Reaching and Engaging Adolescents and young adults for Care continuum in Health (REACH) in Kenya.

Role on Project: assisting in developing training materials for community based participatory research and grant writing.

Principal Investigator: Fernando Wagner, PhD

2017 – present

Co-Principal Investigator/Project Manager

University of Maryland, School of Social Work

Project: Maryland Social Service Providers Study

Longitudinal survey design to increase the understanding of the experiences of social service providers working with Latinx immigrants during the COVID-19 pandemic in a new immigrant settlement state.
Role on Project: Co-principal investigator, assisted in all aspects of study development, study design, IRB, survey implementation, data collection, data cleaning, quantitative and qualitative data analysis.
Principal Investigator: Nalini Negi, PhD

Project: Drug Abuse and HIV Risk Behavior Among Latino Immigrant Day Laborers (LIDLs) in Baltimore.
Social epidemiological study examining the methods and practices of drug use and HIV risk taking behaviors among LIDLs in a new immigrant settlement context.
Role on Project: Project manager, coordinated data collection through focus groups, thematic qualitative data analysis, mixed methods data analysis using Dedoose, helped train research assistants in conducting focus groups, ethnographic research, and qualitative data analysis.
Principal Investigator: Nalini Negi, PhD

Project: Proyecto Jornaleros: Drug Use and HIV Among LIDLs
NIDA funded social epidemiological study examining patterns of drug use and HIV risk taking behavior of LIDLs in Baltimore.
Role on Project: Project manager, qualitative data analysis, mixed methods data analysis.
Principal Investigator: Nalini Negi, PhD

2020 – 2021

Graduate Research Assistant

University of Maryland, School of Social Work

Project: Clinical trial on medication adherence for SPMI Individuals Phase I/II SBIR funded by NIMH to evaluate the impact of the Medherent Medication device on medication adherence, clinical outcomes, and therapeutic relationships.

Role on Project: conduct interviews with study participants, code qualitative data, develop cost analysis for work activities using the WOMBAT method.

Principal Investigator: Jay Unick, PhD

PRACTICE AND POLICY EXPERIENCE

2020 - present

Consultant

U.S. Conference of Catholic Bishops, Washington, D.C.
Program evaluation examining safe and timely release of unaccompanied children from Transitional Foster Care and Shelter programs in the U.S.

2020 - present

Consultant

Chin Association of Maryland, Laurel, MD.

Policy advocacy resource development for use with White House, State Department, and Members of Congress

Products include: [After the 2021 Military Coup in Myanmar/Burma: Challenges for Internally Displaced Persons and Refugees](#); [Unprotected: Chin and IDPs in Chin and Rakhine States, Myanmar/Burma](#); and [Unsafe: Chin Seeking Refuge in Malaysia and New Delhi, India](#).

2017 – 2019

Consultant

U.S. Conference of Catholic Bishops, Washington, D.C.

Programmatic resource development for female genital cutting prevention

Products include: [Raising a Girl: A Handbook for Newcomer Mothers and Daughters](#).

2018

Consultant

Lutheran Immigrant and Refugee Services, Baltimore, MD

Data analysis and presentation at the Foster Family Treatment Association national conference.

2016 – 2017

Case Coordinator, Attached Refugee Minor Program:

U.S. Conference of Catholic Bishops, Washington, D.C.

2016

Child Protection Specialist, Unaccompanied Refugees Deployment

U.S. Conference of Catholic Bishops/Refuge Point, Solwezi, Zambia
(September 2016 – December 2016)

2015 – 2016

Case Specialist, Family Reunification Program

U.S. Conference of Catholic Bishops, Washington, D.C.

2014 – 2015

Immigrant and Refugee Policy Associate

Church World Service, Washington, D.C.

2010 – 2013

Housing and Financial Education Manager

Inner City Christian Federation, Grand Rapids, MI

2010 – 2011

Refugee and Migrant Youth Foster Parent Licensor Intern

Bethany Christian Services, Grand Rapids, MI

2009 – 2010

Americorps, Foreclosure Prevention Counselor

Inner City Christian Federation, Grand Rapids, MI

SERVICE

2018 – present

Social Work Student Mentor

Calvin College, Washington, D.C. Program

2018 – 2019

Multicultural Center Taskforce

University of Maryland, Baltimore

2017 – 2019

Immigration Working Group

University of Maryland, Baltimore School of Social Work

2017

DACA and Beyond Panel

University of Maryland, Baltimore

2016, 2017

Social Work Field Instructor

Calvin College, Washington, D.C. Program

2016

English as a Second Language Instructor

Catholic Charities, Arlington, VA

2011–12, 2012–13

Social Work Field Instructor

Calvin College, Grand Rapids, Michigan Program

PROFESSIONAL ASSOCIATIONS

American Public Health Association

Council on Social Work Education

National Association of Social Workers

Society for Social Work and Research

ABSTRACT

Title of dissertation: Examining depression and social and emotional development outcomes in parents and children in migrant and seasonal farmworker families

Jennifer L. Siegel, Doctor of Philosophy, 2020

Dissertation Directed by: Nalini J. Negi, Ph.D., MSW, Associate Professor, Social Work

Migrant and seasonal farmworkers (MSFWs) provide essential food production services in the U.S. yet often experience discrimination, stress related to migration and work, and financial insecurity. Such ecological risk factors unique to agricultural work and being an immigrant of color have previously been shown to heighten MSFW risk for depression. A glaring gap in the literature is that just over half of MSFWs are parents accompanied by their families, and half have children 5-years or younger. This study, guided by the Modified Integrative Model of Child Development for Latinx families, is one of the first to investigate the mental health and social and emotional development outcomes of MSFW families. Specifically, binary logistic regression was conducted using data from the 2017-18 Migrant Seasonal Head Start (MSHS) Study, to examine the relationship between discrimination, work experiences, and cultural resources with the depressive symptomology of caregiving MSFWs. Further, the association of these factors with child social and emotional development outcomes was investigated. MSFWs were mostly women (89%), married or cohabitating with a partner (79%), born outside the U.S. (83%) and mostly from Mexico (80%). All children were 36 months through 5-years of age, just over half were girls (51%), the majority born in the U.S. (93%) and had been enrolled in MSHS for an average of 1.5 years. Results indicated that MSFW caregivers

with higher levels of MSFW stress, higher levels of acculturation, and who were separated/divorced had higher levels of depressive symptomology. Children with caregivers with higher levels of depressive symptomology had greater odds of scoring in the range of concern/clinical concern for cognitive social problems. Further, children whose caregivers reported greater importance of religion were less likely to score in the range of concern/clinical concern for emotional behavioral regulation problems. Contrary to this study's hypothesis, parent depression did not mediate the relationship between contextual factors and child social and emotional development outcomes. Findings are highly significant as they advance understanding of a critically under-studied group and have implications for intervention strategies uniquely suited for this family population. Future research that explores MSFWs' resiliency along with their structural vulnerability is recommended.

Examining depression and social and emotional development outcomes in parents and children in migrant and seasonal farmworker families

by
Jennifer L. Siegel

A dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, Baltimore in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2022

©Copyright 2022 by Jennifer Siegel
All rights reserved

Acknowledgements

I would like to acknowledge various individuals and groups who helped sustain me over the last five years and who made this dissertation possible. First, I would like to acknowledge my esteemed committee. Each member served an important role and provided valuable feedback and expertise along the way. Dr. Jodi Berger Cardoso served as my outside committee member and is a scholar I have long admired for her commitment to improving the wellbeing of immigrant populations, especially immigrant youth. I very much appreciated her incredibly practical insights and ability to always see a way forward. I have also long admired Dr. Jayshree Jani and her work to dismantle injustice, including for immigrant populations. Throughout the years I have also appreciated her encouragement and her laughter, which provided help at many points in my journey. Dr. Brenda Jones Harden is an incredibly knowledgeable scholar on child welfare issues and passionate about her work in early childhood development. She provided expertise and practical advice at many points of working on my dissertation for which I am incredibly grateful. Dr. Fernando Wagner spent once a week for nearly two semesters helping me work through my analysis for my dissertation. His analytical expertise was incredibly valuable, however, I often gleaned more than that from him as he regularly sought to impart wisdom and guidance on a personal and professional level which I am deeply grateful for. Finally, I would like to acknowledge my chair, Dr. Nalini Negi, who has spent the last five years mentoring me and guiding me in my education. She helped me navigate professional and personal challenges, including becoming a mother while in the program. I admittedly struggle with a lack of confidence that limits the opportunities I see for myself, but Dr. Negi helped me to see the best in myself. She

helped me come to believe that I belong here – this is one of the most meaningful gifts she has given me. I admire her intelligence, her ability to think critically, her passion for vulnerable immigrant populations, and her ability to navigate personal and professional spheres. I truly would not have gotten here without her, and I am a better scholar and person because of her influence. She leaves a mark wherever she goes, and I, along with so many others, look up to her and see her as an example. I hope someday I can share with others what she shared with me. I would also like to thank the faculty and staff in the School of Social Work, especially those in the PhD program. I would like to thank my cohort for all their support throughout the years. I have learned so much from each of them and have appreciated their listening ears and words of encouragement. I would like to thank my friends and family who has provided invaluable support throughout this journey and who have been my number one fans. You are amazing! I especially would like to thank my husband, Brandt. He has been a solid source of motivation and strength throughout this journey and has always taken time to listen. He has been there at every step of the way, helping me navigate pursuing a career and balancing personal life and motherhood. He has sacrificed so much to help me pursue a career and I admire his support. I am forever grateful for his partnership and love and would be lost without him by my side. I am so grateful to be on this journey with him and am a better person because of him. I would also like to thank Magdalena, my daughter, who has given me so much to be joyful and surprised about during these last few years. I admire her endless curiosity and her compassionate and confident spirit. I love who she is and am overjoyed to be with her on her journey as she continues to learn and grow. Finally, I would like to acknowledge migrant and seasonal farmworker (MSFW) families, on whom behalf this

research was conducted. My first job at the age of 13-years old was working on a farm with MSFWs, and as I grew to know and love the people I worked with, I also began to understand the adversities of their lives and the systematic oppression they faced. After I graduated with my Bachelors of Social Work, they graciously allowed me to work with them on the farm for four months as I conducted a mini-ethnography. They inspired my pursuit of a career in social work. I am forever in awe of their strength and resilience and their fierce support for one another.

Table of Contents

Acknowledgements	vi
Chapter 1: Problem Statement, Background, and Literature Review	1
Problem Statement	1
Background	3
Literature Review	10
Study Importance and Implications.....	23
Research Questions and Hypotheses.....	26
Chapter 2: Theory Framework	28
Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts	28
Theoretical and Conceptual Application of the Modified Integrative Model to the Current Study	30
Chapter 3: Research Methods	35
Data source	35
Measures and Variables	38
Bivariate and Multivariate Analysis Using Research Questions	45
Chapter 4: Results	49
Data Preparation	49
Sample Demographic Characteristics	51
Bivariate Analyses.....	54
Multivariate Analyses	59
RQ1 Logistic Regression Results.....	60
RQ2 Logistic Regression Results.....	62
RQ2 Mediation Analyses	64
Chapter 5: Discussion	75
Depressive Symptomology Among MSFW Parents.....	77
Social and Emotional Development Outcomes.....	85
Future Directions.....	107
Appendix A	111
References	117

List of Tables

Table 1a Study Sample Demographics, Living, and Working Characteristics of MSFW Caregivers	52
Table 1b Study Sample Demographic Characteristics of Children in MSFW Families...	53
Table 1c MSFW Caregiver Depression and Child Development Outcomes.....	54
Table 2a Bivariate Relationships Between Variables of Interest and MSFW Caregiver Depressive Symptomology	55
Table 2b Bivariate Relationships Between Variables of Interest and Cognitive Social Development Outcomes in Children in MSFW Families	57
Table 2c Bivariate Relationships Between Variables of Interest and Emotional Behavioral Development in Children in MSFW Families	59
Table 3a Logistic Regression Examining Factors Associated with Caregiver Depressive Symptomology	61
Table 3b Logistic Regression Examining Factors Associated with Child Cognitive Social Development Outcomes.....	63
Table 3c Logistic Regression Examining Factors Associated with Child Emotional Behavioral Regulation Outcomes	64
Table 4a KHB Logistic Regression Analysis of Relationship of Acculturation with Cognitive Social Outcomes Mediated by Caregiver Depression.....	65
Table 4b KHB Logistic Regression Analysis of Relationship of Caregiver Discrimination with Cognitive Social Outcomes Mediated by Caregiver Depression.....	66
Table 4c KHB Logistic Regression Analysis of Relationship of Caregiver Exhaustion with Cognitive Social Outcomes Mediated by Caregiver Depression.....	67
Table 4d KHB Logistic Regression Analysis of Relationship of MSFW Stress with Cognitive Social Outcomes Mediated by Caregiver Depression.....	68
Table 4e KHB Logistic Regression Analysis of Relationship of Religion with Cognitive Social Outcomes Mediated by Caregiver Depression	69
Table 5a KHB Logistic Regression Analysis of Relationship of Acculturation with Emotional Behavioral Regulation, Mediated by Caregiver Depression	70
Table 5b KHB Logistic Regression Analysis of Relationship of Caregiver Discrimination with Emotional Behavioral Regulation, Mediated by Caregiver Depression.....	71
Table 5c KHB Logistic Regression Analysis of Relationship of Caregiver Exhaustion with Emotional Behavioral Regulation, Mediated by Caregiver Depression.....	72
Table 5d KHB Logistic Regression Analysis of Relationship of MSFW Stress with Emotional Behavioral Regulation, Mediated by Caregiver Depression.....	73
Table 5e KHB Logistic Regression Analysis of Relationship of Religion with Emotional Behavioral Regulation, Mediated by Caregiver Depression.....	74

List of Figures

Figure 1 Proposed model for current study.....	30
Figure 2 KHB mediation analysis.....	48

List of Abbreviations

aOR	adjusted odds ratio
CES-D	Center for Epidemiologic Studies Depression Scale
CBCL	Child Behavioral Checklist
CI	confidence interval
DHHS	Department of Health and Human Services
ERS	Examiner Rating Scale
FACES	Family and Child Experiences Survey
ITSEA	Infant Toddler Social and Emotional Assessment
KHB	Karlson, Holm, Breen
LEP	Limited English Proficiency
MSFW	migrant and seasonal farmworker
MSHS	migrant and seasonal head start
MFWSI	Migrant Farmworker Stress Inventory
NAWS	National Agricultural Workers Survey
NLAAS	National Latin and Asian American Survey
NMSHSA	National Migrant and Seasonal Head Start Association
OR	odds ratio

Chapter 1: Problem Statement, Background, and Literature Review

This chapter synthesizes extant literature about depression in migrant farmworker adults and social and emotional development competencies in children in migrant and seasonal farmworker families. First, the chapter outlines the problem investigated by this dissertation research (depression and child outcomes among migrant farmworker families), related key factors and definitions, gaps in the literature as well as the significance of the current study and research questions.

Problem Statement

Migrant and seasonal farmworkers (MSFWs) are low-paid and often uninsured employees providing essential food production services in the U.S. (Arcury & Quandt, 2007b). The majority of MSFWs are immigrants from Mexico or Central America and find employment as field crop workers, nursery workers, food sorters, livestock workers, and more (Economic Research Service (ERS), 2021; Ornelas et al., 2021). As agricultural work is considered one of the most dangerous industries in the U.S., MSFWs are at heightened risk for physical health problems including injury, musculoskeletal disorders, and illness (Arcury, O'Hara, et al., 2012; Hansen et al., 2003; Sauter & Stockdale, 2019). Mental health disparities among MSFWs have also been well established in the literature (Arcury & Quandt, 2007b; Grzywacz et al., 2010; Hiott et al., 2008; Hovey & Magaña, 2002). Research indicates ecological risk factors unique to being an immigrant of color and working in agriculture, including experiences of discrimination, difficult working conditions, separation from family, economic and job insecurity, and substandard living

conditions heighten MSFW risk for depression (Arcury & Quandt, 2007a; Grzywacz et al., 2010; Pulgar et al., 2016; Ramos et al., 2016).

Often left out of the literature is that just over half of MSFWs are parents, live accompanied by their families, and half of these parents have children 5 years of age or younger (Ornelas et al., 2021). Research on MSFWs often focuses on samples that are exclusively or almost entirely comprised of adult men, many of whom are single or who live without their families (Grzywacz et al., 2010; Hiott et al., 2008; Sandberg et al., 2012). To a lesser extent, research has examined women and adolescents employed as MSFWs or who live in MSFW families (Hovey & Magaña, 2003; Martínez, 2014; Pulgar et al., 2016). The lack of representation of MSFWs in research who identify as parents and who live accompanied by their families portrays an incomplete profile of farmworker wellbeing.

Further, scant literature examines the family members of MSFWs, including their children, who also experience hardships associated with agricultural life including poverty (de Leon Siantz et al., 2010; Taylor & Ruiz, 2017). Children of MSFWs may not directly interact with the agricultural work environment, however, they may be indirectly impacted by their caregiving adult's experience of farm work related stressors (Pulgar et al., 2016) and ecological conditions associated with farm work life including discrimination, residential segregation, stressors unique to farm work life, exhaustion related to work, and financial insecurity (de Leon Siantz et al., 2010; Stein et al., 2016). Such factors may shape the adaptive cultural processes (e.g., cultural values, religious traditions, acculturation factors, stress etc.) utilized by MSFW families which in turn may influence early childhood. Early childhood is a critical stage for building developmental

competencies and the foundations for resiliency and success in later life (Denham et al., 2016; Nix et al., 2013), yet few studies have explored such factors among MSFW families and their children.

To this end, this study, guided by the Modified Integrative Model of Child Development (García Coll et al., 1996; Stein et al., 2016), examines the relationship between discrimination, work experiences, and stress with the depressive symptomology of primary caregiving MSFW parents using the Migrant Seasonal Head Start (MSHS) Study 2017- 2018 data from the Child and Family Data Archives. Further, using this same data, this study investigates the association of these factors with child social and emotional development outcomes.

Background

Description of Migrant and Seasonal Farmworkers (MSFW) and their Families

Seasonal farmworkers, or *settled farmworkers*, who represent the majority of agricultural workers in the U.S. (81%), are individuals employed in temporary or permanent farm work, and do not move from one location to another for work as they often find other sources of employment during seasons of little agricultural work (ERS, 2021). A *migrant farmworker* is defined as someone who is absent from their permanent place of residence for employment in agricultural work (Ornelas et al., 2021). They may also be referred to as “follow-the-crop workers” and “shuttle workers,” as they move to follow agricultural work depending on the season. As more and more farmworkers are settling in their communities, the population of migrant farmworkers is shrinking, representing approximately 1 in 5 farmworkers in the U.S. (ERS, 2021; Ornelas et al., 2021). Among them, almost half live in the U.S. and migrate domestically to follow

agricultural work opportunities; approximately one third live outside of the U.S. and migrate internationally to follow agricultural work opportunities (Ornelas et al., 2021). For this study, the term “migrant and seasonal farmworker” (MSFW) is used to include both *migrant* and *seasonal/settled* agricultural workers.

Estimates indicate there are approximately 3 million MSFW at any given time in the U.S.; however, exact numbers are unknown due to a variety of factors including, frequent mobility, potentially undocumented legal status, and limited systematic health surveillance (Arcury & Quandt, 2007b; Lim et al., 2017; Taylor & Ruiz, 2017). The National Agricultural Workers Survey (NAWS) is one of the only national surveys that routinely gathers data related to the work conditions of MSFWs in the U.S. The most recent NAWS from 2017-18 estimated that approximately two-thirds (63%) of farmworkers in the U.S. had some form of work authorization with 38% reported as U.S. citizens and 24% as legal permanent residents (Ornelas et al., 2021). According to the NAWS from 2017-18, just 2% have work authorization through U.S. visa programs such as the H-2A Visa, authorizing nonimmigrants to work in the agricultural industry for a specified period. The remaining third did not have work authorization (ERS, 2021).

Demographic Characteristics

According to the 2017-18 NAWS, MSFWs live and work in mostly rural areas in 42 of the 50 states including California, North Carolina, Washington, Idaho, Wisconsin, Florida, and Georgia. Further, most MSFWs in the U.S. are foreign-born, migrating from Mexico (64%) or Central America (3%), almost a third were born in the U.S. or Puerto

Rico (32%) (Ornelas et al., 2021). The majority of MSFWs identify as Latinx¹ (83%), adult men (69%) married (57%); and half have children. Over one-third (38%) of the crop labor force live unaccompanied or separated from their nuclear family including their spouse or children. Of MSFWs who identify as parents (50%), nearly all mothers (98%) and the majority (87%) of fathers were accompanied by some or all their family members. According to the NAWS (2017-18), 46% of MSFW parents had children 5-years of age or younger, 68% had children between the ages of 6 – 13, and 43% had children ages 14-17 years old. Approximately 7% of MSFWs were between the ages of 14 – 19 years old.

Further, the most recent NAWS reports that most MSFW spoke Spanish as their primary language. Others spoke indigenous languages including Mixtec or Quiché. Literacy levels among MSFWs were relatively low, with the majority reporting as functionally illiterate in English and approximately one in five reported difficulties reading in Spanish. Some MSFWs had college degrees or completed high school, the majority had attended school through the 9th grade or less.

Contextual Factors Experienced by MSFWs in the U.S.

Discrimination

Racial discrimination is a life stressor uniquely experienced by racial and ethnic minority populations and can be understood as a pathway to negative health consequences (Williams, 2018). Exposure to discrimination is a feature of life for many socially disadvantaged groups, including immigrant populations, and has long been

¹ For this study, the term Latinx is used as a gender-neutral neologism, except in cases when referencing specific studies on Latina women or Latino men, in which cases Latina or Latino is used.

shown to have an adverse impact on mental and physical health (Kessler et al., 1999; Saban et al., 2018) contributing to health disparities (IOM, 2002). At the structural level, racial discrimination may initiate a process wherein one stressor (i.e., living and working conditions) could lead to, exacerbate, or prolong exposure to other life stressors (financial security, acculturation stress) (Pearlin et al., 2016; Williams, 2018). Research has also shown that stressors unique to socially disadvantaged groups and disease risk may cluster among certain populations and in certain locations (Hogben & Leichter, 2008). There is evidence to support this may be the case for MSFWs, who have been found to experience discrimination simultaneous to other life stressors including hazardous working conditions, economic disadvantage, difficulties integrating in U.S. communities, and/or family separation. (Alderete et al., 1999; Grzywacz et al., 2010; Hovey & Magaña, 2000; Kanamori et al., 2020).

MSFWs may experience discrimination due to their race and ethnicity, limited English, or lack of legal status (Hirsh & Lyons, 2010; Pérez et al., 2008). An earlier study of MSFW men and women in California found that just over half of participants experienced medium or elevated levels of discrimination (Alderete et al., 1999). A more recent study of Latina seasonal farmworkers (N=261) found that nearly half the sample (44%) reported feeling tense or worried because of experiences of discrimination (Kanamori et al., 2020). Further, recent focus group studies among agricultural workers in California (N=130) and dairy farm workers Colorado (N=14) found that recent passages of anti-immigrant legislation and actions taken by the Trump administration led participants to report high levels of discrimination and increased fear and avoidance of participating in community and public life (Becerra, 2020; Medel-Herrero et al., 2021).

Discrimination has also been found to confer disease risk including poor psychological health outcomes, including among MSFWs (Alderete et al., 1999; Andrews et al., 2020; Kanamori et al., 2020). For example, a study of Latina women (N=248) found that exposure to discrimination was significantly associated with depression (Zapata Roblyer et al., 2015). Another study examining depression among MSFWs at different time points during the agricultural season found that at time periods when experiences of discrimination and marginalization were elevated, depressive symptoms also increased (Grzywacz et al., 2010). Such research is aligned with general literature indicating that discrimination is robust predictor of psychological health, with significant implications for understanding disease risk among marginalized populations (Lewis et al., 2015; Williams, 2018), including MSFWs.

Work Environment

Agricultural work is physically taxing, exhausting, and stressful (Arcury, O'Hara, et al., 2012; Hansen et al., 2003). As agricultural work is considered one of the most dangerous industries in the U.S. (Sauter & Stockdale, 2019), MSFWs are at heightened risk for occupational hazards which could lead to injury (Arcury, O'Hara, et al., 2012; Hansen et al., 2003). Farm labor tasks includes repetitious motion in work activities, working with arms raised above one's head for long periods of time (tree crops), extended periods of working on one's knees or in a stooped position, carrying heavy loads, or working with heavy machinery or large animals (Hansen & Donohoe, 2003) may lead to musculoskeletal disorders, traumatic injury, or chronic pain (Shipp et al., 2009). In addition, MSFWs are often expected to work long hours in varied weather conditions (e.g., extreme heat, cold, and rain), especially at the height of harvesting or

planting season, which can lead to feelings of exhaustion and excessive daytime sleepiness placing this population at greater risk for injury (Arcury, O'Hara, et al., 2012).

MSFW Stress

MSFWs also experience unique stressors related to their employment as farmworkers and their status as immigrants. Such stressors may stem from difficult and demanding working conditions, economic insecurity, and immigration related issues including difficulty being away from family, fear over immigration enforcement, or challenges acculturating in U.S. communities (Hovey & Magaña, 2003; Kim-Godwin & Bechtel, 2004; Ramos et al., 2015). Because of the saliency of the stress inherent in farm work life experienced by MSFWs and their association with depression and anxiety, Hovey et al. (2001) developed a 39-item Migrant Farm Worker Stress Inventory (MFWSI) assessing exposure to and severity of stressors inherent to agricultural work for migrant populations. Various studies have since deployed the MFWSI and have found elevated levels of stress among MSFWs represented from across the U.S. (Hiott et al., 2008; Kim-Godwin & Bechtel, 2004; Ramos et al., 2015).

Ramos et al. (2015) examined stressors unique to farm work life among MSFWs, majority men, in Nebraska (N=200) and found that nearly a third (30.5%) of the sample identified feeling high levels of stress as measured by the MFWSI. Commonly identified stressors included being away from friends and family, worrying about their kid's education, and making little money (Ramos et al., 2015). Other research has found over half of their study samples of MSFWs suffered from elevated levels of stress (Hovey & Magaña, 2003; Kim-Godwin & Bechtel, 2004). Further, a qualitative study of MSFW women (N=20) found that over half of the sample experienced high stress including

stress associated with language barriers, unpredictability of work and housing, being away from family and friends, physical labor and rigid work demands, and worries about the socialization of their children (Hovey & Magaña, 2003).

Family Financial Security and Difficulty Making Ends Meet

MSFWs' social positionality as ethnic minorities with limited English proficiency, low literacy, low levels of education, and undocumented status limit the economic and social mobility of some MSFWs (Lim et al., 2017; Ornelas et al., 2021). Despite working long hours under harsh working conditions, MSFWs receive poor compensation for their labor (Lim et al., 2016). According to the NAWS 2017-18, the average hourly wage for all farmworkers was \$12.32, including those earning hourly and piece rate wages. Those with work visas (i.e., H-2A guestworkers) earned a slightly higher hourly wage of \$13.68 (Costa, 2021). Still, this was just 60% of what production and nonsupervisory non-farmworkers (often considered the most logical cohort to compare migrant farmworkers) earned (\$24.67) (Costa, 2021). It is estimated that one in five MSFWs have income levels below the poverty line (Ornelas et al., 2021).

MSFW Families and Children

MSFW families face various ecological challenges that impact family life including working long hours and disruption in education and healthcare for families needing to move throughout the season to follow work (Zarate et al., 2017). Families may also experience economic insecurity thereby creating a need for children to work (Borre et al., 2010; Zarate et al., 2017). Such aspects of agricultural life (including, poor living conditions, limited health insurance, and poverty) have been shown to lead to health disparities among children in MSFW families, including food insecurity and obesity

(Kilanowski, 2012; Nichols et al., 2014), oral health issues (Castañeda et al., 2010), as well as increased risk for diabetes (Kilanowski, 2012), anemia (Nichols et al., 2014), and asthma (Gwyther & Jenkins, 1998).

A smaller proportion of the literature has examined anxiety and depression among MSFW children and youth (Taylor & Ruiz, 2017). Studies have found that children in migrant farmworker families had higher levels of anxiety and depression when compared to the general population which could be attributed to the significant economic hassles, discrimination, acculturation stress, and loneliness experienced by this population (Taylor & Ruiz, 2017; Taylor et al., 2020). Yet, research has also shown that children in MSFW families are resilient and experience positive mental health outcomes despite challenges associated with farm work life, especially in environments with supportive and warm parenting styles (Taylor et al., 2020).

Overall, little is known regarding early childhood health and development outcomes of children in MSFW families. Some research indicates children in MSFW families may be at risk for developmental problems (de Leon Siantz & Smith, 1994), still other research has indicated that the incidence of early childhood social and emotional development problems are low among this population (de Leon Siantz et al., 2010). More research is needed to further understand childhood health and development outcomes among children in MSFW families (Harris & Santos, 2020).

