Curriculum Vitae

Name: Yanfeng Xu

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Degree and Date to be Conferred: PhD, 2019

## EDUCATION

**Ph.D. in Social Work** **2019**

University of Maryland School of Social Work, Baltimore, United States

**Master of Social Work** **2015**

Fudan University, Shanghai, China
*Outstanding Graduate in Shanghai*

**Bachelor of Laws, Social Work** **2012**

Guangdong University of Foreign Studies (GDUFS), Guangzhou, China
*Outstanding Graduate at GDUFS*

## PUBLICATIONS

### Peer-Reviewed Journal Articles

**Xu, Y.**, Ahn, H. & Keyser, D. (revise & resubmit). Measuring family-centered practice in child welfare.

**Xu, Y**. & Cao, Y. (under review). Neighborhood, fathers' involvement, children's internalizing and externalizing problems among fragile families.

Kobulsky, J., Dubowitz, H., & **Xu, Y.** (under review). The global challenge of child neglect.

Jedwab, M., **Xu, Y**., Keyser, D., & Shaw, T. (2019). Children and youth in out-of-home care: What can predict a change in placement? *Child Abuse and Neglect*, *93,* 55-65. doi: 10.1016/j.chiabu.2019.04.009

**Xu, Y.**, Harmon-Darrow, C., & Frey, J. (2019). Rethinking professional quality of life for social workers: Inclusion of ecological self-care barriers. *Journal of Human Behavior in the Social Environment. 29* (1), 11-25. doi: 10.1080/10911359.2018.1452814

**Xu, Y.** & Bright, C. (2018). Children's mental health and its predictors in kinship and non-kinship foster care: A systematic review. *Children and Youth Services Review. 89,* 243-262. doi:10.1016/j.childyouth.2018.05.001

**Xu, Y.**, Bright, C., & Ahn, H. (2018). Responding to child maltreatment: Comparison of child welfare policy between USA and China. *International Journal of Social Welfare. 27*(2), 107-120. doi: 10.1111/ijsw.12287

**Xu, Y.**, Shdaimah, C., Zhao, F., & Gioia, D. (2018). Qualitative research in the Chinese social work academy: Optimism and invisible disadvantages. *The British Journal of Social Work.* 1-21. doi: 10.1093/bjsw/bcy052

**Xu, Y.**, Wang, X., Ahn, H., & Harrington, D. (2018). Predictors of non-U.S. born mothers' parenting stress across early childhood in fragile families: A longitudinal analysis. *Children and Youth Services Review. 89,* 62-70. doi: 10.1016/j.childyouth.2018.04.012

Harmon-Darrow, C. & **Xu, Y.** (2018). Predictors of volunteer community mediators' burnout. *Conflict Resolution Quarterly. 35(4),* 367-381. doi: 10.1002/crq.21216

Zhao, F., **Xu, Y.** & Chen, H.L. (2018). An analysis of child protection policy and a construction of a family-centered child protection system in China. *Social Work and Management, 18*(5), 67-77. (In Chinese)

**Xu, Y**., Ahn, H., & Bright, C. (2017). Family involvement meetings: Engagement, facilitation, and child and family goals. *Children and Youth Services Review, 79,* 37-43. doi: 10.1016/j.childyouth.2017.05.026

Wang, S., & **Xu, Y.** (2015). Model changes in Chinese urban creative industry: A case study of Tongji economic circle in Shanghai. *China Ancient City, 2,* 15-21. (In Chinese)

Liu, C., & **Xu, Y.** (2010). The person-centered help model: Social work interventions with street children. *Youth and Juvenile Research, 3,* 33-36. (In Chinese)

**Book Review**

**Xu, Y**. (2018). Labor of Love: Gestational Surrogacy and the Work of Making Babies. Heather Jacobson. Reviewed by Yanfeng Xu. *The Journal of Sociology & Social Welfare, 45(2), 179-181.*

**Technical Reports**

Ma, K., Wang, Y., **Xu, Y.,** Jin, Z., Sun, Y., & Jiang, W. (2019). *Role conflicts and professional quality of life among medical social workers in Shanghai: Results from a mixed methods study.* Report submitted to Shanghai Hospital Management Association.

Ahn, H., Delisle, D., Keyser, D., Shaw, T., Kolupanowich, N., **Xu, Y.,** & Park, E. (2019). *Semi annual report of evaluation of family centered practice in Maryland (July 1, 2018-December 31, 2018).* Report submitted to the Maryland Department of Human Services, Social Services Administration.

Ahn, H., Delisle, D., Keyser, D., Shaw, T., Kolupanowich, N., **Xu, Y.**, & Marcelli, M. (2018). *Semi annual report of evaluation of family centered practice in Maryland (July 1, 2017-June 30, 2018).* Report submitted to the Maryland Department of Human Services, Social Services Administration.

Ahn, H., Hartzel, S., Teller, B., Shaw, T., Kolupanowich, N., **Xu, Y.**, & Keyser, D. (2017). *Semi annual report of evaluation of family centered practice in Maryland*

*(July 1, 2017-December 31, 2017)*. Report submitted to the Maryland Department of Human Services, Social Services Administration.

Ahn, H., Hartzel, S., Teller, B., Shaw, T., Kolupanowich, N., **Xu, Y.**, & Keyser, D. (2017). *Semi annual report of evaluation of family centered practice in Maryland (July 1, 2016-June 30, 2017).* Report submitted to the Maryland Department of Human Services, Social Services Administration.

**Peer-Reviewed Conference Presentations**

**Xu, Y.**, Bright, C., Ahn, H., Shaw, T., & Huang, H. (2020, January). *Economic hardship and economic pressure, financial assistance, and children's behavioral health in kinship care and non-relative foster care.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

**Xu, Y.**, Bright, C., Huang, H., Shaw, T., & Ahn, H. (2020, January). *Neighborhood disorder and child behavioral problems among kinship children: Mediated by social support and moderated by race/ethnicity?* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Ahn, H., & **Xu, Y.** (2020, January). *Service disparities among family involvement meeting participants.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Jedwab, M., **Xu, Y.**, Keyser., D., & Shaw, T. (2020, January). *Children and youth in foster care: What can predict an initial change in placement?* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

He, N., & **Xu, Y.** (2020, January). *Parenting behaviors, immigration, and adolescent mixed depression/anxiety symptoms in fragile families.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Lin, C. H. & **Xu, Y.** (2020, January). *Relative child care and parenting practices in early childhood development among fragile families.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Ma, K., **Xu, Y.,** Wang., Y., & Jin, Z. **(**2020, January). *Role conflict, role ambiguity, and professional quality of life among medical social workers.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Wang, Y., Ma, K., **Xu, Y.**, & Jin, Z. **(**2020, January). *Managing volunteers or providing clinical services? A mixed methods study among medical social workers in Shanghai.* Submitted to the 24th Society for Social Work and Research Annual Conference, Washington, DC.

Jedwab, M., **Xu, Y.**, Keyser., D., & Shaw, T. (2019, October). *Children and youth in foster care.* Oral presentation at the 34th Federation of Educative Communities (IFEC) International Congress, Tel Aviv, Israel.

**Xu, Y**, Ahn, H. & Keyser, D. (2019, January). *Measuring the family-centered practice in child welfare: A confirmatory factor analysis.* Poster presentation at the 23rd Society for Social Work and Research Annual Conference, San Francisco, CA.

**Xu, Y.** & Lin, C.H. (2019, January). *Understanding economic hardship and each type of child maltreatment: Testing the temporal impact*. Poster presentation at the 23rd Society for Social Work and Research Annual Conference, San Francisco, CA.

Lin, C.H. & **Xu, Y.** (2019, January). *Youth behaviors in fragile families: The role of neighborhood efficacy, parenting practice, and peer relationship*. Poster presentation at the 23rd Society for Social Work and Research Annual Conference, San Francisco, CA.

Jedwab, M. & **Xu, Y.** (2019, January). *The impact of early reporting and maltreatment on child's behavioral problems*. Poster presentation at the 23rd Society for Social Work and Research Annual Conference, San Francisco, CA.

Wang, S., **Xu, Y.**, & Liu, C. (2019, January). *Is transit important for single parents? Evidence from Maryland*. Poster presentation at the 98th Transportation Research Board Annual Meeting, Washington, D.C.

**Xu, Y.,** Man, X., Zhang, L., & DeForge, B. (2018, November). *Family foster care and children's outcomes in China: Evidence from a scoping review*. Paper presentation at CSWE 64th Annual Program Meeting, Orlando, FL.

**Xu, Y.,** & Bright, C. (2018, November). *Children's mental health and its predictors in kinship and non-kinship foster care: A systematic review*. Paper presentation at CSWE 64th Annual Program Meeting, Orlando, FL.

**Xu, Y.** (2018, November). *Children's internalizing and externalizing trajectories from age 3 to age 9 in fragile families: The role of neighborhood*. Poster presentation at American Public Health Annual Meeting 2018, San Diego, CA.

**Xu, Y.** (2018, July). *Neighborhood, fathers' involvement, and children's internalizing and externalizing problems*. Paper presentation at International Family Violence and Child Victimization Research Conference, Portsmouth, NH.

**Xu, Y.,** Shdaimah, C., Zhao, F., & Gioia, D. (2018, May). *Qualitative research in the Chinese social work academy: Invisible disadvantages and optimism.* Poster presentation at the 14th International Congress of Qualitative Inquiry, Urbana-Champaign, IL.

**Xu, Y.,** Wang, X., Ahn, H, & Harrington, D. (2018, March). *Predictors of non-U.S. born mothers' parenting stress across early childhood in fragile families*. Paper presentation at the 40th University of Maryland, Baltimore, Annual Graduate Research Conference, Baltimore, MD.

**Xu, Y.,** Harmon-Darrow, C., & Frey, J. (2018, January). *Self-care behaviors, self-care barriers, and professional quality of life among Bachelor-level social workers.* Paper presentation at the 22nd Annual Conference of the Society for Social Work and Research, Washington, DC.

**Xu, Y.,** Shdaimah, C., Zhao, F., & Gioia, D. (2018, January). *Qualitative research in the Chinese social work academy: Invisible disadvantages or optimism?* Poster presentation at the 22nd Annual Conference of the Society for Social Work and Research, Washington, DC.

**Xu, Y.,** & Ahn, H. (2018, January). *Fathers' involvement and maternal parenting stress at children's early age in fragile families.* Paper presentation at the 22nd Annual Conference of the Society for Social Work and Research, Washington, DC.

**Xu, Y.** (2018, January). Child protection in China. Special interest group at the 22nd Annual Conference of the Society for Social Work and Research, Washington, DC.

Zhao, F., & **Xu, Y.***(2017, December). *Child sexual abuse: Ethical issues in China*. Paper presentation at Child maltreatment in Context: The 2nd Haruv International Conference, Jerusalem, Israel. * Presenting author

**Xu, Y.,** Bright, C., & Ahn, H. (2017, January). *Responding to child maltreatment: Comparison of child welfare policy between the U.S. and China.* Poster presentation at the 21st Annual Conference of the Society for Social Work and Research, New Orleans, LA.

**Xu, Y.,** & Ahn, H. (2017, January). *The better facilitators' competence leads to the higher level of participants' engagement? An empirical study from the Family Involvement Meeting (FIM).* Poster presentation at the 21st Annual Conference of the Society for Social Work and Research, New Orleans, LA.

**Xu, Y.** (2014, June). *Child protection and out-of-home placement policy in Finland: What China can learn from?.* Paper presentation at the 6th Social Welfare Research International Conference, Nanjing University, Nanjing, China.

**Xu, Y.** (2014, June). *The service coverage and boundary of medical social work: A case study of a children's hospital in Shanghai*. Paper presentation at 2014 Social Work Graduate Research Conference, Tianjin, Nankai University & Chinese University of Hong Kong, China.

Wang, S., & **Xu, Y.** (2014, July). *Discussion on model transformation of China's urban creative industry: A case study of an economic circle around Tongji University in Yangpu, Shanghai*. Paper presentation at 2014 Chinese Sociology Annual Conference, Wuhan, China. *Awarded second place in the urban sociology track.

**Xu, Y.**, & Wang, S. (2013, August). *The relationship between sexual assault happened in public restrooms and restroom design in Chinese cities: What architectural social work can do?.* Paper presentation at the 2013 China Social Work Education Annual Conference, Guangzhou, China. *Awarded third place.

**Xu, Y.**, & Wang, S. (2013, July). *The relationship between sexual assault and public urban infrastructures and space: Illustrated by research on public restrooms in Chinese cities.* Paper presentation at the 5th Joint Association of European Schools of Planning/Associations of Collegiate Schools of Planning Joint Congress, Dublin, Ireland.

**Xu, Y.** (2013, May). *Empowerment, dynamic, and process: A group intervention to increase the subjective well-being of people with mental retardation.* *Awarded first place of 7th Liang-Guo-Zhi China Social Work Student Paper Competition, Renmin University of China, Suzhou, China.

**Xu, Y.** (2011, August). *Preschool education in rural China: A case study of a southwestern town*. Paper presentation at 2011 Cross-Strait Social Welfare Conference, Sun Yat-Sen University, Guangzhou, China.

**Invited Presentations**

**Xu, Y.** (2019, April). Panelist for Dr. Donna Harrington memorial symposium: Neglected children: An approach to prevention, with Dr. Howard Dubowitz, Dr. Denise Pintello, and Dr. Catherine Moon. University of Maryland School of Social Work, Baltimore, MD.

**Xu, Y.** (2016, July). A comparison of child protection systems in China and the United States. Xiangya Hospital, Central South University, Changsha, China.

## RESEARCH GRANTS

**Co-Investigator** **April 2017 - March 2019**
*Project: Role conflicts and burnout among medical social workers in Shanghai: A mixed methods study*
(PI: Kaixuan Ma; Funded ¥ 16,000 by Shanghai Hospital Management Association, Shanghai, China; Grant number: 20170220)

## RESEARCH EXPERIENCE

**Graduate Research Assistant** **University of Maryland** **Sep. 2015 - June. 2019**

- *Project 1: Evaluation phase II of an evidence-based model of family-centered practice in Maryland*
  *($3,500,000 funded by Maryland Department of Human Services, Social Service Administration)*
- *Project 2: Evaluation of Maryland's child welfare quality assurance system*
  *($3,500,000 funded by Maryland Department of Human Services, Social Service Administration)*
- *Project 3: Evaluation of the kinship navigator program in Maryland*
  *($100,000 funded by Children's Bureau)*
- *Project 4: The experiences of incarcerated women in the START program: A trauma-focused comprehensive treatment program*
  *($18,072 funded by University of Maryland School of Social Work)*
- *Project 5: A comparison of child welfare policy in the U.S. and China*
- *Project 6: The experience of social work faculty engaged in qualitative methods in China*

**Research Assistant** **Fudan University** **Sep. 2012 - Jan. 2015**
*Project: Child protection in Shanghai and comparative child welfare policy*
*(¥ 5,000 funded by Shanghai All Women's Federation)*

**Research Assistant** **GDUFS** **Sep. 2009 - June 2011**
*Project: Street children and social work interventions*

## TEACHING EXPERIENCE

**Adjunct Professor** **University of Maryland** **Sep. 2018 – Dec. 2018**
*Course: Social Work Research Methods (MSW level; hybrid)*

**Adjunct Instructor** **Shanghai Enbo Education Institute** **Jan. 2013 - Aug. 2014**
*Course: Introduction to Social Work (Undergraduate level; face-to-face)*

**Guest Lecturer** **University of Maryland** **Nov. 2017**
*Course: Qualitative Research Methods (MSW level; face-to-face)*

**Teaching Assistant** **University of Maryland** **Jan. 2017 – May 2018**
*Course 1: Social Welfare and Social Policy (MSW level; hybrid)*
*Course 2: Social Work Research Methods (MSW level; face-to-face)*
*Course 3: Human Behavior and Social Environment (MSW level; face-to-face)*

**Teaching Practicum** **University of Maryland** **Oct. 2016 - Dec. 2016**
*Course: Research in Child Welfare (MSW level; face-to-face)*

## SOCIAL WORK PRACTICE EXPERIENCE

**Medical Social Work Intern** Shanghai Children's Medical Center 2013 - 2014

**Youth Social Work Intern** Hong Kong Youth Outreach 2010 - 2010

**School Social Work Intern** Qichuang Social Work Services Center 2009 - 2010

## HONORS AND AWARDS

| | |
|---|---|
| 2019 | Doctoral Scholars Institute Fellow ($500), Annual Network for Social Work Management Conference, Chicago |
| 2019 | Chinese Government Award for Outstanding Students Abroad ($6,000), China Scholarship Council, Ministry of Education, China |
| 2019 | Graduate Research Award ($1,000), University of Maryland, Baltimore |
| 2018 | American Public Health Annual Meeting Student Scholarship ($500), Washington D.C. |
| 2018 | Life Paths Promising Author Award ($341), Life Paths Appalachian Research Center |
| 2018 | Dr. Susan Zuravin Scholarship for child welfare research achievement ($2,000), UMB, Baltimore |
| 2018 | Fragile Families summer data workshop training fellow ($300), Columbia University, Population Research Center, New York |
| 2017 - 2018 | Professional Development Award ($1,000), UMB, Baltimore |
| 2017 | Student Leader with the President’s Cord, President’s Student Leadership Institute, UMB, Baltimore |
| 2017 - 2018 | Conference Travel Award ($900), UMB, Graduate School, Baltimore |
| 2016 - 2018 | Conference Travel Award ($2,500), School of Social Work, Baltimore |
| 2015 | Housing scholarship for competitive incoming Ph.D. students ($5,000), UMB, Baltimore |
| 2015 | National Graduate Scholarship (¥ 20,000), Ministry of Education, China |
| 2015 | Outstanding Graduate in Shanghai, Bureau of Education, Shanghai, China |
| 2015 | Commencement speaker, Department of Social Work, Fudan University, |

Shanghai, China

2014 Outstanding Summer Practitioner in Shanghai, Bureau of Education, Shanghai, China

2014 Second place conference paper in the urban sociology track, China Sociology Association, China

2014 Study abroad scholarship (¥ 4,000), Fudan University, China

2013 Third place annual conference paper, China Social Work Education Association, China

2013 Travel award (¥ 3,000), Annual China Social Work Education Conference, China

2013 Conference travel award (¥ 3,500), Fudan University, China

2013 First place winner in the national 7th Liang Guozhi Social Work Students' paper competition (¥ 500), Renmin University of China, China

2013 First place scholarship (¥ 12,000), Fudan University, China

2013 - 2014 Outstanding student/outstanding student leader, Fudan University, China

2012 - 2014 Outstanding graduate research and practice projects, Graduate School, Fudan University, China

2012 - 2014 Graduate research and practice funds (¥ 5,000), Graduate School, Fudan University, China

2012 Outstanding Graduate of GDUFS, Guangzhou, China

2012 Outstanding thesis, GDUFS, Guangzhou, China

2011 Third place winner of 11th "Challenge Cup" national survey competition in Guangdong Province, Ministry of Education in Guangdong Province, Guangzhou, China

2010 First place winner of "Challenge Cup" national survey competition, GDUFS, Guangzhou, China

2009 - 2012 Outstanding student/outstanding student leader, GDUFS, Guangzhou, China

2009 - 2012 University scholarship for four years (5%; ¥ 6,000), GDUFS, Guangzhou, China

## SERVICE

**Service to the Profession**

**<u>Ad-hoc reviewer</u>**

2019 Evaluation and Program Planning

2019 Child & Family Social Work

2019 Vulnerable Children & Youth Studies

2019 Children and Youth Services Review

2019 Council on Social Work Education Annual Program Meeting

2018 - 2019 American Public Health Association Annual Meeting

2018 Journal of Psychosocial Oncology

2018 Human Service Organizations: Management, Leadership, & Governance

2017 International Journal of Social Welfare

2017 Perspectives on Social Work

**<u>Volunteer</u>**

2018 Council on Social Work Education Annual Program Meeting
2016 - 2018 Society of Social Work and Research Conferences

**Campus Services at the University of Maryland, Baltimore**

2017 - 2018 President, International Student Association, Social Work PhD program
2016 - 2017 Representative, Graduate Student Association of University of Maryland
2016 - 2017 Committee member, 2017 Graduate Research Conference
2016 - 2017 Vice President, Chinese Students and Scholars Association
2016 - 2019 Mentor for an international student, International Students Office
2016 Committee member, Ph.D. Incoming Student Orientation Committee
2015 - 2016 Committee member, Ph.D. Recruitment Committee Member

**Campus Services at Chinese Universities**

2014 - 2015 Co-chair, Graduate Student Committee, Fudan University
2013 - 2014 Chair, Department of Social Survey of Graduate Student Association, Fudan University
2010 - 2011 President, Social Work Student Association, GDUFS
2010 - 2011 President, Social Work Class of 2012, GDUFS
2009 - 2010 Project Manager, Junior Achievement (NGO), GDUFS

## PROFESSIONAL MEMBERSHIP

Society of Social Work and Research 2017 - present
American Public Health Association 2018 - present
Council on Social Work Education 2018 - present

## SOCIAL WORK LICENSE

Licensed Junior Social Worker, Ministry of Civil Affairs, China 2012 - present

## DATA ANALYSIS SKILLS

**Quantitative Skills**

- Software: STATA, SPSS, Mplus, SAS, R, & RevMan
- Applied linear regression analysis, generalized linear regression analysis, survival analysis, multilevel modeling, longitudinal data analysis, exploratory factor analysis and confirmatory factor analysis, structural equation modeling (SEM), latent growth curve modeling and multiple group SEM, moderation and mediation analysis, propensity scoring matching, systematic review and meta-analysis, Bayesian inference

**Qualitative Skills**

- Software: NVivo & Dedoose
- Grounded theory analysis, thematic content analysis

**Mixed Methods Skills**

- Mixed methods community action research

## ABSTRACT

Dissertation Title: Multiple Challenges in Kinship Families: How Are They Associated with Children's Behavioral Health in Kinship Care?