Literature Review

Depression and MSFWs

Rates of depression among MSFWs have been found to be higher than the general population (20.4%-45.8%) (Alderete et al., 1999; Arcury et al., 2018; Hovey & Magaña,

2003; Ramos et al., 2015; Sandberg et al., 2012). Various contextual factors including stress, discrimination, economic factors, and occupational injury have been found to be associated with depression among MSFWs (Andrews et al., 2020; Grzywacz et al., 2010; Hiott et al., 2008; Hovey & Magaña, 2000; Zapata Roblyer et al., 2016). Other studies have found interpersonal factors including being unaccompanied by a spouse, education level, and experiencing family conflict to be associated with depressive symptomology (Grzywacz et al., 2010; Ramos et al., 2015; Zapata Roblyer et al., 2016). However, most of the literature on depression among MSFWs is focused on men, as such, gaps remain regarding our understanding of depression among women and parents in MSFW families (Pulgar et al., 2016). Below is a summary of extant literature regarding depression among MSFWs.

Depression in MSFW Men and Women

Previous studies on MSFW have been inconclusive regarding whether MSFW women are at greater risk for depression than men. A study on depression prevalence among MSFWs in California (N=1,001) that included near equal representation of men and women in the sample found no significant differences in depressive symptomology between men and women (Alderete et al., 1999). Similarly, various other studies have not documented significant differences in depressive symptomology among MSFW men and women (Hiott et al., 2008; Hovey, 2000; Magaña & Hovey, 2003). However, other research has found that MSFW women or women in MSFW families are at greater risk for depression compared to men (Hovey & Magaña, 2003; Negi et al., 2020; Zapata Roblyer et al., 2016). This is aligned to research in the general population which indicates women are at greater risk for depression than men in all age categories (Brody et al.,

2018; Kessler, 2003) and may also be indicative of gender normative processes in which men may underreport symptoms of depression or externalize symptoms differently than women (Addis, 2008).

Discrimination and Depression in MSFWs

Various studies have found that MSFWs' experiences of discrimination have implications for psychological distress including depression. A longitudinal study of migrant farmworkers in North Carolina (N=288) found that depressive symptomology was significantly more likely in those who experienced discrimination and marginalization compared to those in the sample who did not (Grzywacz et al., 2010). In another study of thorough bred horse workers, work-based discrimination was not only found to be positively correlated with depression but also explained unique variance in depressive symptomology in regression models (Negi et al., 2020).

Some research has explored the effects of discrimination on the mental health of MSFWs, still few studies have examined this impact specifically among MSFWs who identify as parents. One study which specifically focused on Latina mothers of young children (N=248) in MSFW families, found that racial discrimination was significantly associated with depressive symptomology at a clinically significant level, above and beyond interpersonal factors measured in the study (family conflict and social mobility) (Zapata Roblyer et al., 2016). A qualitative study by Parra-Cardona et al. (2006) found that experiences of discrimination affected family processes among women in MSFW families. For example, participants expressed feeling discriminated against at work, especially when their supervisors who made it difficult for them to leave work for the day when their children or themselves were ill. Participants further indicated this form of

workplace discrimination due to their race or ethnicity had implications for the way they were able to provide care for their children (Parra-Cardona et al., 2006). Research on other ethnic minority groups has documented direct associations of parent experiences of discrimination with child internalizing problems (Anderson et al., 2015). Still the relationship between parent perceived discrimination and child wellbeing is not fully understood. As racial discrimination is an important factor in the lives of ethnic minority populations, more research is needed to fully understand how parent experiences of discrimination may impact family processes and child outcomes, including in MSFW families (Stein et al., 2016).

Inhibiting Environments: Working Conditions, Exhaustion, and Depression

The National Safety Council (NSC) defines fatigue as feelings of reduced energy or sleepiness and having to put forth increased effort to perform usual tasks; fatigue is more commonly experienced among workers who work in physically demanding jobs, work long hours, or perform repetitious acts, such as MSFWs (National Safety Council [NSC], 2017). A cross-sectional study of MSFWs in Nebraska (n=241) found that on average MSFWs indicated moderate levels of fatigue, and that women reported having higher levels of fatigue than men (Ramos et al., 2020). Daytime sleepiness was also found to be significantly associated with depression among MSFWs who mostly worked in tobacco farms in North Carolina (Sandberg et al., 2012).

To my knowledge, no study to date has examined the relationship between feelings of fatigue or exhaustion from work with the mental health of MSFW parents. This is significant as parents have additional caregiving demands outside of work attending to their children's emotional and physical needs. In Parra-Cardona et al.'s

(2006) qualitative study of mothers in MSFW families, fatigue or exhaustion was not explicitly explored; however, participant narratives regarding exhaustion and its role in impacting caregiving were elucidated. In fact, one participant in the latter study shared that she chose not to drive her child to a needed medical appointment because she was afraid of falling asleep while driving (Parra-Cardona et al., 2006).

MSFW Stress and Depression

Research has documented a significant relationship between stressful life events and depressive symptomology (Hammen, 2004). Stressful life events, especially those related to economic hardship and racial discrimination are disproportionately experienced by ethnic minorities (Williams, 2018). Various studies have indicated MSFWs face unique stressors inherent in their work in agriculture and as immigrants or ethnic minorities (Hovey et al., 2001). Further research has found stress unique to MSFWs to be significantly associated with depression among MSFWs (Hiott et al., 2008; Kim & Betchel, 2006; Ramos et al., 2015;).

Seminal work by Vega et al. (1985) found that high levels of stress related to limited social mobility, transient lifestyle, poverty, discrimination, and a high rate of traumatic events were associated with higher levels of psychological distress in MSFWs. More recent studies have found similar patterns whereby stress factors including social isolation and stressful working conditions were associated with higher rates of depression among MSFW men (Hiott et al., 2008). Another study conducted with mostly MSFW men found that among various stressors, those especially related to economics and logistics (making enough money, difficulty finding a place to live, etc.) and health (health

problems due to nature of work) were significantly associated with depression symptomology (Ramos et al., 2015).

Even though it has not been systematically assessed in the literature, it is possible stressors unique to farm work life may manifest differently among parents in MSFW families, or that certain stressors could have a more salient impact on MSFW parents' depression. Stress and depressive symptomology among MSFW parents may have further implications for their children, as research indicates association between parental stress and mental health on child development outcomes (Huang et al., 2012; Petterson & Albers, 2001).

Religiosity as a Protective Factor for Depression among MSFWs

Religiosity or religious beliefs have been found to be a source of resilience among Latinx immigrants in the U.S. (Cardoso et al., 2021; Terrazas & McCormick, 2018). In fact, in a systematic review examining sources of resiliency among Latinx immigrant families, religious beliefs were identified as an important source of resilience (Cardoso & Thompson, 2010). Studies have also shown that religion can be a strength in family relationships (Kelly, 2007), provide a connection to one's cultural tradition, and guidance for life challenges (Thompson & Gurney, 2003).

The research on resilience or protective factors among MSFW populations has been sparse, still there are some studies that indicate that MSFWs may rely on religiosity or religious beliefs to help cope with the challenges associated with farm work life, and this may be protective against depression (Dueweke et al., 2015; Terrazas & McCormick, 2018). Specifically, a qualitative study of MSFWs (N=64) in West Texas and Eastern New Mexico found that religious beliefs and prayer were important coping strategies

used to deal with depressive thoughts and feelings (Terrazas & McCormick, 2018). Similarly, a mixed-methods study among Latina MSFWs (N=20) found that participants identified religion or God as a form of emotional support that helped protect mental wellbeing (Dueweke et al., 2015). As these were primarily qualitative studies, it is unknown if religion is statistically related to depressive symptomology. It is also unclear from these studies exactly which elements of religion or religiosity may be protective against depression (e.g., religious practices such as prayer, belief systems and values, social aspects of participating in religious ceremonies/practices). Still the literature seems to indicate that some aspect of religious beliefs may have a protective role against the challenges of farm work life and related depression. However, little is known how religiosity may operate within MSFW families with young children. For example, some research suggests that families with young children may be more likely to have higher attendance in religious institutions (Petts, 2007) with beneficial influence on family relationships (King, 2003; Petts, 2007).

Social and Emotional Development Competencies in Children in MSFW Families

Social Emotional Development in Early Childhood

Especially scant in the literature is research focused on the children of MSFWs (de Leon Siantz et al., 2010). The early childhood experiences (0 – 5 years) of children in MSFW families, a critical life stage for building the developmental competencies necessary for resiliency and success in later life (de Leon Siantz et al., 2010; Yates et al., 2008), are virtually unknown in the literature. Even though emphasis is often placed on academic and cognitive capacities, social and emotional competencies are critical for early school success (Yates et al., 2008) and have increasingly becoming recognized as

such (U.S. Department of Health and Human Services (DHHS). 2011; Daily et al., 2010). Social and emotional competencies are defined as the capacity for a child from birth to 5-years of age to “form close and secure adult and peer relationships; experience, regulate, and express emotions in socially and culturally appropriate ways; and explore the environment and learn—all in the context of family, community, and culture” (Yates et al., 2008, p. 2). Social emotional development competencies are commonly assessed through four domains including *social competence*, *emotional competence*, *behavior problems*, and *self-regulation* (Halle & Darling-Churchill, 2016). Children with positive social emotional competencies in early childhood are often more easily comforted, can manage and regulate their own emotions, are more open to exploring new things and their environment, and develop empathy, an understanding of the effects of their actions on others (Briggs-Gowan, 2004; Yates et al., 2008). Such competencies help young children form healthy attachments with their caregivers, develop the capacity for building friendships, resolve conflicts, display persistence when confronting challenges, and cope with their own emotions including anger and sadness (Yates et al., 2008).

Social and Emotional Behavior Regulation and Competence

Social and emotional behavioral regulation and competencies are an important aspect of social emotional development that occurs throughout childhood, but especially in early childhood as young children move from “other-regulating,” when a parent or caregiver helps soothe a child’s emotion to “self-control” when a child has the skills to regulate their own emotions (Cole et al., 2004). Emotion regulation accounts for how one’s emotions are organized, redirected, controlled, or modified to facilitate or harm other psychological processes including problem solving, interactions in relationship, and

attention (Cicchetti et al., 1998). Emotion regulation refers to the changes associated with an emotion, which may include changes in the actual emotion (i.e., self-soothing to reduce stress) or psychological processes related to the emotion (i.e., interpersonal relations, memory, etc.) (Cole et al., 2004). Social competence develops concurrently with emotional regulation and is defined as the ability for a child to develop positive relationships with others and communicate and regulate their emotions within social relationships or in social settings (Yudron & Jones, 2016). Social behaviors are what facilitate a child's ability to take turns, share, and communicate about one's feelings (Fabes et al., 2003).

Research has shown a connection with social and emotional development and academic success. Children with greater social and emotional regulation skills are more likely to develop positive relationships with their teachers and peers, show more classroom participation, exhibit fewer behavioral problems in adolescence, and show more school success in preschool and kindergarten which lays the foundation for future academic success (Bornstein et al., 2010; Denham et al., 2012; Denham et al., 2016). Longitudinal research has found that positive social and emotional development skills are linked with better coping in adolescence, higher academic achievements and education levels, and less substance use in adults (Hayatbakhsh et al., 2008; Karevold et al., 2009; Nix et al., 2013). Conversely, children with fewer social and emotional regulation skills may struggle to develop positive relationships with their teachers and peers, show less classroom participation, may be at-risk for developing psychiatric disorders, and have less academic success, setting them up for future challenges in school and other

professional settings (Briggs-Gowan & Carter, 2008; Denham et al., 2012; Raver & Knitzer, 2002).

Factors that Promote or Inhibit Early Childhood Social and Emotional Development

Numerous factors have been found to inhibit or promote early childhood social and emotional development competencies including ecological risk factors such as poverty (Yates et al., 2008). Consistent in the literature is the significant role of poverty in impacting the immediate early caregiving environment and consequently, early childhood development (Cooper et al., 2009; Huang et al., 2012). Parenting styles, parent stress, and parent mental health, especially related to the mother, have been found to be key mechanisms through which risk factors related to poverty (e.g., community violence, food insecurity, etc.) impact child development outcomes including social and emotional development (Doudna, 2016; Huang et al., 2012; Petterson & Burke-Albers, 2001; Westbrook & Harden, 2010). Specifically, adults living in poverty experience poverty-related stressors which have been linked to psychological distress including depression (Ertel et al., 2011; Horwitz et al., 2007). In turn, parent mental health has been found to impact parenting behaviors, including parent sensitivity, which has been linked to negative social and emotional development outcomes in early childhood (Bernard et al., 2018). Few studies have explored these relationships among racial and ethnic minority populations including Latinx families. Some research has indicated that Latinx children with depressed mothers may not experience significant social and emotional development problems, indicating the potential presence of protective factors that buffer the negative consequences of poverty and stress among this population (Doudna, 2016; La Roche et al., 1995). As the parent-child relationship is situated within a sociocultural context in

which cultural beliefs and values may influence the relationship between parent mental health and child development outcomes, more research is necessary to unpack the associations of parent mental health and early childhood development among more diverse family contexts (García Coll et al., 1996; Harris & Santos, 2020).

Importantly, evidence has shown that a child's social and emotional development trajectory can be modified in early childhood (Berlin et al., 2019; Van Lith et al., 2021; Yudron & Jones, 2016). Yet, research has also shown that in the general population social and emotional behavioral problems often go unevaluated or untreated as much more attention is given to cognitive, language, or motor delays (Carter et al., 2004; Horwitz et al., 2003). Thus, understanding social and emotional development competencies in early childhood are important for informing early interventions to improve social and emotional developmental competencies and future outcomes (Berlin et al., 2019; Briggs-Gowen & Carter, 2008). This underscores the importance of studies focused on racial/ethnic minority children to further understand factors that shape early childhood development outcomes among diverse samples, including Latinx children. This is significant as racial/ethnic minority children's cultural, linguistic, and family contexts may uniquely shape social emotional development processes and outcomes (Harris & Santos, 2020; Van Lith et al., 2021). Related, such understanding could help inform culturally relevant interventions for this population.

In summary, MSFW families' social positioning as racial and ethnic minorities employed in the agricultural industry may not only heighten their exposure to poverty related stressors, but also to social stratification mechanisms (e.g., discrimination) that influence family processes (García Coll et al., 1996; Stein et al., 2016). However, cultural

adaptations and family values (including, religious values) may be protective for family wellbeing including parent depression and social and emotional development outcomes in preschool age children (Stein et al., 2016).

Maternal Depression and Social Emotional Competencies for Children in MSFW

Families

One of the few studies conducted with specifically MSFW parents, particularly mothers, explored the relationship between maternal functioning (maternal stress, depression, and parenting style) on emotional and behavioral outcomes in preschool aged children enrolled in MSHS programs in Texas (de Leon Siantz et al., 2010). This study used the Child Behavior Checklist (CBCL) to measure emotion regulation and behavioral aspects of socioemotional development competencies. Findings indicate that children who experienced more negative maternal functioning (including, higher levels of maternal stress, depression, and more negative parenting style) were more likely to display problem behaviors. A noteworthy finding from this study is that the majority of child participants did not display problematic behaviors (de Leon Siantz et al., 2010). Maternal stress and depression were linked to externalizing problems among young girls and internalizing problems in boys; other research has often found the inverse relationship: externalizing problems in boys and internalizing problems in girls (Spieker et al., 1999; Stacks & Goff, 2006). Another study explored the relationship between maternal depression and child behavior outcomes (aggression, compliance, and negative emotionality) using the Infant Toddler Social and Emotional Assessment (ITSEA) and the CBCL among Latinx families enrolled in Head Start (Martínez, 2014). Participants in the study had similar demographic characteristics to MSFW parents including limited

English proficiency (LEP) and were low income. Findings revealed that maternal depressive symptomology at baseline predicted child negative emotionality 6-months later, however, there was less support in the models predicting aggression and compliance (Martínez, 2014).

In general, there is a great degree of variability in the literature regarding findings related to the relationship between parent depression and social emotional development competencies among Latinx children. For example, a study of low-income Latina mothers and their preschool age children found that maternal depressive symptomology at baseline were not significantly associated with toddler behavioral problems three months later (La Roche et al., 1995). Maternal depression was also not significantly associated with child behavioral problems in a study examining family food insecurity, parenting alliance, and maternal depression on child behavioral outcomes using the CBCL among low-income Latina mothers and their children in rural settings (Doudna, 2016). Another study of Latina mothers and their children enrolled in Head Start found that maternal mental health problems had a mediating effect on maternal depression through positive parenting behaviors on children's social behavioral problems (Palermo et al., 2018).

Valdez et al. (2013) explored the relationship between parent depressive symptomology and child social behavioral problems in Latinx first graders in Texas schools and their parents (N=2,253) and found differences among predominantly Spanish-speaking and predominantly English-speaking families. Namely, for English dominant parents, parent depression was directly positively associated with child social competence problems, whereas this relationship was not significant among the

predominantly Spanish speaking parents. However, results found that parent depressive symptomology was significantly associated with higher levels of social competence problems in children as mediated through lower levels of parent emotional involvement with their children for predominantly Spanish speaking parents (Valdez et al., 2013). Another study specifically examined the relationship between maternal depression, maternal sensitivity, and attachment (which has been found to be associated with socioemotional competencies including externalizing behaviors) (Groh et al., 2017), among Latina/o (n=1,600) and Asian children. Findings indicated that foreign-born Latina mothers were significantly less likely to have an insecurely attached child compared to U.S. born Latina mothers (Huang et al., 2012). Chronic depression was found to be a risk factor for insecure attachment for both immigrant and U.S.-born Latina mothers while maternal sensitive parenting was not found to be a significant protective factor (Huang et al., 2012). Findings from the above study may not be generalizable to the experiences of MSFW parents as the sample included more educated and higher paid Latina mothers than those in MSFW families, still findings collectively suggest the potential role of acculturation in parent mental health and child social emotional development competencies.

Study Importance and Implications

Gaps in the Literature

This section summarizes key gaps in the literature regarding depression among MSFW parents and social and emotional development outcomes among preschool aged children in MSFW families. Very few studies on MSFW have explicitly explored their role as parents/caregivers and depression. This is especially significant as over half of

MSFWs live accompanied with families with young children (Ornelas et al., 2021). Thus, existing literature portrays an incomplete profile of farmworker wellbeing. Further, the study advances our understanding regarding the role of parental depression and child social emotional development competencies of children as existing research on this relationship has largely focused on White samples (Harris & Santos, 2020). The research is especially sparse regarding children in MSFW families who may face unique vulnerabilities given their exposure to hardships shaped by farm work life (de Leon Siantz et al., 2010). Existing literature on Latinx children is informative, still extant evidence is inconsistent regarding the relationship between ecological factors, parental depression, and early childhood social emotional development competencies. Moreover, these relationships may manifest differently across different racial and ethnic groups including MSFW families (Huang et al., 2012; Petterson & Burke-Albers, 2001) and elucidate the role of unique protective factors in parent mental health and child development.

Study Implications

This study advances the literature by examining correlates of depression among MSFW parents. Various studies have explored correlates of depression among MSFWs, yet very few have focused specifically on parents who represent nearly half of MSFWs (Ornelas et al., 2021). Much of the literature is focused on MSFW men (Hovey & Magaña, 2000; Sandberg et al., 2012), and to a lesser extent women and adolescents who work in agriculture or live in MSFW families (Martinez, 2014; Taylor & Ruiz, 2017). This study advances our understanding regarding the psychological wellbeing of MSFW parents accompanied by their children who have family responsibilities and demands

outside of their employment in agriculture, a current critical gap in our understanding. This study also advances understanding into the social and emotional development outcomes of a vulnerable child population rarely explored in the literature (de Leon Siantz et al., 2010). The experiences of children in MSFW families remain poorly understood despite their exposures to ecological risks related to their parents' employment as farmworkers (Stein et al., 2016). As early childhood is a critical stage for building developmental competencies and the foundation for resiliency and success in later life (Briggs-Gowan & Carter, 2002), this study sheds light on important risk and protective factors for development that may inform culturally relevant interventions for Latinx children.

This dissertation study is guided by the Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts (Stein et al., 2016) adapted from the Integrative Model (García Coll et al., 1996). The Modified Integrative Model (Stein et al., 2016) was developed based on the experiences of Latinx immigrant families and postulates that the unique ecological circumstances this population experiences due to their social positionality as immigrants shapes their experiences of discrimination, which in turn, influences adaptive family processes with implications for depression in MSFW parents and developmental processes in MSFW children (García Coll et al., 1996; Stein et al., 2016). The use of this theoretically and culturally relevant model, expands our understanding regarding the wellbeing of the MSFW *family unit* (specifically parents and their preschool aged children), and has implications for the development of culturally responsive interventions with this population.

Research Questions and Hypotheses

Using nationally representative data from the Migrant and Seasonal Head Start (MSHS) Study, this dissertation study was guided by the following theoretically driven research questions and hypotheses:

Research Question 1 (RQ1): What are the associations between caregiver gender, acculturation, discrimination, work exhaustion, MSFW stress, and religion with depressive symptomology among caregivers in MSFW families, controlling for family characteristics (financial security, marital status)?

Hypothesis: It was hypothesized that discrimination, work exhaustion, MSFW stress, and religion would be significantly associated with depressive symptomatology among MSFW caregivers, when controlling for family characteristics. Further, experiences of discrimination would be a significant predictor variable with the greatest effect on depressive outcomes. Finally, this study predicted that importance of religion would have a negative relationship with depressive symptomology and thus be a protective factor.

Research Question 2 (RQ2): What are the associations between caregiver acculturation, discrimination, exhaustion, MSFW stress, and religion on the social and emotional development outcomes of preschool age children in MSFW families, as mediated by caregiver depression and controlling for family and child characteristics (caregiver marital status, financial security, child gender, years in MSHS)?

Hypothesis: This dissertation study hypothesized that caregiver acculturation, discrimination, MSFW stress, and religion would have direct and indirect associations with child cognitive social and emotional behavioral regulation outcomes, when

controlling for family and child characteristics (parent marital status, financial security, child gender). Indirect effects would be mediated through caregiver depression.

Chapter 2: Theoretical Framework

This chapter introduces and describes the theoretical frameworks that guided this study. It begins by providing an overview of the Modified Integrative Model for Latino children in rural contexts (Stein et al., 2016). The next section discusses how this theoretical orientation was applied within the proposed study and guide study hypotheses.

Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts

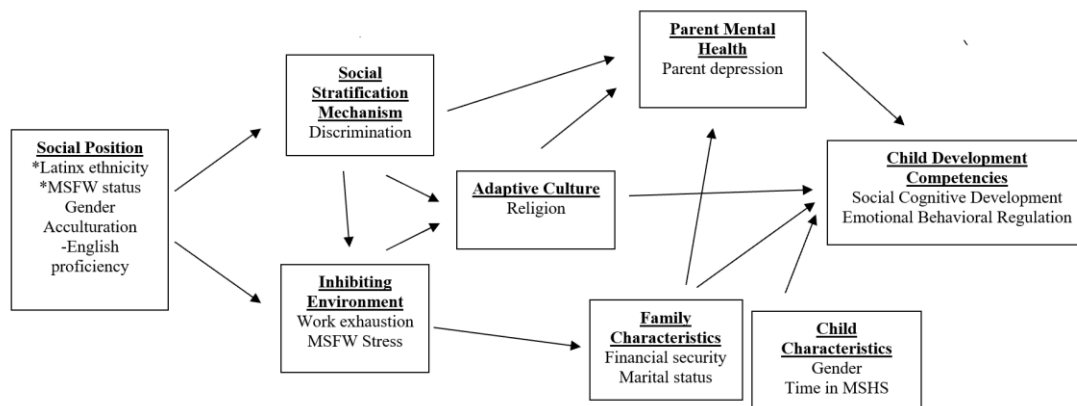
The Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts is largely based on the García Coll et al. (1996) Integrative Model for Child Developmental Competencies in Minority Children; however, this conceptual model further elucidates the unique contextual factors impacting developmental outcomes for Latino children in rural, new immigrant communities (Stein et al., 2016). The Integrative Model for Child Developmental Competencies (García Coll et al., 1996) draws from and expands on mainstream theories including ecological frameworks (Bronfenbrenner, 1979) to provide understanding regarding the child development processes, specific to minority children and families. García Coll et al. (1996) contend that understanding the unique developmental processes of minority children “requires explicit attention to the unique ecological circumstances” including pervasive racism and discrimination, as such processes contribute to inhibiting developmental contexts and require unique cultural adaptations (p. 1893). A primary construct of the model is the effect of one’s *social position* in shaping the experiences of minority families and thereby indirectly influencing developmental processes.

The Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts (Stein et al., 2016) advances the Integrative Model by proposing eight connected constructs that impact the developmental processes of Latinx youth in rural, emerging immigrant communities. The eight constructs include: 1) *social position*, which is the result of existing constructs of social hierarchies in society and includes one's gender, race, ethnicity, foreign-born status, undocumented status, and MSFW status; 2) *social stratification mechanisms* are the mechanisms through which one's *social position* is stratified such as through racism, prejudice, discrimination, and oppression; 3) *segregation* is created and recreated through experiences of racism and discrimination and is defined through residential, economic, social and psychological segregation; 4) *promoting/inhibiting* environments are directly influenced by the residential, economic, social, and psychological *segregation* and dictate one's experience in and access to schools, neighborhoods, and health care systems; 5) *adaptive culture* are the cultural strategies developed to cope with social positioning as well as behaviors shaped by historic and current forces. *Adaptive culture* includes one's traditional and cultural legacies as well as one's experience in migration, acculturation, and contextual demands; 6) *individual characteristics* (i.e., age, temperament, health status, and biological and physical factors) influence how a child experiences their environment and their developmental outcomes; 7) *family characteristics* (i.e., family structure, values and beliefs, socioeconomic status, and racial socialization) are shaped by one's adaptive culture and include the daily experiences and interactions that directly influence a child's 8) *developmental competencies* include cognitive, social, emotional, and linguistic development.

Theoretical and Conceptual Application of the Modified Integrative Model to the Current Study

Using constructs from the Modified Integrative Model, this study postulated that the social positionality of MSFWs influences exposure to discrimination, impacting acculturation, MSFW stress, work exhaustion, and cultural adaptations (including, family religiosity). These interconnected ecological factors along with individual family and child characteristics then have an impact on parent mental health and child social and emotional developmental competencies (See Figure 1).

Figure 1.
Proposed Model for Current Study



*Variables not included in bivariate or multivariate analyses because they are characteristic of nearly the entire sample
MSFW = Migrant and Seasonal Farmworker; MSHS = Migrant and Seasonal Head Start

Specifically, this proposed study and related hypotheses are informed by the below constructs:

Social position (ethnicity, MSFW status, gender, acculturation) provides insight into macro-economic systems that create and recreate structural inequalities for gender and ethnic minorities, as well as those who are undocumented. For MSFW this includes a demand for labor without a legal immigration pathway to fill this demand and their

exploitation as cheap labor in the agricultural system (Koreishi & Donohoe, 2010). Social position variables (i.e., race and ethnicity, gender, immigration status) shape knowledge of (or lack of) how U.S. systems, work experiences, limited upward economic and social mobility, and pervasive fear associated with immigration enforcement including worksite raids and deportation (Becerra, 2020; Stein et al., 2016).

One social position factor postulated is acculturation (measured through English proficiency levels of the parent). Aligned with the “immigrant health paradox,” some studies have found that greater levels of acculturation are associated with higher levels of depression symptomology among Latinos (Alegría et al., 2008; Finch et al., 2004). Similarly, some studies have shown that children with parents who have higher levels of acculturation (measured by English proficiency, time in the U.S.) have poorer social emotional development outcomes, compared to children with parents who have lower levels of acculturation (Ramirez, 2012).

Parent gender is also considered a social position factor, especially as socially and culturally defined conventions about gender often influence the roles of parents. For example, in Latinx families, the role of father is often defined as providing economically for the family, which means fathers participate less so in domestic tasks and childrearing than Latinx mothers (Olayo Méndez, 2006). However, in migration many Latinx mothers enter the workforce to help support their families financially, leaving men to assist with domestic and childrearing responsibilities more often. The child development literature has shown differences in the effects of parent mental health on child development outcomes between mothers and fathers; whereby the mental health of mothers has been shown to have a stronger effect than that of fathers on child development outcomes

(Meadows et al., 2007; Mitchell & Cabrera, 2009). This indicates the saliency of gender and its potential unique contribution to child development outcomes in this study.

Social stratification (discrimination): Social position variables may indirectly affect parent depression and child development outcomes through the *social stratification* mechanism of discrimination. Various studies have found MSFW experience racial discrimination in the workplace and in their communities, which in turn impacts mental health (Grzywacz et al., 2010; Negi et al., 2020; Zapata Roblyer et al., 2016). It is also possible that the political context may impact immigrant wellbeing. For example, the Trump presidency has been characterized by a flurry of anti-immigrant legislation and proposals, as well as anti-immigrant rhetoric. Research on MSFWs and other Latinx immigrant groups indicated an increase in reported discrimination under the Trump administration (Medel-Herrero et al., 2021).

Promoting or Inhibiting (work exhaustion, MSFW stress) environments may promote or undermine health in MSFW parents and developmental competencies in children as these are the contexts in which one's social positionality is "actualized" (Stein et al., 2016, p. 48). Specifically, MSFW families may be at heightened risk for living day-to-day in inhibiting developmental environments that are characterized by physically taxing, demanding, and lowest compensated work environments with impact on exhaustion and depression (Sandberg et al., 2012; Sauter & Stockdale, 2019). Parental or caregiver feelings of work exhaustion have implications for the family unit as it can impact the time and energy MSFW parents can dedicate to their children which can then shape their developmental outcomes (Parra-Cardona et al., 2006).

Exposure to stress is not simply randomly distributed in society, but often clusters among marginalized groups exposed to inhibiting work environments (Williams, 2000). MSFWs often experience various stressors unique to their social position as farmworkers, including difficulty being away from family, worry about their children's education, difficulty migrating, and difficulty finding a place to live. The level of stress experienced from such factors has been found to be associated with depression in MSFWs (Hiott et al., 2008).

The adaptive culture (religion) may include protective strategies and behaviors that MSFW families develop and employ to cope with their marginalized social positionality and contextual demands. For instance, MSFWs have been found to rely on religious beliefs or prayer to cope with feelings of depression (Dueweke et al., 2015). Religiosity has also been found to be negatively associated with anxiety among MSFWs (Hovey & Magaña, 2002). It is then possible that the family value of religiosity or importance of religion may be protective against the hardships associated with farm work life (Terrazas & McCormick, 2018), which in turn may buffer the effects of depressive symptomology on child development outcomes.

Family characteristics (marital status, financial security). Family structure (e.g., parent marital status) may also have implications for family processes and wellbeing. Studies of MSFWs have found that those living alone and not accompanied by spouses or other family may be more likely to experience various hardships, including increased stress (Magaña & Hovey, 2003). Further, the financial security of a family may also positively influence the social and ecological environment in which a family is able to live in which in turn may affect family stress and child outcomes (Cooper et al., 2009).

Child characteristics (child gender, years in MSHS). Gender may be an important variable when examining social and emotional development outcomes in early childhood, as studies have found gender differences in the social and emotional development outcomes of boys and girls (Maguire et al., 2015). Furthermore, as this study is focused on children and parents who are already enrolled in a MSHS program, where teacher attention and classroom curricula are focused on meeting the needs of a child including addressing cognitive development and social emotional needs, years enrolled in MSHS is controlled for in the analysis.

Parent mental health (depressive symptomology), particularly parent depressive symptomology, serves as both a dependent and an independent variable in this proposed study. As a dependent variable, MSFW depressive symptomology is understood to be influenced by the salience of MSFWs social positionality which shapes their experiences of discrimination, leading to inhibiting work environments. MSFWs' adaptive cultural resources and experiences (e.g., religion, stress, etc.) and family characteristics may also influence depressive symptomology. This current study then underscores the importance of parent depression and the possible influence on social and emotional developmental competency outcomes in preschool aged children.

Developmental competencies (social cognitive development and emotional behavioral regulation). Within the conceptual grounding of this study, developmental skills are postulated to be a reflection of one's "adaption to the circumstances" created by social stratification (e.g., discrimination) and influenced by one's social position (e.g., race and ethnicity, etc.), and the resulting cultural adaptations and inhibiting environments faced by MSFW children (García Coll et al., 1996, p. 1907).

Chapter 3: Research Methods

This chapter presents the methodology used in this dissertation research. It begins by introducing the data source and the sample. Second, all study variables and measures are operationalized and described. Finally, the research questions driving the analysis and the analytical procedures are described.

Data Source

Data from the Migrant and Seasonal Head Start (MSHS) study 2017-18 were used for this study. This study was administered by the Administration for Children and Families and data was collected by Abt Associates, The Catholic University of America, and Westat. The data was collected using a cross-sectional survey from a nationally representative sample of MSHS programs, centers, staff, and the families and children they serve and includes data regarding characteristics of MSHS programs and families, services provided by MSHS programming, and child and family wellbeing. The data collected for the MSHS study is the first national study to include direct assessments of children enrolled in MSHS programs and relied on expertise from the MSHS community to develop strategies for recruitment, measure development, and data collection.

Sampling Approach

The MSHS study included two samples: 1) MSHS Programs and Centers and 2) MSHS Classrooms, Families, and Children. This current dissertation study used the latter sample (2) but focuses only on the families and children data (excluded, classroom level data). The MSHS study used a multi-state cluster design and collected data in four stages from 1) MSHS programs providing center-based services; 2) MSHS centers; 3) MSHS classrooms; and 4) children in MSHS classrooms as well as their caregivers/parents.

When weighted, the data represents a national sample of all MSHS children and families in programs offering center-based services in 2017.

First the MSHS Study team selected 23 programs from the full set of 36 eligible programs. Eligible programs included grantees who were providing center-based services. Selections were made to ensure representation of different classroom sizes and across five different geographic regions representing 48 contiguous U.S. states, categorized by the East, Midwest, Northwest, Southeast, and California/Southwest (categories consistent with the NAWS). Next, 50 centers were randomly selected from each of the programs followed by the random selection of 122 classrooms from each of the centers. All data from the centers (including, children and caregiver/parent data) was collected between July and December 2017, during a period of peak enrollment for the centers. A study team visited each center for approximately one week during this time-period to collect data from teachers, parents, and children. Data was also collected from trained bilingual field staff.

All children in a sampled classroom were pooled within a center and stratified by age, including infants and young toddlers (0 – 23 months; n=161), older toddlers (24 – 35 months, n=260), and preschoolers (36 months to 5-years, n=452), a total of 873 children. Children were sampled from each of the three age groups (young toddlers, older toddlers, and preschoolers). Their probability of a child being selected was proportional to the size of the classroom's probability of being selected. On-site coordinators facilitated parent and child consent during the site-visits, bilingual field staff conducted in-person interviews in the preferred language of the participants. During the site visits, trained

field staff conducted direct assessments of the preschool aged children for the Leiter 3 Examiner Rating Scale to assess for social and emotional development outcomes.

The current dissertation study focuses on data from the parent interview and the researcher administered child assessment (including, only preschool aged children and their parents). Specifically, this study included parents and caregivers ($N=303$) and children ages 36 months – 5-years of age ($N=303$) at the time of the study. Caregiver participants ($N=303$) were those who identified to be the parent or caregiver providing most of the caregiving to the selected preschool aged child in the study and completed or partially completed the parent questionnaire and the parent report of the child questionnaire for preschool age child. Preschool aged (36 months – 5-years) children ($N=303$) in the study were those whose caregivers agreed to participate in the study and who participated in a researcher directed Leiter 3 Examiner Rater assessment, an assessment of child social and emotional development. The parent interview had a weighted response rate of 88.4%; the parent report of the child had a weighted response rate of 82%; and the direct assessments of the children had a weighted response rate of 86.5%.

IRB Protocol

The University of Maryland Baltimore Institutional Review Board (IRB) granted a determination of Non-Human Subjects Research in March 2021 for the proposed secondary data analysis for this dissertation study. A restricted data user request was granted by the Inter-university Consortium of Political and Social Research (ICPSR) on June 4, 2021. ICPSR maintains a data archive of research studies in the social and behavioral sciences accessible to researchers.

Measures and Variables

A detailed description of the study variables, standardized measures, and survey questions used in the analyses are listed below. The sample selection for RQ1 included all caregivers of children ages 36 months to 5-years of age who participated in the study by completing the parent questionnaire ($N=303$). The sample selection for RQ2 included MSHS families who had a child in the study who, at the time of the study, was 36-months to 5-years of age and who completed the researcher administered Leiter 3 Examiner Rater assessment ($N=303$).

Independent Variables

Discrimination: Racial discrimination is a life stressor experienced by many socially disadvantaged groups including racial and ethnic minority populations and can be understood as a pathway to negative health consequences contributing to health disparities (International Organization for Medicine, 2003; Williams, 2018). In this study, parent experiences of racial discrimination was operationalized using a single item, “I have experienced discrimination in this country” is rated on a 5-point Likert scale (0=have not experienced, 1=not stressful at all, 2=somewhat stressful, 3=moderately stressful, 4=extremely stressful). For the analysis, this variable was collapsed into a dichotomous variable with 0 indicating “have not experienced discrimination” and 1 indicating “have experienced discrimination”.

Acculturation: Acculturation refers to the degree or extent to which a minority group interacts with the host culture (Berry, 2007). In this study, level of acculturation is thought to influence one’s *adaptive culture*, which is characterized by a group’s collective history (i.e., migration patterns, policy influence, and cultural legacies, etc.)

and response to contextual demands. In the current dissertation study, the commonly used and well-established proxy variable for acculturation, *English language proficiency* of the parent, was used (Alderete et al., 1999; de Leon Siantz et al., 2010; Finch et al., 2004; Huang et al., 2012). *English language proficiency* was operationalized based on the following item: “What is your English language proficiency?” rated on a 4-point Likert scale (1=speak English very well, 2=speak English well, 3=do not speak English well, 4=do not speak any English). The variable was collapsed into a dichotomous variable with 0 indicating “speaks English not well or not at all” and 1 indicating “speaks English well or very well.”

MSFW Stress: MSFWs often experience unique stressors inherent in farm work life for immigrants related to migration, economic insecurity, immigration status, and poor working conditions (Hovey & Magaña, 2000; Magaña & Hovey, 2003). In this proposed study, such forms of stress were operationalized using 5-items from the MFWSI (Hovey et al., 2001). The MFWSI is a 39-item user-friendly, self-report instrument that assesses the quality and severity of stress inherent in migrant and seasonal farm work (Hovey et al., 2001). The MFWSI requires a 6th grade literacy level and can be verbally administered for those who are illiterate. Items not only assess whether one has experienced the stressor, but also assess participants’ appraisal of that stressor. Respondents rate each question on a 5-point Likert scale (0=have not experienced, 1=not stressful at all, 2=somewhat stressful, 3=moderately stressful, 4=extremely stressful). The 5-items used in this study include “Migrating to this country was difficult”; “It is difficult to be away from family members”; “Sometimes I have difficulty finding a place to live”; “Sometimes have difficulty finding a job”; and “I worry about my children’s education.”

Cronbach's alpha was used as a measure of reliability of the MFWSI as an instrument measuring MSFW stress and had marginal reliability ($\alpha=.64$) in this study. One reason for the lower Cronbach's alpha score could be due to only including a limited number of questions from the MFWSI measure (van Griethuijsen et al., 2015). Even though the MFWSI had marginal estimates in this current study, it may still have conceptual value tapping into unique stressors experienced by MSFWs, albeit with caution attached to the findings. As such, the MSFWI measure was still used as a measure of parent stress in this study and analyzed as a continuous variable.

Work Exhaustion: Feelings of exhaustion related to the demands of farm work may be an inhibiting aspect of the work environment that influences family wellbeing. This variable was operationalized using participant responses to "How much exhaustion have you felt in the past 4 weeks?" Survey response options were indicated on a 5-point Likert scale (1=none, 2=very mild, 3=moderate, 4=severe, 5=very severe). Response categories were collapsed to 0 indicating "none to moderate" and 1 indicating "severe/very severe".

Religion: Religiosity has been found to be a source of resilience among Latinx immigrants in the U.S. (Cardoso & Thompson, 2010; Terrazas & McCormick, 2018) as well as a protective factor for depressive symptomology (Deweke et al. 2015). The importance of religion was operationalized from the survey question, "How helpful is your faith/belief in God?" Survey response options were provided using a 4-point Likert scale (1=not helpful, 2=somewhat helpful, 3=moderately helpful, 4=extremely helpful). Categories were collapsed for the analysis into a dichotomous variable (0=not helpful/somewhat/moderately helpful, 1= extremely helpful).

Control Variables

Caregiving parent gender is important to consider as women and men may express differences in depressive symptomology (Zapata Roblyer et al., 2016). Further, according to the Modified Integrative Model, one's social position, which includes one's gender, may have a profound effect on daily experiences at work and home. In this study, gender was operationalized as a dichotomous variable (0=men, 1=women), aligned with how the data was collected in the larger MSHS study.

Financial security of a family may also shape family functioning by influencing the social and ecological environment in which a family is able to live in as well as impacting family stress, and in turn, child outcomes (Cooper et al., 2009). Financial security was measured dichotomously and operationalized from the following survey question: "do you worry about paying your bills each month?" (0=yes, 1=no).

Caregiving parent marital status may have implications for parent depression (Magaña & Hovey, 2003) and child development outcomes (Westbrook & Harden, 2010). This variable was assessed as a categorical variable (0=married/cohabitating with partner, 1=separated/divorced, 2=single).

MSFW child gender and years in MSHS were included as important child characteristics. Research has shown differences in developmental outcomes may occur between girls and boys (Maguire et al., 2015). Child gender was assessed as a dichotomous variable (0=girl, 1=boy) aligned to how it was collected in the MSHS study. Further, as MSHS is intended as a program that helps meet a child's cognitive, emotional, and social development needs, it was important to control for time in MSHS in the

analysis as it may have an effect on child outcomes. Time in MSHS was measured in years.

Dependent Variables

MSFW Parent Depressive Symptomology: Parent depressive symptomology was assessed using the Center for Epidemiological Studies 10-item Depression scale (CES-D 10) (Kohout et al., 1993). The scale measures three major domains of a depressive mood in the past week including three items on negative affect (e.g., I felt depressed), two items on positive affect (e.g., I was happy), and five items on somatic symptoms (e.g., my sleep was restless), and interpersonal problems (e.g., people were unfriendly). Scores were assessed by reverse scoring the positively worded questions, then totaling the sum scores. The possible range of scores is 0-30, with higher scores indicating greater severity of symptoms. The CES-D is an established measure with good reliability estimates with Spanish-speaking Latinx adults (McCabe et al., 2011) including migrant farmworkers (Grzywacz et al., 2006; Negi et al., 2020; Zapata Roblyer et al., 2016) and has shown good reliability ($\alpha = 0.73 - 0.88$, Grzywacz et al., 2006; Hiott et al., 2008; Negi et al., 2020; Palermo et al., 2018). With this sample, the CES-D 10 had excellent reliability ($\alpha = .90$). Due to non-linearity of the distribution of the CES-D variable and its residuals, the CES-D was measured as a dichotomous variable. All variable transformations performed to accommodate for non-linearity did not improve the distribution. For this study, the dichotomous distinction was made using the mean plus one standard deviation (8.75), as based on other studies with Latino populations (Aguilera-Guzmán et al., 2004; Reyes-Ortega et al., 2003). This allows for a sample-specific distinction between lower and higher levels of depressive symptomology.

Caregiver depressive symptoms were also analyzed dichotomously as an independent variable for RQ2.

Cognitive Social Development and Emotional Behavioral Regulation:

Cognitive social development and emotional behavior regulation are important developmental processes that occur throughout childhood and adolescence, but most rapidly in the early childhood stage (Cole et al., 2004). For this study, developmental competencies were operationalized using the Leiter Third Edition Examiner Rating Scale (Leiter 3 ERS) (Roid et al., 2013). The Leiter 3 ERS is a completely non-verbal assessment used to evaluate cognitive social and emotional behavioral regulation. Developed for use with those 3-years and older, the Leiter 3 ERS is especially intended to evaluate those with limited English proficiency or those who may have limited capacity for verbal assessments. It is used by a trained assessor who rates a child on eight subscales including (a) Attention, (b) Organization/Impulse control, (c) Activity Level, (d) Sociability, (e) Energy and Feelings, (f) Regulation and Mood Regulation, (g) Anxiety, and (h) Sensory Reactivity. Items within subscales were rated on a 4-point Likert scale (1=Rarely/Never, 2=Sometimes, 3=Often, and 4=Usually/Always). Each subscale is grouped into two composites: the Cognitive/Social composite is formed by summing raw scores from subscales a, b, c, and d. Emotion/Regulations composite is formed by summing raw scores from raw scores of subscales e, f, g, and h. Scaled scores for the composites were developed and have a mean of 100 and a standard deviation of 15. The norming sample average range is +/- 1 standard deviation of the norming sample average.² In this study, descriptive analysis showed good reliability with each of the

² The norming sample consisted of 1,603 children at least 3 years old. The sample was drawn from 36 states in all 4 U.S. Census regions (Northeast, Midwest, South, and West) and stratified on the basis of age,

Leiter 3 ERS composite measures for the entire sample (Cognitive/Social composite, $\alpha=.93$; Emotion/Regulations composite, $\alpha=.92$). Both scales, cognitive social development and emotional behavioral regulation, were dichotomized in the analysis. Like the CES-D, neither scale could be analyzed as a continuous variable because of the non-linearity of the distribution of the variables and their residuals. All variable transformations performed to accommodate for the non-linearity of residuals did not improve the distribution. As such, for this study the dichotomous distinction used was the mean minus one standard deviation to indicate concern or clinical concern for developmental outcomes, as is the suggested distinction recommended for use with the measure (Roid & Koch, 2017).

Data Procedures

Prior to conducting the analyses, data cleaning and quality assessments were conducted which included dealing with missing data and applying appropriate survey weights to adjust for non-response rates and to produce more accurate estimates of the MSHS population as recommended by the MSHS Study User Guide (ICPSR, 2019). All statistical assumptions were evaluated for the appropriate analysis. Univariate and bivariate analyses were conducted to examine the frequency distributions and bivariate relationships between the independent and dependent variables of interest. To answer RQ1, logistic regression was used. To answer RQ2, mediation analyses were conducted to evaluate the relationship between predictor variables of interest with cognitive social development and emotional behavioral regulation outcomes as mediated by parent

gender, race/ethnicity, education level of parent/adults, geographic region within the United States, and community size (Roid et al., 2013).

depression. Statistical significance was assessed using a .05 alpha level. More details of the analytical procedures are described below.

Bivariate and Multivariate Analysis Using Theoretically Guided Research Questions

RQ1: *What are the associations between gender, acculturation, discrimination, work exhaustion, MSFW stress, and religion with depressive symptomology among caregivers in MSFW families, controlling for family characteristics (financial security, marital status)?*

Hypothesis: It was hypothesized that discrimination, work exhaustion, MSFW stress, and religion would be significantly associated with depressive symptomatology among MSFW caregivers, when controlling for family characteristics. Further, experiences of discrimination would be a significant predictor variable with the greatest effect on depressive outcomes. Finally, this study predicted that importance of religion would have a negative relationship with depressive symptomology and thus be a protective factor.

To analyze this research question, first bivariate analyses were conducted including chi-square tests and independent t-tests to examine differences between the predictor variables of interest and parent depressive symptomology. Chi-square was conducted on the weighted data therefore the “uncorrected” chi-square statistic (an F statistic) was used as well as the weighted row proportions. Independent t-tests were also conducted on the weighted data using the “test” command in Stata which also produces an “F” statistic.

Binary logistic regression was used to examine the association of the independent variables with the outcome variable: parent depressive symptomology. The dependent variable, parent depressive symptomology as measured by the CES-D 10, was measured

as a dichotomous variable with 0 indicating lower levels of depressive symptomology and 1 indicating higher levels of depressive symptomology. To distinguish between higher and lower levels of depressive symptomology appropriate for this specific sample, the mean plus one standard deviation (8.77) was used, as has been similarly dichotomized in previous studies with Latinx populations (Aguilera-Guzmán et al., 2004; Reyes-Ortega et al., 2003).

RQ2: *What are the associations between caregiver acculturation, discrimination, exhaustion, MSFW stress, and religion on the social emotional development outcomes of preschool age children in MSFW families, as mediated by caregiver depression and controlling for family and child characteristics (caregiver marital status, financial security, child gender, years in MSHS)?*

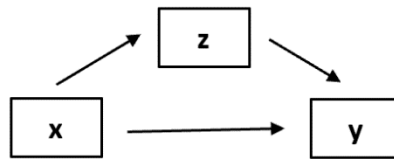
Hypothesis: This dissertation study hypothesized that caregiver acculturation, discrimination, MSFW stress, and religion would have direct and indirect associations with child cognitive social and emotional behavioral regulation outcomes, when controlling for family and child characteristics (caregiver marital status, financial security, child gender). Indirect effects would be mediated through caregiver depression.

First, bivariate relationships were assessed between the independent and dependent variables of interest for RQ2 including chi-square and independent t-tests. Chi-square was conducted to measure the relationships between the categorical independent and dependent variables. T-tests were used to assess differences between the continuous variables, MSFW stress and the number of years the child was in MSHS, and the dichotomous child development outcomes. Similar to research RQ1, chi-square and t-tests were conducted on the weighted data therefore an “F” statistic was used.

The child development outcome variables, cognitive social development and emotional behavioral regulation were each measured as dichotomous variables with 0 indicating scores in the average range and 1 indicating scores in the range of concern/clinical concern. To evaluate if a child scored in the range of concern/clinical concern, the mean minus one standard deviation below the mean was used as is suggested by the Leiter 3 ERS user guide (Roid & Koch, 2017).

Prior to conducting the mediation analysis, logistic regression analyses were conducted to examine the relationships between the variables of interest and the two child development outcome variables. To explore parent depression as a mediator, the Karlson-Holm-Breen (KHB) decomposition method was used (Kohler et al., 2011). This allowed for the examination of the direct effects of the predictor variables of interest on child development and any indirect effects via parent depressive symptomology (see Figure 2). This method was used because the dependent variables and their residuals (cognitive social development and emotional behavioral regulation outcomes) were not normally distributed, and no transformations of the variables achieved linearity. The KHB method is a decomposition method that is unaffected by rescaling or attenuation bias that may occur in nonlinear models (Kohler et al., 2011). It also allows for the examination of categorical variables, which is challenging in more traditional mediation analytical methods. Control variables (i.e., parent marital status, Financial security, child gender, and years in MSHS) were used as concomitant variables in the models.

Figure 2.
KHB mediation analysis



x = variables of interest, z = parent depressive symptomology, y = child development outcomes

Because of limited power, each variable of interest was analyzed independently using the KHB method, first without covariates and then with covariates. Prior to conducting the KHB analyses for each independent variable, a series of logistic regression analyses were conducted for each individual variable of interest (i.e., acculturation, discrimination, exhaustion, MSFW stress, and religion), first without covariates and then with covariates which allowed for a fuller understanding of the relationships between the variables and the mediation effect. All KHB models were run using the `vce (cluster clustvar)` command in stata which relaxes the restriction of the independence of errors and assumes independence of errors within clusters based on the sampling weights.

An a priori power analysis was conducted using G*Power 3.1.9.4 (Faul et al., 2007) and found that if using an odds ratio of 2.5 and a probability level of .05 there is enough power to conduct a binary logistic regression analysis with each covariate and predictor variables. The power analysis assumed approximately one-third of the sample would have higher levels of depression and determined that a sample of 299 is sufficient for an analysis with .85 power level. A priori power analysis for the mediation model was also conducted and recommended a minimum sample size of 288 for the model for just five variables.

Chapter 4: Results

This chapter presents the findings from the analyses, beginning with preliminary analysis and univariate results. Univariate results include demographic characteristics of caregivers and preschool aged children, as well as level of stress, experiences of discrimination, depressive symptomology, and social and emotional development outcomes. This chapter also reports bivariate relationships of the independent variables (i.e., caregiver English proficiency, MSFW stress, exhaustion, discrimination, importance of religion) and covariates with the outcome variables (caregiver depressive symptomology, social cognitive development outcomes of the child, and emotional behavioral regulation outcomes of the child). Finally, multivariate results are presented.

First, univariate results for the study sample ($N=303$) describing demographics of the caregivers and children in the study (see Table 1a and Table 1b) as well as mental health and development outcomes of the caregivers and children are presented (see Table 1c). Bivariate results examining the relationship between the independent variables of interest and covariates with caregiver mental health and child development outcomes are also presented (see Table 2a, 2b, 2c). Next, tables for the logistic regression analyses for all outcome variables are presented (Table 3a, 3b, 3c) followed by mediation analyses for cognitive social development outcomes (Table 4a, 4b, 4c, 4d, 4e) and for emotional behavioral regulation outcomes (Table 5a, 5b, 5c, 5d, 5e).

Data Preparation

All data analyses were conducted in Stata (StataCorp, 2021). Data cleaning and quality assessments were conducted prior to conducting the analyses. Data cleaning included recoding variables and creating new variables. Data quality assessments

included an assessment of missing data on all study variables indicating of a very small proportion of missing data (fewer than 2% of cases were missing a predictor variable, fewer than 7% of cases were missing a control variable, and fewer than 4% of cases were missing an outcome variable). The data were determined to be missing at random. Because of the limited sample size and power in the analysis, the missing data were not dropped, however hot deck imputation was used. Hot deck imputation works by replacing missing values of variables for non-respondents with an observed value from a respondent by matching the non-respondent and respondent on similar characteristics (Andridge & Little, 2010). For select variables with missing data, an appropriate similar characteristic was chosen to match the non-respondent with a respondent and “deterministic hot deck methods” were applied, whereby the output from a “neighbor”, matched on the chosen metric, was used (Andridge & Little, 2010). These methods were appropriate as there were not multiple non-respondents listed in a row, rather they were spread throughout the data.

Appropriate weights were applied to the data prior to the analysis to adjust for non-response rates and to produce more accurate estimates of the MSHS population as recommended by the MSHS Study User Guide (Caswell et al., 2019). Specifically, the PARENTFWT weight, the sampling strata VARSTRAT, and the sampling cluster VARUNIT were applied to the analyses. To verify the correct sampling weights were applied, select descriptive and bivariate statistics were run using the weighted data and compared to the MSHS study reports of the data (Walker & Malin, 2020a; Walker & Malin, 2020b). Results were the same; therefore, assumed that the current study weights were applied correctly.

Prior to conducting analysis for each research question, all statistical assumptions were assessed to examine the relationships of the variables using binary logistic regression and mediation analysis. For binary logistic regression this included that the dependent variable was dichotomous, independence of the variables, little to no multicollinearity, a linear relationship of the independent variables and log odds, no outliers, and appropriate sample size. Because the KHB model was used for the mediation analysis, usual assumptions of linearity of residuals were not required and binary logistic regression was appropriate for this analysis.

Sample Demographic Characteristics

MSFW Caregivers. The mean age of caregivers ($N=303$) in the current study was approximately 33 years old ($SD=7.04$). The majority of caregivers in the study were mothers (88.50%), most were married or partnered and cohabitating (78.65%), while others were separated or divorced (10.51%) or single (10.83%). The majority of caregivers were born outside of the U.S. (82.84%), including Mexico (79.60%) and Central America (3.27%). Nearly two thirds of the caregivers indicated they speak English “not at all” or “not well” (61.16%), while others indicated they speak English “well” or “very well” (38.84%). Almost one-third (30.09%) of caregivers indicated they experience difficulty paying their bills each month. Caregivers had worked in agriculture in the U.S. for an average of 7.63 years ($SD=6.34$) at the time of the study. Just over one quarter (26.56%) of the sample indicated they have experienced discrimination and just under half indicated they felt moderately to very severely exhausted in the last four weeks. On average, caregivers scored a 7.64 ($SD=4.91$) on the MFWSI, which indicates high levels of stress related to migrant farm work (see Table 1a).

Table 1a: Study Sample Demographics, Living, and Working Characteristics of MSFW Caregivers ($N=303$)

Variable	Weighted Percentage / Mean (SD)
Age of caregiving adult	32.94 (7.04)
Gender of caregiving adult	
Men	10.90%
Women	89.10%
Foreign-born status (caregiver)	
Born in the U.S.	17.16%
Foreign-born	82.84%
Country of Birth (caregiver)	
Mexico	79.60%
Central America	03.24%
US	17.16%
Year caregiver moved to U.S.	
Before 1999	34.06%
2000-2009	50.62%
2010 or later	15.31%
Marital status	
Married/living with partner	78.65%
Separated/divorced	10.51%
Single	10.83%
Education Level	
6 th grade or less	26.52%
7 th grade through 12 th grade	39.33%
High school graduate/diploma	19.58%
Vocational school or more	14.53%
Difficulty paying bills each month	
Yes	30.09%
No	69.91%
English language proficiency	
Speaks not at all/not very well	61.16%
Speaks well/very well	38.84%
Type of work	
Agriculture	84.33%
Non-agricultural work	15.67%
Years worked in agriculture in the U.S.	7.63 (6.34)
Exhaustion felt in last 4 weeks	
Not at all/mild	51.23%
Moderate/very severe	48.77%
Experience discrimination	
Yes	26.56%
No	73.44%
MSFW Stress Score	7.64 (4.91)
Importance of belief in God for family	
Not at all/moderately helpful	26.12%
Extremely helpful	73.88%

MSFW=Migrant and Seasonal Farmworker

Children. All children in the sample ($N=303$) were between the ages of 36 months and five years of age and just over half, 51.95%, were girls. Most children in the

sample, 93.07%, were born in the U.S. and were enrolled in a Migrant and Seasonal Head Start program for an average of 1.47 (SD=1.26) years (see Table 1b).

Table 1b: Study Sample Demographic Characteristics of Children in MSFW Families (N=303)

Variable	Weighted Percentage / Mean (SD)
Gender (of child)	
Boy	48.05%
Girl	51.95%
Foreign-born status (child)	
Born in the U.S.	93.07%
Foreign-born	6.93%
Country of Birth (child)	
US	93.07%
Mexico	6.15%
Central America	0.78%
Years in MSHS (child)	1.47 (1.26)

MSHS=Migrant and Seasonal Head Start

Depression and Social and Emotional Outcomes. On average, caregivers scored 3.59 (SD=5.16) on the CES-D 10, which is below the clinical cutoff score. About 11% of caregivers had higher levels of depressive symptomology. Overall, children in the study average scores were in average ranges on the social and emotional development scales indicating no developmental concerns. The average score of children on the Leiter 3 Cognitive Social scale was 112.96 (SD=25.42). The average score of children on the Leiter 3 Emotional Behavioral regulation scale was 102.90 (SD=16.80). Approximately, 15% of children scored in the range of concern or clinical concern for cognitive social development outcomes and 22% scored in the range of concern or clinical concern for emotional behavioral regulation outcomes (see Table 1c).