Yanfeng Xu, Doctor of Philosophy, 2019

Dissertation Directed By:

Charlotte Lyn Bright, Ph.D.

Associate Professor

School of Social Work

The use of kinship care has increased in the United States. This dissertation, comprised of three papers, aims to understand multiple challenges in kinship care and their associations with children's behavioral health using data from the second National Survey of Child and Adolescent Well-being (NSCAW II).

Paper 1 developed a new kinship typology based on financial assistance and examined factors associated with receiving Temporary Assistance for Needy Families (TANF) and foster care payments. Results from logistic regression models showed that child maltreatment, children's externalizing problems, and receiving social services were significantly associated with receiving foster care payments. Living in poverty and a single-adult household were associated with receiving TANF. The results of paper 1 imply that child welfare workers need to increase kinship caregivers' awareness of financial resources and to make the right resources accessible for them.

Paper 2 examined longitudinal relations among economic hardship, economic pressure, TANF, foster care payments, and children's behavioral problems in kinship care

and non-relative foster care. Results of multi-level mixed-effects generalized linear models indicated that economic pressure was associated with children's internalizing and externalizing problems, as was receiving TANF. Receiving foster care payments was associated with lower externalizing problems. Significant interaction terms showed that foster care payments had positive effects on children's behavioral health among families without economic hardship and families with economic pressure. The results of paper 2 imply that assessing caregivers' subjective economic experiences is important to promoting child wellbeing. Findings point to the hardships of families that receive TANF and suggest providing financial and non-financial services to these families.

Paper 3 examined the association between neighborhood disorder and children's behavioral problems and tested the mediating role of social support and the moderating role of race/ethnicity. Results of moderated mediation regression models showed that neighborhood disorder was associated with lower social support, while more social support predicted lower children's internalizing and externalizing problems. Social support mediated the relation between neighborhood disorder and children's behavioral problems, but race/ethnicity did not significantly moderate the pathways. The findings of paper 3 imply that interventions are needed to enhance kinship caregivers' social support and neighborhood quality.

# Multiple Challenges in Kinship Families:
# How Are They Associated with Children's Behavioral Health in Kinship Care?

by

Yanfeng Xu

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
2019

## Dedication

To my late grandparents

## Acknowledgements

I would like to express my deepest heartfelt gratitude to my mentors, colleagues, friends, and family. Without your company and encouragement in my Ph.D. journey, I would not have finished my doctoral degree in four years. This has been a special time, with highs and lows. At the end of this journey, I can proudly say that it is the best chapter of my life so far.

I truly appreciate all the mentorship that I received during my doctoral program. First, to my dissertation chair and advisor, Dr. Charlotte Bright: I am so lucky to work with such a brilliant and wise mentor. Completing my degree, including my dissertation work, would not be done so smoothly without her mentorship and support. She always encourages me and shows her confidence in me. Dr. Bright also has shown me how to be an outstanding mentor, researcher, and teacher. I also would like to thank my committee members, including Dean Richard Barth, Dr. Haksoon Ahn, Dr. Terry Shaw, and Dr. Hui Huang. Dr. Barth, who is one of the leading child welfare scholars globally, provided insightful feedback that strengthened my dissertation. Dr. Ahn provided me constructive feedback with her expertise in family economic well-being and child welfare, along with her intelligence and emotional support during my graduate studies. Also, many thanks go to Dr. Shaw for his availability no matter when I drop by his office. He always smiles and provides lots of encouragement, inspiring me to further understand children in foster care. Lastly, deep appreciation for Dr. Huang's insights on neighborhood research in child welfare and her expertise in methodology. Dr. Huang has provided tremendous mentorship to me since the first day of my doctoral program as my mentor, colleague, and friend. She is always there when I need any help.

Besides my committee members, I also would like to extend my appreciation to other faculty members and staff in the School of Social Work. Furthermore, I would like to thank my friends, particularly my international fellows and my cohort for their friendship and support. Also, I wanted to express a big thank you to all my supportive colleagues who helped me a lot in this journey.

Furthermore, I would like to thank my husband, Dr-to-be Sicheng Wang, and our parents. Thank you, Sicheng, for your unconditional love and support all the time. We are each other's best colleague and friend. I also would like to thank my parents and parents in-law for their unwavering support and love. They shared my happiness and sadness with me while on the other side of the world. I would not be the person I am without their efforts, love, and support.

This study would not have been possible without the support from the National Data Archive on Child Abuse and Neglect research team and the many child welfare scholars who shared their knowledge of the National Survey of Child and Adolescent Well-being (NSCAW) with me. Also, my appreciation goes to all the families and children who participated in the NSCAW study. It is my hope that the research that emerges from your experiences changes the child welfare system for the better.

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## List of Abbreviations

AFCARS = Adoption and Foster Care Analysis and Reporting System

AFDC = Aid to Families with Dependent Children

AIC = Akaike Information Criterion

ASFA = Adoption and Safe Families Act

BIC = Bayesian Information Criterion

CAI = Computer-Assisted Interview

CPS = Child Protective Services

CWS = Child Welfare Services

FC = Foster Care Payments

HS = High School

ICC = InterClass Correlation

MAR = Missing at Random

MCAR = Missing Completely at Random

MI = Multiple Imputation

MLE = Maximum Likelihood Estimation

MLM = Multilevel Modeling

NCANDS = National Child Abuse and Neglect Data System

NDACAN = National Data Archive on Child Abuse and Neglect

NSCAW I = The first National Survey of Child and Adolescent Well-being

NSCAW II = The second National Survey of Child and Adolescent Well-being

PSU = Primary Sampling Unit

TANF = Temporary Assistance for Needy Families

VIF = Variance Inflation Factor

# Chapter 1: Introduction

## Kinship Care

Extended families have helped to raise children in cultures around the world throughout human history (Connolly, Kiraly, McCrae, & Mitchell, 2017; Korbin, 1991). Relatives, especially grandparents, frequently step in to care for children when biological parents are unable to do so, with this arrangement being especially common among minorities (Barrio & Hughes, 2000; Brown, Cohon, & Wheeler, 2002). More than 2.7 million American children live with relatives other than their biological parents (Kids Count Data Center, 2016). The events triggering placement of children with relatives include child maltreatment, parental substance use, parental incarceration, domestic violence, and mental illness (Annie Casey Foundation, 2012).

Kinship care has been formalized and prioritized as an alternative care arrangement for children involved in the child welfare system in the United States in recognition of the extended family's parental role when biological parents have limited capacities and as a result of an increasing shortage of non-relative foster parents for maltreated children (Freundlich, 2014). The number of children living in kinship care has increased 18% in a decade (2004-2014; Annie E. Casey Foundation, 2014). Moreover, about 30% of child welfare involved children in out-of-home care were placed in kinship care in 2015 (U.S. Department of Health and Human Services, Administration for Children and Families, 2015). Although the number of children in kinship care has increased dramatically, the current systems are not designed to meet the needs of these families and children (Wald, 2017). For example, many kinship families do not receive the public assistance they need (Annie E. Casey Foundation, 2014). More research is needed to understand children's and caregivers' well-being in kinship care.

Kinship care has been noted in the literature as culturally appropriate, especially in African American communities (Cook & Ciarico, 1998; Harris, 2004; Hill, 2004; Minkler & Fuller-Thomson, 1999; Ross & Aday, 2006). African American children are overrepresented, compared to their representation in the general population, in foster care in general. About 21% of children in foster care were African Americans (Department of Health and Human Services' Administration for Children and Families, 2018). Due to more family-level risk factors (e.g., poverty, single-parent household) and plausible institutional racism (Hill, 2004), African American children comprised approximately 60% of children in kinship care (Cook & Ciarico, 1998). There is no significant difference in the percentages of Hispanic children placed in kin and non-kin placements, relative to White children (Chipungu et al., 1998; Cook & Ciarico, 1998).

Kinship care is appealing because it expresses the value of cultural, family, and community connections, but there is some evidence that shows that kinship caregivers may often not have the means to meet children's basic needs (Font, 2014; Garcia et al., 2015; Goertzen, Chan, & Wolfson, 2007). For kinship care to be effective in promoting child well-being, policy and practice at the community and family levels for kinship families are needed to support kinship families.

Promoting children's well-being is one of the ultimate goals in child protection and children's behavioral health outcomes are an important indicator of child well-being in child welfare. About 34% of children in kinship care in the U. S. have behavioral health problems, which is higher than the percentage in the general population (Sakai, Lin, & Flores, 2011). Children's adverse behavioral problems have consequences on adulthood well-being across the life span. This dissertation aims to understand how challenges in kinship care compared to non-relative foster care are associated with children's behavioral health well-being, across multiple racial and ethnic groups.

**Purposes of This Dissertation**

This dissertation, comprised of three papers, used the second National Survey of Child and Adolescent Well-being (NSCAW II) data to address fundamental questions about kinship care and child well-being.

**Paper 1**

A large proportion of kinship families are living in poverty and have limited access to financial assistance. Foster care payments and Temporary Assistance for Needy Families (TANF) are primary forms of financial assistance for caregivers (Hernández & Berrick, 2019). The first paper first clarified a typology of kinship care and financial assistance: (1) Kinship families received TANF benefits only (Type 1: TANF only); (2) kinship families received foster care payments only (Type 2: FC only); (3) kinship families received both foster care payments and TANF benefits (Type 3: TANF + FC); and (4) kinship families received no payments (Type 4: None). This study further divided the None type into two subtypes, including families who received no subsidies and lived in poverty and families who received no subsidies and lived above the poverty line. Moreover, paper 1 identified some similarities and differences among the four types of kinship care and examined factors associated with receiving TANF benefits and foster care payments in kinship care.

**Paper 2**

Kinship care families have more economic disadvantages compared to non-relative foster care families. Additionally, financial support disparities exist between kinship and non-kin families. The second paper examined longitudinal associations between economic hardship and economic pressure, TANF and foster care payments, and children's internalizing and externalizing problems among children in kinship care and non-relative foster care. Furthermore, it tested if TANF and foster care payments buffered the negative effects of economic hardship and economic pressure on children's internalizing and externalizing problems.

**Paper 3**

Children in kinship care may be placed in similar neighborhoods as their birth families, which are predominantly characterized as distressed neighborhoods. The third paper investigated the association between neighborhood disorder and children's behavioral problems. Furthermore, paper 3 examined if social support mediated the association between neighborhood disorder and children's internalizing and externalizing problems and tested if race/ethnicity moderated the pathways from neighborhood disorder to social support and from social support to children's behavioral problems.

**Data Source Description**

The NSCAW II used an unequally weighted, stratified, and clustered survey design, principally, at the county level (Dowd et al., 2014). The sample was selected using a two-stage stratified sample design. First, the United States was divided into nine sampling strata, including eight strata with the largest child welfare workloads, and the ninth strata from the rest of the 38 states and the District of Columbia. The first stage was to select the Primary Sampling Units (PSUs). The PSUs refer to geographic areas that encompass the population served by a single child welfare services (CWS) agency and these PSUs usually correspond to counties or contiguous areas of two or more counties (Dowd et al., 2014). Children and families were selected from 83 counties in 30 states in the United States. The second stage was within-PSU sampling. Five domains for within-PSU sampling were applied, including (1) all children age 0-17.5 who were not receiving CWS agency funded services; (2) infants (age < 1 year old) who were receiving CWS agency funded services and were in out of home care; (3) infants (age < 1 year old) who were receiving CWS agency funded services and were not in out of home care; (4) children age 1 to 17.5 years old who were receiving CWS agency funded services and were in out of home care; and (5) children age 1 to 17.5 years old who were receiving CWS agency funded services and were not in out of home care.

Because of the two-stage stratified sampling design, analysis of NSCAW data needs to apply sampling weights to obtain unbiased estimates. The sampling weights correspond to the different selection probabilities. Details about how to calculate weights were documented in NSCAW II manual (Dowd et al., 2014). The NSCAW research team constructed sampling weighting variables for each wave and has provided instructions on their correct application based on the type of analysis and wave of data (Dowd et al., 2014).

NSCAW II followed a cohort of 5,872 children for three years and investigated their well-being, service needs, and service utilization longitudinally. Data about children's well-being, maltreatment history, and child welfare services history were collected from children, parents, primary caregivers, teachers, child welfare workers, and child welfare agencies. Data were collected at three timepoints: baseline (approximately 45 days after the close of the investigation), 18 months post-baseline, and 36 months post-baseline. Baseline data were collected between April 2008 and December 2009. The second wave (18-months follow-up) data were collected between October 2009 and January 2011, and the third wave data were collected from 2011 to 2012. The child, caregiver, and child welfare worker data were collected using Computer-Assisted Interview (CAI) instruments; the local agency director interviews and teacher data were collected using paper instruments (Dowd et al., 2014).

Data collection procedures for waves 1, 2, and 3 were similar. The NSCAW team first reached out to sampled child welfare agencies and collected contact information for the child and family. Then, the NSCAW field representatives, who had experience in clinical social work/psychology or had worked with children, mailed introductory letters and questionnaires to children's caregivers. These materials were mailed approximately 45 days after the close of child maltreatment investigation. This window allowed families who had been investigated and children who had a placement change to have made adjustments. The NSCAW used a passive way to obtain informed consent from sampled families. If the NSCAW research team had not received responses from families to opt out of the study, the field representatives would call or visit the household to schedule an appointment to conduct in-person child and caregiver interviews. If there were more than one caregiver in the families, the caregiver who best knew the child's well-being was selected to be interviewed. The interviews were held in private rooms. However, if the field representatives suspected risk of child abuse and neglect, field representatives were required to make mandatory reports. For children's interviews, the field representatives interviewed children and/or observed infants and toddlers, depending on children's ages, once consent forms were obtained. Data were also collected from teachers about children's well-being, including peer relationships, social skills, behaviors, and academic performance. Field representatives interviewed the investigative child welfare workers about allegations, family risk level, and services to permanent and non-permanent caregivers and children (Dowd et al., 2014).

NSCAW II also combined administrative data from the National Child Abuse and Neglect Data System (NCANDS) and the Adoption and Foster Care Analysis and Reporting System (AFCARS). NCANDS is a federal data reporting system administrated by the Children's Bureau within the Administration for Children and Families. It includes child-specific data about children and perpetrators' demographics, types of child maltreatment, child protective services investigations, risk factors, and services provided to children and families. NCANDS data contained in the NSCAW II data were reported in 2008 and 2009 (Dowd et al., 2014). AFCARS is also a federal reporting system that collects data from state child welfare agencies about children who are in foster care or who have been adopted. AFCARS provides case-specific adoption and foster care information on children covered by the protections of Title IV-B/E of the Social Security Act (Dowd et al., 2014). The AFCARS data contained in the NSCAW II were collected between May 2008 and May 2010 (Dowd et al., 2014).

Although NSCAW aimed to be a nationally representative study, some states did not participate in the NSCAW study because their state laws required the agency to contact children and families first instead of field investigators initiating the contact, as in NSCAW procedures. Therefore, NSCAW II results only generalize to the U.S. child welfare population excluding the child welfare populations in some states that require agency first contact when collecting data (Dowd et al., 2014).

## Organization of This Dissertation

This dissertation includes five chapters. This first chapter introduces kinship care and the data source: the NSCAW II. Chapters 2-4 present three empirical studies analyzing the NSCAW II data. The first paper is titled "A new kinship typology and factors associated with receiving financial assistance in kinship care." The second paper is titled "Economic hardship and economic pressure, financial assistance, and children's behavioral health in kinship care and non-relative foster care." The third paper is titled "Neighborhood disorder and child behavioral problems among kinship children: Mediated by social support and moderated by race/ethnicity?" Chapter 5 provides a summary of key findings, implications from the three papers, and future directions for broader kinship care research.

The combination of three studies in this dissertation makes contributions to understanding multiple challenges in kinship care and its associations with children's behavioral health outcomes. The results of these studies have the potential to inform policy making and intervention development to better support caregivers and children in family-based care, especially kinship care.

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# Chapter 2: Paper 1


## Abstract

**Title:** A new kinship typology and factors associated with receiving financial assistance in kinship care

**Abstract:** Financial hardship is one of the most challenging issues faced by kinship foster care families. TANF benefits and foster care payments are potential sources of financial assistance provided for kinship families. This study used wave 2 of NSCAW II data to develop a new typology of kinship care based on financial mechanisms, including: (1) families that received TANF only; (2) families that received foster care payments only; (3) families that received both TANF benefits and foster care payments; and (4) families that received no payments. A few differences were identified among these four types, including child race, children's externalizing problems, caregivers' marital status, licensure status, single-adult households, and received social services. To examine factors associated with receiving TANF and foster care payments, two logistic regression models indicated that child maltreatment, children's externalizing problems, married caregivers, and receiving social services were significantly associated with receiving foster care payments. Living below the federal poverty line and in a single-adult household were associated with receiving TANF benefits. Additionally, this study found that children of other race/ethnicity, such as Asian/ Pacific Islanders or Native American families, children's internalizing problems, and employed caregivers were associated with lower odds of receiving foster care payments. Being a licensed foster caregiver was associated with lower odds of receiving TANF benefits. The results suggest that child welfare workers and policy makers need to think about how to increase kinship caregivers' awareness of financial resources and to make the right resources accessible for kinship caregivers.

**Key words:** financial assistance, kinship care, foster care payments, TANF

## Introduction

Kinship care is the full-time care of a child by relatives or other adults who have a close relationship with the child and the family (Child Welfare Information Gateway, 2014). Over the last 25 years, kinship care has become increasingly common around the world because, compared with non-relative foster care, it is cost-efficient, relatively stable, less disruptive, and provides a connection to children's family members, communities, and cultures (Berrick, Barth, & Needell, 1994; Connolly, Kiraly, McCrae, & Mitchell, 2017). In the United States, children in kinship care have increased from 24% to 32% of children in out-of-home care in child welfare from 2008 to 2017, while children in non-relative foster care (excluding congregate care) decreased from 47% to 45% in the past decade (Department of Health and Human Services Administration for Children and Families, 2009-2018).

The majority of kin caregivers are often characterized as older, unemployed, having poor health and mental health conditions, of low economic status, having inadequate housing, and living in poor and deprived circumstances (Berrick et al., 1994; Ehrle & Geen, 2002; Minkler, 1999; Nandy & Selwyn, 2012). Due to caregivers' conditions, economic hardship is one of the greatest difficulties faced by kin caregivers and their families (Ehrle & Geen, 2002; Fruhauf, Pevney, & Bundy-Fazioli, 2015; Jantz, 2002). An estimated 33% of kinship households live at or below the federal poverty line, and, in the last part of the last century, nearly 50% of the children in kinship care experienced food insecurity (Ehrle & Geen, 2002). To further understand financial well-being among kinship families, this study developed a new typology of kinship care based on financial assistance sources and examined factors associated with receiving financial assistance.

## Former Typology of Kinship Care

Traditionally, the scholarly literature has employed varying definitions to categorize kinship care, but these definitions were determined by the level of the government's involvement in kinship families. The level of the state intervening in kinship care families, to some extent, determines the level of financial assistance received by kinship families and children (Anderson & Righton, 2001; Gibbs, Kasten, Bir, Duncan, & Hoover, 2006). Typically, kinship care is divided into formal (public) and informal (private) kinship care. Two dimensions of differences between formal and informal kinship care are whether child welfare agencies are involved in the caregiving arrangements and whether kin caregivers receive legal recognition of caregiver status (Annie E. Casey Foundation, 2014; Child Welfare Information Gateway, 2016; Child Welfare League of America, 1994; Office of the Assistant Secretary for Planning and Evaluation, 2000). Some subcategories within formal/public kinship care are based on placement approaches, including voluntary placements and court-ordered placements (Office of the Assistant Secretary for Planning and Evaluation, 2000). Consistent with this approach, Berrick and Hernandez (2016) further categorized kinship care according to the level of the authority's involvement as state-mandated (i.e., voluntary placement agreement, kinship foster care, kinship guardianship, and kinship adoption), state-mediated (i.e., voluntary kinship care and kinship diversion), and state-independent (i.e., informal/private kinship care).

In sum, although there are some variations among kinship topology, whether the child welfare system intervenes in the placement arrangement and the level of the state's (i.e., the child welfare agency and the government) involvement are the most important criteria to distinguish different subtypes. The level of the government's involvement with the family also may affect the family's access to financial assistance.

**Financial Assistance for Kinship Care**

There are various mechanisms providing financial support for kinship families; however, TANF and foster care payments are the primary financial resources across the country for kin caregivers (Hernández & Berrick, 2018). TANF is a federal program to help needy families achieve self-sufficiency (Office of Family Assistance, 2017). Though TANF benefits were not originally designed for abused or neglected children and their families, many funds have been transferred to those families involved with the child welfare system, particularly to kinship families (Hahn, Golden, & Edelman, 2012). For kinship families, two types of TANF assistance are available: TANF family grants and TANF child-only grants (Children's Defense Fund, 2004). TANF family grants, a means-tested program, are only available to those families that meet the guidelines for income eligibility, age, work, or disability requirements. Even if families receive TANF family grants, the benefits are limited to five years of their lifetime (Children's Defense Fund, 2004). TANF child-only grants, however, assess the child's needs as well as the family's income; most kinship families are eligible for TANF child-only grants (Children's Defense Fund, 2004). However, TANF child-only grants are typically very small, and the small amounts of this benefit may be insufficient to meet children's needs in care (Children's Defense Fund, 2004).