Table 1c: MSFW Caregiver Depression and Child Development Outcomes (N=303)

Variable	Weighted Percentage
CES-D 10 score (caregiver)	
Lower depressive symptomology	88.70%
Higher depressive symptomology	11.3%
Cognitive Social Development Outcome	
No concerns	84.95%
Concerns or clinical concerns	15.05%
Emotional Behavioral Regulation Outcome	
No concerns	77.56%
Concerns or clinical concerns	22.44%

MSFW=Migrant and Seasonal Farmworker

Bivariate Analyses

Relationships between independent variables and dependent variables (caregiver depressive symptomology, cognitive social and emotional behavioral regulation outcomes of the child) were conducted through chi-square and independent samples t-tests. Bivariate statistics were run on the weighted data therefore the *F* statistic was used.

Caregiver Depressive Symptomology

More women (11.85%) reported higher levels of depressive symptomatology than men (6.86%), however this was not statistically significant ($F=0.42, p=.52$). Significantly more caregivers who were separated or divorced (31.50%) reported higher levels of depressive symptomology ($F=9.23, p<.00$) compared to those who were married or cohabitating with a partner (7.49%). A greater proportion of caregivers who reported having difficulty paying their bills each month (21.34%) reported higher levels of depressive symptomology ($F=17.44, p<.00$), compared to those who did not report difficulty paying bills each month (6.97%). Significantly more caregivers who reported feeling severe or very severe exhaustion (17.30%) also indicated higher levels of depressive symptomology ($F=13.57, p<.01$), compared to those who reported moderate or very mild exhaustion (5.59%). Caregivers with higher levels of depressive

symptomology reported more stress related to migrant farm work (M=11.05, SD=6.01) than caregivers who had lower levels of depressive symptomology (M=7.21, SD=4.59) ($F=15.44, p<.00$). There were no significant differences in depressive symptomology for caregivers on other variables of interest including English proficiency, experiences of discrimination, and importance of religion (see Table 2a).

Table 2a: Bivariate Relationships Between Variables of Interest and MSFW Caregiver Depressive Symptomology ($N=303$)

Variable	Lower depressive symptomology		Higher depressive symptomology		F
	Weighted %	M(SD)	Weighted %	M(SD)	
Gender of caregiving adult					
Men	93.14		06.86		0.42
Women	88.16		11.85		
Marital status					
Married/cohabitating	92.51		07.49		9.23***
Separated/other (divorced)	68.50		31.50		
Single	80.69		19.31		
Difficulty paying bills each month					
Yes	78.66		21.34		17.44***
No	93.03		06.97		
Acculturation (English proficiency)					
Speaks not at all/not very well	89.54		10.46		0.55
Speaks well/very well	87.40		12.60		
Exhaustion					
Not at all/Very Mild	94.41		05.59		13.57**
Moderate/Very severe	82.70		17.30		
Experience discrimination					
No	89.79		10.21		0.78
Yes	85.71		14.29		
MSFW Stress		7.21(4.59)		11.05(6.01)	-15.44***
Importance of belief in God for family					
Not at all/moderately helpful	89.44		10.56		0.08
Extremely helpful	88.44		11.56		
Cognitive Social Development					
No clinical concerns	90.18		09.82		3.89
Clinical concerns	80.38		19.62		
Emotional Behavioral Regulation					
No clinical concerns	89.62		10.74		0.30
Clinical concerns	86.78		13.22		

* $p<.05$, ** $p<.01$, *** $p<.00$

MSFW=Migrant and Seasonal Farmworker

Child Cognitive Social Development Outcomes

Significantly more boys (19.86%) than girls (10.59%), scored in the range of concern or clinical concern for cognitive social development problems ($F=4.93$, $p<.05$). A significantly higher percentage of MSFW children whose caregivers spoke English ‘well’ or ‘very well’ (21.24%) scored in the range of concern/clinical concern for cognitive social development outcomes ($F=9.35$, $p<.05$), compared to those children whose caregivers spoke English “not at all” or “not very well” (11.07%). A significantly higher percentage of children whose caregivers were single (30.66%) scored in the range of concern/clinical concern compared to those whose caregivers were married/cohabitating (12.87%) or separated/divorced (15.24%) ($F=5.65$, $p<.05$). More children whose caregivers indicated belief in God was “moderately” or “not at all important” (20.67%) scored in the range of concern/clinical concern for cognitive social development problems, compared to those whose caregivers reported a belief in God was extremely helpful (13.07%) ($F=4.63$, $p<.05$). A higher percentage of children whose caregivers had higher levels of depressive symptomology (26.14 %) scored in the range of concern/clinical concern for cognitive social development outcomes, compared to those whose caregivers had lower levels of depressive symptomology (13.64%). There were no significant relationships between the other variables of interest in the study (caregiver exhaustion, caregiver stress, caregiver experience of discrimination) and child cognitive social development outcomes. There were also no significant relationships between the study control variables (caregiver difficulty paying bills each month, years in MSHS) (see Table 2b).

Table 2b: Bivariate Relationships Between Variables of Interest and Cognitive Social Development Outcomes in Children in MSFW Families ($N=303$)

Variable	No clinical concerns		Concerns or clinical concerns		F
	Weighted %	M(SD)	Weighted %	M(SD)	
Gender of child					
Boy	80.14		19.86		4.93*
Girl	89.41		10.59		
Marital status					
Married/cohabitating	87.13		12.87		5.65*
Separated/other (divorced)	84.76		15.24		
Single	69.34		30.66		
Difficulty paying bills each month					
Yes	81.58		18.42		0.88
No	86.40		13.60		
Acculturation (English proficiency)					
Speaks not at all/not very well	88.93		11.07		9.35*
Speaks well/very well	73.76		21.24		
Exhaustion					
Not at all/Moderate	81.91		18.09		2.78
Severe/Very severe	88.15		11.85		
Experience discrimination					
No	85.65		14.35		0.35
Yes	83.02		16.98		
MSFW Stress		7.86(4.75)		6.43(5.61)	2.84
Importance of belief in God for family					
Not at all/moderately helpful	79.33		20.67		4.63*
Extremely helpful	86.93		13.07		
CES-D					
Lower depressive symptomology	83.36		13.64		3.89*
Higher depressive symptomology	73.86		26.14		
Years in MSHS (child)		1.50(1.22)		1.30(1.40)	0.99

* $p < .05$, ** $p < .01$, *** $p < .00$

MSFW=Migrant and Seasonal Farmworker, MSHS=Migrant and Seasonal Head Start

Child Emotional Behavioral Regulation Outcomes

More boys (25.75%) than girls (19.37%) scored in the range of concern/clinical concern for emotional behavioral regulation outcomes ($F=3.17$, $p < .09$), however the

difference was not significant. A significantly higher percentage of MSFW children whose caregivers spoke English “well” or “very well” (28.65%) scored in the range of concern/clinical concern for emotional behavioral regulation outcomes ($F=7.03$, $p<.05$), compared to those children whose caregivers spoke English “not at all” or “not very well” (18.44%), however these associations were not significant. There were no significant associations between the other variables of interest to the study (MSFW stress, caregiver exhaustion, caregiver experience of discrimination, religion, caregiver depressive symptomology) and child emotional behavioral regulation outcomes. There were also no significant relationships between the study control variables (caregiver difficulty paying bills each month, marital status of caregiver, or years in MSHS) and child emotional behavioral regulation outcomes (see Table 2c).

Table 2c: Bivariate Relationships Between Variables of Interest and Emotional Behavioral Development in Children in MSFW Families (N=303)

Variable	No clinical concerns		Concerns or clinical concerns		F
	Weighted %	M(SD)	Weighted %	M(SD)	
Gender of child					
Boy	74.25		25.75		3.17
Girl	86.30		19.37		
Marital status					
Married/cohabitating	78.11		21.89		0.27
Separated/divorced	72.11		27.88		
Single	78.86		21.14		
Difficulty paying bills each month					
Yes	75.00		25.00		0.19
No	78.66		21.34		
Acculturation (English proficiency)					
Speaks not at all/not very well	81.56		18.44		7.03*
Speaks well/very well	71.35		28.65		
Exhaustion					
Not at all/Very mild	74.09		25.91		0.89
Moderate/Very severe	81.21		18.79		
Experience discrimination					
No	78.47		21.53		0.33
Yes	75.05		24.95		
MSFW Stress		7.85(4.88)		6.93(4.91)	1.73
Importance of belief in God for family					
Not at all/moderately helpful	68.88		31.12		3.82
Extremely helpful	80.63		19.37		
CES-D					
Lower depressive symptomology	78.05		21.95		0.30
Higher depressive symptomology	73.75		26.25		
Years in MSHS (child)		1.48(1.25)		1.45(1.27)	0.04

* $p < .05$, ** $p < .01$, *** $p < .00$

MSFW=Migrant and Seasonal Farmworker, MSHS=Migrant and Seasonal Head Start

Multivariate Analyses

Multivariate analyses are presented below and organized by the study research questions. First, multivariate results for RQ1, related to caregiver depressive symptomology, are presented. Next, multivariate results for RQ2, related to child

development outcomes (cognitive social and emotional behavioral regulation outcomes), are presented.

RQ1: *What are the associations between gender, acculturation, discrimination, work exhaustion, MSFW stress, and religion with depressive symptomology among caregivers in MSFW families, controlling for family characteristics (financial security, marital status)?*

Hypothesis: It was hypothesized that discrimination, work exhaustion, MSFW stress, and religion would be significantly associated with depressive symptomatology among MSFW caregivers, when controlling for family characteristics. Further, experiences of discrimination would be a significant predictor variable with the greatest effect on depressive outcomes. Finally, this study predicted that importance of religion would have a negative relationship with depressive symptomology and thus be a protective factor.

RQ1 Logistic Regression Results

Caregiver Depression. The binary logistic regression model examining caregiver depressive symptomology was run using survey weights (see Table 3a). The model was significant ($F_{(9,17)}=7.28, p=.00$). English proficiency and MFWSI scores were significantly associated with higher levels of depressive symptomology in MSFW caregivers. Specifically, caregivers who had higher levels of English proficiency (spoke English “well” or “very well”) had twice the odds of having higher levels of depressive symptomology compared to those who had lower levels of English proficiency (spoke English not at all or not very well) (aOR=2.10, SE=.71, 95%CI=1.05-4.19). Similarly, and as hypothesized, caregivers who experienced higher MSFW stress had 1.2 times greater odds of having higher levels of depressive symptomology (aOR=1.20, SE=.06,

95%CI=1.09-1.33). Among control variables, being separated or divorced and having difficulty paying bills were significantly associated with depressive symptomology. Specifically, caregivers who were separated or divorced had more than six times the odds of having higher levels of depressive symptomology compared to caregivers who were married or living with a partner (aOR=6.45, SE=2.70, 95%CI=2.72-15.27). Caregivers who expressed no difficulty paying their bills had fewer odds of having higher levels of depressive symptomology (aOR=.36, SE=.13, 95%CI=.17-.76). Contrary to what was hypothesized, caregiver gender, exhaustion, experiences of discrimination, and religion were not significantly associated with depressive symptomology, controlling for other variables.

Table 3a: Logistic Regression Examining Factors Associated with Caregiver Depressive Symptomology (N=303)

	aOR	SE	95% CI
Women	2.21	1.84	0.40 – 12.26
Acculturation (English proficiency)	2.10	0.71	1.05 – 4.19*
Discrimination	1.01	0.48	0.38 – 2.69
Exhaustion	2.04	0.93	0.80 – 5.19
MSFW Stress	1.20	0.06	1.09 – 1.33**
Religion	0.93	0.37	0.42 – 2.09
Marital status			
Married/living with partner	1.00	<i>referent</i>	<i>referent</i>
Separated/divorced/other	6.45	2.70	2.72 – 15.27***
Single	2.70	1.47	0.88 – 8.28
Financial security	0.36	0.13	0.17 – 0.76**

$F_{(9,17)}=7.28, p=.00$

aOR = adjusted odds ratio, CI = confidence interval, MSFWSI=Migrant Farmworker Stress Inventory

* $p<.05$, ** $p<.01$, *** $p<.00$

RQ2: *What are the associations between caregiver acculturation, discrimination, exhaustion, MSFW stress, and religion on the social emotional development outcomes of preschool age children in MSFW families, as mediated by caregiver depression and*

controlling for family and child characteristics (caregiver marital status, financial security, child gender, years in MSHS)?

Hypothesis: This dissertation study hypothesized that caregiver acculturation, discrimination, MSFW stress, and religion would have direct and indirect associations with child cognitive social and emotional behavioral regulation outcomes, when controlling for family and child characteristics (caregiver marital status, financial security, child gender). Indirect effects would be mediated through caregiver depression.

RQ2 Logistic Regression Results

Child Cognitive Social Development Outcomes. A binary logistic regression model predicting concerns/clinical concerns for cognitive social development outcomes in MSFW children was run prior to the mediation analysis using survey weights (See Table 3b). The model was significant ($F_{(11,15)}=7.27, p=.00$). Specifically, MSFW children with caregivers who had higher levels of depressive symptomology had three times the odds of having cognitive social development scores in the range of concern/clinical concern, compared to those with caregivers with lower levels of depressive symptomology (aOR=3.33, SE=1.89, 95%CI=1.04-10.73). Among the control variables, MSFW children with caregivers who were single had twice the odds scoring in the range of concern or clinical concern for cognitive social development problems (aOR=2.17, SE=.70, 95%CI=1.12-4.22). Further, girls were approximately half as likely to score in the range of concern or clinical concern for cognitive social development scores compared to boys (aOR=.44, SE=.16, 95%CI=.22-.93).

Table 3b: Logistic Regression Examining Factors Associated with Child Cognitive Social Development Outcomes ($n=303$)

	aOR	SE	95% CI
Caregiver Acculturation (English proficiency)	1.34	0.48	0.64 – 2.80
Caregiver discrimination	1.58	0.51	0.82 – 3.05
Caregiver exhaustion	0.59	0.22	0.27 – 1.27
Caregiver MSFW Stress	0.93	0.04	0.84 – 1.03
Religion	0.69	0.17	0.41 – 1.15
Caregiver depression	3.33	1.89	1.04 – 10.73*
Marital status of caregiver			
Married/living with partner	1.00	<i>referent</i>	<i>referent</i>
Separated/other	1.06	0.58	0.34 – 3.30
Single	2.17	0.70	1.12 – 4.22*
Financial security	0.74	0.34	0.29 – 1.90
Girl child	0.44	0.16	0.22 – .93*
Years in MSHS	0.90	0.13	0.67 – 1.22

$F_{(11,15)}=7.27, p=.00$

aOR = Adjusted Odds Ratio, *CI* = confidence interval, *MSFW*=Migrant and Seasonal Farmworker, *MSHS*=Migrant and Seasonal Head Start

* $p<.05$, ** $p<.01$, *** $p<.00$

Child Emotional Behavioral Regulation. A binary logistic regression model predicting emotional behavioral regulation outcomes in MSFW children was run prior to the mediation analyses using survey weights (see Table 3c). The model was not significant ($F_{(11,15)}=1.85, p=.13$) and there were no significant associations found between variables of interest or the control variables and emotional behavioral regulation outcomes in MSFW children.

Table 3c: Logistic Regression Examining Factors Associated with Child Emotional Behavioral Regulation Outcomes ($N=303$)

	aOR	SE	95% CI
Caregiver English proficiency	1.47	0.45	0.81 – 2.68
Caregiver discrimination	1.32	0.41	0.74 – 2.35
Caregiver exhaustion	0.63	0.23	0.33 – 1.22
Caregiver MSFW stress	0.97	0.04	0.90 – 1.05
Religion	0.56	0.20	0.28 – 1.11
Caregiver depression	1.47	0.85	0.53 – 4.09
Marital status of caregiver			
Married/living with partner	1.00	<i>referent</i>	<i>referent</i>
Separated/other	1.38	0.46	0.52 – 3.69
Single	0.68	0.43	0.17 – 2.79
Financial security	0.77	0.43	0.29 – 2.08
Girl child	0.70	0.14	0.46 – 1.07
Years in MSHS	1.33	1.41	0.15-11.95

$F_{(11,15)}=1.85, p=.13$

aOR = Adjusted Odds Ratio, *CI* = confidence interval, *MSFW*=Migrant and Seasonal Farmworker, *MSHS*=Migrant and Seasonal Head Start

* $p<.05$, ** $p<.01$, *** $p<.00$

RQ2 Mediation Analyses

Mediation analyses examining the relationship of the variables of interest and the child development outcomes are presented below. Variables of interest were not entered simultaneously in the model because there was not enough power. Each variable of interest (English proficiency, discrimination, MSFW stress, caregiver exhaustion, and religion) was run in their own independent analysis and not simultaneously in the model because there was not enough power. Each table presents two mediation models to test the effect of caregiver depression as a mediator (Model 1 without covariates, Model 2 with covariates). Logistic regression models for each variable of interest and caregiver depression were first run to observe their independent relationship with the child development outcome variable without mediation (see Appendix A).

Child Cognitive Social Development Outcomes

Caregiver Acculturation. In the model without the covariates, the total effects (OR=1.91, 95% CI=1.04 – 3.51) and direct effects (OR=1.83, 95% CI=1.00 – 3.35)

indicate that children with caregivers with higher acculturation had significantly greater odds of having cognitive social problems. The indirect effects (OR=1.05, 95% CI=.97-1.13) of caregiver acculturation on cognitive social problems through caregiver depression were not significant. The total effect is 1.08 times larger than the direct effect and 7.17% of the total effect in the model is due to caregiver depression. However, when the covariates are added to the model, the total, direct, and indirect effects were no longer significant and caregiver depression still only accounted for a very small percent of the total effect in the model, 7.14% (Table 4a).

Table 4a: KHB Logistic Regression Analysis of Relationship of Acculturation with Cognitive Social Outcomes Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Acculturation						
Total effect	1.91	0.59	1.04 – 3.51*	1.83	0.58	0.99 – 3.41
Direct effect	1.83	0.57	1.00 – 3.35*	1.76	0.56	0.94 – 3.27
Indirect effect	1.05	0.04	0.97 – 1.13	1.04	0.04	0.96 – 1.34
Ratio of total effect to direct effect	1.08			1.07		
Proportion of total effect due to Z variable	7.17%			7.14%		
<i>Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Caregiver Discrimination. Mediation analysis analyzing the relationship of caregiver discrimination and child cognitive social development outcomes (Model 2) indicates the total effect (aOR=1.53, 95% CI=.77 – 3.03), direct effect (aOR=1.40, 95% CI=.71 – 2.80), and indirect effects (aOR=1.09, 95% CI=.97 – 1.22) of caregiver discrimination on child cognitive social development outcomes, as mediated by caregiver

depressive symptomology, were not significant. Interestingly, the total effect is 1.24 times larger than the direct effect and 19.60% of the total effect in the model is due to caregiver depressive symptomology; however, the effects in the model were not significant (see Table 4b).

Table 4b: KHB Logistic Regression Analysis of Relationship of Caregiver Discrimination with Cognitive Social Outcomes Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Caregiver discrimination						
Total effect	1.31	0.44	0.68 – 2.54	1.53	0.54	0.77 – 3.03
Direct effect	1.22	0.41	0.63 – 2.37	1.40	0.49	0.71 – 2.80
Indirect effect	1.07	0.06	0.97 – 1.19	1.09	0.06	0.97 – 1.22
Ratio of total effect to direct effect	1.36			1.24		
Proportion of total effect due to Z variable	26.44%			19.60%		

Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS
Z variable = mediation variable
OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

Caregiver Exhaustion. Contrary to what was hypothesized, the effects of caregiver exhaustion on child cognitive social development as mediated by caregiver depressive symptomology was not significant. The total effect (aOR=.88, 95%CI=.47-1.64), direct effect (aOR=.80, 95%CI=.43-1.49), and indirect effects (aOR=1.10, 95%CI=.99-1.23) were not significant. The total effect was half (.56) that of the direct effect. A negative proportion of the total effect in the model was due to caregiver depression, indicating possible suppression effects. There were no direct or mediation effects in the model (see Table 4c).

Table 4c: KHB Logistic Regression Analysis of Relationship of Caregiver Exhaustion with Cognitive Social Outcomes Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Caregiver exhaustion						
Total effect	0.89	0.27	0.49 – 1.60	0.88	0.27	0.47 – 1.64
Direct effect	0.79	0.24	0.43 – 1.45	0.80	0.26	0.43 – 1.49
Indirect effect	1.12	0.07	0.99 – 1.27	1.10	0.06	0.99 – 1.23
Ratio of total effect to direct effect	.51			.56		
Proportion of total effect due to Z variable	-95.59%			-77.79%		
<i>Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

MSFW Stress. The total effect (aOR=0.59, 95%CI=0.31 – 1.11), the direct effect (aOR=0.59, 95%CI=0.31 – 1.11), and the indirect effects (aOR=1.00, 95%CI=.93 – 1.09) of caregiver MSFW stress on child cognitive social development as mediated by caregiver depression were not significant. The total effect was .28 less than the direct effect. There were not direct or mediation effects in the model. A negative proportion of the total effect in the model was due to caregiver depression, indicating possible suppression effects (see Table 4d).

Table 4d: KHB Logistic Regression Analysis of Relationship of MSFW Stress with Cognitive Social Outcomes Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
MSFW Stress						
Total effect	0.96	0.10	0.78 – 1.17	0.98	0.11	0.79 – 1.22
Direct effect	0.92	0.10	0.75 – 1.14	0.95	0.11	0.76 – 1.18
Indirect effect	1.04	0.02	0.99 – 1.08	1.04	0.02	0.99 – 1.08
Ratio of total effect to direct effect	.54			.28		
Proportion of total effect due to Z variable	-83.77%			-253.13%		
<i>Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Importance of Religion. The total effect (aOR=.61, 95%CI=.32-1.15), direct effect (aOR=.61, 95%CI=.29-.90), and indirect effects (aOR=1.00, 95%CI=.99-1.01) of religion on child emotional behavioral regulation as mediated by caregiver depressive symptomology were not significant. There was basically no difference between the total effect and the direct effect and no proportion of the total effect in the model was due to caregiver depression. There were no direct or mediation effects in the model (Table 4e).

Table 4e: KHB Logistic Regression Analysis of Relationship of Religion with Cognitive Social Outcomes Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Religion						
Total effect	0.56	0.18	0.30 – 1.04	0.59	0.19	0.31 – 1.11
Direct effect	0.57	0.19	0.31 – 1.05	0.59	0.19	0.31 – 1.11
Indirect effect	0.99	0.04	0.92 – 1.06	1.00	0.04	0.93 – 1.09
Ratio of total effect to direct effect	1.02			0.99		
Proportion of total effect due to Z variable	1.70%			-0.86%		
<i>Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Child Emotional Behavioral Regulation

Caregiver Acculturation. The total effect (aOR=1.49, 95%CI=.86-2.60), the direct effect (aOR=1.49, 95%CI=.85-1.60), and the indirect effects (aOR=1.00, 95%CI=.96-1.04) of acculturation on child emotional behavioral regulation as mediated by caregiver depression were not significant. The total effect was the same as the direct effect and just 0.31% of the total effect in the model was due to caregiver depression (see Table 5a).

Table 5a: KHB Logistic Regression Analysis of Relationship of Acculturation with Emotional Behavioral Regulation, Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Acculturation						
Total effect	1.54	0.43	0.89 – 2.67	1.49	0.42	0.86 – 2.60
Direct effect	1.54	0.43	0.89 – 2.68	1.49	0.42	0.85 – 2.60
Indirect effect	1.00	0.03	0.95 – 1.05	1.00	0.02	0.96 – 1.04
Ratio of total effect to direct effect	0.99			1.00		
Proportion of total effect due to Z variable	-0.92%			0.31%		
<i>Covariates = difficulty paying bills, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Caregiver Discrimination. The effects of caregiver depression on child emotional behavioral regulation as mediated by caregiver depressive symptomology were not significant. The total effect (aOR=1.17, 95%CI=.63 – 2.18), direct effect (aOR=1.17, 95% CI=.62 – 2.18), and indirect effects (aOR=1.00, 95%CI=.93-1.08) were not significant. The total effect was just 1.03 times larger than the direct effect and 2.24% of the total effect in the model was due to caregiver depression. There were not significant direct or mediation effects (see Table 5b).

Table 5b: KHB Logistic Regression Analysis of Relationship of Caregiver Discrimination with Emotional Behavioral Regulation, Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Caregiver discrimination						
Total effect	1.10	0.34	0.60 – 2.02	1.17	0.37	0.63 – 2.18
Direct effect	1.10	0.34	0.60 – 2.03	1.17	0.37	0.62 – 2.18
Indirect effect	1.00	0.04	0.93 – 1.07	1.00	0.04	0.93 – 1.08
Ratio of total effect to direct effect	0.98			1.03		
Proportion of total effect due to Z variable	-1.97%			2.24%		
<i>Covariates = Financial security, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Caregiver Exhaustion. Contrary to what was hypothesized, the effects of caregiver exhaustion on child emotional behavioral regulation as mediated by caregiver depressive symptomology were not significant. The total effect (aOR=.76, 95%CI=.44-1.31), direct effect (aOR=.75, 95%CI=.43-1.30), and indirect effects (aOR=1.01, 95%CI=.93-1.10) were not significant. Furthermore, the directionality of the relationship between caregiver exhaustion and emotional behavioral problems was opposite that what was hypothesized. Namely, higher levels of caregiver exhaustion were associated with decreased odds of having emotional behavioral regulation problems, though this was not significant. No proportion of the total effect in the model was due to caregiver depression, and there is no significant mediation effect in the model. A negative proportion of the total effect in the model was due to caregiver depression, indicating possible suppression effects (see Table 5c).

Table 5c: KHB Logistic Regression Analysis of Relationship of Caregiver Exhaustion with Emotional Behavioral Regulation, Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Caregiver exhaustion						
Total effect	0.77	0.21	0.46 – 1.31	0.76	0.21	0.44 – 1.31
Direct effect	0.77	0.21	0.45 – 1.32	0.75	0.21	0.43 – 1.30
Indirect effect	1.01	0.05	0.91 – 1.12	1.01	0.04	0.93 – 1.10
Ratio of total effect to direct effect	.97			.96		
Proportion of total effect due to Z variable	-3.54%			-4.59%		
<i>Covariates = Financial security, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

MSFW Stress. The total effect (aOR=0.96, 95%CI=.79 – 1.16), the direct effect (aOR=0.96, 95%CI=.79 – 1.16), and the indirect effects (aOR=1.00, 95%CI=.96-1.04) of MSFW stress on child emotional behavioral regulation as mediated by caregiver depression were not significant. The total effect was .91 less than the direct effect. There are no significant direct or mediation effects in the model. A negative proportion of the total effect in the model was due to caregiver depression, indicating possible suppression effects (Table 5d).

Table 5d: KHB Logistic Regression Analysis of Relationship of MSFW Stress with Emotional Behavioral Regulation, Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
MSFW Stress						
Total effect	0.95	0.09	0.78 – 1.14	0.96	0.09	0.79 – 1.16
Direct effect	0.94	0.09	0.78 – 1.14	0.96	0.10	0.79 – 1.16
Indirect effect	1.00	0.02	0.97 – 1.04	1.00	0.02	0.97 – 1.04
Ratio of total effect to direct effect	.98			.91		
Proportion of total effect due to Z variable	-2.53%			-9.68%		
<i>Covariates = Financial security, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Importance of Religion. The total effect (aOR=0.49, 95%CI=0.28-0.88) and direct effect (aOR=0.49, 95%CI=0.28-0.88) of religion significantly decreased the odds of children having emotional behavioral regulation problems. The indirect effect of religion on child emotional behavioral regulation through caregiver depression was not significant (aOR=1.00, 95%CI=0.99-1.01). There was no difference between the total effect and the direct effect and a small, negative proportion of the total effect in the model was due to caregiver depression, indicating there was no significant mediation effect of caregiver depression in the model (see Table 5e).

Table 5e: KHB Logistic Regression Analysis of Relationship of Religion with Emotional Behavioral Regulation, Mediated by Caregiver Depression

Z variable = caregiver depression	Model 1 (without covariates) (N=303)			Model 2 (with covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Religion						
Total effect	0.48	0.14	0.28 – 0.84*	0.49	0.14	0.28 – 0.88*
Direct effect	0.48	0.14	0.28 – 0.84*	0.49	0.14	0.28 – 0.88*
Indirect effect	1.00	0.00	0.99 – 1.01	1.00	0.00	0.99 – 1.01
Ratio of total effect to direct effect	1.00			1.00		
Proportion of total effect due to Z variable	-.03%			-.05%		
<i>Covariates = Financial security, marital status, girl vs. boy child, years in MSHS</i>						
<i>Z variable = mediation variable</i>						
<i>OR = Odds Ratio, aOR = adjusted Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start</i>						
<i>* p<.05, **p<.01, ***p<.00</i>						

Chapter 5: Discussion

This study is one of the first to examine depression among MSFW caregivers and child outcomes of preschool age children in MSFW families. Findings are highly significant as they advance understanding regarding a critically under-studied population, MSFW families. The bulk of the research has focused on samples of MSFWs who are single, who live unaccompanied by their families, or do not specify whether or not those in the sample have children (Grzywacz et al., 2010; Hiott et al., 2008; Hovey & Magaña, 2003; Sandberg et al., 2012), portraying an incomplete profile of MSFWs in the U.S. Furthermore, scant literature examines child development outcomes in Latinx immigrant families, especially in MSFW families whose child developmental outcomes may be indirectly impacted by their caregiving adult's experience of farm work related stressors and ecological conditions associated with farm work life such as discrimination, caregiver exhaustion, and financial insecurity (de Leon Siantz et al., 2010; de Leon Siantz & Smith, 1994).

Guided by the Modified Integrative Model for Ethnic Minority Child Development in Rural Contexts (Stein et al., 2016), findings improve our understanding of MSFW families by elucidating unique factors associated with depressive symptomology in this population. Specifically, MSFW caregivers who reported higher levels of MSFW stress, had higher levels of acculturation, and were separated/divorced had higher levels of depressive symptomology. Caregivers who did not experience difficulties paying their bills had significantly lower levels of depressive symptomology. Findings further indicated that children with parents with higher levels of depressive

symptomology had greater odds of scoring in the range of concern or clinical concern for cognitive social problems. Study findings also indicated that children whose parents reported greater importance of religion were half as likely to score in the range of concern or clinical concern for emotional behavioral regulation problems. Unlike what is commonly found in the child development literature with other population groups, parent depression did not mediate the relationship between contextual factors and child social and emotional development outcomes in this current study.

The use of the Integrated Model for Ethnic Minority Child Development in Rural Contexts (Stein et al., 2016) presents a critical lens from which to view normative development processes of minority children (Cardoso et al., 2021; Pachter et al., 2010; Perez-Brena et al., 2018). While this theoretical model has been used widely, to my knowledge, it has not been tested with a vulnerable immigrant population such as MSFW families. Our study advances this theoretical model by adding the domain of a parent functioning (depression) when examining child wellbeing. Parent depression has been found to be an important factor in child development outcomes in previous studies; however, our study is one of few to examine its impact on MSFW child development outcomes (de Leon Sianz et al., 2010; Martí et al., 2016). It is important to explore the relationship between parent depression and child development outcomes because this study's results found that parent depression did not mediate the relationship between contextual factors and child development outcome as has been found in other studies in the general population. This could indicate that parent depression operates differently among this population of children in MSFW families. Alternatively, this could also indicate that there are other variables not included in this study that explain this

relationship, including parenting behaviors or cultural values such as *familismo* that may mediate the impact of parent depression on child development outcomes. Future studies should continue this exploration and should also include a parenting domain, which taps into aspects parenting behaviors including engagement with children and sensitivity, as well as culturally relevant protective factors.

Depressive Symptomology Among MSFW Parents

Overall, 11.3% of MSFW parents in the sample had higher levels of depressive symptomology, slightly higher than the general population (rates close to 10%) (Brody et al., 2018). However, depressive symptomatology rates in the current study, are lower than those found in other studies with MSFW mothers of children enrolled in Head Start programs; whereby, rates have ranged from 12.3% to 31% scoring at the clinical cutoff for depression (Martí et al., 2016; Pulgar et al., 2016). Findings from the current study regarding depressive symptomatology rates are also lower than results from the most recent Head Start Family and Child Experiences Survey (FACES) (a nationally representative survey of children and families enrolled in Head Start across the U.S.), which found that nearly a quarter of all parents of preschool aged children in the study and 18.2% of parents with preschool aged children who identified as Hispanic/Latino had moderate to severe levels of depressive symptomology (Aikens et al., 2017).

Rates of caregiver depression in this current study were also lower than other studies with MSFWs (20.4% - 45.8%) (Alderete et al., 1999; Arcury et al., 2018; Hovey & Magaña, 2003; Ramos et al., 2015; Sandberg et al., 2012). Some of this inconsistency could be due to the fact that the sample for this current study included men and women, relative caregivers and parents. Previous studies on MSFW families and depression have

been with only mothers (de Leon Siantz et al., 2010; Martí et al., 2016; Pulgar et al., 2016). Research in the general population has often shown women and mothers tend to have higher rates of depression (Brody et al., 2018); however, this may become obscured when the sample includes men. Similarly in this study, further analyses indicated that a greater proportion of women had higher depressive symptomology compared to men, though the difference was not significant.

MSFW Stress

As hypothesized, MSFW stress was significantly associated with depressive symptomology in MSFW parents, such that those with higher levels of stress related to migrant and seasonal farm work had 1.2 times greater odds of having higher levels of depressive symptomology. This finding, albeit with a small effect, is aligned with the literature which has found stress unique to migrant and seasonal farm work life (i.e., difficulty migrating, difficulty finding sustainable work or housing, difficulty being away from friends and family, worry about their children's education, etc.) to be significantly related to poorer mental health among MSFWs (Hiott et al., 2008; Kim-Godwin & Bechtel, 2004; Ramos et al., 2015). It is possible the items from the MFWSI employed in this study may have tapped into stressors uniquely salient to MSFW parents. For example, nearly two thirds of the sample indicated they worried about their child's education, just over half indicated migrating to this country was difficult, and over three quarters of the sample indicated it was difficult to be away from friends and family. In a study examining different types of stressors among Latina MSFW mothers, the sample identified similar stressors including difficulty being away from family, stressful migration experience, and worry about the education or limited childcare of their children

(Hovey & Manaña, 2003). Whereas, in a different study of MSFWs, including men and women both with and without children, findings revealed different stressors related to a mobile lifestyle, language barriers, insufficient financial resources, legal and job insecurity, and occupational issues were significant (Kim Godwin & Bechtel, 2004). This current study's results, enhance our understanding of stressors that may be unique to MSFW parents with implications for mental health interventions specifically tailored for this parent population.

Acculturation

Parents with higher levels of acculturation, as measured by English proficiency levels, had just over twice the odds of having higher levels of depressive symptomology compared to parents who had lower levels of acculturation. This finding is aligned with the “immigrant health paradox” which indicates that more acculturated immigrants in the U.S. are more likely to have poorer health and mental health outcomes, which has been reliably observed for immigrants from Mexico (the majority of caregivers in the study were from Mexico) and particularly in regard to depression (Alegría et al., 2008). There could be several explanations for this finding. It has been hypothesized that healthier immigrants are more likely to take on the migration journey, and this health pattern may change over time with exposure to various economic and social stressors in the U.S. (Acevedo-Garcia & Bates, 2008; Kennedy et al., 2015). Further, first-generation immigrants may have cultural resources or other types of resiliency factors that may buffer against deleterious mental health outcomes and strengthen adaptive family processes; however, these sources of resiliency may degrade overtime if not maintained (Acevedo-Garcia & Bates, 2008). Studies of Latinx families have found that strong ethnic

identity and culture-of-origin involvement seen in newer immigrants are not only protective for mental health, but also promote more positive family dynamics including *familismo* and family cohesion (Calzada & Sales, 2019; Smokowski et al., 2008). Emergent literature on Latinx immigrant families has shown that biculturalism, the simultaneous connection with one's culture of origin and the dominant culture (Berry, 2007), may be an ideal acculturation strategy including for parents raising young children. Biculturalism involves engaging one's family in select U.S. cultural norms (i.e., English language acquisition, celebration of holidays, etc.) (Smokowski et al., 2008), while also maintaining important Latino cultural values that facilitate positive mental health outcomes and family processes (familism, ethnic identity, Spanish language maintenance, etc.) (Ayón et al., 2010; Calzada et al., 2013; Finch, 2019). Biculturalism must of course be viewed through a multidimensional lens to more comprehensively understand how contextual factors (migration factors, socioeconomic factors, discrimination etc.) and individual characteristics impact family dynamics and acculturation processes (Espeleta et al., 2019; Lopez-Class et al., 2011; Schwartz et al., 2010).

Marital Status and Economic Sufficiency

Understanding family characteristics that may impact the mental health of MSFW parents remains underexplored, but critical for addressing health disparities in MSFW families. This study revealed that being separated or divorced and experiencing economic hardship were significant predictors of parent depressive symptomology. In fact, parents who were separated or divorced had over six times the odds of having depressive symptomology. This is a significant finding aligned with prior literature on Latinx

populations, including MSFWs, indicating that single, divorced, or married immigrants separated from their spouse or family are vulnerable to mental health problems (Darghouth et al., 2015; Grzywacz et al., 2010; Letiecq et al., 2014; Palermo et al., 2018). Those who are divorced or separated may experience more caregiver burden without the assistance of a spouse or a partner who could otherwise take on different work and family tasks. In Latinx families, extended family members may be an important source of childcare support; yet being away from family supports in country of origin, separated or divorced MSFW may have to navigate childcare alone.

Separated or divorced MSFW parents navigating life in the U.S., working a labor-intensive job, and caring for children and family are under a lot of pressure which may lead to feelings of depression. Further, various cultural and family complications may occur in the result of a separation or divorce including a weakening of social support structures or feelings of shame associated with divorce related to cultural or religious values (Afifi et al., 2013). Interestingly, research by Darghouth et al. (2015) using the National Latino and Asian American Study (NLAAS) found that marriage was protective for women against depression, but not for men. This current study did not bifurcate results for men and women, however, understanding the gender nuances related to divorce and separation and its effects on mental health are important. Moreover, divorced or separated parents often undergo financial hardship in the aftermath of divorce, at least initially, which has especially been found to be the true for Latina mothers (Padilla & Borrero, 2006). In low-income Latinx families, women often take on the caregiving role with their child/ren, absent child support payments from their former partners, causing additional strain (Kołodziej-Zaleska & Przybyła-Basista, 2016). For Latina mothers

caring for young children during a stage of development that is physically and emotionally demanding of a parent, the loss of a spouse and/or an associated social and financial support system could have substantial implications for mental health (Kołodziej-Zaleska & Przybyła-Basista, 2016), which may undermine parenting behaviors and, in turn, affect child development.

Parents who reported no difficulty paying their bills each month had lower odds of reporting higher levels of depressive symptomology, adding to the literature indicating the protective effects of economic security and the various findings that economic hardship is significantly associated with depressive symptomology among MSFWs (Haws et al., 2022; Pulgar et al., 2016; Ramos et al., 2015). This finding underscores the downstream effects of economic hardship on MSFW parent mental health. For MSFW families, financial hardship may be the result of low wages paid in the agricultural industry as average wages of farmworker *families* falls between \$25,000 - \$30,000, with nearly one-third earning below the poverty line according to the National Agricultural Workers Survey (2021). Further, even though various U.S. states are working to improve farmworker economic rights, still, few MSFWs are guaranteed minimum wage or overtime, some do not have year-round employment, and many lack fringe benefits including paid time off and health insurance that could alleviate financial strain (Brown, 2021). The financial demands may be particularly salient in the mental health of parents as they navigate the financial responsibilities related to caring for a child.

Discrimination

In this study, experiences of racial discrimination were not found to be significantly related to depressive symptomology in MSFW parents. This finding was

surprising given previous literature on MSFWs which has found racial discrimination as significantly associated with depressive symptomology (in some cases above and beyond other variables in the study) negatively impacting family processes (Grzywacz et al., 2010; Negi et al., 2020; Parra-Cardona et al., 2006; Zapata Roblyer et al., 2016).

However, not all studies on Latinx immigrant parents have found associations between discrimination and parent mental health. A study by Ayón et al. (2010) on Latinx (mostly immigrant) parents and their adolescent children, found that, while racial discrimination was significantly associated with youth mental health, it was not associated with parent mental health. One possibility for the lack of association between discrimination and depression in this study, is that the sample of MSFW parents were accompanied in the U.S. by their families. Other literature on MSFWs and discrimination have been on single men, with a combination of MSFWs who are unaccompanied and accompanied by families, or with samples in which marital or parenting status is not specified (Snipes et al., 2017) (Grzywacz et al., 2010; Hovey & Magaña, 2002; Negi et al., 2020). It is possible the presence of family and family support is protective against the effects of discrimination on mental health. Cultural values, such as, *familismo* and family communal connections, may also help protect against the negative effects of discrimination (Ayón et al., 2010). There may also be other protective factors that moderate the effects of discrimination on parent depression that were not captured in this study.

Other research suggests that racial discrimination may be an expected and accepted part of living in the U.S. for immigrant populations, such that the benefits of migration for some may outweigh the effects of discrimination (Flippen & Parrado,

2015). Alternatively, sociological research contends that awareness of discrimination and the psychological distress it causes increases for immigrant populations as they become more incorporated into U.S. society through English language acquisition and economic advancement (Flippen & Parrado, 2015; Portes & Bach, 1985). MSFWs may experience low levels of language and economic incorporation in U.S. society, especially as agricultural workers earning low wages. Further, MSFWs may live in “ethnic enclaves” where they are surrounded by people of similar ethnic origin in farm-provided housing or in small, rural communities off the farm. Ethnic enclaves are defined as geographic locations in which a high proportion of the resident population has similar ethnic and linguistic backgrounds; ethnic enclaves may also include places of employment (Portes & Jensen, 1992). Ethnic enclaves may be isolating and prevent healthy levels of acculturation; however, in other ways, these communities may be protective against experiences of discrimination and/or may buffer against the psychological toll associated with discrimination as has been shown in previous studies with immigrants in the U.S. (Morey et al., 2020; Vega et al., 2011).

Religion

In this study religion, measured as a parent’s assessment of the importance of religion to their family, was not significantly associated with MSFW parent depression. A majority of the sample, nearly three-quarters, indicated that they found religion to be “extremely important” to their family. Studies have found religion (self-perception of importance of religion, religiosity, and prayer) as a source of resilience among Latinx immigrants in the U.S. such that greater endorsements of religiosity are significantly associated with lower levels of depression (Moreno & Cardemil, 2018; Terrazas &

McCormick, 2018). Other studies among MSFWs have found that religion may be protective against stress and symptoms of anxiety, but not for depression (Hovey & Magaña, 2000; Hovey & Magaña, 2002; Sanchez et al., 2019). It is possible that religion has a unique effect on MSFW parents and families, such that, while it may be an important factor in their lives, it may not affect depressive symptoms, especially when analyzed with other contextual factors. Some literature suggests that association with religious institutions increases when people have children (Stolzenberg et al., 1995). In the current study, it is possible that MSFW families may have had limited access to religious institutions, particularly those that are culturally and linguistically accessible. Even though study participants endorsed religion as being an important factor in their lives, disconnected from attendance of religious services that may offer social and spiritual support, the protective effects against depressive symptoms may be diminished (Sanchez et al., 2019). Alternatively, it is possible that religion has a moderating effect on caregiver depression but that was unexplored through the analysis in this study.

Social and Emotional Development Outcomes

Parent Depression and Child Development Outcomes

One of the primary hypotheses analyzed in this research was that contextual factors (caregiver acculturation, experiences of discrimination, caregiver stress, parent exhaustion, and religion) would be significantly associated with child development outcomes (cognitive social development and emotional behavioral regulation outcomes), as mediated through caregiver depression. Contrary to the hypothesis, no significant mediation effects of parent depression with any of the variables of interest on either of the child development composite measures were found. This hypothesis was based the

study's application of the Modified Integrative Model and on substantial child development research indicating parent depression often mediates the relationship between socioeconomic or contextual variables and child development outcomes (Alto et al., 2021; Bouvette-Turcot et al., 2020; Mistry et al., 2004). While this finding was surprising, there is literature on Latinx families with similar demographic characteristics to MSFW families that show inconsistency in the relationship between parent depression and child development. Martí et al. (2016), examining Latinx children enrolled in Head Start, found no mediation or direct effects of parent depression on child development outcomes. However, these findings were only true when child social and behavioral outcomes were based on teacher report, as opposed to parent report which showed significant indirect associations of parent depression indicating potential for significant differences between observer report compared to parent report on child outcomes.

Simultaneously, although the mediation analyses showed no direct or indirect effects of depression on child outcomes, simple logistic regression models showed that children with parents with higher levels of depressive symptomology had over three times the odds of scoring in the range of concern or clinical concern for cognitive social development problems. This finding is consistent with the research in the general population which has found parental depression to be linked to poorer developmental outcomes in children (Bernard et al., 2018; Petterson & Albers, 2001) as well as the literature on low-income Latinx families (de Leon Siantz et al., 2010; Martí et al., 2016; Martínez, 2014).

One potential reason for the inconsistency in our findings could be the lack of a *parenting* variable (i.e., parental sensitivity, parent engagement, cognitive stimulation

during parent-child interactions, parental warmth, etc.) in our study. Various studies have found that the effects of parent mental health on social and emotional child development are often mediated through parenting behaviors. For example, one study of Latinx parents and their first-grade children, found no direct effects of parent depression on child social competence among Spanish language dominant families (Valdez et al., 2013). The effects were instead fully mediated through parent emotional involvement, such that parent depression was negatively associated with parent emotional involvement which in turn was negatively associated with child social competence difficulties (Valdez et al., 2013). Specifically, parent depression negatively affected the ability for parents in the study to be emotionally involved with their young children and the lack of positive emotional parent involvement negatively impacted child social competence outcomes. Similarly, a study of Latinx mothers and their children enrolled in Early Head Start found no significant direct relationships between maternal mental health and child socio-behavioral health problems. However, this relationship was significantly and fully mediated through maternal positive parenting behaviors (Palermo et al., 2018). It is possible there are similar effects in this current study. For example, caregiver behaviors may be the more appropriate mechanism through which child development outcomes are affected, instead of caregiver depression. That is to say, not all depressed parents will have children with poor developmental outcomes, however, for some parents, depression may impact the way they parent or engage with their children which, in turn, could impact child development. Further research is needed to unpack early childhood outcomes among low income Latinx families as very little exists and the existing research is inconsistent

regarding the relationship between parent depression, parenting behaviors, and child development outcomes (Huang et al., 2012; Hurwich-Reiss & Watamura, 2019).

The Effects of MSHS

It is possible that MSHS programming may have also affected this study's findings. Specifically, MSHS may play a protective role, at least in the near term, in buffering risk factors and facilitating the positive development outcomes of enrolled children. In MSHS programs, children receive attention from teachers, are provided meals, participate in various activities that promote cognitive, social, and language development, as well as activities that focus on their physical and mental wellbeing. This study's sample of children were enrolled in MSHS programming for an average of almost a year and a half, ample time for the program to impact child development outcomes. They were also enrolled in MSHS at a critical developmental period in which they begin to understand emotions and impulse control, develop empathy, and build relationships with others (Denham, 2003; Denham et al., 2012). It is possible that warm, intentional interactions with a caregiver or teacher in a MSHS program, who guides and directs their social and emotional learning, may buffer the risk factors faced by MSFW families (Curby et al., 2009). To this end, MSHS programming may have had an effect in this study that was not sufficiently accounted for by the study design.

Religion

Significant direct effects from religion to emotional behavioral regulation problems were found in one of the mediation models. Specifically, children whose parents indicated a greater importance of religion had half the odds of scoring in the range of concern or clinical concern for emotional behavioral regulation problems. This

finding indicates that family religiosity, while it did not show protective effects for the mental health outcomes of parents in the study, could be a promising protective factor for children in MSFW families. A majority of parents in the study endorsed religion as being extremely important. It is possible that religion may provide parents coping strategies for dealing with depression in such a way that it facilitates their ability to not allow their depression to impact how they parent and/or engage with their children. That is to say, religion may not improve their feelings of depression, but it may give them tools to cope with it (Ceballo et al., 2020). Even though the effect was small, this finding is important as religion remains underexplored in studies examining early childhood outcomes with Latinx families. Therefore, little is known about how religion may impact family processes that affect child development. Future research should continue this exploration to fully understand the potential protective role of religion in Latinx immigrant families as it may have implications for the development of culturally relevant interventions.

Marital status of parents was not analyzed independently in mediation analyses but was controlled for in the models. However, in the logistic regression analysis, children with single parents had over twice the odds of scoring in the range of concern or clinical concern for cognitive social development problems compared to those whose parents were married. Empirical evidence has shown that family structure (i.e., marital status including single parenthood) is significantly related to maternal or parental depression which may impact parenting behaviors and child outcomes, including with Latinx families (Palermo et al., 2018; Westbrook & Harden, 2010). Other literature has shown family structure could mediate the relationship between parent depression and child outcomes (Cicchetti et al., 1998; Dawson et al., 2003). Single parents in this study

may experience less support in child rearing as well as more financial hardship, which could impact parenting behaviors. It is possible the effects of single parenthood not only has direct associations, but are moderated through another factor not tested for in this analysis, such as, financial instability or parenting behaviors.

Logistic regression also showed that girl children had less than half the odds of scoring in the range of concern or clinical concern compared to boys for cognitive social problems. This study used the Leiter 3 ERS to measure cognitive social and emotional behavioral regulation, which for the cognitive social composite, assessed behaviors related to attention, impulse control, activity level, and sociability. Other studies have also found differences among boys and girls in related outcomes, generally showing that boys tend to show more externalizing behaviors (de Leon Siantz et al., 2010; Maguire et al., 2015; Palermo et al., 2018). Among Latinx immigrant children, findings have been mixed with some studies showing girls show more prosocial behaviors and boys show more externalizing, or aggressive behaviors, whereas other studies have found the opposite (de Leon Siantz et al., 2010; Palermo et al., 2018). As such, future studies should continue to control for child gender in analyses and further explore if gender differences exist between boys and girls in regard to social and emotional development outcomes in Latinx families.

Interestingly, a significantly greater proportion of children whose parents had higher levels of acculturation, measured by higher levels of English proficiency, scored in the range of concern or clinical concern for cognitive social and emotional behavioral regulation problems. Other research with Latinx immigrant families that has explored the effects of acculturation (as measured by foreign-born status or English language

proficiency) on parent depression and child development, has also found that lower levels of acculturation appears to have a protective effect on child outcomes in Latinx families (Huang et al., 2012; Hurwich-Reiss & Watamura, 2019). In this current study, this relationship was found in bivariate analyses but was not significant in the multivariate analyses, highlighting the need for further exploration. Future studies with Latinx families should, at a minimum, control for the acculturation levels of parents to minimize its potentially confounding effects and to further advance our limited understanding of how acculturation affects child development.

Policy Implications

Study findings shed light on hardships associated with farm work life impacting MSFW caregiver mental health and early childhood development. For MSFW caregivers in the study, various factors were associated with depression including limited English proficiency, being separated or divorced, stressors associated with farm work life, and financial insecurity. Federal, state, or employer-based policies could contribute to improving the various stressors associated with mental health problems for MSFWs found in this study. President Biden's Build Back Better bill, includes legal protections for undocumented immigrants who have lived in the U.S. for ten years or more ("Build Back Better Act," 2021), which could provide legal relief for undocumented MSFWs. The passing and implementation of this policy could be life-altering for many MSFW as approximately one-third to one-half of MSFWs are undocumented (Ornelas et al., 2021). Other current provisions in the Build Back Better Act and the bill that passed in the House of Representatives in November 2021, could ameliorate the hardships of MSFW life by allowing MSFWs to apply for work permits (and other forms of temporary legal

status), and permit return to country of origin and still allow for sponsorship by U.S. citizen family members for permanent residence in the U.S.

Policies that improve the economic conditions of MSFWs could also help attenuate stress experienced by MSFW parents, many of whom are supporting their own families in the U.S. while also sending back remittances to support families in country of origin. According to the NAWS (2021), average family income for MSFWs range from \$25,000 – \$30,000 per year, with some MSFWs not having employment year-round or being paid by piece or pound. The realities of MSFWs low wages also includes many not having work authorization, health insurance, or employer benefits that could otherwise help relieve aspects of economic hardship. Federal policies should ensure further protections for MSFWs that would prevent agricultural employers from unscrupulous labor practices including by closing loopholes to ensure farm workers are at or above minimum wage, allow for collective bargaining and overtime pay, provide fringe benefits that support families including paid time-off and health insurance, and ensure higher standards in employer provided housing. For MSFW families, such provisions could help improve living conditions and alleviate some of the stress associated with depression for MSFW parents.

Increased funding and support of early childhood education programs across the country to ensure all children in MSFW families have access to such a vital family resource is critical. MSHS programs provide important forms of support to families by offering early childhood programming that fosters the development of social skills, emotional well-being, language and literacy skills, early math and science skills, and provide health and development screening for children in MSFW families (NMSHSA,

2021). Further, one of the primary goals of the MSHS program is that it allows parents to work in agriculture without having to take their children to work by providing low-cost, reliable care for children during the working hours (Gatewood, 2019). This is especially important given the various challenges faced by MSFW families in finding childcare including limited facilities in proximity to agricultural work locations, limited space, hours of operation that do not match agricultural working hours, and cost (Liebman et al., 2017). MSHS programs are in 38 states and serve 30,000 children a year (Gatewood, 2019). However, this resource may not adequately meet the growing need for childcare programming leaving many MSFW families struggling to find childcare (Salzwedel et al., 2020).

Challenges associated with accessing childcare have been exacerbated by the pandemic. Many childcare centers across the country temporarily closed or reduced capacity during different periods of the pandemic, including the temporary closure of over 90% of Head Start programs and most MSHS programs (Salzwedel et al., 2020). Even as early childcare centers and programs opened back up, some had to raise costs to accommodate COVID-19 safety procedures (i.e., sanitizing, masking, etc.), others faced staffing shortages, and some had fewer kids enrolled, making it difficult to sustainably stay open (Burwick et al., 2020). This likely was a substantial stressor for parents working in “essential” industries, including agricultural workers, who were not able to stop working during this time. In one study on Latinx families, a majority of farmworker families reported that in response to the lack of childcare they accommodated their work schedules with their partners so that one parent worked during the day and the other at night, while one-third left their children at home alone (with other siblings) while they

worked (Quandt et al., 2021). For MSFW parents in this current study, financial insecurity and MSFW stress, including worrying about their child's education, was a risk factor for depression. As such, policies that strengthen early childcare programming, including lowering costs for low-income families and increasing access to childcare in rural areas for MSFWs remains critical especially during times of pandemic.

President Biden's Build Back Better Act included a \$400 billion investment for universal preschool and childcare ("Build Back Better Act," 2021). This provision could provide an expansion in the number of early childcare programs, and investment in the workforce, and provide more affordable payment options for low-income households in need of childcare. Further policy advocacy should ensure the expansion of early childcare in rural locations with affordable payment options for those without permanent residence in the U.S. to target barriers commonly faced by MSFWs accessing childcare. These policy initiatives are critical as greater access to childcare provides an alternative for parents who might otherwise bring their children to work, helping to alleviate parent stress about their child's education and care (Liebman et al., 2017). Further, not only does affordable childcare help reduce the stress associated with financial insecurity, but it also provides MSFW mothers the opportunity to work and contribute financially to their household, providing even more financial security, with implications for gender equity. Early childhood programs, including MSHS, also have a substantial opportunity to connect with parents of children enrolled in their programs and link them with community resources such as medical, dental, mental health, housing, and other needed services to help meet family needs. This is critical as MSFWs often face numerous barriers to finding access to such resources on their own due to limited English

proficiency, and a lack of knowledge of existing programs. As such, increasing federal funds for early childcare programs like MSHS is essential.

Practice and Clinical Implications

The findings from this study have important implications for practice and clinical work with MSFW families, including parents and their young children. Practitioners and clinicians working with parents who experience depression should consider the unique experiences and stressors of MSFW parents with regards to their work, experiences, migration, and raising their families in the U.S. MSFWs in this study reported significant stressors associated with their work and migration experience including difficulty migrating, worry about their children's education, difficulty being away from their family and friends in country of origin, and challenges associated with finding work and a place to live. Efforts should be made to address these types of stressors often inherent in the migration process. For many immigrants, being away from friends and family is a loss of social and in-kind support. For immigrant parents of young children, this loss of support from family and friends may be especially salient (Perreira et al., 2006) as many may otherwise rely on familial support to help rear their children in emotional and practical ways, including by having family watch one's child while they are at work or attend to other obligations. At the clinical level, practitioners could help facilitate connections to support networks or resources in their communities that could help provide social support and other types of support in raising children. Practitioners should also implement clinical strategies that are culturally responsive to the needs of Latinx parents. This could include previously successful group treatment models to help treat depression, allowing

for parents to connect with one another in a less stigmatizing and threatening environment than one-on-one therapy (Hovey et al., 2014).

Practitioners and clinicians should also understand the effects of acculturation on the mental health of Latinx families and consider the acculturative challenges faced by Latinx immigrants, including MSFWs, as they adjust to living in the U.S. Strategies should include a multidimensional approach when working with Latinx immigrants by supporting the maintenance of key cultural values including *familismo*, strong ethnic identity, and Spanish language maintenance; adapting to certain U.S. cultural norms including celebrating U.S. culture holidays, increased English proficiency; all while understanding the contextual factors (discrimination, financial insecurity, etc.) and individual characteristics (age, gender, country of origin) that may impact acculturation hassles (Ayón et al., 2010; Berry, 2007; Calzada & Sales, 2019; Calzada et al., 2013; Finch, 2019; Smokowski et al., 2008). Understanding the importance of acculturation in MSFW wellbeing could better inform services that improve Latinx immigrant families' ability to cope with the complexities of adjusting to life in the U.S.

Early childcare programs, especially MSHS programs, have a unique opportunity to connect parents who share similar language and cultural backgrounds with the goal of developing a supportive social network. Furthermore, early childcare centers and schools in rural communities with high numbers of children from MSFW families should reduce barriers to school enrollment by having extended hours to accommodate agricultural employees, increase recruitment efforts at farms, have Spanish speaking administrators and teachers who can work with an LEP population, and should include specialized programming for English language learning children and their parents (Liebman et al.,

2017). Having Spanish-speaking administrators and teachers in early childhood and school settings empowers parents to be more informed about childcare and educational opportunities, to communicate with teachers and administrators, and to better understand their child's experiences in these settings (Perreira et al., 2006). It also prevents children from becoming language brokers for their parents, even at young ages. These practical strategies could in turn help buffer some of the inherent stressors associated with migration.