For kinship caregivers who are involved with the child welfare system, some are eligible for foster care payments in some states (Jantz, Geen, Bess, Andrews, & Russell, 2002). Foster care payments are made to foster care parents to meet children's needs in care (Social Security Administration, 2014). Compared to TANF benefits, the amount of foster care payments is larger, and the amount can also be multiplied by the number of foster children in the household (Roberts, 2001). TANF grants increase gradually with additional children, but the increases are not multiplicative (Children's Defense Fund, 2004). Different from TANF, in many states, only licensed kinship foster parents are eligible for foster care payments because this is the federal standard for Title IV-E reimbursement (Jantz et al., 2002; Roberts, 2001). However, because many relatives do not feel comfortable with the oversight of the child welfare system or are not able to meet the foster care licensure requirements (i.e., home study, background check, etc.), kinship caregivers may end up without having any foster care payments from the government though they may receive cash assistance (Roberts, 2001).

Even when financial subsidies are available to kin caregivers, kinship care families may not get the financial assistance to which they are entitled (Dellmann-Jenkins, Blankemeyer, & Olesh, 2002; Landry-Meyer, 2000; Murray, Ehrle, & Geen, 2004; Sheran & Swann, 2007). Between 33% and 50% of children in kinship care received foster care payments (Murray et al., 2004). Financial assistance disparities may be greatest existed among different types of kinship care families. About 75% of children in formal kinship care, which refers to families who had formal involvement with the child welfare system that resulted in the child's placement into their home, received any government payments including TANF child-only payment, Social Security, and

Supplemental Security Income. On the contrary, only 32% of children in informal kinship care (i.e., families did not have the child welfare system's involvement prior to the child moving in with them) received TANF child-only payment, Social Security, Supplemental Security Income, and other payments (Murray, Ehrle, & Geen, 2004). Similar differences were identified at the state level. For instance, in California, Berrick and Boyd (2016) have indicated that less than one fourth (12% to 24%) of kinship foster parents receive TANF family or child-only grants, and a range of kinship caregivers (4% to 34%) do not receive any subsidies.

As financial hardship is one of the most critical challenges, and TANF benefits and foster care payments are two major financial resources (Ehrle & Geen, 2002), this study developed a new approach to categorize kinship care. It included four types: (1) Kinship families that receive foster care payments and TANF (Type 1: TANF only); (2) kinship families that receive foster care payments without TANF (Type 2: FC only); (3) kinship families that receive TANF only (Type 3: TANF +FC); and (4) kinship families that receive no payments (Type 4: None). This study further divided the None type into two subtypes, including families who received no financial assistance and lived in poverty and families who received no financial assistance and lived above the poverty line.

Using this new typology of kinship care based on their financial assistance status would further the field's understanding of kinship families' financial well-being. Additionally, much is not yet known about who receives financial assistance, particularly TANF benefits and foster care payments, and how financial assistance is distributed among kinship families.

## Theoretical Framework

To comprehensively understand children's and caregivers' characteristics based on financial assistance types and factors associated with receiving foster care payments and TANF benefits, this study was guided by the ecological framework (Bronfenbrenner, 1977). Some systematic reviews of kinship care research have applied a socioecological perspective to understand children's well-being in kinship care (Hong et al., 2011; Xu & Bright, 2018). The ecological framework posits that individuals operate in multi-layer systems, including ontogenic, micro-system, exo-system, and macro-system (Bronfenbrenner, 1977). Ontogenic is the central layer of the ecological framework, which illustrates the interaction between biological processes and environments. The microsystem refers to the immediate setting (e.g., family) that children interact with, while a mesosystem encompasses interactions among different settings. For children in kinship care, the mesosystem includes interactions among biological families, relatives' families, schools, and peer groups. The exo-system, as an extension of the mesosystem, includes neighborhoods, social networks, and child welfare agencies. The macro-system is the overarching context; for children in kinship care, federal and state policy about kinship care could be a component of the macro-system. Based on the ecological framework and a systematic review on predictors of children's behavioral problems in kinship care and foster care (Xu & Bright, 2018), relevant and applicable factors were selected from the various systems as relevant variables for study.

## Research Questions

As the first known study to explore kinship children and families' characteristics based on their type of financial assistance, this paper aims to answer three research questions: (1) What are children's and caregivers' characteristics among the four types of kinship care (Type 1: TANF only; Type 2: FC only; Type 3: TANF+FC; Type 4: None)? (2) Are there any differences among different types of kinship care based on financial assistance types? And (3) what factors are associated with receiving foster care payments and TANF benefits in kinship care? Due to the exploratory nature of this study, research hypotheses were not proposed.

## Methods

### Sample Selection

To answer the research questions, this study used the second wave of the NSCAW II data. The NSCAW II followed a cohort of 5,872 children for three years and investigated their well-being, service needs, and service utilization longitudinally. Data about children's well-being, maltreatment history, and child welfare services history were collected from children, parents, primary caregivers, teachers, child welfare workers, and child welfare agencies (Dowd et al., 2014).

The NSCAW II utilized a two-stage, unequally weighted, stratified, and clustered design (Dowd et al., 2014). The first stage was to sample eight sampling strata from 38 states and the District of Columbia, known as the Primary Sampling Unites (PSU). The second stage was to sample infants and children within PSUs who had been involved in child protective services (CPS). Sampling weights were developed based on the sampling strategy. Further details of the NSCAW II study design and procedures are available in Dowd and colleagues' research (2014).

For this study sample, children who stayed in kinship care (N = 900) at wave 2 were selected, with data collected between October 2009 and January 2011 (Dowd et al., 2014). Within the sample of 900 children, participants with missing information on any dependent and independent variables were excluded, which yielded a sample with complete cases (N = 344). I compared all the variables between participants without missing data (N =344) and participants with missing data (N = 556), and some statistically significant differences were found for child's race/ethnicity ($\chi^2(3) = 43.27$ and $p = 0.014$), children's externalizing problems ($F_{(1, 71)} = 7.35$, $p = 0.008$), caregivers' employment status ($\chi^2(3) = 36.22$, $p = 0.010$), and the number of children in the household ($\chi^2(3) = 32.85$, $p = 0.043$). Compared to the sample with missing data, the sample without missing data had more White children and fewer Hispanic children, more externalizing problems, more employed caregivers, and fewer number of children in the household.

**Measures**

Guided by the ecological framework, variables were selected to examine factors influencing children's outcomes in kinship care at wave 2. The ontogenic level variables were characteristics of the child, including child age, sex, race, maltreatment type, and behavioral problems. The micro-system and mezzo-system variables included primary caregivers' characteristics and household characteristics. The social services that kinship families received served as an exo-system variable. TANF benefits and foster care payments served as macro-system variables.

**Child factors.** Child age was measured by years as a continuous variable. Child's sex was recoded as 1 = *female* and 0 = *male*. Child race/ethnicity was measured as a four-level categorical variable: 1 = *Black and non-Hispanic,* 2 = *White and non-Hispanic,* 3 = *Hispanic,* and 4 = *other*, and recoded as dummy variables with White and non-Hispanic as the reference group. The child welfare worker assessed child maltreatment type, and it was recoded as 1 = *physical abuse*, 2 = *neglect*, and 3 = *other*. Child sexual abuse was collapsed into other types of child allegation due to the small number of children who were sexually abused in this sample. I further recoded maltreatment type as dummy variables with neglect as a reference group because neglect is the most common allegation of maltreatment in the U.S. (Rebbe, 2018). Child behavioral problems, including internalizing and externalizing problems, were measured by the Child Behavior Checklist (CBCL; Achenbach, 2000). Standard t-scores of the CBCL outcomes, which were distributed normally, were included in models.

**Caregiver factors.** Caregiver's age at wave 2, as a continuous variable, was measured in years based on caregivers' self-report. Caregiver's sex was measured by caregivers' self-report and recoded as 1 = *female* and 0 = *male*. Caregiver's marital status was recoded as 1 = *married* and 0 = *other, including separated, divorced, widowed, and never married*. Caregiver's highest educational level was measured as 1 = *high school graduate and above* and 0 = *less than high school graduate*. Family income was measured by the family's income level compared to the federal poverty line and recoded as 1 = *below the federal poverty line* and 0 = *above the federal poverty line*. Caregivers' employment status was measured by asking their working status and recoded as 1= *employed* and 0 = *unemployed*. The "employed" status captured a variety of working status, including working full time, working part time, and working sometimes.

Caregivers' physical health and mental health are linked to children's behavioral health outcomes (Conger & Conger, 2002; Garcia et al., 2005); thus, caregivers' physical and mental health were controlled. Caregivers' physical and mental health conditions were measured using the Short Form Health Survey (SF-12), ranging from 1 to 100, with lower scores indicating poorer physical or mental health conditions (Ware, Kosinski, & Keller, 1998).

Considering kinship guardianship is a legal relationship between kin caregivers and children (Testa, 2002), this study controlled for guardianship status. Whether the caregiver is a legal guardian of the child was measured by caregiver report, and it was recoded as 1 = *legal guardian* and 0 = *non-legal guardian*. In addition, whether the caregiver is a licensed foster caregiver was measured by caregiver report and recoded as 1 = *licensed foster caregiver* and 0 = *non-licensed foster caregiver*.

**Kinship placement factors.** Foster care payment was measured by a question if caregivers "currently receive payments for being child's foster parent" at wave 2, recoded as 1= *receiving foster care payment* and 0 = *receiving no foster care payment*. TANF benefits were measured by a question "who gets TANF/Aid to Families with Dependent Children (AFDC) benefits" at wave 2, and I recoded responses of any family member received TANF/AFDC as 1 = *receiving TANF benefits* and 0 = *receiving no TANF benefits*. Four groups of kinship placements were identified based on TANF and foster care payments at wave 2, including the four types described above. This variable was used as a dependent variable in bivariate analyses. Multivariate analyses were treated differently: Both foster care and TANF payments at wave 2 were dependent variables in separate models.

In addition to the new typology of kinship families, the number of children in the household was recoded as a dummy variable (1= *having 1-3 children in the household* and 0 = *having more than three children*). The cutoff of three children was selected because a previous study found that foster homes had 3 children on average (Perry & Price, 2018). Also, previous research found that more children in the household were associated with more child behavioral problems (Perry & Price, 2017). The single-adult household was included but treated as a categorical variable (0 = *non-single adult household* and 1 = *a single-adult household*), as living in single adult households is more stressful (Bauman, 2008).

**Services factors.** Social services received by kinship families were included in this study. These services are measured as responses to questions including: (1) Have you received any special instruction or training in skills you need to be a foster parent, (2) have you been involved with any organized peer support groups, and (3) have you received respite care? The three questions had dichotomous answers (1 = *yes* and 0 = *no*). The summative score, ranging from 0-3, was treated as a continuous variable with higher scores indicating that families received more services.

**Data Analytic Plan**

Data cleaning and analyses were performed in Stata 15 by using “SVY, subpop ( )” prefix command to apply weights to all analyses (StataCorp, 2017). In Stata, SVY stands for “survey” and subpop refers to “subpopulation,” as I selected a subset of the sample without dropping participants who were not included in this analysis (StataCorp, n.d.). As recommended by NSCAW, the subpop command is needed in order to apply weights appropriately (Dowd et al., 2014). To answer the first two research questions, univariate and bivariate analyses, including mean, frequency, chi-square, and Analysis of Variance (ANOVA) tests, were performed to compare children's and caregivers' characteristics among four types of kinship care.

To answer the third research question, logistic regression models were performed to examine factors associated with receiving TANF benefits and foster care payments in kinship care. Power analysis with a logistic regression model was conducted in G*Power (Faul, Erdfelder, Buchner, & Lang, 2009). This study was adequately powered (0.84) at an odds ratio equal to or greater than 1.5, an alpha of 0.05, and two-tailed tests with a sample of 344 participants. Also, no major estimation bias was of concern based on the number of events per variable being greater than 10 because this study had 19 predictors with 344 participants (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). Assumptions of logistic regression were tested. No problematic outliers were identified by evaluating residual values, leverage, and influence; no individual observation fell outside commonly accepted thresholds (Cohen et al., 2003, Norusis, 2006, Orme & Combs-Orme, 2009). Variance Inflation Factors (VIFs) ranged from 1.13 to 2.10, which were below the benchmark of 10, indicating no problematic multicollinearity (Orme & Combs-Orme, 2009).

**Missing data**

Missing data on all study variables were less than 25%, ranging from 0.2% (child's race/ethnicity) to caregivers' licensure status (24.8%; n = 223), with the exception of the number of children in the household (31.3%; n = 282). Little's MCAR test was conducted in Stata and significant chi-square results ($p < 0.001$) indicated that data were not missing completely at random. Multiple Imputation (MI) assumes data are missing at random, which indicates MI may not be the best approach to handle missing data in this study. In addition, because of complex weights in NSCAW II data, attempting to integrate sampling weights into multiple imputation may result in inaccurate estimates (National Data Archive on Child Abuse and Neglect; NDACAN, Personal communication, March 26, 2019). Hence, multiple imputation was not conducted and listwise deletion was used to handle missingness.

For descriptive and bivariate analyses, results from the whole sample with missing data (N = 900) and from complete cases (N = 344) were reported because some significantly different results were identified in the comparisons between samples with and without missing data. For multivariate models, logistic regression results based on complete cases were reported.

### Supplementary analysis

To understand how these factors are associated with receiving foster care payments and TANF benefits in the long term, supplementary analyses were conducted using receiving foster care payments and TANF benefits at wave 3 as dependent variables. Foster care payments and TANF benefits at wave 3 were measured in the same way as wave 2. The sample was limited to children who stayed with the same caregivers over two waves. Analyses were conducted based on the complete cases with 218 children. The results are presented in Appendix 1_A.

## Results

### Characteristics of Kinship Care

Children and caregivers' characteristics are presented in Table 1_1. In kinship care, the average age of children was eight years old, while caregivers' average age was

50 years old. Most of children were White (n = 263; 42.5%), and 47.5% of children were involved in the child welfare system due to other types of child maltreatment allegation, such as parental substance abuse. The majority of caregivers were grandparents (n = 415; 64.9%) with high school or higher education (n = 651; 75.5%). Most caregivers were their children's legal guardians (n = 476; 75.5%), but only 11.8% (n = 212) were licensed foster caregivers. A total of 42.98% families lived below the federal poverty line and 68.66% were single-adult households.

Among the 900 kinship families, a total of 11.2% (n = 101) received only TANF benefits (TANF only), 37.5% (n = 338) of them received foster care payments only (FC only), 8.3% (n = 75) of kinship families received both types of payments (TANF + FC), and 42.9% (n = 386) received no financial assistance at all (None).

These four types of kinship care shared similar characteristics, but still had distinct differences. The TANF only group had the largest proportion of African American children and children with the highest level of internalizing problems. The families in this group were headed by unmarried, female caregivers, and more than half of them lived in poverty. Almost all the caregivers were unlicensed caregivers.

The FC only group had the largest proportion of Hispanic children and children with low levels of children's internalizing and externalizing problems. Although the majority of primary caregivers were female, they were married and lived above the federal poverty line. About two-thirds of caregivers were licensed caregivers.

The TANF + FC group had the largest proportion of White children and children with the highest level of externalizing problems. The majority of them lived below the poverty line, and most caregivers were not licensed.

The None group comprised more White and Hispanic children, and these children had relatively low levels of children's behavioral problems. This group had the youngest caregivers compared to other three groups, and the majority of them had a high school or more education. Based on the None group's family income compared to the federal poverty line, the "None" group was further divided into two subgroups, including (1) families who received no financial assistance and lived below the federal poverty line, and (2) families who received no financial assistance and lived above the federal poverty line. Descriptive results of these two subtypes are presented in Table 1_3.

**Differences among Different Types of Kinship Care**

Comparing children's and family members' characteristics among four types of kinship care families, some statistically significant differences were identified. The composition of child race/ethnicity was different among the four subgroups of kinship care ($\chi^2(9) = 81.09$, $p = 0.04$). More Black children (45.2%) belonged to the TANF only type, while more White children (42.6%) fell in the type 3 (TANF + FC). Statistically significant differences were also identified in children's externalizing problems ($F_{(1, 71)} = 4.6$, $p = 0.04$). Children in type 3 (TANF +FC) households had more externalizing problems ($M = 58.5$, $SD$ =12.02) than the other three groups ($M = 53.4$; $M = 51.1$; $M = 51.7$).

Caregivers' marital status ($\chi^2(3) = 53.2$, $p = 0.01$) also was found to be significantly different among four types of kinship care groups. More specifically, fewer caregivers were married (16 %) in the TANF only type compared to the other three groups (43.3%; 49.8%; 48.6%). Regarding foster caregivers' licensure status, a significant difference was identified among four groups with $\chi^2(3) = 19.2$ and $p < 0.001$.

The FC only group (31.84%) had more licensed foster care parents than the other three groups (0.97%; 9.15%; 1.73%). Among these four groups, the type 4 (None; 77.91%) had more single-adult households than other three groups (39.23%; 25.6%; 56.08%) with $\chi^2(3) = 84.18$ and $p = 0.01$.

Foster-care related services were found to be significantly different among four groups ($F_{(1, 71)} = 5.0$, $p = 0.03$). The FC only group had the highest average number of services (M = 0.5, *SD* = 0.7, ranging from 1 to 3), while the None group had the lowest level of non-financial services (*M* = 0.1, *SD* = 0.3).

For complete cases without missing data (n = 344), descriptive analyses and bivariate comparisons among four types of kinship care were conducted as well. Results are presented in Table 1_2. Fewer statistically significant differences were identified. Significant differences included kinship caregivers' licensure status ($\chi^2(3) = 60.79$, $p < 0.001$) and the number of children in the household ($\chi^2(3) = 17.56$, $p = 0.04$). Similar patterns of licensure status were presented in this smaller sample. For the number of children in the household, the FC only group had more children than the other groups.

As this study further divided the None type into two subtypes, a comparison among five groups of kinship care was conducted. A table (Table 1_3) comparing five types was added. Only one significant difference was found: caregivers' licensure status ($\chi^2(4) = 60.81$, $p = 0.01$). The difference in licensure status was substantially higher in the FC only group than other four groups. Family income was also significantly different among these five groups, but this reflected the poverty level criterion used to divide the "None" group into two subcategories ($\chi^2(4) = 147.67$, $p = 0.01$).