MSFW parents face numerous barriers to health and mental health services including limited English proficiency, cost, lack of knowledge of available services, and lack of health insurance (Arcury & Quandt, 2007b). MSFW parents may also lack time to seek needed treatment due to busy lifestyles inherent in the lives of working parents raising young children. Community/migrant health centers, community health *promotoras*, and immigrant-serving organizations can play a vital role in assisting MSFW to navigate the social and health service infrastructure, provide a sense of community connection, and providing low-cost, culturally sensitive and language appropriate care (Arcury & Quandt, 2007b; Negi et al., 2020). Outreach from these community resources could be conducted through early childcare facilities including MSHS centers.

The church is another important space for outreach as well as a potential hub for community resources, particularly for Latinx families. Although this study did not find religiosity to be protective against depression, the majority of the sample endorsed religion as very important. Further, outreach and mental health interventions within Latinx churches have been previously found to be an effective mental health strategy with Latinx populations (Derose & Rodriguez, 2020). For Latinx immigrants in the U.S.,

the church can be an important source of social support and connection as it can help immigrants reestablish and engage in their communities as well as preserve cultural values and ethnic identity (Nguyen, 2020). Religiosity has also been found to provide a way for Latinx immigrants to cope with adversity and build psychological resilience (Dueweke et al., 2015). Practitioners and clinicians should be attuned to the spiritual, religious, and community needs of their Latinx immigrant clients and encourage those who express interest to connect with local Latinx churches as a hub for critical social and spiritual support. For some, this may be a safe and comfortable place to connect with others about their mental health, experiences with migration, work stress, and raising young children in the U.S. (Villatoro et al., 2014).

Further, an important finding of this current study was the promising role of religion in MSFW child emotional behavioral regulation. Early childcare programs including MSHS centers caring for children from MSFW families should consider the unique experiences of children in MSFW families when providing services. For example, MSHS and other childcare centers may consider implementing programming that facilitates culturally appropriate activities and events that uphold important cultural values for this population that may be protective for health and wellbeing and buffer some of the negative effects of stress related to farm work (Hurwich-Reiss & Watamura, 2019), as well as the negative effects of acculturation related to the loss of important religious or cultural values (Acevedo-Garcia & Bates, 2008; Smokowski et al., 2008). This could include partnering with appropriate church groups or celebrating religious or culturally important holidays in the classroom. This could also include helping children and parents maintain their Spanish language while also increasing English proficiency.

Programs could also improve Latinx children's social and emotional development by working with parents to promote family processes and parent engagement with their children that are in line with maintaining and building upon existing cultural values including *familismo*, respect, and academic success. It must be underscored that not all parents who are depressed have bad parenting behaviors or have children with problematic social or emotional behavioral problems, as was indicated by this study's findings. Yet, parenting in the context of depression can be challenging. Parents with a depressed mood may be less likely to meet their children's needs due to their depressive symptoms which may include lack of concentration and motivation, being withdrawn, or in a state of rumination (Goodman et al., 2011; Lovejoy et al., 2000). In such psychological states, it may be challenging for parents to be responsive to their child's needs, parents are often more disengaged, and may be less able to model appropriate behavioral responses. MSHS programs, with the goal of providing family engagement services to MSFW families, should continue to work with parents and children in MSFW families by building on the existing strengths and cultural resources in MSFW families.

Early childcare programming, including MSHS programs, for low-income families should remain abreast of research underscoring the long-term effects of early childhood programs and make appropriate adjustments to help improve immediate and long-term child development outcomes. For example, a recent study on a state-funded pre-Kindergarten (pre-k) program in Tennessee found that children enrolled in a state-funded pre-k program had initially more positive results, but by the third and sixth grades showed lower state achievement test scores, had more disciplinary infractions and attendance problems, and were more likely to receive special education services (Durkin

et al., 2022). It is imperative that early childcare programs offer quality services to low-income families that help improve social and emotional development and academic outcomes.

Limitations

Several limitations to this study should be acknowledged. As this was a nonexperimental, cross-sectional study, temporal relationships and causal inferences should not be made from the findings. This study is also subject to the limitations of a complex survey design, including the possibility of sampling bias including unequal sampling as well as nonindependence that may result in small standard errors (Hahs-Vaughn et al., 2011). For example, it may be that those who participated were only those who felt comfortable participating in the study. To correct for the complex survey research design, sample weights were applied to the analyses. The sample size for the study was also relatively small, therefore it is possible the null findings from expected relationships were related to Type II error. Additionally, because of the small sample size, there was very little power to examine the full mediation pathways as proposed by initial research questions based on the Modified Integrative Model. Because only one variable of interest was independently examined with the control variables, the effects of other predictor variables (caregiver discrimination, English language proficiency, MSFW stress, caregiver exhaustion, religion) on the relationship with child social and emotional development outcomes as mediated by depression are unknown. A moderating effect, that can strengthen or weaken the effects between the independent and dependent variables, was also not tested. This is an important omission to consider, especially

considering the potential moderating effect of religion which was examined as a protective variable (Rose et al., 2004).

An additional limitation of the study was analyzing the outcome variables as dichotomous, which limits the possible conclusions drawn from the analyses. Outcome variables were dichotomized because the variables and their residuals were not distributed normally and there were no variable transformations that successfully improved linear distributions. However, examining the outcome variables as continuous would have facilitated greater precision in the analyses and a better understanding of factors associated with an increase or decrease in the scores of the measures used (CES-D 10, Leiter 3 ERS), as opposed to a more blunt observation based on the appropriate markers for higher or lower scores which may be misconfigured in the analysis. As such, caution must be attached to the findings, however, previous studies have dichotomized outcome variables using logistic regression, including for depression among MSFWs (Arcury, O'Hara, et al., 2012; Grzywacz et al., 2014; Pulgar et al., 2016; Ramos et al., 2016; Reyes-Ortega et al., 2003; Stallones, 2002) and social and emotional development outcomes in early childhood (Briggs-Gowan et al., 2012; Kaminski et al., 2013; McCue Horwitz et al., 2012; Nes et al., 2015).

Measurement Issues

It is also possible there were measurement issues in capturing the elements of key variables in the study. Discrimination was measured as a single-item question, tapping into parent experiences of discrimination and the level of stress it induced. For the purposes of the analyses, only parent's perception of whether they have experienced discrimination was measured. Various challenges exist when measuring discrimination,

one of which is “perception bias,” which taps into one’s willingness and motivation to report discrimination, and includes “minimization bias,” when respondents perceive less discrimination than what actually exists (Kaiser & Major, 2006; Lewis et al., 2015). As indicated earlier, MSFW parents in this study may have come to expect discrimination as part of their immigration experience in the U.S. (Ayón et al., 2010), and may minimize, and therefore underreport, their experiences. The question measuring discrimination was also general and did not specifically identify racial or ethnic discrimination versus other forms of discrimination experienced by immigrant populations (e.g., related to their English language proficiency or immigration status), which may be confusing for some participants (Lewis et al., 2015). To overcome these issues, future studies may consider employing measures that help overcome perception bias issues when measuring discrimination and/or can have more specificity in the question regarding the type of discrimination experienced by the participant (Krieger et al., 2011; Lewis et al., 2015).

Further, the importance of religion was also assessed using a single-item question assessing the importance of religion, (“When coping with hardships unique to farm work life, how helpful is your faith/belief in God?”) which may not have adequately tapped into the concept of religion as a protective factor. This question elucidates few details about which aspects of religion may be protective such as social support and/or spiritual practices which may help one cope with daily stressors. Further, the MFWSI, used to measure stressors inherent in migrant and seasonal farm work life, only showed marginal measurement validity. It is possible this was due to only a few items from the original MFWSI were used in this study. As such, study results related to MFWS stress should be interpreted with caution.

Additionally, the cultural validity of the measures used to assess parent depression and social and emotional development outcomes may not be valid across different racial and ethnic groups. The measures used (CES-D for depressive symptomology and Leiter 3 ERS for social and emotional development outcomes) have been used with Latinx immigrant populations, however this does not mean they tap into the unique manifestations of depression and child development across ethnic groups. Further, the child development outcomes were based on the Leiter 3 ERS in which children are evaluated by a trained observer. This is seen as a strength, however, these evaluations were conducted in the school setting over a short period of time and were not corroborated by a parent or a teacher report. Thus, outcome scores may not be fully reflective of a child's social and emotional developmental progress and have missed important aspects of a child's behavior that would have otherwise been apparent in a home setting or by a parent or a teacher.

Similarly, the CES-D, which operationalized parent depressive symptomology, is a self-report screening questionnaire and not a diagnostic tool; therefore, should only be used as a tool to screen for depressive symptomology. The CES-D 10 has been translated into Spanish and widely used among adult Latinx populations in the U.S., however, this self-report screening tool assumes the respondent possesses the language and numerical literacy needed for completion. Further, it assumes "cultural congruence" exists regarding the concepts addressed by the measure, in this case depression (Jani & Deforge, 2015, p. 159). Various studies have shown that psychological distress (including, symptoms of depression) is often expressed differently in non-Western cultures. Latinx populations may report more somatic symptomology associated with depressive symptoms and may

use culturally relevant language to describe the physical manifestation of distress such as, “ataque de los nervios” (attack of the nerves) or “susto” (scared) (Aguilar-Gaxiola & Gullotta, 2009). Further, for Latino men, symptoms of psychological distress or depression may manifest in the form of substance use disorders (Vega & Scribney, 2008). To this end, it is possible that the somatic manifestations of depressive symptoms experienced by Latinx caregivers in this study were not captured by the CES-D 10 which may explain the low rates of higher depressive symptomology in this study compared to other studies with similar populations (Aikens et al., 2017; Hovey & Magaña, 2003; Martí et al., 2016). However, it is also important to note that the CES-D 10 has been used widely with Latinx adults (including, MSFWs) and has shown to have good psychometric properties, including with Latinx farmworkers (Grzywacz, Alterman, et al., 2010). As such, it is possible the low rates of depressive symptomology among the sample of caregivers in this study were valid and may be attributable to other factors including, the seasonal timing of when the data was collected (Grzywacz, Quandt, et al., 2010), the protective effects of being employed (Negi et al., 2020), and other strength and resiliency factors such as social support and family cohesion (Cano et al., 2020).

As discussed earlier, the lack of a parenting variable in the data was also an important study limitation. Parenting has been shown to be an important mediator of depression in the social and emotional development outcomes of young children Palermo et al., 2018; Valdez et al., 2013). The lack of inclusion of this important variable in the data may have had a confounding effect on the results, such that, the relationship of parent depressive symptoms with child development outcomes appeared non-existent.

Future studies should include a parenting variable in their analysis of child development outcomes with Latinx immigrant families.

It is also likely that parent depression had a suppression effect in some of the mediation models. In some of the mediation models there were instances in which the direct and mediated effects of the independent variable on the child development outcomes had opposite effects, generating an inconsistent mediation model (Mackinnon, 2000). In a mediation model, it is assumed that the inclusion of mediator variable reduces the magnitude of the relationship between the independent and dependent variables, because the mediator is hypothesized to explain part of the relationship, which was not always the case in this analysis. To prevent suppression effects, one should consider following Baron and Kenny (1986) criteria for mediation including that a) there should be a significant relationship between the independent variables and the dependent variables; b) there must be a significant relationship between the independent variable and the mediating variable; and the c) mediator must be significantly related to the outcome variable. In this analysis, these criteria were not always met, which explains the opposite effects of the direct and mediated effects as well as the negative proportions in the tables.

Measuring the Effect of MSHS Programming

One critical aspect of the study which must be underscored, is that all children in the study were enrolled in a MSHS program and for an average of nearly one and half years. In many ways, this study was conducted on a pre-treated group of children, which limits the potential to generalize findings to Latinx or other MSFW families not enrolled in a MSHS program. Head Start programs are intended to meet the “whole” needs of a

child including their cognitive, social, emotional, and physical needs (National Migrant Seasonal Head Start Association [NMSHSA], 2021). This effect was not sufficiently accounted for in this study's design. Time in MSHS was controlled for in the analyses for child development outcomes, however there was little variability in time, additionally there was no inclusion of children in MSFW families who were not enrolled in MSHS programs.

Parents versus Caregivers

Finally, it should also be noted the sample of caregivers included mostly mothers and fathers, but also relative caregivers who indicated to be primarily responsible for the caregiving of the child. This is important to consider as it is often found that both maternal and paternal risk factors (i.e., depression) have an effect on parenting behaviors, but that maternal risk has the greatest effect on child development outcomes over and above paternal risk (Burchinal et al., 2008; Olson et al., 2002), though there has been some inconsistency of this relationship in the research (Cabrera et al., 2011; Davis et al., 2011). Yet, few studies have examined the effects of paternal depression and fathering, and even less so have focused on the effects of relative caregivers who are primarily caregivers. As such it is important to control for the type of caregiver providing primary parenting responsibilities to accommodate possible variation in caregiving effects on child development. In this study, due to limited power, all caregivers were included in the analyses. Further, post-hoc analyses indicated no significant differences in results among mothers, fathers, or relative caregivers.

Future Directions

Despite these limitations, this study has various strengths. This study sheds light on the importance of future research with MSFW families and their children, specifically focused on child development outcomes and parent mental health. First, it adds to the literature of MSFWs by including parents accompanied by their families including their young children. Findings illuminate the impact of stress related to working as a migrant farm worker and the psychological toll it has on caregivers. Findings also are aligned with the immigrant paradox and challenges that may be associated with greater levels of acculturation. Findings not only illuminate risk factors impacting mental health of MSFWs, but also have implications for parent and family wellbeing. Findings uniquely identified the possible protective effect of religion on emotional behavioral regulation and reveals implications for culturally relevant interventions with this population. Further, findings showed an association of parent depression with cognitive social problems MSFW children, shedding light on intervention strategies for improving MSFW family wellbeing. Even though all hypotheses in this dissertation were not endorsed, findings reveal important insight into a unique and understudied family population that needs further research.

Studies should continue to test the Modified Integrated Model with the inclusion of a parent functioning domain (e.g., depression, stress, anxiety), as well as a parenting behavior domain (e.g., parental sensitivity, parental engagement, etc.) which was not possible in this study. Further application of the Modified Integrative Model on Latinx families is an essential model to examine family processes by also considering unique contextual factors (including discrimination) and cultural adaptations inherent in Latinx

family experiences. To test this through mediation models including structural equation modeling, studies should enhance recruitment efforts for a greater sample size to facilitate mediation with multiple variables. Studies with MSFW families should also consider mixed-methods or qualitative study designs as a methodological strategy to tap into the cultural nuances of mental health, child development, and/or MSFW family experiences that may not be captured by standardized measures.

The literature on Latinx families and early childhood still show inconsistencies regarding the relationship between parent depression, parenting behaviors, and child development outcomes, specifically in regards to the role of parent depression in parenting behaviors (Huang et al., 2012; Hurwich-Reiss & Watamura, 2019). Further research should employ qualitative methods to facilitate the participant process of meaning making related to their experiences as low-income, Latinx immigrant families, while also considering culturally relevant resilience factors that may facilitate ability to parent in the context of depression without depressive symptoms affecting parenting behaviors or ability to respond to child needs. Research on culturally relevant protective factors would be additive, especially as there is much to learn related to family resilience and other factors that may be protective to young children in low-income, Latinx immigrant families. For example, the culturally relevant value of *familismo*, characterized by family closeness, reciprocity in relationships, and a clear obligation to one's nuclear and extended family (Calzada et al., 2013; Hurwich-Reiss & Watamura, 2019) may be relevant in research on Latinx families. *Familismo* often results in placing family needs above individual needs which impact behaviors within the family unit. For parents, this may result in parents having a unique sensitivity to their child's needs and making sure

they are met, even in the midst of depression or other life stressors including experiences of discrimination, stress, and economic strain (White et al., 2015). Studies have also found *familismo* to be protective against depressive symptomology in Latinx parents in the U.S. (Ayón et al., 2010)

Other sources of resilience should also be explored including continued research on the impact of religion on family processes that impact parent mental health and child development. Religion should be examined more precisely to include questions related to frequency of attendance in religious services, religious practices as coping, level of social support, or level of engagement in religious practices (i.e., religious practices including prayer and alms giving) to capture religion more effectively as a protective cultural adaptation. Studies could also focus on involvement and connection in religious institutions or activities which may provide moral, social, and in-kind forms support that could be protective (Cardoso & Thompson, 2018; Sanchez et al., 2019).

Future research should continue to unpack the effect of acculturation on families, and how acculturation impacts family processes that facilitate or prohibit adaptive behaviors. This should include by more comprehensively evaluating acculturation. For example, in this study English language proficiency was used as a proxy for acculturation, however future studies should further examine other aspects of acculturation that facilitate strong family processes including family cohesion and adaptation. Using a multidimensional lens of acculturation, research should explore the contextual stressors faced by Latinx immigrant families that moderate the effects of acculturation on mental health outcomes (Espeleta et al., 2019; Lopez-Class et al., 2011; Schwartz et al., 2010). This could include the further exploration of the effects of marital

status on parent mental health and child development in Latino families after migrating to the U.S. Research should also explore the possible nuances that exist between men and women and how they are uniquely impacted by divorce and single parenthood.

Conclusion

MFSFW families display tremendous resiliency despite the significant adversity of their lives. MSFW families navigate various stressors associated with being an immigrant of color and working in a labor-intensive and low-paying industry in the U.S. All the while dealing with the demands of raising young children and ensuring that their physical and developmental needs are met. Guided by the Modified Integrative Model (a critical and highly relevant theoretical model for examining development and mental health outcomes in minority families by incorporating the structural and individual experiences of racism and discrimination), findings have implications for the development of culturally relevant intervention strategies with MSFW families that can build on this population's strengths. It is important to underscore that despite this population's substantial contribution to U.S. agriculture and society, they remain relatively invisible in the literature and are vulnerable to various structural hardships. More research is urgently needed to explore MSFW's strengths but also experiences of structural vulnerability. Finally, socially just policies and programming are critically needed to effectively meet the needs of this vulnerable immigrant family population.

Appendix A

For RQ2, prior to conducting the mediation analyses, logistic regression models for each variable of interest and caregiver depression were first run to observe their independent relationship with the child development outcome variable without mediation. Results are listed below for each child development outcome. Tables first display Model 1 without covariates, then Model 2 with the covariates (Tables 6a – 6e, 7a – 7e).

Logistic Regression of Variables of Interest with Cognitive Social Outcomes

Table 6a: Logistic regression of relationship of acculturation and parent depression with cognitive social outcomes in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	OR	SE	95% CI
Acculturation (English proficiency)	2.24	0.56	1.34 – 3.76**	1.98	0.55	1.12 – 3.50*
Parent depression	2.28	0.97	0.95 – 5.47	2.23	1.24	0.71 – 7.04
Financial security				0.85	0.41	0.31 – 2.31
Marital Status						<i>referent</i>
Married/living w/ partner				1.00		0.35 – 2.68
Separated/other				0.97	0.48	1.34 –
Single				2.36	0.84	4.89*
Female vs male child				0.50	0.19	0.23 – 1.09
Years in MSHS				0.90	0.13	0.12 – 1.54

Model 1: $F_{(2,24)}=8.79, p<.01$, Model 2: $F_{(7,19)}=4.18, p<.01$
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** $p<.05$, ** $p<.01$, *** $p<.00$*

Table 6b: Logistic regression of relationship of parent discrimination and parent depression with cognitive social outcomes in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Parent discrimination	1.18	0.44	0.54 – 2.55	1.28	0.39	0.68 – 2.39
Parent depression	2.21	0.95	0.92 – 5.34	2.21	1.22	0.71 – 6.89
Financial security				0.92	0.43	0.35 – 2.40
Marital Status						
Married/living w/ partner				1.00		<i>referent</i>
Separated/other				0.99	0.45	0.39 – 2.53
Single				2.71	1.04	1.23 – 5.97
Female vs male child				0.47	0.19	0.21 – 1.04
Years in MSHS				0.90	0.12	0.68 – 1.19

Model 1: F_(2,24)=2.28, p=.12, Model 2: F_(7,19)=4.18, p<.01
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

Table 6c: Logistic regression of relationship of parent exhaustion and parent depression with cognitive social outcomes in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Parent exhaustion	0.52	0.18	0.26 – 1.04	0.50	0.19	0.32 – 1.09
Parent depression	2.77	1.38	0.99 – 7.73	2.66	1.59	0.77 – 9.15
Financial security				0.83	0.38	0.23 – 2.14
Marital Status						
Married/living w/ partner				1.00	<i>referent</i>	<i>referent</i>
Separated/other				1.07	0.53	0.39 – 2.95
Single				2.52	0.94	1.16 – 5.43*
Female vs male child				0.46	0.46	0.20 – 1.04
Years in MSHS				0.92	0.92	0.67 – 1.21

Model 1: F_(2,24)=2.58, p=1.00, Model 2: F_(7,19)=3.32, p<.05
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

Table 6d: Logistic regression of relationship of MSFW stress and parent depression with cognitive social outcomes in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
MSFW Stress	0.76	0.11	0.58 – 1.03	0.77	0.11	0.58 – 1.03
Parent depression	2.83	1.17	1.21 – 6.66*	2.75	1.41	0.95 – 7.92
Financial security				0.79	0.37	0.30 – 2.06
Marital Status						
Married/living w/ partner				1.00		<i>referent</i>
Separated/other				0.86	0.41	0.32 – 2.29
Single				2.22	0.79	1.07 – 4.60*
Female vs male child				0.46	0.17	0.22 – .99*
Years in MSHS				0.89	0.13	0.66 – 1.21

Model 1: $F_{(2,24)}=3.95, p<.05$, Model 2: $F_{(7,19)}=3.39, p<.05$
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** $p<.05$, ** $p<.01$, *** $p<.00$*

Table 6e: Logistic regression of relationship of religion and parent depression with cognitive social outcomes in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Religion	0.57	0.15	0.33 – 0.97*	0.61	0.15	0.37 – 1.02
Parent depression	2.29	0.99	0.94 – 5.59	2.32	1.28	0.75 – 7.22
Financial security				0.88	0.41	0.33 – 2.29
Marital Status						
Married/living w/ partner				1.00		<i>referent</i>
Separated/other				0.89	0.44	0.33 – 2.44
Single				2.40	0.86	1.35 – 5.02*
Female vs male child				0.48	0.19	0.21 – 1.10
Years in MSHS				0.88	0.13	0.65 – 1.18

Model 1: $F_{(2,24)}=3.13, p=.06$, Model 2: $F_{(7,19)}=3.54, p<.05$
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** $p<.05$, ** $p<.01$, *** $p<.00$*

Logistic Regression with Emotional Behavioral Regulation Outcomes

Table 7a: Logistic regression of relationship of acculturation and parent depression with emotional behavioral regulation in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	OR	SE	95% CI
Acculturation (English proficiency)	1.82	0.39	1.18 – 2.84**	1.85	0.44	1.13 – 3.01*
Parent depression	1.27	0.56	0.51 – 3.15	1.18	0.49	0.50 – 2.78
Financial security				0.83	0.39	0.31 – 2.20
Marital Status						
Married/living w/ partner				1.00	<i>referent</i>	<i>referent</i>
Separated/other				1.32	0.60	0.52 – 3.34
Single				0.79	0.47	0.23 – 2.68
Female vs male child				0.73	0.15	0.47 – 1.13
Years in MSHS				1.01	0.11	0.09 – 2.35

Model 1: F_(2,24)=3.91, p=.03, Model 2: F_(7,19)=1.29, p=.31
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

Table 7b: Logistic regression of relationship of parent discrimination and parent depression with emotional behavioral regulation in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Parent discrimination	1.20	0.41	0.59 – 2.44	1.24	0.43	0.60 – 2.55
Parent depression	1.25	0.56	0.49 – 3.15	1.17	0.51	0.48 – 2.89
Financial security				0.88	0.42	0.33 – 2.35
Marital Status						
Married/living w/ partner				1.00		<i>referent</i>
Separated/other				1.33	0.61	0.52 – 3.39
Single				0.91	0.48	0.31 – 2.67
Female vs male child				0.69	0.14	0.45 – 1.06
Years in MSHS				0.99	0.10	0.80 – 1.23

Model 1: F_(2,24)=.49, p=.62, Model 2: F_(7,19)=1.08, p=.41
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

Table 7c: Logistic regression of relationship of MSFW stress and parent exhaustion with emotional behavioral regulation in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Parent exhaustion	0.63	0.16	0.37 – 1.08	0.58	0.17	0.31 – 1.07
Parent depression	1.46	0.70	0.54 – 3.92	1.36	0.60	0.55 – 3.39
Financial security				0.82	0.38	0.31 – 2.11
Marital Status						
Married/living w/ partner				1.00	referent	referent
Separated/other Single				1.41	0.59	0.59 – 3.34
Single				0.85	0.48	0.26 – 2.74
Female vs male child				0.67	0.14	0.44 – 1.03
Years in MSHS				1.00	0.11	0.80 – 1.25

Model 1: $F_{(2,24)}=.90, p=.52$, Model 2: $F_{(7,19)}=.90, p=.52$
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** $p<.05$, ** $p<.01$, *** $p<.00$*

Table 7d: Logistic regression of relationship of MSFW stress and parent depression with emotional behavioral regulation in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
MSFW Stress	0.89	0.11	0.70 – 1.14	0.88	0.11	0.68 – 1.13
Parent depression	1.39	0.63	0.54 – 3.54	1.33	0.58	0.54 – 3.27
Financial security				0.81	0.38	0.31 – 2.12
Marital Status						
Married/living w/ partner				1.00		referent
Separated/other Single				1.21	0.54	0.48 – 3.06
Single				0.81	0.46	0.25 – 2.59
Female vs male child				0.69	0.15	0.44 – 1.08
Years in MSHS				0.99	0.11	0.79 – 1.23

Model 1: $F_{(2,24)}=.51, p=.60$, Model 2: $F_{(7,19)}=.59, p=.76$
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** $p<.05$, ** $p<.01$, *** $p<.00$*

Table 7e: Logistic regression of relationship of importance of religion and parent depression with emotional behavioral regulation in children in MSFW families

Variables	Model 1 (without additional covariates) (N=303)			Model 2 (with additional covariates) (N=303)		
	OR	SE	95% CI	aOR	SE	95% CI
Religion	0.53	0.17	0.27 – 1.04	0.52	0.17	0.27 – 1.01
Parent depression	1.29	0.56	0.52 – 3.18	1.24	0.53	0.51 – 3.00
Financial security				0.85	0.40	0.32 – 2.25
Marital Status						
Married/living w/ partner				1.00		<i>referent</i> 0.45 – 3.30
Separated/other				1.21	0.59	0.22 – 2.69
Single				0.78	0.47	
Female vs male child				0.72	0.15	0.47 – 1.11
Years in MSHS				0.97	0.10	0.78 – 1.20

Model 1: F_(2,24)=1.84, p=.18, Model 2: F_(7,19)=1.34, p=.28
OR = Odds Ratio, CI = confidence interval, MSHS=Migrant Seasonal Head Start
** p<.05, **p<.01, ***p<.00*

References

- Acevedo-Garcia, D., & Bates, L. M. (2008). Latino Health Paradoxes: Empirical Evidence, Explanations, Future Research, and Implications. In H. Rodríguez, R. Sáenz, & C. Menjívar (Eds.), *Latinas/os in the United States: Changing the Face of América* (pp. 101-113). Springer US. https://doi.org/10.1007/978-0-387-71943-6_7
- Addis, M. E. (2008). Gender and depression in men. *Clinical Psychology: Science and Practice*, 15(3), 153-168. <https://doi.org/10.1111/J.1468-2850.2008.00125.X>
- Afifi, T. D., Davis, S., Denes, A., & Merrill, A. (2013). Analyzing divorce from cultural and network approaches [Article]. *Journal of Family Studies*, 19(3), 240-253. <https://doi.org/10.5172/jfs.2013.19.3.240>
- Aguilar-Gaxiola, S. A., & Gullotta, T. P. (2009). *Depression in Latinos: Assessment, Treatment, and Prevention*. Springer US. <https://books.google.com/books?id=8SuoKfG3TBEC>
- Aguilera-Guzmán, R. M., García, M. S. C., & García, F. J. (2004). Características psicométricas de la CES-D en una muestra de adolescentes rurales mexicanos de zonas con alta tradición migratoria. *Salud Mental*, 27(6), 57-66.
- Aikens, N., Kopack Klein, A., Knas, E., Reid, M., Mraz Esposito, A., Manley, M., Malone, L., Tarullo, L., Lukashanets, S., & West, J. (2017). *Descriptive Data on Head Start Children and Families from FACES 2014: Fall 2014 Data Tables and Study Design* (OPRE Report 2017-97, Issue).
- Alderete, E., Vega, W. A., Kolody, B., & Aguilar-Gaxiola, S. (1999). Depressive symptomatology: Prevalence and psychosocial risk factors among Mexican migrant farmworkers in California. *Journal of Community Psychology*, 27(4), 457-471. [https://doi.org/10.1002/\(SICI\)1520-6629\(199907\)27:4](https://doi.org/10.1002/(SICI)1520-6629(199907)27:4)
- Alegría, M., Canino, G., Shrout, P. E., Woo, M., Duan, N., Vila, D., Torres, M., Chen, C.-N., & Meng, X.-L. (2008). Prevalence of Mental Illness in Immigrant and Non-Immigrant U.S. Latino Groups. *American Journal of Psychiatry*, 165(3), 359-369. <https://doi.org/10.1176/appi.ajp.2007.07040704>
- Alto, M. E., Warmingham, J. M., Handley, E. D., Rogosch, F., Cicchetti, D., & Toth, S. L. (2021). Developmental pathways from maternal history of childhood maltreatment and maternal depression to toddler attachment and early childhood

- behavioral outcomes. *Attachment & Human Development*, 23(3), 328-349.
<https://doi.org/10.1080/14616734.2020.1734642>
- Anderson, R. E., Hussain, S. B., Wilson, M. N., Shaw, D. S., Dishion, T. J., & Lee Williams, J. (2015). Pathways to Pain: Racial Discrimination and Relations Between Parental Functioning and Child Psychosocial Well-Being. *Journal of Black Psychology*, 41(6), 491-512. <https://doi.org/10.1177/0095798414548511>
- Andrews, A. R., Haws, J. K., Acosta, L. M., Acosta Canchila, M. N., Carlo, G., Grant, K. M., & Ramos, A. K. (2020). Combinatorial effects of discrimination, legal status fears, adverse childhood experiences, and harsh working conditions among Latino migrant farmworkers: Testing learned helplessness hypotheses. *Journal of Latinx Psychology*, 8(3), 179-201. <https://doi.org/10.1037/lat0000141>
- Andridge, R. R., & Little, R. J. A. (2010). A Review of Hot Deck Imputation for Survey Non-response. *International Statistical Review*, 78(1), 40-64.
<https://doi.org/10.1111/j.1751-5823.2010.00103.x>
- Arcury, T. A., O'Hara, H., Grzywacz, J. G., Isom, S., Chen, H., & Quandt, S. A. (2012). Work safety climate, musculoskeletal discomfort, working while injured, and depression among migrant farmworkers in North Carolina. *American Journal of Public Health*, 102(2), pp. 272-278. doi: 10.2105/AJPH.2011.300597
- Arcury, T. A., O'Hara, H., Grzywacz, J. G., Isom, S., Chen, H., & Quandt, S. A. (2012). Work Safety Climate, Musculoskeletal Discomfort, Working While Injured, and Depression Among Migrant Farmworkers in North Carolina. *American Journal of Public Health*, 102(S2), S272-S278. <https://doi.org/10.2105/AJPH.2011.300597>
- Arcury, T. A., & Quandt, S. A. (2007a). The Annual Review of Public Health is online at. *Annu. Rev. Public Health*, 28, 345-363.
<https://doi.org/10.1146/annurev.publhealth.27.021405.102106>
- Arcury, T. A., & Quandt, S. A. (2007b). Delivery of Health Services to Migrant and Seasonal Farmworkers. *Annual Review of Public Health*, 28(1), 345-363.
<https://doi.org/10.1146/annurev.publhealth.27.021405.102106>
- Arcury, T. A., Sandberg, J. C., Talton, J. W., Laurienti, P. J., Daniel, S. S., & Quandt, S. A. (2018). Mental health among Latina farmworkers and other employed Latinas in North Carolina. *Journal of Rural Mental Health*, 42(2), 89-101.
<https://doi.org/10.1037/rmh0000091>

- Ayón, C., Marsiglia, F. F., & Bermudez-Parsai, M. (2010). Latino family mental health: exploring the role of discrimination and familismo. *Journal of Community Psychology*, 38(6), 742-756. <https://doi.org/10.1002/jcop.20392>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personal Social Psychology*, 51(6), 1173-1182. <https://doi.org/10.1037//0022-3514.51.6.1173>
- Becerra, D. (2020). “They say we are Criminals”: The Stress, Fears, and Hopes of Migrant Dairy Workers as a Result of US Immigration Policies. *Journal of Poverty*, 24(5-6), 389-407. <https://doi.org/10.1080/10875549.2019.1655691>
- Berlin, L. J., Martoccio, T. L., Bryce, C. I., & Jones Harden, B. (2019). Improving infants’ stress-induced cortisol regulation through attachment-based intervention: A randomized controlled trial. *Psychoneuroendocrinology*, 103, 225-232. <https://doi.org/10.1016/j.psyneuen.2019.01.005>
- Bernard, K., Nissim, G., Vaccaro, S., Harris, J. L., & Lindhiem, O. (2018). Association between maternal depression and maternal sensitivity from birth to 12 months: a meta-analysis. *Attachment & Human Development*, 20(6), 578-599. <https://doi.org/10.1080/14616734.2018.1430839>
- Berry, J. W. (2007). Acculturation strategies and adaptation. In J. E. Lansford, K. Deater-Deckard, & M. H. Bornstein (Eds.), *Immigrant families in contemporary society* (pp. 69–82). Guilford Press.
- Bornstein, M. H., Hahn, C.-S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology*, 22(4), 717-735. <https://doi.org/10.1017/S0954579410000416>
- Borre, K., Ertle, L., & Graff, M. (2010). Working to eat: Vulnerability, food insecurity, and obesity among migrant and seasonal farmworker families. *American Journal of Industrial Medicine*, 53(4), 443-462. <https://doi.org/10.1002/AJIM.20836>
- Bouvette-Turcot, A.-A., Fleming, A. S., Unternaehrer, E., Gonzalez, A., Atkinson, L., Gaudreau, H., Steiner, M., & Meaney, M. J. (2020). Maternal symptoms of depression and sensitivity mediate the relation between maternal history of early adversity and her child temperament: The inheritance of circumstance.

- Development and Psychopathology*, 32(2), 605-613.
<https://doi.org/10.1017/s0954579419000488>
- Briggs-Gowan, M. J. (2004). The Brief Infant-Toddler Social and Emotional Assessment: Screening for Social-Emotional Problems and Delays in Competence. *Journal of Pediatric Psychology*, 29(2), 143-155. <https://doi.org/10.1093/jpepsy/jsh017>
- Briggs-Gowan, M. J., & Carter, A. S. (2008). Social-emotional screening status in early childhood predicts elementary school outcomes. *Pediatrics*, 121(5), 957-962.
<https://doi.org/10.1542/peds.2007-1948>
- Briggs-Gowan, M. J., Carter, A. S., & Ford, J. D. (2012). Parsing the Effects Violence Exposure in Early Childhood: Modeling Developmental Pathways. *Journal of Pediatric Psychology*, 37(1), 11-22. <https://doi.org/10.1093/jpepsy/jsr063>
- Brody, D. J., Pratt, L. A., & Hughes, J. P. (2018). *Prevalence of Depression Among Adults Aged 20 and Over: United States, 2013–2016* (NCHS Data Brief No. 303).
<https://www.cdc.gov/nchs/products/databriefs/db303.htm>
- Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. 330-330.
- Brown, A. (2021). *Farmworker Overtime Would End Racist Pay Gap, Law Makers Say*.
<https://pewtrust.org/en/research-and-analysis/blogs/stateline/2021/06/11/farmworker-overtime-pay-would-end-racist-paygap-lawmakers-say>
- Burchinal, M., Vernon-Feagans, L., Cox, M., & Key Family Life Project, I. (2008). Cumulative Social Risk, Parenting, and Infant Development in Rural Low-Income Communities. *Parenting*, 8(1), 41-69.
<https://doi.org/10.1080/15295190701830672>
- Build Back Better Act, H.R.5376, 117th Congress (2021).
<https://www.congress.gov/bill/117th-congress/house-bill/5376>
- Burwick, A., Davis, E., Karoly, L., Schulte, T., & Tout, K. (2020). *Promoting Sustainability of Child Care Programs during the COVID-19 Pandemic: Considerations for States in Allocating Financial Resources*. Child Care and Early Education Policy and Research Analysis.

- <https://www.acf.hhs.gov/opre/report/promoting-sustainability-child-care-programs-during-covid-19-pandemic>
- Cabrera, N. J., Fagan, J., Wight, V., & Schadler, C. (2011). Influence of Mother, Father, and Child Risk on Parenting and Children's Cognitive and Social Behaviors. *Child Development, 82*(6), 1985-2005. <https://doi.org/10.1111/j.1467-8624.2011.01667.x>
- Calzada, E. J., & Sales, A. (2019). Depression among Mexican-origin mothers: Exploring the immigrant paradox. *Cultural diversity & ethnic minority psychology, 25*(2), 288-298. <https://doi.org/10.1037/cdp0000214>
- Calzada, E. J., Tamis-LeMonda, C. S., & Yoshikawa, H. (2013). Familismo in Mexican and Dominican Families From Low-Income, Urban Communities. *Journal of Family Issues, 34*(12), 1696-1724. <https://doi.org/10.1177/0192513x12460218>
- Cano, M. Á., Castro, F. G., De La Rosa, M., Amaro, H., Vega, W. A., Sánchez, M., Rojas, P., Ramírez-Ortiz, D., Taskin, T., Prado, G., Schwartz, S. J., Córdova, D., Salas-Wright, C. P., & de Dios, M. A. (2020). Depressive Symptoms and Resilience among Hispanic Emerging Adults: Examining the Moderating Effects of Mindfulness, Distress Tolerance, Emotion Regulation, Family Cohesion, and Social Support. *Behavioral Medicine, 46*(3-4), 245-257. <https://doi.org/10.1080/08964289.2020.1712646>
- Cardoso, J. B., Brabeck, K., Capps, R., Chen, T., Giraldo-Santiago, N., Huertas, A., & Mayorga, N. A. (2021). Immigration Enforcement Fear and Anxiety in Latinx High School Students: The Indirect Effect of Perceived Discrimination. *Journal of Adolescent Health, 68*(5), 961-968. <https://doi.org/https://doi.org/10.1016/j.jadohealth.2020.08.019>
- Cardoso, J. B., & Thompson, S. J. (2010). Common Themes of Resilience among Latino Immigrant Families: A Systematic Review of the Literature. *Families in Society, 91*(3), 257-265. <https://doi.org/10.1606/1044-3894.4003>
- Carter, A. S., Briggs-Gowan, M. J., & Davis, N. O. (2004). Assessment of young children's social-emotional development and psychopathology: recent advances and recommendations for practice. *J Child Psychol Psychiatry, 45*(1), 109-134. <https://doi.org/10.1046/j.0021-9630.2003.00316.x>
- Castañeda, H., Carrion, I. V., Kline, N., & Tyson, D. M. (2010). False hope: Effects of social class and health policy on oral health inequalities for migrant farmworker

- families. *Social Science & Medicine*, 71(11), 2028-2037.
<https://doi.org/10.1016/J.SOCSCIMED.2010.09.024>
- Caswell, L., Bumgarner, E., Barrueco, S., López, M., Wolf, A., Layzer, C., Gutmann, B., Segovia, S., & Broene, P. (2019). *Migrant and Seasonal Head Start Study 2017: User's Guide*. Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Ceballo, R., Alers-Rojas, F., Montoro, J., & Mora, A. (2020). Contextual stressors and the role of religion and spirituality in the mental health of Latino/a immigrant parents and youth. In *Mental Health of Immigrants in the United States*, pp. 135-155. <https://doi.org/10.1016/B978-0-12-816117-3.00007-5>
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (1998). Maternal depressive disorder and contextual risk: Contributions to the development of attachment insecurity and behavior problems in toddlerhood. *Development and Psychopathology*, 10(2), 283-300. <https://doi.org/10.1017/S0954579498001618>
- Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: methodological challenges and directions for child development research. *Child Dev*, 75(2), 317-333. <https://doi.org/10.1111/j.1467-8624.2004.00673.x>
- Cooper, J., Masi, R., & Vick, J. (2009). *Social-emotional Development in Early Childhood: What Every Policymaker Should Know*.
<https://dx.doi.org/10.7916/d83b67vs>
- Costa, D. (2021). The farmworker wage gap continued in 2020.
<https://www.epi.org/blog/the-farmworker-wage-gap-continued-in-2020-farmworkers-and-h-2a-workers-earned-very-low-wages-during-the-pandemic-even-compared-with-other-low-wage-workers/>
- Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2009). The Relations of Observed Pre-K Classroom Quality Profiles to Children's Achievement and Social Competence. *Early Education and Development*, 20(2), 346-372.
<https://doi.org/10.1080/10409280802581284>
- Daily, S., Burkhauser, M., & Halle, T. (2010). *A Review of School Readiness Practices in the States: Early Learning Guidelines and Assessments*.

- <https://www.childtrends.org/publications/a-review-of-school-readiness-practices-in-the-states-early-learning-guidelines-and-assessments>
- Darghouth, S., Brody, L., & Alegría, M. (2015). Does Marriage Matter? Marital Status, Family Processes, and Psychological Distress Among Latino Men and Women. *Hispanic Journal of Behavioral Sciences*, 37(4), 482-502. <https://doi.org/10.1177/0739986315606947>
- Davis, A. N., Carlo, G., & Crockett, L. J. (2020). The Role of Economic Stress in Parents' Depression and Warmth and Adolescents' Prosocial Behaviors Among U.S. Latino/as. *Peace and Conflict: Journal of Peace Psychology*, 26(2), 162 - 170. <https://doi.org/http://dx.doi.org/10.1037/pac0000406>
- Dawson, G., Ashman, S. B., Panagiotides, H., Hessel, D., Self, J., Yamada, E., & Embry, L. (2003). Preschool Outcomes of Children of Depressed Mothers: Role of Maternal Behavior, Contextual Risk, and Children's Brain Activity. *Child Development*, 74(4), 1158-1175.
- de Leon Siantz, M. L., Coronado, N., & Dovydaitis, T. (2010). Maternal Predictors of Behavioral Problems Among Mexican Migrant Farmworker Children. *Journal of Family Nursing*, 16(3), 322-343. <https://doi.org/10.1177/1074840710376946>
- de Leon Siantz, M. L., & Smith, M. S. (1994). Parental factors correlated with developmental outcome in the migrant head start child. *Early Childhood Research Quarterly*, 9(3-4), 481-503. [https://doi.org/10.1016/0885-2006\(94\)90021-3](https://doi.org/10.1016/0885-2006(94)90021-3)
- Denham, S. A. (2003). Social and Emotional Learning, Early Childhood. In T. P. Gullotta, M. Bloom, J. Kotch, C. Blakely, L. Bond, G. Adams, C. Browne, W. Klein, & J. Ramos (Eds.), *Encyclopedia of Primary Prevention and Health Promotion* (pp. 1009-1018). Springer US. https://doi.org/10.1007/978-1-4615-0195-4_147
- Denham, S. A., Bassett, H., Mincic, M., Kalb, S., Way, E., Wyatt, T., & Segal, Y. (2012). Social-emotional learning profiles of preschoolers' early school success: A person-centered approach. *Learning and Individual Differences*, 22(2), 178-189. <https://doi.org/10.1016/J.LINDIF.2011.05.001>
- Denham, S. A., Ferrier, D. E., Howarth, G. Z., Herndon, K. J., & Bassett, H. H. (2016). Key considerations in assessing young children's emotional competence. *Cambridge Journal of Education*, 46(3), 299-317. <https://doi.org/10.1080/0305764X.2016.1146659>

- Derose, K. P., & Rodriguez, C. (2020). A Systematic Review of Church-Based Health Interventions Among Latinos. *Journal of Immigrant and Minority Health*, 22(4), 795-815. <https://doi.org/10.1007/s10903-019-00941-2>
- Doudna, K. D. (2016). *Application of the family stress model in populations of rural Latina mothers* (Publication Number 1798479130) Iowa State University]. ProQuest Dissertations and Theses Global.
- Dueweke, A. R., Hurtado, G., & Hovey, J. D. (2015). Protective psychosocial resources in the lives of Latina migrant farmworkers. *Journal of Rural Mental Health*, 39(3-4), 162-177. <https://doi.org/10.1037/rmh0000038>
- Durkin, K., Lipsey, M. W., Farran, D. C., & Wiesen, S. E. (2022). Effects of a statewide pre-kindergarten program on children's achievement and behavior through sixth grade. *Developmental Psychology*. <https://doi.org/10.1037/dev0001301>
- Early, J., Davis, S. W., Quandt, S. A., Rao, P., Snively, B. M., & Arcury, T. A. (2006). Housing Characteristics of Farmworker Families in North Carolina. *Journal of Immigrant and Minority Health*, 8(2). <https://doi.org/10.1007/s10903-006-8525-1>
- Employer Research Services (ERS). (2021). *Farm Labor*. U.S. Department of Agriculture. <https://www.ers.usda.gov/topics/farm-economy/farm-labor/#size>
- Ertel, K. A., Rich-Edwards, J. W., & Koenen, K. C. (2011). Maternal depression in the United States: Nationally representative rates and risks. *Journal of Women's Health*, 20(11), 1609-1617. <https://doi.org/10.1089/jwh.2010.2657>
- Espeleta, H. C., Beasley, L., Bohora, S., Ridings, L. E., & Silovsky, J. F. (2019). Depression in Latina mothers: Examining the roles of acculturation, enculturation, social support, and family resources. *Cultural Diversity and Ethnic Minority Psychology*, 25(4), 527-538. <https://doi.org/10.1037/cdp0000259>
- Fabes, R. A., Hanish, L. D., & Martin, C. L. (2003). Children at Play: The Role of Peers in Understanding the Effects of Child Care [<https://doi.org/10.1111/1467-8624.00586>]. *Child Development*, 74(4), 1039-1043. <https://doi.org/10.1111/1467-8624.00586>
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical

- sciences [doi:10.3758/BF03193146]. *Behavior Research Methods*, 39(2), 175-191. <https://doi.org/10.3758/BF03193146>
- Finch, B. K. (2019). Intergenerational Health Transmission among Mexican Americans: Further Evidence of the Protective Effect of Spanish-language Utilization. *Immigration and Health*, 19, pp. 97-103. Emerald Publishing Limited. <https://doi.org/10.1108/S1057-629020190000019005>
- Finch, B. K., Frank, R., & Vega, W. A. (2004). Acculturation and acculturation stress: A social-epidemiological approach to Mexican migrant farmworkers' health. *International Migration Review*, 38(1), 236-262. <https://doi.org/10.1111/J.1747-7379.2004.TB00195.X>
- Flippen, C. A., & Parrado, E. A. (2015). Perceived Discrimination among Latino Immigrants in New Destinations. *Sociological Perspectives*, 58(4), 666-685. <https://doi.org/10.1177/0731121415574397>
- García Coll, C., Crnic, K., Lamberty, G., Wasik, B. H., Jenkins, R., García, H. V., & McAdoo, H. P. (1996). An Integrative Model for the Study of Developmental Competencies in Minority Children [https://doi.org/10.1111/j.1467-8624.1996.tb01834.x]. *Child Development*, 67(5), 1891-1914. <https://doi.org/https://doi.org/10.1111/j.1467-8624.1996.tb01834.x>
- Gatewood, A. K. (2019). *Migrant and Seasonal Head Start Parents' Well Symptoms, and Sources of Strength* (OPRE Report #2019-101). R. a. E. Office of Planning, Administration for Children and Families, U.S. Department of Health and Human Services.
- Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal Depression and Child Psychopathology: A Meta-Analytic Review. In *Clinical Child and Family Psychology Review*, 14(1), pp. 1-27. DOI: 10.1007/s10567-010-0080-1
- Groh, A. M., Narayan, A. J., Bakermans-Kranenburg, M. J., Roisman, G. I., Vaughn, B. E., Fearon, R. M. P., & van, I. M. H. (2017). Attachment and Temperament in the Early Life Course: A Meta-Analytic Review. *Child Dev*, 88(3), 770-795. <https://doi.org/10.1111/cdev.12677>
- Grzywacz, J. G., Alterman, T., Muntaner, C., Shen, R., Li, J., Gabbard, S., Nakamoto, J., & Carroll, D. J. (2010). Mental Health Research with Latino Farmworkers: A

- Systematic Evaluation of the Short CES-D. *Journal of Immigrant and Minority Health*, 12(5), 652-658. <https://doi.org/10.1007/s10903-009-9311-2>
- Grzywacz, J. G., Alterman, T., Gabbard, S., Shen, R., Nakamoto, J., Carroll, D. J., & Muntaner, C. (2014). Job Control, Psychological Demand, and Farmworker Health: Evidence From the National Agricultural Workers Survey. *Journal of Occupational and Environmental Medicine*, 56(1), 66-71. <https://www.jstor.org/stable/48500383>
- Grzywacz, J. G., Quandt, S. A., Chen, H., Isom, S., Kiang, L., Vallejos, Q., & Arcury, T. A. (2010). Depressive symptoms among latino farmworkers across the agricultural season: Structural and situational influences. *Cultural Diversity and Ethnic Minority Psychology*, 16(3), 335-343. <https://doi.org/10.1037/a0019722>
- Grzywacz, J. G., Quandt, S. A., Early, J., Tapia, J., Graham, C. N., & Arcury, T. A. (2006). Leaving Family for Work: Ambivalence and Mental Health Among Mexican Migrant Farmworker Men. *Journal of Immigrant and Minority Health* 2006 8:1, 8(1), 85-97. <https://doi.org/10.1007/S10903-006-6344-7>
- Gwyther, M. E., & Jenkins, M. (1998). Migrant farmworker children: Health status, barriers to care, and nursing innovations in health care delivery. *Journal of Pediatric Health Care*, 12(2), 60-66. [https://doi.org/10.1016/S0891-5245\(98\)90223-1](https://doi.org/10.1016/S0891-5245(98)90223-1)
- Hahs-Vaughn, D. L., McWayne, C. M., Bulotsky-Shearer, R. J., Wen, X., & Faria, A.-M. (2011). Methodological Considerations in Using Complex Survey Data. *Evaluation Review*, 35(3), 269-303. <https://doi.org/10.1177/0193841x11412071>
- Halle, T. G., & Darling-Churchill, K. E. (2016). Review of measures of social and emotional development. *Journal of Applied Developmental Psychology*, 45, 8-18. <https://doi.org/10.1016/j.appdev.2016.02.003>
- Hammen, C. (2004). Stress and Depression. *Annual Review of Clinical Psychology*, 1(1), 293-319. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143938>
- Hansen, E., Donohoe, M., & Mary, S. (2003). Health Issues of Migrant and Seasonal Farmworkers. *Journal of Health Care for the Poor and Underserved*, 14(2), 153-164. <https://doi.org/10.1353/hpu.2010.0790>

- Harris, R. A., & Santos, H. P. J. (2020). Maternal depression in Latinas and child socioemotional development: A systematic review. *PLOS ONE*, *15*(3), e0230256-e0230256. <https://doi.org/10.1371/JOURNAL.PONE.0230256>
- Haws, J. K., Andrews Iii, A. R., Acosta Canchila, M. N., & Ramos, A. K. (2022). Refining the Migrant Farmworker Stress Inventory among Latino migrant farmworkers in rural Nebraska. *Journal of Rural Mental Health*, *46*(2), 100–116 <https://doi.org/10.1037/rmh0000202>
- Hayatbakhsh, M. R., Mamun, A. A., Najman, J. M., O'Callaghan, M. J., Bor, W., & Alati, R. (2008). Early Childhood Predictors of Early Substance use and Substance use Disorders: Prospective Study. *Australian and New Zealand Journal of Psychiatry*, *42*(8), 720-731. <https://doi.org/10.1080/00048670802206346>
- Hiott, A. E., Grzywacz, J. G., Davis, S. W., Quandt, S. A., & Arcury, T. A. (2008). Migrant farmworker stress: Mental health implications. *Journal of Rural Health*, *24*(1), 32-39. <https://doi.org/10.1111/j.1748-0361.2008.00134.x>
- Hirsh, E., & Lyons, C. J. (2010). Perceiving Discrimination on the Job: Legal Consciousness, Workplace Context, and the Construction of Race Discrimination. *Law & Society Review*, *44*(2), 269-298. <https://doi.org/10.1111/J.1540-5893.2010.00403.X>
- Hogben, M., & Leichter, J. S. (2008). Social determinants and sexually transmitted disease disparities. *Sexually Transmitted Diseases*, *35*(12), S13-18. <https://doi.org/10.1097/OLQ.0b013e31818d3cad>
- Horwitz, S. M., Briggs-Gowan, M. J., Storfer-Isser, A., & Carter, A. S. (2007). Prevalence, Correlates, and Persistence of Maternal Depression. *Journal of Women's Health*, *16*(5), 678-691. <https://doi.org/10.1089/JWH.2006.0185>
- Horwitz, S. M. C., Irwin, J. R., Briggs-Gowan, M. J., Bosson Heenan, J. M., Mendoza, J., & Carter, A. S. (2003). Language Delay in a Community Cohort of Young Children. *Journal of the American Academy of Child & Adolescent Psychiatry*, *42*(8), 932-940. <https://doi.org/10.1097/01.CHI.0000046889.27264.5E>
- Hovey, J. D., Hurtado, G., & Seligman, L. D. (2014). Findings for a CBT Support Group for Latina Migrant Farmworkers in Western Colorado. *Current Psychology*, *33*(3), 271-281. <https://doi.org/10.1007/s12144-014-9212-y>

- Hovey, J. D., & Magaña, C. (2000). Acculturative Stress, Anxiety, and Depression among Mexican Immigrant Farmworkers in the Midwest United States. *Journal of immigrant health*, 2, 119–131. <https://doi.org/10.1023/A:1009556802759>
- Hovey, J. D., & Magaña, C. G. (2002). Psychosocial predictors of anxiety among immigrant Mexican migrant farmworkers: Implications for prevention and treatment. *Cultural Diversity and Ethnic Minority Psychology*, 8(3), 274-289. <https://doi.org/10.1037/1099-9809.8.3.274>
- Hovey, J. D., & Magaña, C. G. (2003). Suicide risk factors among Mexican migrant farmworker women in the midwest United States. *Archives of Suicide Research*, 7(2), 107-121. <https://doi.org/10.1080/13811110301579>
- Hovey, J. D. C., Magana, M. A., Smith, Z. F., & Gordon, J. (2001). *Resource Id#: 5013 Mental Health Assessment: Breaking New Ground in Colorado*.
- Huang, Z. J., Lewin, A., Mitchell, S. J., & Zhang, J. (2012). Variations in the relationship between maternal depression, maternal sensitivity, and child attachment by race/ethnicity and nativity: Findings from a nationally representative Cohort study. *Maternal and Child Health Journal*, 16(1), 40-50. <https://doi.org/10.1007/s10995-010-0716-2>
- Hurwich-Reiss, E., & Watamura, S. E. (2019). Family processes among Latino Early Head Start families: Understanding the role of caregiver acculturation. *Journal of Community Psychology*, 47(6), 1433-1448. <https://doi.org/10.1002/jcop.22198>
- Jani, J. S., & Deforge, B. R. (2015). Contextually Appropriate Measurement as the Basis for Culturally Appropriate Interventions: A Case Study in Managua, Nicaragua. *Social Work in Public Health*, 30(2), 157-174. <https://doi.org/10.1080/19371918.2014.969859>
- Kaiser, C. R., & Major, B. (2006). A Social Psychological Perspective on Perceiving and Reporting Discrimination. *Law & Social Inquiry*, 31(4), 801-830. <https://doi.org/10.1111/j.1747-4469.2006.00036.x>
- Kaminski, J. W., Perou, R., Visser, S. N., Scott, K. G., Beckwith, L., Howard, J., Smith, D. C., & Danielson, M. L. (2013). Behavioral and socioemotional outcomes through age 5 years of the legacy for children public health approach to improving developmental outcomes among children born into poverty. *American Journal of Public Health*, 103(6), 1058-1066. <https://doi.org/10.2105/AJPH.2012.300996>

- Kanamori, M., Shrader, C. H., & Rosa, M. D. L. (2020). A Timely Concern: Would Immigration Policies and Enforcement Actions Influence Higher Alcohol Dependence among Latina Seasonal Farmworkers? *Journal of Agromedicine*, 26(2), 266-272. <https://doi.org/10.1080/1059924X.2020.1744494>
- Karevold, E., Røysamb, E., Ystrom, E., & Mathiesen, K. S. (2009). Predictors and pathways from infancy to symptoms of anxiety and depression in early adolescence. *Developmental Psychology*, 45(4), 1051-1060. <https://doi.org/10.1037/a0016123>
- Keim-Malpass, J., Spears Johnson, C. R., Quandt, S. A., & Arcury, T. A. (2015). Perceptions of housing conditions among migrant farmworkers and their families: Implications for health, safety and social policy. *Rural and Remote Health*, 15(1), 3076-3076. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4780055/>
- Kelly, M. S. (2007). Faith and Rebellion: Protective and Risk Factors for the Adolescent Children of Religiously Observant Mexican-American Immigrants. *Social Work & Christianity*, 34(3), 259-276.
- Kennedy, S., Kidd, M. P., McDonald, J. T., & Biddle, N. (2015). The Healthy Immigrant Effect: Patterns and Evidence from Four Countries. *Journal of International Migration and Integration*, 16(2), 317-332. <https://doi.org/10.1007/s12134-014-0340-x>
- Kessler, R. C. (2003). Epidemiology of women and depression. *Journal of Affective Disorders*, 74(1), 5-13. [https://doi.org/10.1016/S0165-0327\(02\)00426-3](https://doi.org/10.1016/S0165-0327(02)00426-3)
- Kessler, R. C., Mickelson, K. D., & Williams, D. R. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior*, 40(3), 208-230. <https://doi.org/10.2307/2676349>
- Kilanowski, J. F. (2012). Patterns and correlates of nutrition among migrant farm-worker children. *Western Journal of Nursing Research*, 34(3), 396-416. <https://doi.org/10.1177/0193945910381597>
- Kim-Godwin, Y. S., & Bechtel, G. A. (2004). Stress Among Migrant and Seasonal Farmworkers in Rural Southeast North Carolina. *The Journal of Rural Health*, 20(3), 271-278. <https://doi.org/10.1111/J.1748-0361.2004.TB00039.X>