Table 1_1. *Descriptive and Bivariate Results of the Four Types of Kinship Care (N = 900)*

| Variable | Whole Sample (N = 900) | | TANF only (N =101) | | FC only (N =338) | | FC + TANF (N = 75) | | None (N = 386) | | ANOVA/Chi-Square | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD)/% | F / $\chi^2$ | *P* |
| Child age | 900 | 8.14 (5.07) | 101 | 7.47 (5.37) | 338 | 6.72 (4.63) | 75 | 8.24 (4.93) | 386 | 8.62 (0.47) | F (1, 72) = 1.22 | 0.27 |
| Child sex | 755 | | 99 | | 288 | | 68 | | 300 | | $\chi^2(3) = 4.32$ | 0.82 |
| Female | 365 | 48.92% | 44 | 49.8% | 142 | 43.95% | 34 | 59.36% | 145 | 48.14% | | |
| Male | 390 | 51.08% | 55 | 50.2% | 146 | 56.05% | 34 | 40.64% | 155 | 51.86% | | |
| Child race/ethnicity | 898 | | 100 | | 338 | | 75 | | 384 | | $\chi^2(9) = 81.09$ | 0.04* |
| Black | 355 | 25.08% | 53 | 45.18% | 155 | 38.36% | 26 | 19.82% | 121 | 17.46% | | |
| White | 263 | 42.51% | 22 | 40.18% | 82 | 36.78% | 27 | 55.92% | 132 | 42.56% | | |
| Hispanic | 230 | 27.67% | 23 | 9.89% | 79 | 21.93% | 20 | 21.97% | 108 | 34.48% | | |
| Other | 50 | 4.74% | 3 | 4.76% | 22 | 2.93% | 2 | 2.28% | 23 | 5.5% | | |
| Child maltreatment | 780 | | 91 | | 285 | | 68 | | 336 | | $\chi^2(6) = 2.17$ | 0.07 |
| Physical | 102 | 14.44% | 11 | 10.27% | 41 | 16.5% | 6 | 22.4% | 44 | 13.96% | | |
| Neglect | 203 | 29.74% | 22 | 10.61% | 64 | 23.75% | 17 | 15.2% | 100 | 38.09% | | |
| Other | 475 | 55.83% | 58 | 79.11% | 180 | 59.75% | 45 | 62.41% | 192 | 47.95% | | |
| Child internalizing problems | 796 | 52.70 (10.69) | 94 | 56.06 (9.43) | 323 | 43.38 (11.19) | 73 | 52.99 (12.02) | 306 | 52.50 (10.43) | F (1, 71) = 0.65 | 0.42 |
| Child externalizing problems | 796 | 52.56 (11.23) | 94 | 53.43 (9.88) | 323 | 51.07 (10.08) | 73 | 58.46 (12.26) | 306 | 51.74 (11.44) | F (1, 71) = 4.57 | 0.04* |
| Caregiver age | 827 | 49.58 (11.39) | 101 | 50.10 (7.70) | 336 | 49.48 (13.36) | 74 | 51.57 (7.78) | 316 | 49.14 (12.19) | F (1, 71) = 1.66 | 0.20 |
| Caregiver gender | 830 | | 101 | | 338 | | 75 | | 316 | | $\chi^2(3) = 20.07$ | 0.17 |
| Male | 66 | 10.16% | 4 | 1.19% | 21 | 14.06% | 10 | 18.07% | 31 | 10.6% | | |
| Female | 764 | 89.84% | 97 | 98.81% | 317 | 85.94% | 65 | 81.93% | 285 | 89.4% | | |
| Caregiver educational level | 829 | | 101 | | 338 | | 75 | | 315 | | $\chi^2(3) = 5.20$ | 0.76 |
| Less than high school | 178 | 24.48% | 28 | 18.48% | 60 | 26.64% | 21 | 31.6% | 69 | 24.6% | | |
| High school and above | 651 | 75.52% | 73 | 81.52% | 278 | 73.36% | 54 | 68.4% | 246 | 75.4% | | |
| Caregiver marital status | 828 | | 101 | | 337 | | 75 | | 315 | | $\chi^2(3) = 53.20$ | 0.01* |
| Yes | 342 | 43.31% | 26 | 15.97% | 188 | 49.76% | 25 | 50.74% | 142 | 48.62% | | |
| No | 486 | 56.69% | 75 | 84.03% | 149 | 50.24% | 50 | 49.26% | 173 | 51.38% | | |
| Family income | 781 | | 99 | | 313 | | 73 | | 296 | | $\chi^2(3) = 43.94$ | 0.07 |
| Below poverty line | 290 | 42.98% | 58 | 61.01% | 88 | 30.20% | 43 | 62.45% | 114 | 37.25% | | |
| Above poverty line | 491 | 57.02% | 41 | 38.99% | 225 | 69.80% | 30 | 37.55% | 182 | 62.75% | | |
| Caregiver's employment | 900 | | 101 | | 338 | | 75 | | 386 | | $\chi^2(3) = 12.27$ | 0.53 |
| Employed | 425 | 42.24% | 38 | 35.46% | 198 | 54.55% | 33 | 34.85% | 156 | 42.26% | | |
| Unemployed | 475 | 57.76% | 63 | 64.54% | 140 | 45.45% | 42 | 65.15% | 230 | 57.74% | | |
| Caregiver physical health | 822 | 43.14 (12.65) | 101 | 40.02 (12.14) | 334 | 47.88 (10.31) | 74 | 41.89 (12.72) | 313 | 43.06 (13.02) | F (1, 71) = 0.68 | 0.41 |
| Caregiver mental health | 822 | 52.73 (9.28) | 101 | 53.28 (9.18) | 334 | 53.11 (8.64) | 74 | 49.42 (9.09) | 313 | 52.98 (9.43) | F (1, 71) = 0.88 | 0.35 |
| Legal guardianship | 755 | | 99 | | 288 | | 68 | | 300 | | | 0.30 |
| Yes | 476 | 75.48% | 71 | 83.41% | 155 | 63.46% | 47 | 87.57% | 203 | 73.9% | | |
| No | 279 | 24.52% | 28 | 16.59% | 133 | 36.54% | 21 | 12.43% | 97 | 26.1% | | |
| Licensed foster caregiver | 677 | | 80 | | 335 | | 73 | | 189 | | $\chi^2(3) = 19.20$ | <0.001 *** |
| Yes | 212 | 11.81% | 4 | 0.97% | 184 | 31.84% | 15 | 9.15% | 9 | 1.73% | | |
| No | 465 | 88.19% | 76 | 99.03% | 151 | 68.16% | 58 | 90.85% | 180 | 98.27% | | |

Table 1_1. Continued

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of children in the household | 618 | | 77 | | 227 | | 54 | | 386 | | $\chi^2(3) = 20.50$ | 0.17 |
| 1-3 children | 570 | 83.43% | 73 | 91.6% | 209 | 82.05% | 51 | 99.64% | 237 | 79.19% | | |
| > 3 children | 48 | 16.57% | 4 | 8.4% | 18 | 17.95% | 3 | 3.6% | 23 | 20.81% | | |
| Single adult-household | 823 | | 101 | | 335 | | 74 | | 313 | | $\chi^2(3) = 84.18$ | 0.01** |
| Yes | 277 | 31.34% | 48 | 60.77% | 111 | 74.4% | 33 | 43.92% | 85 | 22.09% | | |
| No | 546 | 68.66% | 53 | 39.23% | 224 | 25.6% | 41 | 56.08% | 228 | 77.91% | | |
| Services | 900 | 0.13 (0.42) | 101 | 0.04 (0.24) | 338 | 0.46 (0.65) | 75 | 0.34 (0.67) | 386 | 0.06 (0.28) | $F(1, 71) = 5.03$ | 0.03* |

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; FC = foster care payments; Mean and % were weighted.

Table 1_2. *Descriptive and Bivariate Results of the Four Types of Kinship Care (N = 344)*

| Variable | All Children (N = 344) | | TANF only (N =47) | | FC only (N =137) | | FC + TANF (N = 44) | | None (N =116) | | ANOVA/Chi-Square | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | M(SD)/ % | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | F(df) / $\chi^2$ | P |
| Child age | 344 | 7.77 (5.21) | 47 | 7.70 (5.26) | 137 | 7.00 (5.23) | 44 | 8.30 (5.11) | 116 | 7.88 (5.27) | F (1, 67) = 0.09 | 0.76 |
| Child sex | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 14.79$ | 0.42 |
| Female | 177 | 49.89% | 20 | 54.95% | 78 | 65.78% | 21 | 55.14% | 58 | 35.48% | | |
| Male | 167 | 50.11% | 27 | 45.05% | 59 | 34.22% | 23 | 44.86% | 58 | 64.52% | | |
| Child race/ethnicity | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 51.03$ | 0.11 |
| Black | 131 | 35.59% | 27 | 62.83% | 53 | 45.56% | 13 | 23.21% | 38 | 22.5% | | |
| White | 115 | 46.73% | 9 | 26.15% | 40 | 33.2% | 22 | 64.45% | 44 | 54.46% | | |
| Hispanic | 76 | 13.56% | 10 | 10.91% | 33 | 16.47% | 8 | 9.93% | 25 | 15.87% | | |
| Other | 22 | 4.12% | 1 | 1.00% | 11 | 4.78% | 1 | 2.4% | 9 | 7.16% | | |
| Child maltreatment | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(6) = 6.91$ | 0.91 |
| Physical | 43 | 18.66% | 4 | 15.6% | 20 | 12.22% | 3 | 24.29% | 16 | 20.23% | | |
| Neglect | 19 | 17.65% | 5 | 13.04% | 31 | 20.62% | 3 | 14.6% | 35 | 20.69% | | |
| Other | 282 | 63.68% | 38 | 71.36% | 86 | 67.15% | 38 | 61.11% | 65 | 59.08% | | |
| Child internalizing problems | 344 | 54.42 (11.24) | 47 | 60.65 (7.93) | 137 | 50.56 (10.81) | 44 | 52.64 (12.64) | 116 | 53.94 (10.87) | F (1, 67) = 0.09 | 0.77 |
| Child externalizing problems | 344 | 55.60 (10.76) | 47 | 56.94 (11.23) | 137 | 53.83 (9.83) | 44 | 58.56 (12.97) | 116 | 53.89 (8.92) | F (1, 67) = 2.08 | 0.15 |
| Caregiver age | 344 | 51.39 (9.27) | 47 | 49.90 (7.87) | 137 | 52.14 (11.03) | 44 | 52.03 (7.51) | 116 | 51.47 (10.00) | F (1, 67) = 0.00 | 0.96 |
| Caregiver gender | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 18.71$ | 0.19 |
| Male | 35 | 13.44% | 3 | 3.13% | 9 | 5.05% | 8 | 22.85% | 15 | 17.81% | | |
| Female | 309 | 86.56% | 44 | 96.87% | 128 | 94.95% | 36 | 77.15% | 101 | 82.19% | | |
| Caregiver educational level | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 10.23$ | 0.52 |
| Less than high school | 66 | 21.36% | 13 | 14.5% | 14 | 26.72% | 12 | 27.27% | 27 | 16.11% | | |
| High school and above | 278 | 78.64% | 34 | 85.5% | 123 | 73.28% | 32 | 72.73% | 89 | 83.89% | | |
| Caregiver marital status | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 27.47$ | 0.07 |
| Yes | 154 | 43.21% | 15 | 22.28% | 64 | 58.24% | 18 | 58.07% | 57 | 38.19% | | |
| No | 190 | 56.79% | 32 | 77.72% | 73 | 41.76% | 26 | 41.93% | 59 | 61.81% | | |
| Family income | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 34.94$ | 0.16 |
| Below poverty line | 114 | 43.93% | 26 | 52.55% | 31 | 29.83% | 17 | 70.45% | 40 | 32.54% | | |
| Above poverty line | 230 | 56.07% | 21 | 47.45% | 106 | 70.17% | 27 | 29.55% | 76 | 67.46% | | |
| Caregiver employment | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 49.09$ | 0.07 |
| Employed | 186 | 57.94% | 20 | 34.61% | 84 | 59.7% | 18 | 24.85% | 64 | 73.48% | | |
| Unemployed | 158 | 42.06% | 27 | 65.39% | 53 | 40.3% | 26 | 75.15% | 52 | 26.52% | | |
| Caregiver physical health | 344 | 44.02 (11.64) | 47 | 44.01 (12.5) | 137 | 47.93 (9.12) | 44 | 39.16 (12.60) | 116 | 45.04 (10.79) | F (1, 67) = 2.15 | 0.15 |
| Caregiver mental health | 344 | 50.87 (9.22) | 47 | 50.55 (9.07) | 137 | 54.31 (6.96) | 44 | 49.40 (9.21) | 116 | 50.20 (10.02) | F (1, 67) = 0.08 | 0.77 |
| Legal guardianship | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 10.86$ | 0.59 |
| Yes | 214 | 80% | 36 | 75% | 69 | 68.98% | 32 | 89.13% | 77 | 82.84% | | |
| No | 130 | 20% | 11 | 25% | 68 | 31.02% | 12 | 10.87% | 39 | 17.16% | | |
| Licensed foster caregiver | | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 60.79$ | 0.001* |
| Yes | 91 | 8.77% | 4 | 1.42% | 75 | 32.45% | 6 | 8.79% | 6 | 0.77% | | |
| No | 253 | 91.23% | 43 | 98.58% | 62 | 67.55% | 38 | 91.21% | 110 | 99.23% | | |

Table 1_2. Continued

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of children in the household | 344 | | 47 | | 137 | | 44 | | 116 | | | |
| 1-3 children | 326 | 94.54% | 45 | 92.7% | 9 | 85.1% | 41 | 99.63% | 112 | 97.28% | $\chi^2(3) = 17.56$ | 0.04* |
| > 3 children | 18 | 5.46% | 2 | 7.3% | 128 | 14.9% | 3 | 0.37% | 4 | 2.72% | | |
| Single-adult household | 344 | | 47 | | 137 | | 44 | | 116 | | $\chi^2(3) = 16.55$ | 0.23 |
| Yes | 111 | 30.53% | 21 | 46.45% | 91 | 25.19% | 15 | 36.04% | 29 | 20.64% | | |
| No | 233 | 69.47% | 26 | 53.55% | 46 | 74.81% | 29 | 63.96% | 87 | 79.36% | | |
| Services | 344 | 0.21 (0.52) | 47 | 0.81 (0.32) | 137 | 0.39 (0.66) | 44 | 0.33 (0.64) | 116 | 0.12 (0.40) | F (1, 67) = 0.64 | 0.43 |

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; FC = foster care payments; Mean and % were weighted.

Table 1_3. *Descriptive and Bivariate Results of the Five Types of Kinship Care (N = 344)*

| Variable | All Children (N = 344) | | TANF only (N =47) | | FC only (N =137) | | FC + TANF (N = 44) | | None + Below Poverty (N =40) | | None + Above Poverty (N =76) | | ANOVA/Chi-Square | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | N | M (SD) /% | F(df) / $\chi^2$ | P |
| Child age | 344 | 7.77 (5.21) | 47 | 7.70 (5.26) | 137 | 7.00 (5.23) | 44 | 8.30 (5.11) | 40 | 9.03 (4.42) | 76 | 7.33 (5.58) | F (1,67) = 0.17 | 0.68 |
| Child sex | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 20.93$ | 0.36 |
| Female | 177 | 49.89% | 20 | 54.95% | 78 | 65.78% | 21 | 55.14% | 18 | 25.95% | 40 | 40.08% | | |
| Male | 167 | 50.11% | 27 | 45.05% | 59 | 34.22% | 23 | 44.86% | 22 | 74.05% | 36 | 59.92% | | |
| Child race/ethnicity | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(12) = 63.67$ | 0.09 |
| Black | 131 | 35.59% | 27 | 62.83% | 53 | 45.56% | 13 | 23.21% | 17 | 34..22% | 21 | 16.85% | | |
| White | 115 | 46.73% | 9 | 26.15% | 40 | 33.2% | 22 | 64.45% | 9 | 42.33% | 35 | 60.32% | | |
| Hispanic | 76 | 13.56% | 10 | 10.91% | 33 | 16.47% | 8 | 9.93% | 13 | 22.76% | 12 | 12.54% | | |
| Other | 22 | 4.12% | 1 | 1.00% | 11 | 4.78% | 1 | 2.4% | 1 | 0.68% | 8 | 10.29% | | |
| Child maltreatment | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(8) = 14.82$ | 0.84 |
| Physical | 43 | 18.66% | 4 | 15.6% | 20 | 12.22% | 3 | 24.29% | 7 | 30.79% | 9 | 15.13% | | |
| Neglect | 19 | 17.65% | 5 | 13.04% | 31 | 20.62% | 3 | 14.6% | 10 | 27.21% | 25 | 17.55% | | |
| Other | 282 | 63.68% | 38 | 71.36% | 86 | 67.15% | 38 | 61.11% | 31 | 42.01% | 42 | 67.32% | | |
| Child internalizing problems | 344 | 54.42 (11.24) | 47 | 60.65 (7.93) | 137 | 50.56 (10.81) | 44 | 52.64 (12.64) | 40 | 48.56 (10.61) | 76 | 56.54 (10.07) | F (1,67) = 0.00 | 0.95 |
| Child externalizing problems | 344 | 55.60 (10.76) | 47 | 56.94 (11.23) | 137 | 53.83 (9.83) | 44 | 58.56 (12.97) | 40 | 52.16 (8.36) | 76 | 54.73 (9.11) | F (1,67) = 1.58 | 0.21 |
| Caregiver age | 344 | 51.39 (9.27) | 47 | 49.90 (7.87) | 137 | 52.14 (11.03) | 44 | 52.03 (7.51) | 40 | 50.11 (12.09) | 76 | 52.13 (8.82) | F (1,67) = 0.03 | 0.86 |
| Caregiver gender | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 23.48$ | 0.18 |
| Male | 35 | 13.44% | 3 | 3.13% | 9 | 5.05% | 8 | 22.85% | 3 | 8.27% | 12 | 22.41% | | |
| Female | 309 | 86.56% | 44 | 96.87% | 128 | 94.95% | 36 | 77.15% | 37 | 92.50% | 64 | 77.59% | | |
| Caregiver educational level | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | | |
| Less than high school | 66 | 21.36% | 13 | 14.5% | 14 | 26.72% | 12 | 27.27% | 15 | 30.68% | 12 | 9.08% | $\chi^2(4) = 17.94$ | 0.39 |
| High school and above | 278 | 78.64% | 34 | 85.5% | 123 | 73.28% | 32 | 72.73% | 25 | 69.32% | 64 | 90.92% | | |
| Caregiver marital status | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | | |
| Yes | 154 | 43.21% | 15 | 22.28% | 64 | 58.24% | 18 | 58.07% | 11 | 31.73% | 46 | 41.31% | $\chi^2(4) = 28.51$ | 0.09 |
| No | 190 | 56.79% | 32 | 77.72% | 73 | 41.76% | 26 | 41.93% | 29 | 68.27% | 30 | 58.69% | | |
| Family income | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 147.67$ | 0.01* |
| Below poverty line | 114 | 43.93% | 26 | 52.55% | 31 | 29.83% | 17 | 70.45% | 40 | 100% | 0 | 0% | | |
| Above poverty line | 230 | 56.07% | 21 | 47.45% | 106 | 70.17% | 27 | 29.55% | 0 | 0% | 76 | 100% | | |
| Caregiver employment | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 50.56$ | 0.10 |
| Employed | 186 | 57.94% | 20 | 34.61% | 84 | 59.7% | 18 | 24.85% | 24 | 68.37% | 40 | 75.95% | | |
| Unemployed | 158 | 42.06% | 27 | 65.39% | 53 | 40.3% | 26 | 75.15% | 16 | 31.63% | 36 | 24.05% | | |
| Caregiver physical health | 344 | 44.02 (11.64) | 47 | 44.01 (12.5) | 137 | 47.93 (9.12) | 44 | 39.16 (12.60) | 40 | 44.76 (11.05) | 76 | 45.18 (10.73) | F (1,67) = 1.78 | 0.19 |
| Caregiver mental health | 344 | 50.87 (9.22) | 47 | 50.55 (9.07) | 137 | 54.31 (6.96) | 44 | 49.40 (9.21) | 40 | 51.17 (8.00) | 76 | 49.74 (10.87) | F (1,67) = 0.01 | 0.92 |
| Legal guardianship | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 13.02$ | 0.59 |
| Yes | 214 | 80% | 36 | 75% | 69 | 68.98% | 32 | 89.13% | 25 | 75.3% | 52 | 86.47% | | |
| No | 130 | 20% | 11 | 25% | 68 | 31.02% | 12 | 10.87% | 15 | 24.7% | 24 | 13.83% | | |
| Licensed foster caregiver | | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 60.81$ | 0.01* |
| Yes | 91 | 8.77% | 4 | 1.42% | 75 | 32.45% | 6 | 8.79% | 1 | 0.19% | 5 | 1.05% | | |
| No | 253 | 91.23% | 43 | 98.58% | 62 | 67.55% | 38 | 91.21% | 39 | 99.81% | 71 | 98.95% | | |

Table 1_3. Continued

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of children in the household | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 18.43$ | 0.24 |
| 1-3 children | 326 | 94.54% | 45 | 92.7% | 9 | 85.1% | 41 | 99.63% | 40 | 100% | 72 | 95.97% | | |
| > 3 children | 18 | 5.46% | 2 | 7.3% | 128 | 14.9% | 3 | 0.37% | 0 | 0% | 4 | 4.03% | | |
| Single-adult household | 344 | | 47 | | 137 | | 44 | | 40 | | 76 | | $\chi^2(4) = 17.81$ | 0.30 |
| Yes | 111 | 30.53% | 21 | 46.45% | 91 | 25.19% | 15 | 36.04% | 16 | 27.25% | 13 | 17.46% | | |
| No | 233 | 69.47% | 26 | 53.55% | 46 | 74.81% | 29 | 63.96% | 24 | 72.75% | 63 | 82.54% | | |
| Services | 344 | 0.21 (0.52) | 47 | 0.81 (0.32) | 137 | 0.39 (0.66) | 44 | 0.33 (0.64) | 40 | 0.19 (0.44) | 76 | 0.08 (0.37) | $F (1,67) = 1.07$ | 0.30 |

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Mean and % were weighted.

**Predictors of Receiving Foster Care Payments**

To examine predictors associated with receiving TANF and foster care payments, the results of two logistic regression models with complete cases (N = 344) are shown in Table 1_4. Almost all the licensed foster caregivers received foster care payments, which led to an imprecise 95% confidence interval of the odds ratio. Hence, kinship care parents' licensure status was removed from the logistic regression models.

The model 1 results revealed that predictors associated with significantly higher odds of receiving foster care payments included at least one child's history of sexual abuse history and other types of allegations compared to neglect (OR = 3.14, $p = 0.021$), higher externalizing problems (OR = 1.08, $p = 0.001$), caregivers' marital status (OR = 4.37, $p = 0.007$), and receiving more services (OR = 3.71, $p = 0.001$). Some significant factors, however, were associated with having lower odds of receiving foster care payments, such as other race/ethnicity of children (i.e., Asian and Pacific Islanders and Native Americans; OR = 0.09, $p = 0.006$) compared to White and non-Hispanic, higher internalizing problems (OR = 0.89, $p < 0.001$), and caregivers who were employed (OR = 0.21, $p = 0.006$) compared to caregivers who were not employed.

**Predictors of Receiving TANF Benefits**

Regarding factors associated with receiving TANF benefits, model 2 results found that below the federal poverty line (OR = 1.78, $p = 0.032$) and a single-adult household (OR = 3.35, $p = 0.038$) were associated with higher odds of receiving TANF benefits. Being a licensed foster caregiver (OR = 0.09, $p = 0.036$) was associated with lower odds of receiving TANF benefits. No other covariates were significantly associated with receiving TANF benefits.

Table 1_4. *Factors Associated with Receiving Foster Care Payments and TANF Benefits at Wave 2 (N = 344)*

| | Model 1 Foster Care Payment | | | Model 2 TANF | | |
|---|---|---|---|---|---|---|
| Variables | OR | *P* | 95% CI | OR | *P* | 95% CI |
| Child age | 0.93 | 0.066 | [0.85, 1.01] | 0.96 | 0.413 | [0.87, 1.05] |
| Child sex (ref. male) | 0.22 | 0.008* | [0.07, 0.67] | 0.29 | 0.053 | [0.08, 1.01] |
| Child race/ethnicity | | | | | | |
| Black and non-Hispanic | 0.60 | 0.320 | [0.21, 1.67] | 1.05 | 0.933 | [0.36, 3.02] |
| Hispanic | 0.71 | 0.576 | [0.21, 2.40] | 0.29 | 0.145 | [0.05, 1.56] |
| Other | 0.09 | 0.006** | [0.02, 0.49] | 0.10 | 0.092 | [0.01, 1.15] |
| Child maltreatment (ref. neglect) | | | | | | |
| Physical | 1.47 | 0.620 | [0.31, 6.97] | 1.95 | 0.442 | [0.35, 10.88] |
| Other | 3.14 | 0.021* | [1.20, 8.20] | 2.34 | 0.236 | [0.57, 9.67] |
| Child internalizing problems | 0.89 | <0.001** | [0.84, 0.95] | 1.01 | 0.868 | [0.92, 1.10] |
| Child externalizing problems | 1.08 | 0.001** | [1.03, 1.13] | 1.04 | 0.401 | [0.95, 1.13] |
| Caregiver age | 1.00 | 0.895 | [0.95, 1.06] | 0.96 | 0.242 | [0.90, 1.03] |
| Caregiver gender (ref. male) | 1.01 | 0.989 | [0.33, 3.10] | 2.12 | 0.276 | [0.54, 8.26] |
| Caregiver education (ref. less than high school) | 2.02 | 0.275 | [0.56, 7.21] | 0.63 | 0.551 | [0.14, 2.93] |
| Caregiver’s marital status (ref. not married) | 4.37 | 0.007** | [1.52, 12.57] | 1.20 | 0.796 | [0.30, 4.86] |
| Poverty | 0.91 | 0.726 | [0.52, 1.58] | 1.78 | 0.032* | [1.05, 3.02] |
| Caregiver employment (ref. unemployed) | 0.21 | 0.006** | [0.07, 0.62] | 0.28 | 0.066 | [0.07, 1.09] |
| Caregiver physical health | 0.99 | 0.661 | [0.95, 1.03] | 0.96 | 0.097 | [0.92, 1.01] |
| Caregiver mental health | 0.99 | 0.628 | [0.95, 1.03] | 0.97 | 0.275 | [0.91, 1.03] |
| Legal guardianship | 1.68 | 0.461 | [0.42, 6.78] | 0.83 | 0.840 | [0.13, 5.27] |
| Licensed foster caregiver+ | - | - | - | 0.09 | 0.036* | [0.01, 0.85] |
| Number of children (ref. >3 children) | 0.49 | 0.407 | [0.09, 2.69] | 0.42 | 0.160 | [0.12, 1.42] |
| Single-adult household (ref. non-single adult household) | 2.53 | 0.103 | [0.83, 7.77] | 3.35 | 0.038* | [1.07, 10.46] |
| Services | 3.71 | 0.001** | [1.81, 7.61] | 1.08 | 0.879 | [0.38, 3.06] |

Note: * p < 0.05; ** p < 0.01; *** p < 0.001; + foster care licensure status was removed from the regression model 1 because almost all the licensed caregivers received foster care payments.

## Discussion

This study used a new approach to categorize kinship care based on families’ financial assistance receipt history and further examined factors associated with receiving foster care payments and TANF benefits. It was the first known study to conceptualize four groups of kinship families: TANF only, FC only, TANF + FC, and None. The None group was further divided into two subgroups, which included families without financial assistance living below the poverty line and families without financial assistance living above the poverty line. Using this new kinship typology, instead of dichotomous approaches (i.e., formal vs. informal or public vs. private), presents a clearer but more heterogenetic picture of financial well-being conditions among kinship families. Some families received both TANF benefits and foster care payments, which may be because there was more than one child in the household; for example, one child could receive foster care payments, while the other child or children in the household would be eligible for TANF. Families that received both TANF and foster care payments with an average annual income of $20,540/year are the most fragile families with regards to economic well-being, followed by families with TANF only benefits (with an average annual income of $25,300 dollars/year). Also, this study found that the predictors of these two types of assistance were very different.

There is lengthy legislation that determines the financial assistance available for kinship families. In 1950, the federal government started to provide financial support for kin caregivers under Aid to Families with Dependent Children (AFDC; Dawson, 1986). However, AFDC did not clearly guide each state regarding how to financially support relative caregivers (Swann & Sylvester, 2006). Later, in 1979 the Supreme Court directed local child welfare agencies to pay the same rate of foster care maintenance payment to kin caregivers who met foster home licensing requirements as to non-kin foster care providers in *Miller v. Youakim* (Miller v. Youakim, 44 U.S. 125, 99 S. Ct. 957, 1979). Further, the Adoption and Safe Families Act (ASFA; 45 CFR § 1355–1357) clarified that eligible licensed kin caregivers could receive financial support from Title IV-E funding (Berrick & Boyd, 2016).

Though a few mechanisms provide financial support for kinship families, existing policies do not set up guidelines for states to support kin caregivers, especially those families who do not meet foster licensing requirements, and those children who are not under the auspices of the child welfare system (Bratteli, Bjelde, & Pigatti, 2008; Swann & Sylvester, 2006). One of the most important discussions in the current child welfare world is insufficient financial support for families, and this may be especially relevant to children in kinship placements. Experiencing financial hardship may diminish children's well-being (Conger et al., 1993). Thus, understanding kinship families' financial well-being is warranted.

As results of this study indicated, almost half of kinship families did not receive any state financial assistance, even though about half of the kinship families were living below the federal poverty line. Due to the limitations of secondary data analysis, this study was not able to investigate why these families did not receive financial support from the government, but this study was able to answer the following questions: Who received TANF benefits and foster care payments among kinship families, and what were the characteristics of these families?

For foster care payments, children's externalizing behavioral problems are associated with higher odds of receiving foster care payments, while children's internalizing behavioral problems are associated with lower odds of receiving foster care payments. As internalizing and externalizing problems have different etiologies (Cosgrove et al., 2011), externalizing problems may be more easily observed by caregivers and child welfare workers than internalizing problems (Dwyer, Nicholson, & Battistutta, 2006). For children who had severe externalizing problems, their caregivers may have been more likely to reach out to the child welfare agency for resources, particularly foster care payments. A recent qualitative study indicated that caregivers were more eager to report children's behavioral problems if they perceived it as a way to secure services for their children (Cao, Bunger, & Hoffman, 2019). Children's internalizing problems, such as internal mental health problems, may not be as easily recognized by caregivers, which may decrease the likelihood of receiving foster care payments. Also, caregivers may not the most knowledgeable about children's internalizing problems, particularly as children get older

(Verhulst & Van der Ende, 1992). The other reason for the difference in internalizing and externalizing behaviors' outcome could be that child welfare workers, based on their own observations or reports from others in the child's life, may also prioritize kinship families that had children with severe children's externalizing problems rather than children's internalizing problems in their decision-making process (Cao, Bunger, & Hoffman, 2019; Hoffman et al., 2016).

This study also found that foster care payments were more likely for families caring for youth with sexual abuse history and other type of allegations. Child welfare workers may perceive sexual abuse as a type of "active" maltreatment and neglect as a "passive" maltreatment (Garland, Landsverk, Hough, & Ellis-MacLeod, 1996). Thus, sexual abuse may evoke a different response from child welfare workers, relative to neglect, so it is not surprising that is associated with higher chances to receive foster care payments (Garland, Landsverk, Hough, & Ellis-MacLeod, 1996). This study also found that married kinship families were more likely to receive foster care payments. It may be that married families have better family conditions that allow them to reach the foster parent licensure standards to obtain foster care payments (Franklin, Smith, & McMiller, 1995). Moreover, receiving other services had the largest effects on the likelihood of kinship placements successfully obtaining foster care payments. This likely speaks to families' capacity to access resources in public welfare systems. However, the association between receiving other services and receiving foster care payments could not be evaluated temporally in this study.

Also, this study found that children identified as other race/ethnicity, including Asian Americans/Pacific Islanders and Native American children, had lower odds of receiving foster care payments as compared to White and non-Hispanic children. Although Asian Americans are underrepresented in child welfare, those children who are involved in the child welfare system may still struggle with financial hardship (Lu et al., 2004). As well, Native Americans are underserved in child welfare, which may result in limited services, including financial services, provided for them (Crofoot & Harris, 2012; Putnam-Hornstein, Needell, King, & Johnson-Motoyama, 2013).

Interestingly, primary caregivers actively in the labor market are less likely to receive foster care payments than those not working. One potential explanation is that going through the foster care payments application process is complicated and burdensome for kinship caregivers (Leos-Urbel, Bess, & Geen, 2000), and those working outside the home may have limited time to complete the application. Or, it could be that caregivers who are unemployed may have a stronger motivation to obtain financial assistance to supplement childcare expenses. This reminds us that no matter if caregivers actively participate in labor market, they should have the same likelihood to receive foster care payments. In practice, child welfare workers may have to proactively reach out to these families to ensure they are aware of financial assistance.

Regarding TANF benefits, it is not surprising that having a lower family income is correlated with a higher probability of receiving TANF benefits, as TANF is designated to provide tangible support for low-income families. Kinship families are entitled to two subtypes of TANF benefits (child-only and family grants). However, this study was not able to distinguish whether kinship families received child-only TANF benefits or family grants, which limits our understanding of the utilization of each type. Distinguishing this could help understand the composition of TANF recipient families and further explore if the amounts of these benefits make significant differences in child development, as there are substantial differences in the amounts between two TANF subgrants (Murray, Macomber, & Geen, 2004). This study also found that single-adult households were more likely to receive TANF benefits, which is consistent with the fact that single parents, especially single mothers are the majority of TANF recipients (Falk, 2016). In addition, a licensed foster caregiver is less likely to receive TANF benefits, as they are eligible for foster care payments (Anderson & Righton, 2001).

**Implications for Practice and Policy**

The findings of this study imply that kinship families experience economic hardship and may not get financial assistance. Moreover, available financial resources may be mismatched with needy families. It is necessary for child welfare workers and policy makers to think about how to increase kinship caregivers' awareness of relevant resources and to make the right resources accessible for kinship caregivers, including unlicensed kinship foster parents. Kinship families' economic disadvantages and limited resources and services may put children at risk and negatively affect child well-being and safety outcomes (Lin, 2014).

There are some policy options with the potential to better meet the financial needs of kinship families. First, policy makers could reconsider the scope and amounts of TANF benefits to kinship caregivers, including TANF child-only grants, for which most kinship caregivers are eligible (Hernández & Berrick, 2019). For TANF family grants, policy makers could consider eliminating the time-limits restriction for kinship caregivers. As this study indicated, kinship caregivers' average age was 50 years old, and 58% of them were unemployed at all. For kinship children raised by retired kinship caregivers, their families would not be eligible for TANF family grants beyond five years, which may not be sustainable for child development. Also, as many kinship families are funded through TANF, a closer collaboration between social services agencies and child welfare agencies could improve kinship caregivers' accessibility to these resources to meet the child's needs.

Policy makers could also rethink who is eligible for foster care payments. As of 2002, 26 states provide funds to kinship caregivers who meet the full non-kin foster parents' licensure standards, but only a few states may provide foster care payments to kinship relatives under modified or separate conditions (Janz et al., 2002). However, significant barriers, such as high standards to become licensed foster parents, the stigma of the child welfare system, and kin caregivers' unawareness of these available resources (Rowe, 2003), may be hurdles preventing many kinship caregivers from becoming licensed foster parents, which may in turn limit their chances to obtain financial assistance, particularly foster care payments (Murray, Ehrle, & Geen, 2004).

This study revealed that current foster care payment recipients are more privileged in socioeconomic status. This finding begs the question of who needs financial assistance most and how we can make financial assistance available for the neediest populations in child welfare. Therefore, future policy should consider if it is possible to expand foster care payments to all kinship caregivers or, alternatively, if it is necessary to have a separate financial assistance mechanism dedicated to kinship caregivers.

Future policy also should consider providing financial support to these families that are not under the auspices of the child welfare system. Although this study's children were all involved in the child welfare system, in reality, 96% of kinship children are not involved with the child welfare system (i.e., informal kinship care; Annie E. Casey Foundation, 2012). For instance, subsidized guardianship programs, which have been implemented widely in some states, may be an option to help support informal kinship placements (Testa, 2002).

At the practice level, the Kinship Navigator Program, or similar strategies, may be an effective way to reach out to kinship families in the community and to link potential resources to these families. The Kinship Navigator Program in Maryland aims to provide support for kinship caregivers to navigate public service systems and to deliver services; prevent children from entering into the child welfare system; and improve children's well-being in kinship care (Rushovich et al., 2017). Previous research has shown that the implementation of the Kinship Navigator Program has met kinship caregivers' needs in many areas, including legal assistance, tangible material, health care support, and intangible support (i.e., social support), but excluding financial assistance (Rushovich et al., 2017). Thus, to improve kinship families' financial well-being, more policy changes are needed. However, the Kinship Navigator Program can help improve kinship families' access to resources and services, both financial and non-financial, in the community.

## Strengths and Limitations

This study has some strengths and limitations. First, this study developed an innovative way to categorize different types of kinship care based on the type of financial assistance received from the state. This may be of use to future scholars, policy makers, and practitioners thinking about the heterogeneity among foster care families. Second, this study used a nationally representative dataset to compare children's and caregivers' profiles in four types of kinship care, which updated the knowledge of kinship care and expanded it to a national scale. This study provides a reference for practitioners and policy makers to understand the economic well-being of children kinship care comprehensively. Third, the present study examined predictors of receiving foster care payments and TANF benefits, which provides evidence to rethink financial support policy for kinship families and their children.

However, this study is subject to some limitations. First, this study did not capture variations in financial assistance policy between states and was not able to take account of the amounts of TANF benefits and foster care payments in each state. Policy variability depends on a number of factors that were not well-measured in this dataset, including state identifiers and payment rates (Anderson & Righton, 2001). Second, this study was not able to distinguish two subtypes of TANF benefits (i.e., the child-only grants and family grants). Third, in some states, additional supports are also available for kinship families; however, this study used a nationally representative dataset and was not able to include these types of financial support. Other forms of assistance, such as guardianship subsidy, adoption subsidy, child support payment, social security benefits, and tax credits (Children's Defense Fund, 2014; Hernandez & Berrick, 2018; Murray, Ehrle, & Geen, 2004), may have been used in some families in this study, but this was beyond the scope of this paper.

**Future Directions for Research**

Although this study has some limitations, it provides several opportunities for future research. Because this study used nationally representative survey data and did not control for policy variations among different states, it would be useful to examine the typology of kinship families and predictors associated with receiving financial assistance based in specific states. Also, this study used self-report survey data, which might have bias due to social desirability. To decrease bias, future research may use administrative data to track kinship families' receipt history of TANF benefits, foster care payments, and other services to understand this new typology of kinship care. In addition, this study found that a small portion of kinship families received both TANF and foster care payments, which was not captured in multivariate analyses. More work is needed to understand the families who received both types of financial assistance. Furthermore, future research could collect primary data, particularly qualitative data, to understand why some families did not receive any financial assistance and whether the financial assistance they do receive meets their needs to take care of children in care. Also, more research is needed to understand the None group who did not receive any financial assistance.

## Conclusion

To better preserve families, the number of children who are placed in kinship care has increased dramatically all over the world (Australian Institute of Health and Welfare, 2017; del Valle & Bravo, 2013; Holtan, Rønning, Handegård, & Sourander, 2005). This study provides a comprehensive understanding of financial assistance within kinship care in the United States and the results of this study will inform kinship care practice and policy making to further support children and caregivers involved in kinship care through financial assistance in the United States and potentially in the world.

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# Chapter 3: Paper 2


**Abstract**

**Title:** Economic hardship and economic pressure, financial assistance, and children's behavioral health in kinship care and non-relative foster care

**Abstract:** Kinship care families have more economic disadvantages compared to non-relative foster care. Financial support disparities also exist between kinship families and non-relative foster care families. However, limited studies have examined the associations between financial well-being, financial assistance, and children's behavioral health outcomes in kinship care and non-relative foster care. Guided by the family stress model, this study used three waves of NSCAW II data to examine the longitudinal associations among economic hardship, economic pressure, financial assistance, and children's behavioral health outcomes. Children (N = 360) who stayed in kinship care (N = 267) and non-relative foster care (N =93) across three waves were selected. Multilevel mixed-effects generalized linear models were used to answer research questions. Results indicated that economic pressure was associated with increases in children's internalizing and externalizing problems. Receiving TANF benefits was associated with increases in children's internalizing and externalizing problems, while receiving foster care payments was associated with decreases in children's externalizing problems. Significant interaction terms showed that foster care payments had positive effects on children's behavioral health outcomes among families without economic hardship and families with economic pressure. The results imply that child welfare workers should assess foster care providers' subjective economic pressure in addition to objective economic hardship. Furthermore, child welfare agencies and practitioners should consider providing non-financial related services to foster care and kinship families.

**Key word:** economic hardship, economic pressure, foster care payment, TANF, behavioral problems, foster care

## Introduction

Kinship care has potential advantages over non-relative foster care in providing more stable environments, preserving families, and keeping cultural connections (Rubin, O'Reilly, Luan, & Localio, 2007; Shlonsky & Berrick, 2001). Also, children in kinship care, compared to those in non-relative foster homes, have previously established attachments with caregivers and experience less traumatic stress in familiar environments. These attributes may help kinship children achieve more favorable educational, socio-emotional, and behavioral health outcomes than children in non-relative foster care (Winokur, Holtan, & Batchelder, 2018).

However, compared to non-relative foster caregivers, relative caregivers and children in kinship care can face multiple challenges, including caregivers' low socioeconomic status, distressed financial conditions, and fewer social services (Berrick, Barth, & Needell, 1994; Coleman & Wu, 2016; Cuddeback, 2004; Geen, 2004; Hong, Algood, Chiu, & Lee, 2011; O'Brien, 2012; Strijker, Zandberg, & Van der Meulen, 2003; Wald, 2017). These challenges may offset the benefits of kinship on child well-being. Among these challenges, the present study particularly looks at economic well-being, a critical dimension of multilevel challenges in kinship care, with a comparison to non-relative foster care. More specifically, this study investigated longitudinal associations between economic hardship, economic pressure, and children's internalizing and externalizing problems in kinship care and non-relative foster care. Furthermore, it tested the potentially moderating role of TANF benefits and foster care payments in buffering the negative effects of economic constraints on child behavioral health outcomes.

**Economic Well-being and Children's Behavioral Health Outcomes**

Children in kinship care experience more economic hardship compared to children who stay in non-relative foster care (Berrick & Boyd, 2016; Murray, Ehrle, & Geen, 2004). However, limited studies have examined the associations between financial well-being and children's outcomes indicated by a previous systematic review (Lin, 2014). Nelson and colleagues' (2000) study found that kinship care household monthly income was a significant predictor of high school graduation when adjusting for children and caregivers' demographics and household characteristics. More specifically, one dollar of monthly income increase was positively associated with 0.03% greater odds of children's graduating from high school, and an additional $195 in monthly income was associated with 7% greater odds of children's graduating from high school when controlling for other variables (Nelson, Gibson, & Bauer, 2000).

Given the limited literature in family-based foster care (i.e., kinship care and non-relative foster care) examining the association between financial well-being and children's well-being, it is beneficial to look at the effects of financial well-being on children's behavioral health outcomes in the literature more broadly. Among non-child-welfare-involved children, numerous studies have indicated that strained family finances are associated with children's unfavorable cognitive and emotional outcomes, social adjustment, and behavioral problems (Kiernan & Huerta, 2008; Mistry et al., 2002; Slopen et al., 2010). Furthermore, studies have explored these relationships through moderation and mediation analyses. Mistry and colleagues' (2002) study found that poor family financial well-being was associated with more elementary school-aged children's behavior problems through less effective parenting behaviors in an ethnically diverse and low-income population. Kiernan and Huerta's (2008) study demonstrated negative effects of economic hardship on children's cognitive, externalizing problems, and internalizing problems at age three. Similarly, using a longitudinal study design, Slopen and colleagues (2010) investigated the long-term associations between poverty and food insecurity and children's internalizing and externalizing problems and found that food insecurity in addition to poverty rates predicted increased behavioral problems over time. These studies consistently demonstrate the negative effects of economic hardship on children's behavioral problems.

Research has consistently shown negative effects of economic hardship on children's behavioral health, but no study has explored this association in kinship and non-relative foster care families. Foster caregivers, especially kinship families, are characterized as having financial strain and receiving limited financial support from the government. Therefore, this research is needed to better understand children's well-being in economically disadvantaged families. Also, exploration of potential buffering factors (e.g., financial assistance) would provide some recommendations for practice and policy.

**Financial Assistance for Families**

Becoming foster care parents may increase financial expenditures for families, particularly if financial assistance cannot meet the child care needs. Calculated by Ahn and colleagues (2018), the estimated monthly cost of caring for a foster child in 2016 across the U.S. ranged from $749 to $941, depending on a child's age. For example, the monthly costs for adolescents are approximately $200 higher than for infants, as the expenditures increase as children grow up (Ahn, DePanfilis, Frick, & Barth, 2018).