- King, V. (2003). The Influence of Religion on Fathers' Relationships With Their Children. *Journal of Marriage and Family*, 65, 382-395.
<https://doi.org/10.1111/j.1741-3737.2003.00382.x>
- Kohler, U., Bernt Karlson, K., & Holm, A. (2011). Comparing coefficients of nested nonlinear probability models. *The Stata Journal*, 11(3), 420 - 438.
<https://journals.sagepub.com/doi/pdf/10.1177/1536867X1101100306>
- Kohout, F. J., Berkman, L. F., Evans, D. A., & Cornoni-Huntley, J. (1993). Two Shorter Forms of the CES-D Depression Symptoms Index. *Journal of Aging and Health*, 5(2), 179-193. <https://doi.org/10.1177/089826439300500202>
- Kołodziej-Zaleska, A., & Przybyła-Basista, H. (2016). Psychological well-being of individuals after divorce: the role of social support. *Current Issues in Personality Psychology*, 4, 206-216. <https://doi.org/10.5114/cipp.2016.62940>
- Koreishi, S., & Donohoe, M. (2010). Historical and Contemporary Factors Contributing to the Plight of Migrant Farmworkers in the United States. *Social Medicine*, 5(1), 64-73.
<http://socialmedicine.info/index.php/socialmedicine/article/viewFile/343/1041>
- Krieger, N., Waterman, P. D., Kosheleva, A., Chen, J. T., Carney, D. R., Smith, K. W., Bennett, G. G., Williams, D. R., Freeman, E., Russell, B., Thornhill, G., Mikolowsky, K., Rifkin, R., & Samuel, L. (2011). Exposing racial discrimination: implicit & explicit measures--the My Body, My Story study of 1005 US-born black & white community health center members. *PLOS ONE*, 6(11), e27636.
<https://doi.org/10.1371/journal.pone.0027636>
- La Roche, M. J., Turner, C., & Kalick, S. M. (1995). Latina Mothers and Their Toddlers' Behavioral Difficulties. *Hispanic Journal of Behavioral Sciences*, 17(3), 375-384.
<https://doi.org/10.1177/07399863950173007>
- Leticq, B. L., Grzywacz, J. G., Gray, K. M., & Eudave, Y. M. (2014). Depression Among Mexican Men on the Migration Frontier: The Role of Family Separation and Other Structural and Situational Stressors. *Journal of Immigrant and Minority Health*, 16(6), 1193-1200. <https://doi.org/10.1007/s10903-013-9918-1>
- Lewis, T. T., Cogburn, C. D., & Williams, D. R. (2015). Self-Reported Experiences of Discrimination and Health: Scientific Advances, Ongoing Controversies, and Emerging Issues. *Annual Review of Clinical Psychology*, 11, 407-440.
<https://doi.org/10.1146/ANNUREV-CLINPSY-032814-112728>

- Liebman, A. K., Simmons, J., Salzwedel, M., Tovar-Aguilar, A., & Lee, B. C. (2017). Caring for Children While Working in Agriculture—The Perspective of Farmworker Parents. *Journal of Agromedicine*, 22(4), 406-415. <https://doi.org/10.1080/1059924X.2017.1358229>
- Lim, Y., Song, S., & Song, W. (2017). Prevalence and Determinants of Overweight and Obesity in Children and Adolescents from Migrant and Seasonal Farmworker Families in the United States—A Systematic Review and Qualitative Assessment. *Nutrients*, 9(3), 188-188. <https://doi.org/10.3390/nu9030188>
- Lopez-Class, M., Castro, F. G., & Ramirez, A. G. (2011). Conceptions of acculturation: A review and statement of critical issues. *Social Science & Medicine*, 72(9), 1555-1562. <https://doi.org/10.1016/j.socscimed.2011.03.011>
- Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, 20(5), 561-592. [https://doi.org/10.1016/S0272-7358\(98\)00100-7](https://doi.org/10.1016/S0272-7358(98)00100-7)
- Mackinnon, D. P. (2000). Equivalence of the Mediation, Confounding and Suppression Effect. *Prevention Science*, 1(4), 173-181. <https://doi.org/10.1023/a:1026595011371>
- Magaña, C. G., & Hovey, J. D. (2003). Psychosocial stressors associated with Mexican migrant farmworkers in the midwest United States. *Journal of immigrant health*, 5(2), 75-86. <https://doi.org/10.1023/A:1022955825650>
- Maguire, L. K., Niens, U., McCann, M., & Connolly, P. (2015). Emotional development among early school-age children: gender differences in the role of problem behaviours. *Educational Psychology*, 36(8), 1408-1428. <https://doi.org/10.1080/01443410.2015.1034090>
- Martí, M., Bonillo, A., Jané, M. C., Fisher, E. M., & Duch, H. (2016). Cumulative Risk, the Mother–Child Relationship, and Social-Emotional Competence in Latino Head Start Children. *Early Education and Development*, 27(5), 590-622. <https://doi.org/10.1080/10409289.2016.1106202>
- Martínez, M. I. (2014). *Young Latino children at risk for psychopathology: effects of maternal depressive symptoms on child behavior* [Doctoral Dissertation, University of North Carolina at Chapel Hill]. Carolina Digital Repository. <https://cdr.lib.unc.edu/concern/dissertations/5999n415p>

- McCabe, B. E., Vermeesch, A. L., Hall, R. F., Peragallo, N. P., & Mitrani, V. B. (2011). Acculturation and the center for epidemiological studies-depression scale for Hispanic women. *Nursing Research*, *60*(4), 270-275.
<https://doi.org/10.1097/NNR.0b013e318221b8dc>
- McCue Horwitz, S., Hurlburt, M. S., Heneghan, A., Zhang, J., Rolls-Reutz, J., Fisher, E., Landsverk, J., & Stein, R. E. K. (2012). Mental Health Problems in Young Children Investigated by U.S. Child Welfare Agencies. *Journal of the American Academy of Child & Adolescent Psychiatry*, *51*(6), 572-581.
<https://doi.org/10.1016/j.jaac.2012.03.006>
- Meadows, S. O., McLanahan, S. S., & Brooks-Gunn, J. (2007). Parental Depression and Anxiety and Early Childhood Behavior Problems Across Family Types *Journal of Marriage and Family*, *69*(5), 1162-1177.
<https://doi.org/https://doi.org/10.1111/j.1741-3737.2007.00439.x>
- Medel-Herrero, A., Torreiro-Casal, M., Hovey, J. D., Rascon-Garcia, K., Smiley-Jewell, S., Shumway, M., & Deeb-Sossa, N. (2021). The increasing toll of racism and discrimination on California agricultural workers and their families under the Trump administration. *Ethnicities*, *21*(4), 638–663.
<https://doi.org/10.1177/14687968211018255>
- International Organization for Medicine (IOM). (2003). *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. The National Academies Press.
<https://doi.org/doi:10.17226/10260>
- Mistry, R. S., Biesanz, J. C., Taylor, L. C., Burchinal, M., & Cox, M. J. (2004). Family Income and Its Relation to Preschool Children's Adjustment for Families in the NICHD Study of Early Child Care. *Developmental Psychology*, *40*(5), p. 727-45.
 doi:10.1037/0012-1649.40.5.727
- Mitchell, S. J., & Cabrera, N. J. (2009). An Exploratory Study of Fathers' Parenting Stress and Toddlers' Social Development in Low-Income African American Families. *Fathering: A Journal of Theory, Research, and Practice about Men as Fathers*, *7*(3), 201-225. <https://doi.org/10.3149/fth.0703.201>
- Moreno, O., & Cardemil, E. (2018). The role of religious attendance on mental health among Mexican populations: A contribution toward the discussion of the immigrant health paradox. *American Journal of Orthopsychiatry*, *88*(1).
 doi:10.1037/ort0000214

- Morey, B. N., Gee, G. C., Shariff-Marco, S., Yang, J., Allen, L., & Gomez, S. L. (2020). Ethnic enclaves, discrimination, and stress among Asian American women: Differences by nativity and time in the United States. *Cultural Diversity and Ethnic Minority Psychology*, 26(4), 460-471. <https://doi.org/10.1037/cdp0000322>
- National Migrant and Seasonal Head Start Association (NMSHSA). (2021). *What do MSHS programs do?* Retrieved February 24, 2022 from <https://www.nmshsa.org/what-do-mshs-programs-do/>
- National Safety Council (NSC). (2017). *Fatigue in the Workplace: Causes and Consequences of Employee Fatigue, Part 1*. <https://cloud.safe.nsc.org/fatigue-report>
- Negi, N. J., Swanberg, J. E., Clouser, J. M., & Harmon-Darrow, C. (2020). Working under conditions of social vulnerability: Depression among Latina/o immigrant horse workers. *Cultural diversity & ethnic minority psychology*, 26(1). <https://doi.org/10.1037/CDP0000276>
- Nes, R. B., Hauge, L. J., Kornstad, T., Landolt, M. A., Irgens, L., Eskedal, L., Kristensen, P., & Vollrath, M. E. (2015). Maternal Work Absence: A Longitudinal Study of Language Impairment and Behavior Problems in Preschool Children. *Journal of Marriage and Family*, 77(5), 1282-1298. <https://doi.org/10.1111/jomf.12210>
- Nguyen, A. W. (2020). Religion and Mental Health in Racial and Ethnic Minority Populations: A Review of the Literature. *Innovation in Aging*, 4(5). <https://doi.org/10.1093/geroni/igaa035>
- Nichols, M., Stein, A. D., & Wold, J. L. (2014). Health status of children of migrant farm workers: Farm worker family health program, Moultrie, Georgia. *American Journal of Public Health*, 104(2), 365-370. <https://doi.org/10.2105/AJPH.2013.301511>
- Nix, R. L., Bierman, K. L., Domitrovich, C. E., & Gill, S. (2013). Promoting Children's Social-Emotional Skills in Preschool Can Enhance Academic and Behavioral Functioning in Kindergarten: Findings from Head Start REDI. *Early Education Development*, 24(7). <https://doi.org/10.1080/10409289.2013.825565>
- Olayo Méndez, J. A. (2006). Latino Parenting Expectations and Styles: A Literature Review. *A Professional Publication of American Humane*, 53-61. https://cimmcw.org/wp-content/uploads/pc-21_2.pdf#page=55

- Olson, S. L., Ceballo, R., & Park, C. (2002). Early problem behavior among children from low-income, mother-headed families: a multiple risk perspective. *Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 31(4), 419–430. https://doi.org/10.1207/S15374424JCCP3104_2
- Ornelas, I., Fung, W., Gabbard, S., & Carroll, D. (2021). *Findings from the National Agricultural Workers Survey (NAWS) 2017–2018: A Demographic and Employment Profile of United States Farmworkers* (14). U.S. Department of Labor, Employment and Training Administration, Office of Policy Development and Research. <https://www.dol.gov/agencies/eta/national-agricultural-workers-survey/research>
- Pachter, L. M., Bernstein, B. A., Szalacha, L. A., & Coll, C. G. (2010). Perceived Racism and Discrimination in Children and Youths: An Exploratory Study. *Health & Social Work*, 35(1), 61-69. <https://doi.org/10.1093/hsw/35.1.6> 1
- Padilla, A. M., & Borrero, N. E. (2006). The Effects of Acculturative Stress on the Hispanic Family. In P. T. P. Wong & L. C. J. Wong (Eds.), *Handbook of Multicultural Perspectives on Stress and Coping* (pp. 299-317). Springer US. https://doi.org/10.1007/0-387-26238-5_13
- Palermo, F., Ispa, J. M., Carlo, G., & Streit, C. (2018). Economic hardship during infancy and U.S. Latino preschoolers' sociobehavioral health and academic readiness. *Developmental Psychology*, 54(5), 890-902. <https://doi.org/10.1037/DEV0000476>
- Parra-Cardona, J. R., Bullock, L. A., Imig, D. R., Villarruel, F. A., & Gold, S. J. (2006). “Trabajando Duro Todos Los Días”: Learning From the Life Experiences of Mexican-Origin Migrant Families*. *Family Relations*, 55(3), 361-375. <https://doi.org/10.1111/J.1741-3729.2006.00409.X>
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2016). Stress, Health, and the Life Course: Some Conceptual Perspectives*. *Journal of Health and Social Behavior*, 46(2), 205-219. <https://doi.org/10.1177/002214650504600206>
- Perez-Brena, N. J., Rivas-Drake, D., Toomey, R. B., & Umaña-Taylor, A. J. (2018). Contributions of the integrative model for the study of developmental competencies in minority children: What have we learned about adaptive culture? *American Psychologist*, 73(6), 713-726. <https://doi.org/10.1037/amp0000292>

- Pérez, D. J., Fortuna, L., & Alegría, M. (2008). Prevalence and correlates of everyday discrimination among U.S. Latinos. *Journal of Community Psychology*, 36(4), 421-433. <https://doi.org/10.1002/jcop.20221>
- Perreira, K. M., Chapman, M. V., & Stein, G. L. (2006). Becoming an American Parent. *Journal of Family Issues*, 27(10), 1383-1414. <https://doi.org/10.1177/0192513x06290041>
- Petterson, S. M., & Albers, A. B. (2001). Effects of poverty and maternal depression on early child development. *Child Development*, 72(6), 1794-1813. <https://doi.org/10.1111/1467-8624.00379>
- Petts, R. J. (2007). Religious Participation, Religious Affiliation, and Engagement With Children Among Fathers Experiencing the Birth of a New Child. *Journal of Family Issues*, 28(9), 1139-1161. <https://doi.org/10.1177/0192513X07300788>
- Portes, A., & Bach, R. L. (1985). *Latin Journey: Cuban and Mexican Immigrants in the United States*. University of California Press.
- Portes, A., & Jensen, L. (1992). Disproving the Enclave Hypothesis: Reply. *American Sociological Review*, 57(3), 418-420. <https://doi.org/https://www.jstor.org/stable/2096246>
- Pulgar, C. A., Trejo, G., Suerken, C., Ip, E. H., Arcury, T. A., & Quandt, S. A. (2016). Economic Hardship and Depression Among Women in Latino Farmworker Families. *Journal of Immigrant and Minority Health*, 18(3), 497-504. <https://doi.org/10.1007/s10903-015-0229-6>
- Quandt, S. A., Brooke, C., Fagan, K., Howe, A., Thornburg, T. K., & McCurdy, S. A. (2015). Farmworker housing in the United States and its impact on health. *New Solutions*, 25(3), 263-286. <https://doi.org/10.1177/1048291115601053>
- Quandt, S. A., Lamonto, N. J., Mora, D. C., Talton, J. W., Laurienti, P. J., & Arcury, T. A. (2021). COVID-19 Pandemic Among Immigrant Latinx Farmworker and Non-farmworker Families: A Rural–Urban Comparison of Economic, Educational, Healthcare, and Immigration Concerns. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy*, 31(1), 30-47. <https://doi.org/10.1177/1048291121992468>

- Ramirez, V. (2012). *The effects of parental acculturation and parenting behaviors on the social-emotional functioning of young Hispanic children* (Publication Number 3546898) [Psy.D., Rutgers The State University of New Jersey, Graduate School of Applied and Professional Psychology]. ProQuest Dissertations & Theses Global. Ann Arbor. <https://rucore.libraries.rutgers.edu/rutgers-lib/38632/>
- Ramos, A. K., Carlo, G., Grant, K., Trinidad, N., & Correa, A. (2016). Stress, Depression, and Occupational Injury among Migrant Farmworkers in Nebraska. *Safety* 2016, Vol. 2, Page 23, 2(4), 23-23. <https://doi.org/10.3390/SAFETY2040023>
- Ramos, A. K., Carvajal-Suarez, M., Trinidad, N., Michaud, T. L., Grimm, B., LeVan, T., & Siahpush, M. (2020). A Cross-sectional Study of Gender-related Differences in Reporting Fatigue and Pain among Latino/A Migrant Farmworkers. *Journal of Agromedicine*, 25(3), 319-329. <https://doi.org/10.1080/1059924X.2020.1713272>
- Ramos, A. K., Su, D., Lander, L., & Rivera, R. (2015). Stress Factors Contributing to Depression Among Latino Migrant Farmworkers in Nebraska. *Journal of Immigrant and Minority Health*, 17(6), 1627-1634. <https://doi.org/10.1007/s10903-015-0201-5>
- Raver, C., & Knitzer, J. (2002). *Ready to Enter: What Research Tells Policymakers About Strategies to Promote Social and Emotional School Readiness Among Three- and Four-Year-Old Children*. <https://academiccommons.columbia.edu/doi/10.7916/D82V2QVX>
- Reyes-Ortega, M., Soto-Hernández, A. L., Milla-Kegel, J. G., García-Ramírez, A., Hubard-Vignau, L., Mendoza-Sánchez, H., Mejía-Garza, L. A., García-Peña, M. C., & Wagner-Echeagaray, F. A. (2003). Actualización de la Escala de Depresión del Centro de Estudios Epidemiológicos (CES-D). Estudio piloto en una muestra geriátrica mexicana. *Salud Mental*, 26(1), 59-68.
- Roid, G. H., & Koch, C. (2017). Leiter-3: Nonverbal Cognitive and Neuropsychological Assessment. *Handbook of Nonverbal Assessment*, 127-150. https://doi.org/10.1007/978-3-319-50604-3_8
- Roid, G. H., Miller, L. J., Pomplun, M., & Koch, C. (2013). *Leiter International Performance Scale* (3rd ed.). Western Psychological Services.

- Rose, B. M., Holmbeck, G. N., Coakley, R. M., & Franks, E. A. (2004). Mediator and moderator effects in developmental and behavioral pediatric research. *Journal of Developmental & Behavioral Pediatrics*, 25(1), 58-67.
<http://survey.hshsl.umaryland.edu/?url=https://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=139564495&site=eds-live>
- Saban, K. L., Mathews, H. L., Bryant, F. B., Tell, D., Joyce, C., DeVon, H. A., & Witek Janusek, L. (2018). Perceived discrimination is associated with the inflammatory response to acute laboratory stress in women at risk for cardiovascular disease. *Brain, Behavior, and Immunity*, 73, 625-632.
<https://doi.org/10.1016/J.BBI.2018.07.010>
- Salzwedel, M., Liebman, A., Kruse, K., & Lee, B. (2020). The COVID-19 Impact on Childcare in Agricultural Populations. *Journal of Agromedicine*, 25(4), 383-387.
<https://doi.org/10.1080/1059924x.2020.1815616>
- Sanchez, M., Diez, S., Fava, N. M., Cyrus, E., Ravelo, G., Rojas, P., Li, T., Cano, M. A., & De La Rosa, M. (2019). Immigration Stress among Recent Latino Immigrants: The Protective Role of Social Support and Religious Social Capital. *Social Work in Public Health*, 34(4), 279-292.
<https://doi.org/10.1080/19371918.2019.1606749>
- Sandberg, J. C., Grzywacz, J. G., Talton, J. W., Quandt, S. A., Chen, H., Chatterjee, A. B., & Arcury, T. A. (2012). A Cross-Sectional Exploration of Excessive Daytime Sleepiness, Depression, and Musculoskeletal Pain among Migrant Farmworkers. *Journal of Agromedicine*, 17(1), 70-80.
<https://doi.org/10.1080/1059924X.2012.626750>
- Sauter, M. B., & Stockdale, C. (2019). The most dangerous jobs in the US include electricians, firefighters and police officers. *USA Today*.
<https://www.usatoday.com/story/money/2019/01/08/most-dangerous-jobs-us-where-fatal-injuries-happen-most-often/38832907/>
- Schwartz, S. J., Unger, J. B., Zamboanga, B. L., & Szapocznik, J. (2010). Rethinking the concept of acculturation: Implications for theory and research. *American Psychologist*, 65(4), 237-251. <https://doi.org/10.1037/a0019330>
- Shipp, E. M., Cooper, S. P., del Junco, D. J., G.L., D., Burau, K. D., Tortolero, S., & Whitworth, R. E. (2009). Chronic Back Pain and Associated Work and Non-Work Variables Among Farmworkers from Starr County, Texas. *14*(1), 22-32.
<https://doi.org/10.1080/10599240802612539>

- Smokowski, P. R., Rose, R., & Bacallao, M. L. (2008). Acculturation and Latino Family Processes: How Cultural Involvement, Biculturalism, and Acculturation Gaps Influence Family Dynamics. *Family Relations*, 57(3), 295-308. <https://doi.org/10.1111/j.1741-3729.2008.00501.x>
- Snipes, S. A., Cooper, S. P., & Shipp, E. M. (2017). “The Only Thing I Wish I Could Change Is That They Treat Us Like People and Not Like Animals”: Injury and Discrimination Among Latino Farmworkers. *Journal of Agromedicine*, 22(1), 36-46. <https://doi.org/10.1080/1059924X.2016.1248307>
- Spieker, S. J., Larson, N. C., Lewis, S. M., Keller, T. E., & Gilchrist, L. (1999). Developmental Trajectories of Disruptive Behavior Problems in Preschool Children of Adolescent Mothers [https://doi.org/10.1111/1467-8624.00032]. *Child Development*, 70(2), 443-458. <https://doi.org/https://doi.org/10.1111/1467-8624.00032>
- Stacks, A. M., & Goff, J. (2006). Family correlates of internalizing and externalizing behavior among boys and girls enrolled in Head Start. *Early Child Development and Care*, 176(1), 67-85. <https://doi.org/10.1080/0300443042000302609>
- Stallones, L. (2002). Pesticide Poisoning and Depressive Symptoms among Farm Residents. *Annals of Epidemiology*, 12(6), 389-394. [https://doi.org/10.1016/s1047-2797\(01\)00298-8](https://doi.org/10.1016/s1047-2797(01)00298-8)
- Stein, G. L., Gonzales, R. G., García Coll, C., & Prandoni, J. I. (2016). Latinos in Rural, New Immigrant Destinations: A Modification of the Integrative Model of Child Development. 37-56. https://doi.org/10.1007/978-3-319-20976-0_3
- Stolzenberg, R. M., Blair-Loy, M., & Waite, L. J. (1995). Religious Participation in Early Adulthood: Age and Family Life Cycle Effects on Church Membership. *American Sociological Review*, 60(1), 84-103. <https://doi.org/10.2307/2096347>
- Taylor, Z. E., & Ruiz, Y. (2017). Contextual stressors and the mental health outcomes of Latino children in rural migrant-farmworker families in the midwest. *Journal of Rural Mental Health*, 41(4), 284-298. <https://doi.org/10.1037/rmh0000082>
- Taylor, Z. E., Ruiz, Y., Nair, N., & Mishra, A. A. (2020). Family support and mental health of Latinx children in migrant farmworker families. *Applied Developmental Science*, <https://doi.org/10.1080/10888691.2020.1800466>

- Terrazas, S. R., & McCormick, A. (2018). Coping Strategies That Mitigate Against Symptoms of Depression Among Latino Farmworkers. *Hispanic Journal of Behavioral Sciences*, 40(1), 57-72. <https://doi.org/10.1177/0739986317752923>
- Thompson, N. E., & Gurney, A. G. (2003). "He is everything": Religion's role in the lives of immigrant youth. *New Directions for Youth Development*, 2003(100), 75-90. <https://doi.org/10.1002/YD.64>
- U.S. Department of Health and Human Services (DHHS). (2011). *Race to the Top: Early Learning Challenge*. <https://www.ed.gov/sites/default/files/rtt-elc-draft-execsumm-070111.pdf>
- Valdez, C. R., Shewakramani, V., Goldberg, S., & Padilla, B. (2013). Parenting influences on latino children's social competence in the first grade: Parental depression and parent involvement at home and school. *Child Psychiatry and Human Development*, 44(5), 646-657. <https://doi.org/10.1007/s10578-013-0358-x>
- Vallejos, Q. M., Quandt, S. A., Grzywacz, J. G., Isom, S., Chen, H., Galván, L., Whalley, L., Chatterjee, A. B., & Arcury, T. A. (2011). Migrant farmworkers' housing conditions across an agricultural season in North Carolina. *American Journal of Industrial Medicine*, 54(7), 533-544. <https://doi.org/10.1002/ajim.20945>
- van Griethuijsen, R. A. L. F., van Eijck, M. W., Haste, H., den Brok, P. J., Skinner, N. C., Mansour, N., Savran Gencer, A., & BouJaoude, S. (2015). Global Patterns in Students' Views of Science and Interest in Science. *Research in Science Education*, 45(4), 581-603. <https://doi.org/10.1007/s11165-014-9438-6>
- Van Lith, T., Quintero, A., Johns, S., & Grzywacz, J. G. (2021). Promoting kindergarten readiness using early intervention art therapy with Latinx farmworker children. *The Arts in Psychotherapy*, 73, 101753. <https://doi.org/https://doi.org/10.1016/j.aip.2020.101753>
- Vega, W., Warheit, G., & Palacio, R. (1985). Psychiatric symptomatology among Mexican American farmworkers. *Social Science and Medicine*, 20(1), 39-45. [https://doi.org/10.1016/0277-9536\(85\)90309-0](https://doi.org/10.1016/0277-9536(85)90309-0)
- Vega, W., & Scribney, W. M. (2008). Latino Population Demographics, Risk Factors, and Depression: A Case Study of the Mexican American Prevalence and Services Survey. In A. K. Ramos & C. G. Magaña (Eds.), *Depression in Latinos: Assessment, Treatment, and Prevention* (pp. 29-52). Springer.

- Vega, W. A., Ang, A., Rodriguez, M. A., & Finch, B. K. (2011). Neighborhood Protective Effects on Depression in Latinos [Article]. *American Journal of Community Psychology*, 47(1/2), 114-126. <https://doi.org/10.1007/s10464-010-9370-5>
- Villatoro, A. P., Morales, E. S., & Mays, V. M. (2014). Family culture in mental health help-seeking and utilization in a nationally representative sample of Latinos in the United States: The NLAAS. *American Journal of Orthopsychiatry*, 84(4), 353-363. <https://doi.org/10.1037/h0099844>
- Walker, A., Malin, J. (2020a). *Characteristics of Migrant and Seasonal Head Start Children and Families: Select Findings from the MSHS Study 2017*. OPRE Report #2020-15. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.
- Walker, A., Malin, J. (2020b). *Migrant and Seasonal Head Start Children's Social and Emotional Skills*. OPRE Report #2020-16. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.
- Walter, N., Bourgois, P., & Loinaz, H. M. (2004). Masculinity and undocumented labor migration: injured latino day laborers in San Francisco. *Social science & medicine* (1982), 59(6), 1159-1159. <https://doi.org/10.1016/J.SOCSCIMED.2003.12.013>
- Westbrook, T. P. R., & Harden, B. J. (2010). Pathways among exposure to violence, maternal depression, family structure, and child outcomes through parenting: A multigroup analysis. *American Journal of Orthopsychiatry*, 80(3), 386-400. <https://doi.org/10.1111/J.1939-0025.2010.01042.X>
- White, R. M. B., Liu, Y., Nair, R. L., & Tein, J.-Y. (2015). Longitudinal and integrative tests of family stress model effects on Mexican origin adolescents. *Developmental Psychology*, 51(5), 649-662. <https://doi.org/10.1037/a0038993>
- Williams, D. R. (2000). Race, Stress, and Mental Health: Findings from the Commonwealth Minority Health Survey. In C. Hogue, M. A. Hargraves, & K. S. Collins (Eds.), *Minority Health in America: Findings and Policy Implication From the Commonwealth Fund Minority Health Survey* (pp. 209-243). Johns-Hopkins University Press.

- Williams, D. R. (2018). Stress and the Mental Health of Populations of Color: Advancing Our Understanding of Race-related Stressors. *Journal of Health and Social Behavior*, 59(4), 466-466. <https://doi.org/10.1177/0022146518814251>
- Yates, T., Ostrosky, M. M., Cheatham, G. A., Fettig, A., Shaffer, L., & Santos, R. M. (2008). *Research Synthesis on Screening and Assessing Social-Emotional Competence*. Center on the Social Emotional Foundations for Early Learning. http://csefel.vanderbilt.edu/documents/rs_screening_assessment.pdf
- Yudron, M., & Jones, S. M. (2016). Developmental Trajectories of Children's Social Competence in Early Childhood: The Role of the Externalizing Behaviors of Their Preschool Peers. *Journal of Cognitive Education and Psychology*, 15(2), 268-292. <https://doi.org/10.1891/1945-8959.15.2.268>
- Zapata Roblyer, M. I., Grzywacz, J. G., Suerken, C. K., Trejo, G., Ip, E. H., Arcury, T. A., & Quandt, S. A. (2016). Interpersonal and social correlates of depressive symptoms among Latinas in farmworker families living in North Carolina. *Women and Health*, 56(2), 177-193. <https://doi.org/10.1080/03630242.2015.1086464>
- Zarate, M. E., Pérez, P. A., & Acosta, R. (2017). Migrant education: Equity in context for farmworkers and their children. In P. A. Pérez & M. E. Zarate (Eds.), *Facilitating Educational Success for Migrant Farmworker Students in the U.S.* (1st ed., pp. 1-13). Routledge.