In the United States, the primary sources of financial assistance for foster and kinship care families are foster care payments and TANF benefits (Ahn et al., 2018; Hernández & Berrick, 2019). The average amount of foster care payments from the government was $601 per month in 2016, leaving a substantial discrepancy between the support from the government and the expenses for caring for a child (Ahn et al., 2018). Kinship families are also eligible for TANF benefits, including TANF family grants and TANF child-only grants, if they meet certain income requirements (Children's Defense Fund, 2014). However, the average monthly amount of TANF benefits for families was $392, while the national average of TANF child-only grants was $249 in 2010 (GAO, 2011). No matter what families' economic status is, these amounts may be not enough to support a child in care (Children's Defense Fund, 2014; Office of Family Assistance, 2012).

In addition to the type and amounts of financial assistance for kinship and non-relative foster care families, there are some disparities in financial support between kinship families and non-kin families. For instance, approximately 25% more non-kin foster caregivers receive foster care subsidies than kinship foster caregivers (Berrick & Boyd, 2016). Berrick and Boyd (2016) also have indicated that 25.6% fewer kinship foster parents receive foster care subsidies than non-relative foster parents, and less than one fourth (12.0% to 23.8%) of kinship foster parents receive TANF family or child-only grants in California, and a range of kinship foster caregivers (4.0% to 34.3%) do not receive any subsidies (Berrick & Boyd, 2016). Compared to kinship foster caregivers, non-relative foster care caregivers on average had better, although still strained, financial conditions.

Receiving financial assistance may decrease the financial burden among foster care and kinship families, promoting child development by improving child care resources. However, among children and families that are involved in the child welfare system, little is known about whether financial assistance has positive effects on children's well-being. Beyond child welfare research, mixed findings were identified regarding the effectiveness of TANF receipt on children's outcomes. Some studies indicated that childhood welfare participation was associated with an increased risk of long-term behavioral problems (Kim, Padilla, Zhang, & Oh, 2018; Wu, Saxe Zerden, & Wu, 2018), while some research revealed no association between welfare participation and children's outcomes (Morris, Huston, Duncan, Crosby, & Bos, 2001).

**Children's Behavioral Health Outcomes in Kinship Care and Non-relative Foster Care**

Children in the child welfare system are at high risk of having mental health issues, especially behavioral and emotional problems (Stahmer et al., 2005). Approximately 50% of children in the child welfare system have behavioral or emotional problems (Burns et al., 2004). Among kinship care children, the prevalence of children's behavioral problems is about 34%, based on U. S. nationally representative data (Sakai, Lin, & Flores, 2011). Children's maladaptive behaviors challenge foster parents or relatives' parenting capacities and consequently increase parenting stress, which may cause a recurrence of abuse and neglect, or create significant barriers to achieving permanency (Chamberlain et al., 2006; Newton et al., 2000; Stahmer et al., 2005). As a public health and social issue, childhood behavioral problems have deleterious effects on later life outcomes, including mental illness, alcohol abuse, low educational attainment, difficult intimate relationships, lower socioeconomic status, unemployment, economic hardship, and high risk of mortality (Colman et al., 2009; Jokela, Ferrie, & Kivimäki, 2009; Stahmer et al., 2005).

A growing body of research has evaluated the effect of kinship care on children's outcomes in comparison with their counterparts in non-relative foster care. Some findings suggest that children in kinship care have relatively better behavioral development and mental health functioning than their peers in non-relative foster care (Winokur, Holtan, & Valentine, 2009), while other studies find no significant differences in these outcomes between two groups when ruling out potential selection bias rigorously or controlling for different covariates (Font, 2014; Xu & Bright, 2018). These inconsistent findings may in part be due to whether research designs and statistical models eliminate selection bias and/or control for significant confounders (Xu & Bright, 2018).

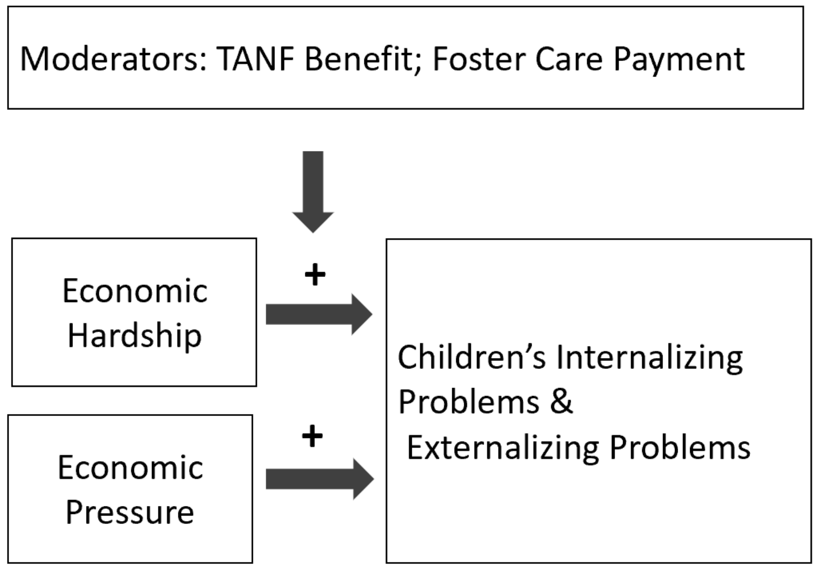
To understand factors associated with children's behavioral health outcomes in family-based foster care, a previous systematic review has identified multilevel factors, including characteristics at the child level, caregiver level, and placement level (Xu & Bright, 2018). Among these factors, very less attention has been drawn to financial well-being and its association with children's behavioral health outcomes in care (Cuddeback, 2004).

**Theoretical Framework: Family Stress Model**

This study was guided by the family stress model, which described a process through which family economic hardship and economic pressure influence parents, subsequently resulting in risk of child maladaptation and maladjustment (Masarik & Conger, 2017). The model illustrates the process through which family economic hardship initially increases family economic pressure, then is followed by increased emotional stress of caregivers, such as depression and anxiety. Afterward, increased caregiver psychological distress may result in disrupted parenting and decreased parenting efficacy, as well as harm to family relationships, including couple relationships. Ultimately, these malfunctioning factors affect children's socioemotional and behavioral problems simultaneously and interactively (Conger & Elder, 1994). The model also considered risk or protective factors from individual, family, or community-level factors as moderators, which exacerbate or mitigate the influence of family economic stress, interpersonal relationship stress, and caregiving stress on children's behavioral problems (Conger et al., 2002; Masarik & Conger, 2017). Sample protective variables include effective coping strategies, family warmth, and neighborhood support (Taylor et al., 2012; White, Liu, Nair, & Tein, 2015), while risk factors include neighborhood adversity and harsh parenting (Ponnet, 2014; White, et al., 2015).

For this study, I adapted the family stress model to family-based foster care research as shown in Figure 2_1. The model was simplified because parenting-related variables were not available for kinship and non-kin caregivers in the dataset. Thus, parenting-related constructs were removed from the theoretical framework. Also, caregivers' psychological and physical distress were treated as control variables.

*Figure 2_1*. Conceptual Framework




**Research Questions and Hypotheses**

Research questions are: (1) What are the longitudinal associations between economic hardship and economic pressure and children's internalizing and externalizing problems in kinship care and non-relative foster care, controlling for other variables? And (2) do TANF benefits and foster care payments moderate associations between economic hardship and economic pressure and children's internalizing and externalizing problems?

According to the family stress model, economic hardship and economic pressure were hypothesized to be associated with increases in children's internalizing and externalizing problems when controlling for other variables. I hypothesized that TANF benefits and foster care payments would buffer the negative effects of economic hardship and economic pressure on children's behavioral outcomes, although existing literature has inconclusive findings.

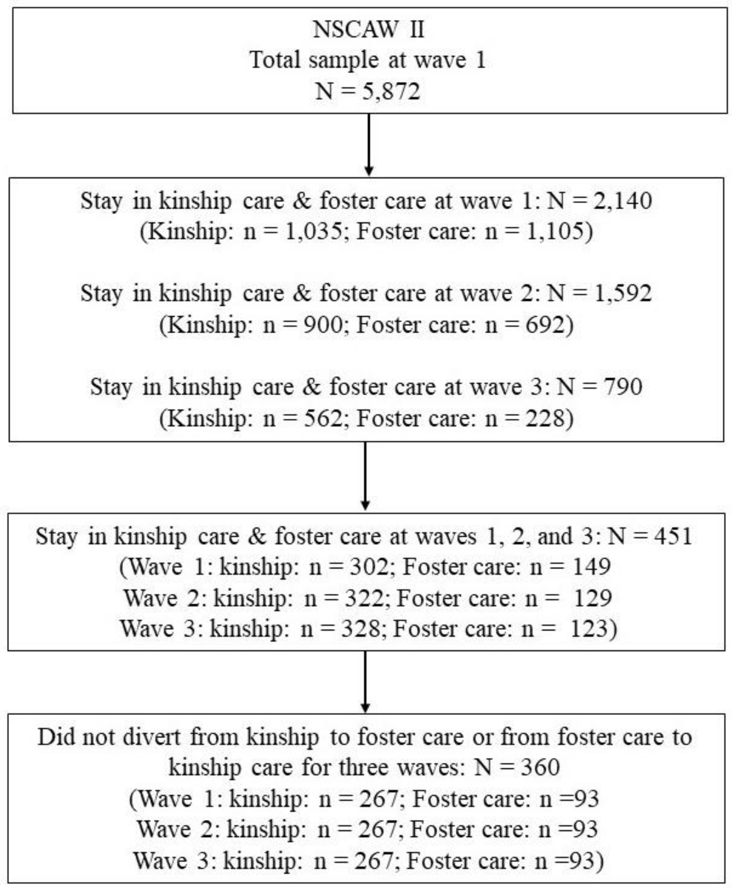
## Methods

### Sample Selection

This study used secondary data from the NSCAW II study, which utilized an unequally weighted, stratified, and clustered sampling design to investigate a cohort of children (N = 5,782) who had substantiated and unsubstantiated investigations of child maltreatment from 2008 to 2012 (Dowd et al., 2014). The NSCAW II followed this cohort of children for three waves. The investigation gap between each wave was 18 months.

I selected children who stayed in kinship care and non-relative foster care across three waves and limited the selection to children who did not move from kinship care to non-relative foster care or from non-relative foster care to kinship care in the investigation period. The reason that I selected children who did not divert between kinship care and non-relative foster care was to ensure that children had the same possibility receiving TANF and foster care payments and stayed in similar environments across waves. The sample selection process is presented in Figure 2_2. The final sample size was 360, with 267 in kinship care and 93 in foster care at each wave. In multivariate analysis, the data were converted from a wide format to a long format (i.e., stacked format). In the long format, the numbers of observations for kinship care and non-relative foster care were 801 and 279, respectively.

*Figure 2_2.* The Sample Selection Process




## Measures

### Time-varying dependent variables

**Internalizing and externalizing problems.** The time-varying dependent variables, children's internalizing and externalizing problems, were measured using the child behavior checklist (CBCL; Achenbach, 2000), which was reported by caregivers at waves 1, 2, and 3. I used standardized t-scores to accommodate the differences in two versions of the CBCL measure (CBCL for 1.5 to 5 years old version and CBCL for 6 to 18 years old version) because this study included children aged from birth to 17.5 years old.

**Time-varying independent variables**

**Economic hardship.** Economic hardship was measured by a constructed variable according to the federal poverty line, including four categories: <50% poverty line, 50-99% poverty line, 100-200% poverty line, and > 200% poverty line at waves 1, 2, and 3. I collapsed this variable into two categories. The dummy variable measured whether families had economic hardship (1 = *have economic hardship* and 0 = *have no economic hardship*). For instance, if families lived below 100% of the federal poverty line in a wave of data collection, I recoded it as having economic hardship. Otherwise, families were treated as having no economic hardship during that wave.

**Economic pressure.** Economic pressure was measured at waves 1, 2, and 3 by asking caregivers: "When it comes to money and making ends meet, how do you think things are going for you?." The responses were 1= *saving a little money each month*, 2 = *just getting by*, and 3 = *struggling to make it every month.* I recoded it as a dichotomous variable for each wave with "saving a little money each month" as having no economic pressure, but collapsed "just getting by" and "struggling to make it every month" as having economic pressure. This was consistent with Conger and colleagues' (1994) approach.

**Time-varying moderators**

**Foster care payment.** Foster care payment was measured by a question if caregivers "currently receive payments for being child's foster parent" at waves 1, 2, and 3, recoded as 1= *receiving foster care payment* and 0 = *receiving no foster care payment*.

**TANF benefits.** TANF benefits were measured by a question "who gets TANF/ Aid to Families with Dependent Children (AFDC) benefits" at waves 1, 2, and 3, and I recoded responses of any family member received TANF/AFDC as 1 = *receiving TANF benefits*, and 0 = *receiving no TANF benefits*.

**Time-invariant covariates**

**Child characteristics at baseline.** Child age at baseline was measured as a continuous variable. Child sex was recoded as 0 = *male* and 1 = *female*. Child race/ethnicity was a four-level categorical variable (1 = *Black and non-Hispanic,* 2 = *White and non-Hispanic*, 3 = *Hispanic,* and 4 = *other),* but recoded as dummy variables with White and non-Hispanic as a reference group. Child maltreatment type (1 = *physical abuse,* 2 = *sexual abuse,* 3 = *neglect*, and 4 = *others*) was assessed by the child welfare worker and was recoded as dummy variables with neglect as a reference group because neglect is the most prevalent maltreatment type (Rebbe, 2018). Children's health insurance was measured by asking if they were covered by Medicaid and recoded as 1 = *yes* and 0 = *no*.

**Caregiver characteristics at baseline.** Caregiver's age, as a continuous variable, was measured from caregivers' self-report at baseline. Caregiver's sex was recoded as 1 = *female* and 0 = *male*. Caregiver's marital status was recoded as *married* = 1 and *other* = 0, including separated, divorced, widowed, and never married. Caregiver's highest educational level was measured as 1 = *high school graduate and above* and 0 = *less than high school*. Caregivers' physical health and mental health were measured using the Short Form Health Survey (SF-12), ranging from 1 to 100, with higher scores indicating better physical or mental health (Ware, Kosinski, & Keller, 1998). Caregivers' employment status was measured by asking them and recoded as 1= *employed* and 0 = *unemployed*.

**Placement characteristics at baseline.** The type of family-based foster care was classified as 1 = *kinship care* and 0 = *non-relative foster care*. The number of caregivers was measured by checking if children in care had changed their caregivers across three waves and recoded as 1 = *changed caregivers or having different caregivers* and 0 = *did not change caregiver or having the same caregiver*. The number of children in the household was included in this study and recoded as a dummy variable (1= *having 1-3 children in the household* and 0 = *having more than 3 children*) because the average number of children in foster care was three (Perry & Price, 2018).

## Data Analytic Plan

To answer research questions, descriptive analysis, bivariate analysis, and multilevel longitudinal analysis were conducted using Stata 15 (StataCorp, 2017). A multilevel modeling (MLM) approach was used to analyze longitudinal data. The multilevel data structure is three time points nested within individuals. To be more specific, level 1 unit of analysis is three time points, which are wave 1 (baseline), wave 2 (18 months after wave 1), and wave 3 (36 months after wave 1). The level 2 unit of analysis is person-level variables, including all the independent and dependent variables and covariates, except the wave variable.

Multilevel mixed-effects generalized linear models were used to answer research questions by using the "svy, subpop (): meglm" command in Stata 15.0 (StataCorp, 2017). The multilevel mixed-effects generalized linear model can be applied to continuous outcomes with Gaussian distribution and identity function for multilevel structured data (Skrondal & Rabe-Hesketh, 2003). The "meglm" command has the advantageous ability to integrate two-level sampling weights and the subpopulation selection in Stata.

Although mixed/xtmixed is a typical command to run MLM with continuous outcomes in Stata, this command does not have the capacity to incorporate two-level sampling weights and subpopulations into multilevel models.

In terms of weights for multilevel modeling at level 1 and level 2, I computed time level (level 1) and person level (level 2) weighting variables based on probability weights and agency weights, according to the NSCAW statistical manual and the guidelines for applying multilevel modeling to the NSCAW data (Christ, Biemer, & Wiesen, 2007; Dowd et al., 2014). At the same time, weights were rescaled prior to applying to MLM analysis.

Assumptions of multi-level modeling include all residuals are normally distributed, are homoscedastic, and are uncorrelated with any of the independent variables (Robson & Pevalin, 2016). Histograms showed level 1 and level 2 residuals were normally distributed. The Breusch-Pagan/Cook-Weisberg test ("hettest" command in Stata) was conducted, and high p-values and low chi-square results indicated that the error variance was not heteroscedastic ($\chi^2$ (1) = 0.63, $p$ = 0.43; $\chi^2$ (1) = 0.04, $p$ = 0.85). Variance Inflation Factors (VIFs) ranged from 1.01 to 1.27, indicating no problematic multicollinearity (Orme & Combs-Orme, 2009).

**Missing data**

I first examined the percentages of missing data for each variable. Missing data percentages ranged from 0.28% (caregiver age, sex, marital status, and education) to 17.04% (externalizing and internalizing problems). Then, I conducted Little's Missing Completely at Random (MCAR) test (Little, 1998) using "mcartest" command in Stata. The non-significant chi-square test value ($p$ = 0.06), indicated that data were missing completely at random. Since missing at random (MAR) is not directly testable, the MCAR finding suggests the assumption is met. Maximum Likelihood Estimation (MLE) methods utilizing available data were employed to produce estimations. As methodological research indicates, MLE is a preferred way to address missing data to make valid estimations relative to multiple imputation (Rabe-Hesketh & Skrondal, 2012; Twisk, de Boer, de Vente, & Heymans, 2013; Schafer & Graham, 2002). The MLE approach takes the unbalanced structure of the data into account by weighting the regression parameters with regard to available data, which may result in less biased estimations.

**Model fit**

To fit the MLM model, null models without covariates were run first. The interclass correlation (ICC) is an indicator to determine the necessity of conducting multilevel modeling (Robson & Pevalin, 2016). ICC was calculated using the following formula (Robson & Pevalin, 2016).

$$\mathrm{ICC} = \frac{\text{variance of random intercept}}{\text{variance of random intercept} + \text{within} - \text{subject variance}}$$

ICCs for the null models without covariates of children's internalizing problems and externalizing problems were 0.37 and 0.28, respectively. In other words, 37% of the variance for internalizing problems and 28% of the variance for externalizing problems were explained by differences between individuals. After adding covariates, all the models' ICCs increased, ranging from 0.44 to 0.57, which meant increased variance in the models was explained by including these covariates. Other model fit indices, such as $R^2$, Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and log likelihood, were not able to obtain after carrying out "svy, subpop (): meglm" command in Stata because of the complexity of the three waves, subpopulations, and weights.

In terms of the trend of children's behavioral problems, a linear trend, rather than a quadric trend, was modeled for this analysis because children's behavioral problems decreased over time as descriptive results showed.

## Results

### Descriptive Results

This sample was comprised of 267 children who stayed in kinship care and 93 children in foster care across three waves, and only 78 out of the 360 had different caregivers over three waves. All reported means, standard deviations, and frequencies were weighted.

Over three waves, children's internalizing problems (changing from 53.29 to 49.16) and externalizing problems (changing from 53.25 to 51.02) are shown in Table 2_1. Appendices 2_H-L present children's behavioral problems (t scores, clinical scores, and borderline scores), economic well-being, and financial assistance in bar charts. Results showed that families' economic hardship was stable over time with around 50% of families living below the federal poverty line. In any of the three waves, 66.02% to 77.98% of families experienced economic pressure, and about one third families were TANF and/or foster care payment recipients. The association between economic pressure and economic hardship was tested at each wave using Cramer's V and results showed a moderate association with Cramer's V ranging from 0.25 to 0.33.

The average age for children was 7 years old, and half were girls (n = 185; 55.84%). A total of 32.84% (n = 107) were White and non-Hispanic, while 30.22% (n =

139) were Black and non-Hispanic, and 30.77% (n = 91) were Hispanic children. The majority of these children were covered by Medicaid (77.84%). Regarding children's maltreatment types, the most common allegation was "other" (37.22%), such as parental substance abuse, followed by neglect (32.5%).

Caregivers' average age was 50 years old and most of them were female (n = 336; 91.84%). Half (n = 161; 49.68%) were married, and one-third had received education beyond high school (n = 150; 33.64%), but most were not employed (n = 175; 56.54%). Caregivers' physical health (*M* = 43.76, *SD* = 11.23) was below the national norm 50 out of 100 (Ware, Kosinski, & Keller, 1998), while caregivers' mental health was just above the national norm (*M* = 51.84, *SD* = 10.43). The majority of households had less than three children in the household (n = 268; 81.28%).

Table 2_1. *Descriptive Results for Children in Kinship Care and Non-Relative Foster Care (N = 360)*

| Variables | Wave 1 | | Wave 2 | | Wave 3 | |
|---|---|---|---|---|---|---|
| | N | M (SD)/ % | N | M (SD)/% | N | M (SD)/% |
| Time-varying variables | | | | | | |
| Internalizing | 216 | 53.29 (12.86) | 333 | 51.87 (11.31) | 347 | 49.16 (12.48) |
| Externalizing | 216 | 53.25 (12.58) | 333 | 52.37 (11.83) | 347 | 51.02 (13.02) |
| Economic hardship | | | | | | |
| Yes | 142 | 51.13% | 116 | 47.45% | 110 | 42.69% |
| No | 184 | 48.87% | 208 | 52.55% | 217 | 57.31% |
| Economic pressure | | | | | | |
| Yes | 248 | 77.98% | 242 | 69.01% | 239 | 66.02% |
| No | 108 | 22.02% | 106 | 30.99% | 109 | 33.98% |
| TANF benefits | | | | | | |
| Yes | 72 | 28.51% | 69 | 24.06% | 66 | 20.42% |
| No | 287 | 71.49% | 280 | 75.94% | 282 | 79.58% |
| Foster care payments | | | | | | |
| Yes | 190 | 31.81% | 199 | 31.48% | 192 | 26.76% |
| No | 169 | 68.19% | 149 | 68.52% | 157 | 73.24% |
| Time invariant variables | | | | | | |
| Child characteristics | | | | | | |
| Child age | 360 | 6.95 (4.16) | | | | |
| Child sex | 360 | | | | | |
| Male | 175 | 44.16% | | | | |
| Female | 185 | 55.84% | | | | |
| Child race/ethnicity | 359 | | | | | |
| Black and non-Hispanic | 139 | 30.22% | | | | |
| White and non-Hispanic | 107 | 32.84% | | | | |
| Hispanic | 91 | 30.77% | | | | |
| Other | 22 | 6.17% | | | | |
| Child maltreatment | 310 | | | | | |
| Physical abuse | 45 | 17.2% | | | | |
| Neglect | 83 | 32.5% | | | | |
| Sexual abuse | 23 | 13.09% | | | | |
| Other | 159 | 37.22% | | | | |
| Medicaid | | | | | | |
| Yes | 322 | 77.84% | | | | |
| No | 32 | 22.16% | | | | |
| Caregiver characteristics | | | | | | |
| Caregiver age | 359 | 49.85 (9.94) | | | | |
| Caregiver sex | 359 | | | | | |
| Male | 23 | 8.16% | | | | |
| Female | 336 | 91.84% | | | | |
| Caregiver marital status | | | | | | |
| Married | 161 | 49.68% | | | | |
| Other | 198 | 50.32% | | | | |
| Caregiver education level | | | | | | |
| High school plus | 150 | 33.64% | | | | |
| Other | 209 | 66.36% | | | | |
| Caregiver physical health | 358 | 43.05 (11.23) | | | | |
| Caregiver mental health | 358 | 51.79 (10.43) | | | | |
| Caregiver employment | 358 | | | | | |
| Employed | 183 | 43.46% | | | | |
| Unemployed | 175 | 56.54% | | | | |
| Placement characteristics | | | | | | |
| Type of family-based foster care | 360 | | | | | |
| Kinship care | 267 | 91.07% | | | | |
| Non-kin foster care | 93 | 8.93% | | | | |
| Different caregivers | 322 | | | | | |
| Yes | 78 | 26.37% | | | | |
| No | 244 | 73.63% | | | | |
| Number of children in the household | 360 | | | | | |
| > 3 children | 92 | 18.72% | | | | |
| < = 3 children | 268 | 81.28% | | | | |

Note: Data are in a wide format; kinship care: n = 267; non-relative foster care: n =93; Mean and % were weighted.

**Bivariate Results: A Comparison between Kinship Care and Non-Relative Foster Care**

The comparison between kinship care and non-relative foster care is presented in Table 2_2. Children in kinship care had significantly less severe internalizing (*M* = 50.62, *SD* = 12.13) and externalizing problems (*M* = 51.55, *SD* = 12.31) compared to children in non-relative foster care (with internalizing problems *M* = 57.13, *SD* = 11.61 and externalizing problems *M* = 59.00, *SD* = 12.79). Regarding economic well-being, 49.06% of kinship families experienced economic hardship, while only 14.91% of non-relative foster care had that experience. A total of 73.84% of kinship families had experienced economic pressure, while 37.38% of non-relative foster caregivers reported economic pressure. More kinship care families than non-relative foster care (25.83% vs. 1.36%) were TANF recipients, while far much more foster care families (97.59% vs. 23.66%) were foster care payment recipients. Appendices 2_M presents a comparison of these variables between kinship care and non-relative foster care in bar charts.

In terms of differences in the demographics of children, more children in non-relative foster care (97.83%) were covered by Medicaid than children in kinship care (76.61%). Kin caregivers (*M* = 50.36, *SD* = 9.81) were older than non-relative foster caregivers (*M* = 43.59, *SD* = 11.57) with $p = 0.030$. Kin caregivers had significantly worse physical health (*M* = 42.34, *SD* = 11.18 vs. *M* = 51.86, *SD* = 8.17) and mental health (*M* = 51.32, *SD* = 10.65 vs. *M* = 56.60, *SD* = 4.59) than non-relative foster caregivers, with lower scores indicating worse health conditions. Non-relative foster children were more likely to change caregivers during the three waves and lived in families with more children in the household, on average.

Table 2_2. *Bivariate Analysis: A Comparison between Kinship Care and Non-Relative Foster Care*

| Variables | Kinship Care (N = 801) | | Non-relative Foster Care (N = 279) | | T-test/Chi-square test | |
|---|---|---|---|---|---|---|
| | N | M (SD)/ % | N | M (SD)/% | t/$\chi^2$ | P |
| Internalizing problems | 674 | 50.62 (12.13) | 222 | 57.13 (11.61) | 2.03 | 0.047* |
| Externalizing problems | 674 | 51.55 (12.31) | 222 | 59.00 (12.79) | 2.10 | 0.040* |
| Economic hardship | 739 | | 238 | | 37.00 | 0.001** |
| Yes | 316 | 49.06% | 52 | 14.91% | | |
| No | 423 | 50.94% | 186 | 85.09% | | |
| Economic pressure | 785 | | 267 | | 58.26 | 0.001** |
| Yes | 603 | 73.84% | 126 | 37.38% | | |
| No | 182 | 26.16% | 141 | 62.62% | | |
| TANF benefits | 787 | | 269 | | 30.68 | <0.001*** |
| Yes | 200 | 25.83% | 262 | 1.36% | | |
| No | 587 | 74.17% | 7 | 98.64% | | |
| Foster care payments | 787 | | 269 | | 236.00 | <0.001*** |
| Yes | 325 | 23.66% | 256 | 97.59% | | |
| No | 462 | 76.34% | 13 | 2.41% | | |
| Child characteristics | | | | | | |
| Child age | 801 | 6.88 (4.07) | 279 | 6.56 (4.75) | -0.27 | 0.784 |
| Child sex | 801 | | 279 | | 6.03 | 0.307 |
| Male | 390 | 43.73% | 135 | 56.02% | | |
| Female | 411 | 56.27% | 144 | 43.98% | | |
| Child race/ethnicity | 801 | | 276 | | 15.69 | 0.379 |
| Black and non-Hispanic | 291 | 30.32% | 126 | 41.43% | | |
| White and non-Hispanic | 261 | 32.16% | 60 | 37.12% | | |
| Hispanic | 207 | 31.41% | 66 | 13.54% | | |
| Other | 42 | 6.11% | 24 | 7.91% | | |
| Child maltreatment | 699 | | 231 | | 22.88 | 0.388 |
| Physical abuse | 99 | 18.75% | 36 | 19.87% | | |
| Neglect | 54 | 11.15% | 15 | 25.51% | | |
| Sexual abuse | 189 | 33.54% | 60 | 14.61% | | |
| Other | 357 | 36.56% | 120 | 40.02% | | |
| Medicaid | 786 | | 276 | | 24.19 | 0.009** |
| Yes | 696 | 76.61% | 270 | 97.83% | | |
| No | 90 | 23.39% | 6 | 2.17% | | |
| Caregiver characteristics | | | | | | |
| Caregiver age | 801 | 50.36 (9.81) | 276 | 43.59 (11.57) | 2.17 | 0.030* |
| Caregiver sex | 801 | | 276 | | 0.46 | 0.666 |
| Male | 54 | 7.36% | 15 | 94.41% | | |
| Female | 747 | 92.64% | 261 | 5.59% | | |
| Caregiver marital status | 801 | | 276 | | 0.31 | 0.819 |
| Married | 348 | 49.03% | 135 | 51.84% | | |
| Other | 453 | 50.97% | 141 | 48.16% | | |
| Caregiver education level | 801 | | 276 | | 10.67 | 0.182 |
| High school plus | 297 | 32.23% | 153 | 47.88% | | |
| Other | 504 | 67.77% | 123 | 52.12% | | |
| Caregiver physical health | 798 | 42.34 (11.18) | 276 | 51.86 (8.17) | 5.28 | <0.001*** |
| Caregiver mental health | 798 | 51.32 (10.65) | 276 | 56.60 (4.59) | 2.66 | 0.010* |
| Caregiver employment | 798 | | 276 | | 0.01 | 0.945 |
| Employed | 393 | 43.54% | 156 | 42.62% | | |
| Unemployed | 405 | 56.46% | 120 | 57.38% | | |
| Placement characteristics | | | | | | |
| Different caregiver | 705 | | 261 | | 66.81 | 0.001* |
| Yes | 108 | 24.05% | 126 | 64.04% | | |
| No | 597 | 75.95% | 135 | 35.96% | | |
| Number of children in the household | 801 | | 279 | | 54.37 | 0.004** |
| > 3 children (0) | 168 | 15.66% | 108 | 44.52% | | |
| < = 3 children (1) | 633 | 84.34% | 171 | 55.48% | | |

Note: Data are in a long format; kinship care: n = 801; non-relative foster care: n =279; * p < 0.05; ** p < 0.01; *** p < 0.001; Mean and % were weighted.

## Multivariate Analysis Results

To answer this study's research questions, models were conducted in the whole sample (i.e., children in kinship care and non-relative foster care). However, given differences between kinship care and non-relative foster care, supplementary analyses were conducted to explore the relationships among study variables in these two subsamples (see Appendices 2_A-D). Models with interactions between the type of placement and economic hardship and economic pressure were also conducted and appear in Appendices 2_E-G.

### Main effects models

The main effects models are presented in Table 2_3. In terms of key hypotheses, results showed that having economic hardship or economic pressure was not significantly associated with children's internalizing and externalizing problems. Also, receiving foster care payments was not associated with having children's behavioral problems. But receiving TANF benefits was associated with increases in internalizing (B = 5.64, $p < 0.001$) and externalizing problems (B = 2.65, $p < 0.022$) over the three waves.

Other significant covariates that were associated with increases in children's internalizing problems included other race/ethnicity (B = 8.84, $p = 0.010$) compared to White and non-Hispanic and having childhood sexual abuse history compared to neglect (B = 6.95, $p = 0.43$). However, some covariates were associated with fewer internalizing problems for children, including being female (B = -4.53, $p = 0.024$), being Hispanic (B = -7.10, $p = 0.011$) compared to White and non-Hispanic, caregivers' age (B = -0.19, $p = 0.003$), caregivers' educational level (B = -6.25, $p = 0.005$), caregivers' physical health (B = -0.11, $p = 0.041$), caregivers' mental health (B = -0.45, $p < 0.001$), being in kinship care compared to non-relative foster care (B = -10.16, $p$ = 0.001), and having different caregivers (B = -3.96, $p$ = 0.008).

Significant covariates associated with decreases in children's externalizing problems were Hispanic children (B = -9.08, $p$ = 0.019) compared to White non-Hispanic, caregivers' mental health status (B = -0.36, $p$ = 0.001), being in kinship care compared to non-relative foster care (B = -8.94, $p$ = 0.014), and having different caregivers across three waves (B = -3.96, $p$ = 0.008).

Table 2_3. *Predictors of Children's Behavioral Problems in Kinship Care and Non-Relative Foster Care*

| | Internalizing problems Main Effects | | Externalizing problems Main Effects | |
|---|---|---|---|---|
| Variable | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | |
| Time-varying variables | | | | |
| Economic hardship | 1.69 | 0.150 | 2.46 | 0.201 |
| Economic pressure | 2.89 | 0.162 | 0.80 | 0.792 |
| TANF benefits | 5.64 | <0.001*** | 2.65 | 0.022* |
| Foster care payments | 0.40 | 0.817 | -0.77 | 0.748 |
| Time-invariant variables | | | | |
| Child age at wave 1 | -0.15 | 0.521 | 0.06 | 0.861 |
| Child sex (ref. male) | -4.53 | 0.024* | -1.78 | 0.487 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | |
| Black and non-Hispanic | -2.69 | 0.326 | -2.09 | 0.484 |
| Hispanic | -7.10 | 0.011* | -9.08 | 0.019* |
| Other | 8.84 | 0.010* | 3.91 | 0.579 |
| Child maltreatment (ref. neglect) | | | | |
| Physical abuse | 1.94 | 0.331 | 3.83 | 0.192 |
| Sexual abuse | 6.95 | 0.043* | 1.65 | 0.704 |
| Other | -2.73 | 0.237 | -3.67 | 0.329 |
| Child Medicaid | -2.61 | 0.233 | -4.48 | 0.155 |
| Caregiver age at wave 1 | -0.19 | 0.003** | 0.02 | 0.808 |
| Caregiver sex (ref. male) | 2.93 | 0.314 | 1.66 | 0.592 |
| Caregiver marital status (ref. not married) | -1.17 | 0.486 | -0.94 | 0.668 |
| Caregiver education level (ref. less than high school) | -6.25 | 0.005** | -2.42 | 0.315 |
| Caregiver physical health | -0.11 | 0.041* | -0.08 | 0.257 |
| Caregiver mental health | -0.45 | <0.001*** | -0.36 | 0.001** |
| Caregiver employment (ref. unemployed) | -3.01 | 0.110 | -1.33 | 0.581 |
| Type of family-based foster care (ref. Non-kin foster care) | -10.16 | 0.001** | -8.94 | 0.014* |
| Different caregivers (ref. no different caregiver) | -3.96 | 0.008** | 0.49 | 0.864 |
| Number of children in the household (ref. > 3 children) | 2.06 | 0.383 | 1.92 | 0.609 |
| Wave | -1.71 | 0.086 | -1.11 | 0.356 |
| Random-effects Level 1 (Time) | | | | |
| | B | | B | |
| Variance of intercept | 29.64 | | 32.13 | |
| Variance of residual | 36.37 | | 29.50 | |
| ICC | 0.44 | | 0.52 | |

Note: Number of observations: 642; * p < 0.5; ** p < 0.01; *** p < 0.001

**Models with interactions between economic hardship and financial assistance**

To test the potentially buffering effects of TANF benefits and foster care payments on children's behavioral problems, two interaction terms (economic hardship × TANF; economic hardship × foster care payment) were included in models.

Results in Table 2_4 showed that receiving TANF benefits was associated with increases in children's internalizing problems with B = 3.73 and $p$ = 0.037. However, receiving foster care payments was associated with decreases in children's behavioral problems (B = -5.24, $p$ = 0.040). The interaction between foster care payments and economic hardship was significant with B = 7.49 and $p$ = 0.018. As it was an interaction between two dummy variables, predictive values for each category of these two variables were generated, and an interaction plot is presented in Figure 2_3.

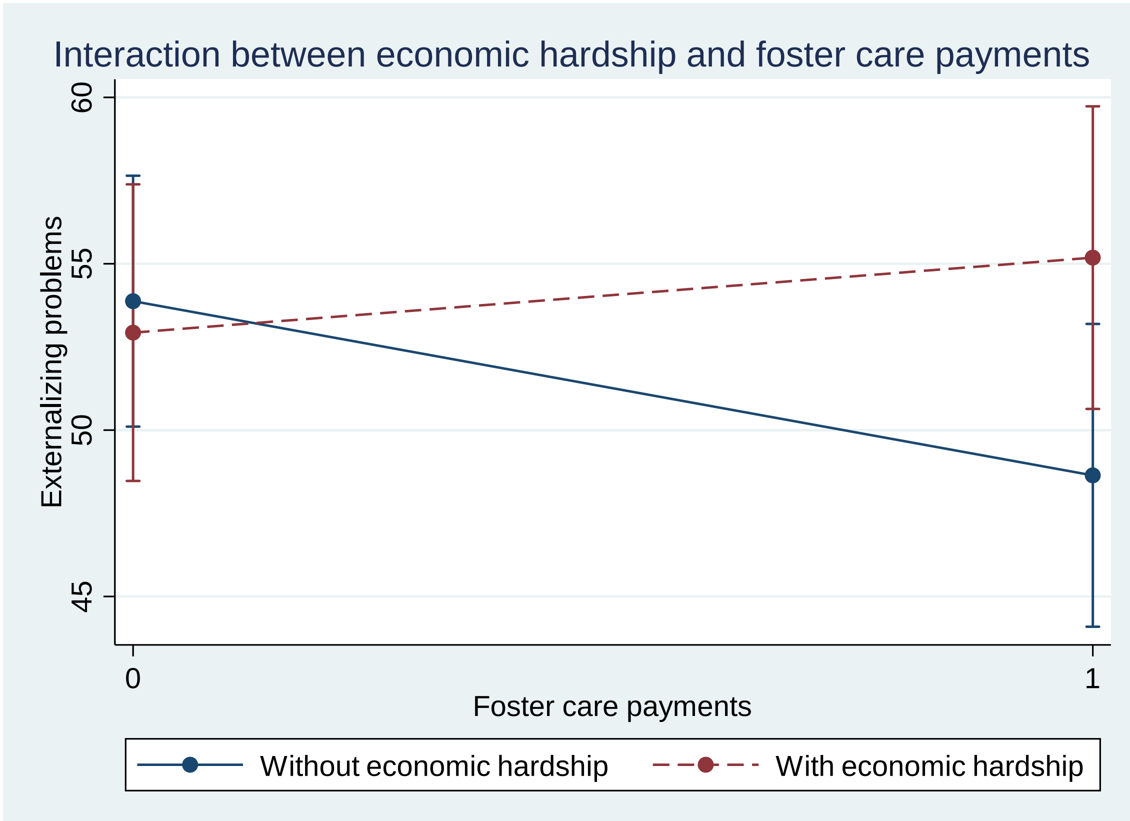
The interaction plot in Figure 2_3 showed that for families with economic hardship (i.e., below the poverty line), receiving foster care payments was associated with increases in children's externalizing problems. However, for families without economic hardship (i.e., above the poverty line), receiving foster care payments was associated with decreases in children's externalizing problems.

Table 2_4. *Predictors of Children's Behavioral Problems with Interaction Terms between Economic Hardship and TANF/Foster Care Payments in Kinship Care and Non-Relative Foster Care*

| | Internalizing Problems Economic hardship × TANF/Foster care payments | | Externalizing Problems Economic hardship × TANF/Foster care payments | |
|---|---|---|---|---|
| Variable | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | |
| Time-varying variables | | | | |
| Economic hardship | 3.01 | 0.114 | -1.63 | 0.329 |
| Economic pressure | 0.02 | 0.987 | 1.33 | 0.577 |
| TANF benefits | 3.73 | 0.037* | -0.36 | 0.853 |
| Foster care payments | -0.75 | 0.695 | -5.24 | 0.040* |
| Economic hardship × TANF | 2.48 | 0.249 | 3.30 | 0.098 |
| Economic hardship × Foster care payment | 2.43 | 0.255 | 7.49 | 0.018* |
| Time-invariant variables | | | | |
| Child age at wave 1 | -0.19 | 0.411 | 0.04 | 0.018** |
| Child sex (ref. male) | -4.83 | 0.016* | -2.47 | 0.353 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | |
| Black and non-Hispanic | -2.43 | 0.346 | -1.97 | 0.499 |
| Hispanic | -7.21 | 0.009** | -8.82 | 0.023* |
| Other | 9.22 | 0.008** | 4.19 | 0.567 |
| Child maltreatment (ref. neglect) | | | | |
| Physical abuse | 2.03 | 0.300 | 4.66 | 0.112 |
| Sexual abuse | 6.79 | 0.043* | 1.49 | 0.736 |
| Other | -2.79 | 0.217 | -3.37 | 0.347 |
| Child Medicaid | -2.88 | 0.215 | -5.67 | 0.086 |
| Caregiver age at wave 1 | -0.20 | 0.002** | 0.004 | 0.960 |
| Caregiver sex (ref. male) | 2.78 | 0.318 | -0.23 | 0.941 |
| Caregiver marital status (ref. not married) | -1.29 | 0.453 | -1.59 | 0.483 |
| Caregiver education level (ref. less than high school) | -6.27 | 0.004** | -2.16 | 0.366 |
| Caregiver physical health | -0.13 | 0.028* | -0.11 | 0.198 |
| Caregiver mental health | -0.47 | <0.001*** | -0.44 | <0.001*** |
| Caregiver employment (ref. unemployed) | -3.30 | 0.085 | -2.02 | 0.421 |
| Type of family-based foster care (ref. Non-kin foster care) | -10.63 | <0.001*** | -10.23 | 0.003** |
| Different caregivers (ref. no different caregiver) | -4.37 | 0.003** | 0.41 | 0.885 |
| Number of children in the household (ref. > 3 children) | 1.86 | 0.434 | 1.47 | 0.678 |
| wave | -1.67 | 0.081 | -0.86 | 0.457 |
| Random-effects Level 1 (Time) | | | | |
| | B | | B | |
| Variance of intercept | 29.55 | | 33.91 | |
| Variance of residual | 36.05 | | 25.54 | |
| ICC | 0.45 | | 0.57 | |

Note: Number of observations: 642; * p < 0.5; ** p < 0.01; *** p < 0.001

*Figure 2_3.* The Interaction between Economic Hardship and Foster Care Payments on Children's Externalizing Problems in Kinship Care and Non-Relative Foster Care




**Models with interactions between economic pressure and financial assistance**

To understand the subjective financial well-being of these families and its associations with children's behavioral health outcomes, interactions between economic pressure and financial assistance were added into models.

Results in Table 2_5 showed that economic pressure was associated with children's internalizing problems (B = 5.27, $p$ = 0.001) and externalizing problems (B = 4.86, $p$ = 0.009). Receiving TANF benefits was only associated with increases in internalizing problems (B = 9.54, $p$ < 0.001). Other significant covariates are presented in Table 2_5, which were similar to previous results.

Table 2_5. *Predictors of Children's Behavioral Problems with Interaction Term between Economic Pressure and TANF/Foster Care Payments in Kinship Care and Non-Relative Foster Care*

| | Internalizing Problems Economic pressure × TANF/Foster care payments | | Externalizing Problems Economic pressure × TANF/Foster care payments | |
|---|---|---|---|---|
| Variable | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | |
| Time-varying variables | | | | |
| Economic hardship | 1.33 | 0.175 | 1.67 | 0.236 |
| Economic pressure | 5.27 | 0.001** | 4.86 | 0.009** |
| TANF benefits | 9.54 | <0.001*** | 0.82 | 0.783 |
| Foster care payments | 5.27 | 0.093 | 9.84 | 0.063 |
| Economic pressure × TANF | -4.20 | 0.122 | 2.19 | 0.472 |
| Economic pressure × Foster care payment | -6.14 | 0.017* | -12.60 | 0.004** |
| Time-invariant variables | | | | |
| Child age at wave 1 | -0.06 | 0.787 | 0.17 | 0.535 |
| Child sex (ref. male) | -4.53 | 0.023* | -1.23 | 0.609 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | |
| Black and non-Hispanic | -2.92 | 0.308 | -2.43 | 0.395 |
| Hispanic | -6.80 | 0.013* | -9.55 | 0.009** |
| Other | 8.03 | 0.026* | 1.92 | 0.766 |
| Child maltreatment (ref. neglect) | | | | |
| Physical abuse | 2.15 | 0.286 | 3.37 | 0.226 |
| Sexual abuse | 7.73 | 0.025* | 2.01 | 0.619 |
| Other | -2.67 | 0.212 | -3.41 | 0.313 |
| Child Medicaid | -3.10 | 0.136 | -4.32 | 0.160 |
| Caregiver age at wave 1 | -0.20 | 0.002** | 0.02 | 0.824 |
| Caregiver sex (ref. male) | 2.89 | 0.326 | 2.35 | 0.431 |
| Caregiver marital status (ref. not married) | -1.35 | 0.404 | -2.20 | 0.327 |
| Caregiver education level (ref. less than high school) | -6.21 | 0.005** | -2.20 | 0.327 |
| Caregiver physical health | -0.12 | 0.041* | -0.11 | 0.090 |
| Caregiver mental health | -0.46 | <0.001*** | -0.39 | <0.001*** |
| Caregiver employment (ref. unemployed) | -2.68 | 0.141 | -0.84 | 0.717 |
| Type of family-based foster care (ref. Non-kin foster care) | -8.66 | 0.004** | -5.73 | 0.121 |
| Different caregivers (ref. no different caregiver) | -3.20 | 0.026* | 1.51 | 0.594 |
| Number of children in the household (ref. > 3 children) | 0.89 | 0.377 | 1.82 | 0.602 |
| wave | -1.48 | 0.095 | -0.66 | 0.516 |
| Random-effects Level 1 (Time) | | | | |
| | B | | B | |
| Variance of intercept | 30.40 | | 33.70 | |
| Variance of residual | 34.75 | | 26.92 | |
| ICC | 0.47 | | 0.56 | |

Note: Number of observations: 642; * p < 0.5; ** p < 0.01; *** p < 0.001

Significant interactions were plotted in Figures 2_4 and 2_5. As shown, receiving foster care payments was negatively correlated with children's internalizing and externalizing problems among families with economic pressure. However, the relationship was positive among families without economic pressure. In other words, foster care payments mitigated some negative effects of economic pressure on children's internalizing problems among families with economic pressure. A similar pattern was discovered for children's externalizing problems as showed in Figure 2_5, although the relationship for those who were experiencing economic pressure and getting foster care is more negative than it was for internalizing behavior.

*Figure 2_4.* The Interactions between Economic Pressure and Foster Care Payments on Children's Internalizing Problems in Kinship Care and Non-Relative Foster Care

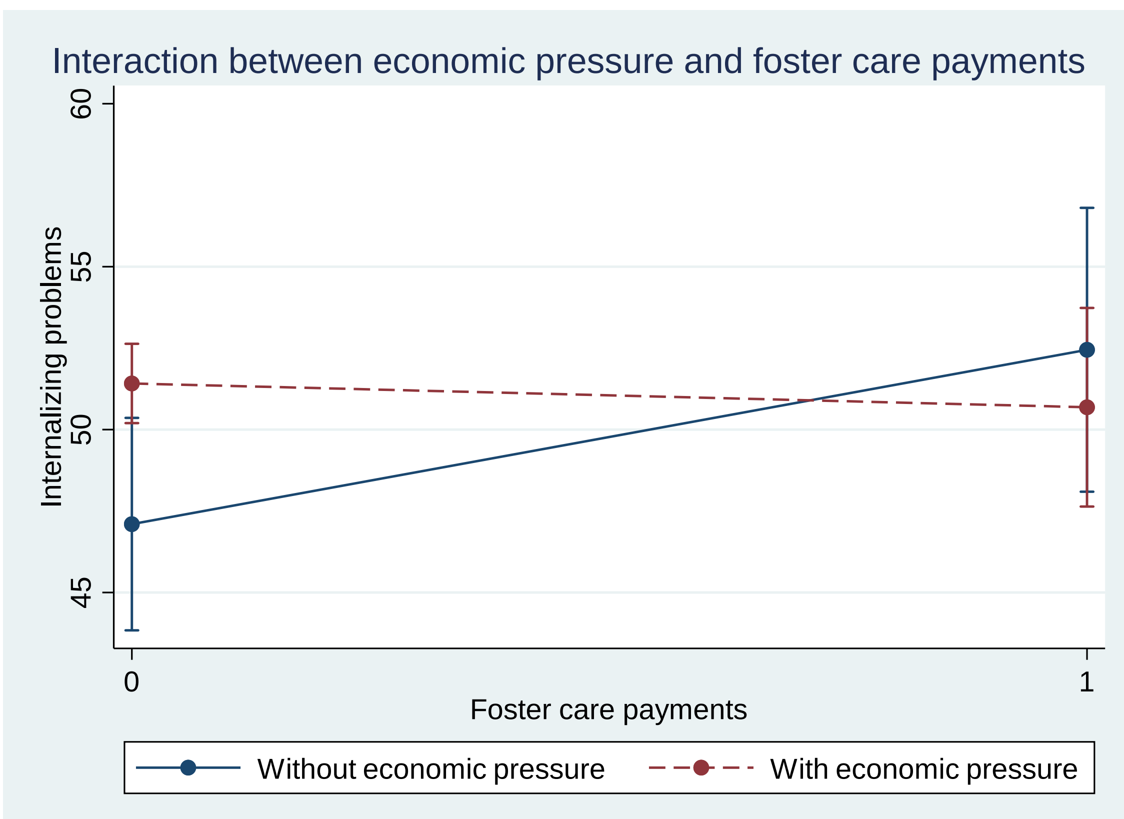
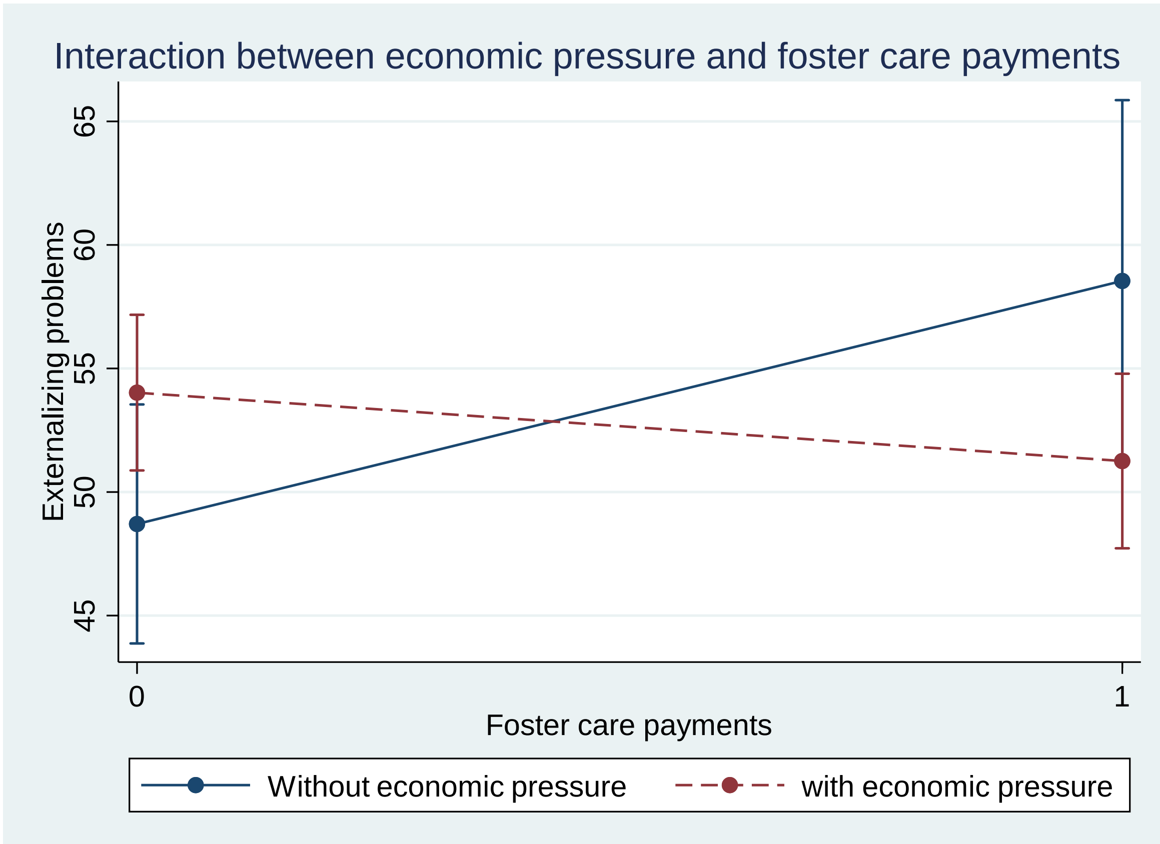


*Figure 2_5.* The Interactions between Economic Pressure and Foster Care Payments on Children's Externalizing Problems in Kinship Care and Non-Relative Foster Care




**Discussion**

The current study, guided by the family stress model, investigated connections between economic adversity, financial assistance from the government, and children's internalizing and externalizing problems in kinship care and non-relative foster care. As a study examining economic related factors associated with children's behavioral outcomes, some results are unexpected and as such have implications for future directions of research.

**Economic Hardship and Economic Pressure**

Research hypotheses with regards to economic hardship, economic pressure, and children's behavioral problems are partially supported in this study. In the main effects model, economic hardship and economic pressure both were not significantly associated with children's behavioral outcomes, although these results are contradictory to the vast majority of literature among general children (Duncan & Brooks-Gunn, 2000). One explanation is that economic hardship, particularly absolute poverty, is a presentation of multi-dimensional hardships, including caregivers' education, marital status, ethnicity, and neighborhood environment (Yoshikawa, Aber, & Beardslee, 2012). As the main effects models have showed, children's behavioral health outcomes are explained by other significant covariates that reflect some of these attributes for children and caregivers. Similarly, using federal poverty line may be not sufficient to capture family's economic well-being, as families live above federal poverty line may still have suffered financial hardship (United Way of Central Maryland, 2018). Last, some children only stay in a particular home for a short period as 64.04% of children in non-relative foster care and 24.05% of children in kinship care had different caregivers. This might explain why families' economic well-being have very limited effects on foster children's behavioral health outcomes. Other past traumatic events may be more relevant to internalizing and externalizing behavior, but were unmeasured in this study, aside from the maltreatment type variable (Greeson et al., 2011).

But some models have demonstrated that experiencing economic pressure is associated with having more behavioral problems for children in care. Having economic pressure is a subjective experience, rather than an objective measure of family income.

The moderate association between economic pressure and economic hardship further demonstrated that these two constructs were distinct from each other in this sample. Some previous research has shown that economic pressure increases conflicts and tensions among families, which in turn, influences child development (Conger et al., 1993). Raising additional children increases families' expenditures, and it may increase conflicts between caregivers and foster children. As a result, children's behavioral problems may worsen due to psychological and emotional conflicts within families. However, more future research is needed to validate and expand on this finding in various samples.

**TANF Benefits**

The results of this study consistently suggest that receiving TANF was associated with increases in children's behavioral problems. Although unexpected, these findings are partially consistent with a previous study about children's behavioral problems among three types of kinship care (i.e., paid kinship care, private kinship care, and voluntary kinship care) using NSCAW II data (Wu, 2017). This study found that children in private kinship care (i.e., without financial assistance) had significantly fewer internalizing and externalizing problems than in paid kinship care (i.e., with financial assistance).

However, the results should be interpreted cautiously as this study was not causal by design. Families who are eligible for TANF benefits experience socioeconomic disadvantages, particularly living in chronic poverty. Receiving TANF represents impoverished family conditions and insufficient social services among these families

(Gourdine, 2007; Wood, Moore, & Rangarajan, 2008). The persistent poverty, along with other risk factors, may affect children's well-being directly and indirectly.

Moreover, the current social welfare system (e.g., TANF system) and the child welfare system are two divided systems, which lack coordination with each other (GAO, 2011). For example, information and data sharing between the two systems do not operate smoothly due to privacy concerns in more than half of states in the U.S., hindering caregivers' access to available benefits (GAO, 2011). There is also social stigma attached to receiving TANF and other welfare programs, which may also help explain why receiving TANF is associated with more children's behavioral problems, particularly internalizing problems (Dworsky, Courtney, & Zinn, 2007; Stuber & Kronebusch, 2004).

In other words, the results do not necessarily illustrate the negative effects of the TANF program on child behavioral health, but they do remind us of the fragility of TANF recipients. The results further raise questions about who receives TANF, how TANF is distributed to families, and whether the amounts of TANF benefits meet these families' needs (Anderson, 2007; Dworsky, Courtney, & Zinn, 2007). The results also raise questions about the challenges of raising children who have experienced trauma and family separation without even the very slight financial cushion provided by foster care payments.

**Foster Care Payments**

Receiving foster care payments was associated with decreases in children's externalizing problems in the main effects model. Furthermore, a significant interaction between economic hardship and foster care payments showed a buffering effect on children's externalizing problems among families living above the federal poverty line, while receiving foster care payments was correlated with increases in children's externalizing problems among families living below the federal poverty line. This unexpected result might be explained by the burden and extra stigma of involvement in the child welfare system for those families having economic disadvantages, exacerbating children's behavioral problems (Callahan & Lumb, 1995; Wu, 2017). Or, this result might be related to children's more severe baseline behavioral problems among families who lived in poverty, which offset the positive effects of foster care payments on children's behavioral health.

The significant interaction between economic pressure and foster care payments suggests that foster care payments have mitigated the negative effects of economic pressure on children's behavioral problems for families with economic pressure. For families without economic pressure, opposite findings are found. Similarly, one potential explanation is that receiving foster care payments may increase the level of involvement with the child welfare system, and this involvement is accompanied by stigma (Callahan & Lumb, 1995). Also, for very high-need children, child welfare workers and foster care providers may recognize and seek resources proactively, regardless of level of economic pressure. Additionally, this result may also be related to children's baseline behavioral problems. Future research, particularly interviews with foster parents, may resolve unanswered questions about causal mechanisms for these effects.

Overall, this study's results imply that foster care payments, as financial assistance, benefit some needy families. This study found that families that do not live in poverty (objective economic well-being) or families with economic pressure (subjective economic well-being) benefit from receiving foster care payments. However, the interpretation should be cautious because this study did not set up the temporal order of receiving foster care payments and children's behavioral problems.

**Kinship Care and Non-Relative Foster Care**

Results show that kinship children have fewer internalizing and externalizing problems than their counterparts in non-relative foster care. This finding is consistent with previous literature (Winokur, Holtan, & Batchelder, 2018). However, we should keep in mind that selection bias and methodology bias exist in comparing children's behavioral problems in different settings (Xu & Bright, 2018). For instance, kinship children have less severe baseline behavioral problems than non-relative foster children, as this paper's descriptive results showed.

**Significant Covariates**

A number of significant covariates are identified in this study. Although most are aligned with previous research, some interesting but unexpected covariates are discussed as follows.

First, this study finds that girls have significantly fewer internalizing problems than boys when controlling for other covariates. Though surprising, this finding has been discovered in some previous research in kinship care and foster care (Dubowitz, Zuravin, Starr, Feigelman, & Harrington, 1993; Hellinckx & Grietens, 1994; McCrae, 2009; Tarren-Sweeney, & Hazell, 2006). It may be that boys may have higher rates of internalizing problems than girls when they are involved with the child welfare system (McCrae, 2009), or that caregivers underreport girls' internalizing problems while overestimating boys' behavioral problems (Ackerman, Newton, McPherson, Jones, & Dykman, 1998; McCrae, 2009).

Second, this study finds that Hispanic children have fewer internalizing problems and externalizing problems compared to White-non Hispanic children. Minorities face socioeconomic disadvantages and discrimination, which may worsen their behavioral health outcomes (Chakraborty & McKenzie, 2002; Menselson, Rehkopf, & Kubzansky, 2008). But the result is also consistent with some previous studies based in kinship and foster care (Keller et al., 2001; Lau et al., 2004; McCrae, Barth, & Guo, 2010). One explanation is the Hispanic Paradox. The Hispanic Paradox refers to the health status of Hispanic populations was comparable or even better than non-Hispanic Whites (Chakraborty & McKenzie, 2002; Menselson, Rehkopf, & Kubzansky, 2008). Also, White caregivers tend to report more children's internalizing and externalizing problems than Hispanic Americans because White caregivers may have received more education about psychopathology (Lau et al., 2004). This can be validated by findings that Latino families are less likely to use mental health services than White American families across several studies, regardless of their need and health insurance status (Bui & Takeuchi, 1992).

However, identifying as other race/ethnicity (e.g., Asians and Pacific Islanders and Native Americans) is associated with having more behavioral problems than Whites, which is consistent with other research using NSCAW data (McCrae, 2009; Yoon et al., 2017). A variety of racial/ethnic backgrounds combined into this category makes interpretation hard. However, one potential explanation is that this group of children in the child welfare system may have limited access to mental health services or to culturally responsive services (Leong & Lau, 2001; Shaw et al., 2008; Zhai & Gao, 2009). Another possibility is that the low rate of Asian and Native American involvement with child welfare services means that only the very most troubled youth enter child welfare system.

Third, the last unexpected finding is that changing caregivers over time is associated with decreases in children's behavioral problems, although research shows that children's behavioral problems are associated with a high likelihood of a placement change (Jedwab, Xu, Keyser, & Shaw, 2019). However, caregivers' assessment of children's behavioral problems is very subjective (Barth, 2008). Thus, the fluctuations may be due to caregiver impressions rather than consistent behavior. Another possibility is that kinship caregivers are more likely to foster children who have less severe behavioral problems (Wu, 2017), or that for children who have changed caregivers, caregivers may underestimate their initial assessments on children's behavioral problems.

**Strengths and Limitations**

The present study has a few strengths. First, this study, to my knowledge, is one of very few longitudinal studies to examine financial well-being and children's behavioral outcomes in non-relative foster care and kinship care using a nationally representative sample. Second, this study fills a methodological gap in that the vast majority of out-of-home care studies use cross-sectional designs, which limits inferences that can be drawn from their findings. Third, by examining the associations of key components of the family stress model (economic hardship, economic stress, and children's behavioral outcomes) among kinship and non-relative families, this study advances the knowledge of the application of the family stress model in a different population.

Although this study contributes knowledge, the limitations of this study should be noted. First, parenting practices are an important component of Conger's family stress model; however, this study was not able to use parenting-related measures because they were not asked of kinship and non-kin caregivers in this data set. Parenting stress may be a critical mediator from economic pressure for child behavioral problems. Second, this study was not able to control for the length of time and amounts of financial assistance that each family received. Also, using federal poverty line to measure family's economic well-being may not reflect families' financial hardship (United Way of Central Maryland, 2018). Third, this study did not control for variation in financial assistance policies between states due to lack of state identifiers in this data set. Fourth, non-financial supports are important but are not effectively captured in this data set. Fifth, this study tested the correlations between receiving financial assistance and children's behavioral health outcomes and further tested the moderating role of financial assistance. However, it was not a causal study design, which limited the validity of results with regards to policy recommendations. Furthermore, this study was also limited by using caregivers' reports of children's behavioral health outcomes, which may bring in reporting bias. Lastly, the sample size of this study, particularly the number children in foster care for 36 months, was very small. The results may be only generalizable to a small portion of children in the child welfare system—those who stayed in foster care for three years.

## Directions for Future Research

Future research could use linked TANF, child welfare, and health care administrative data to examine outcomes of children who are involved with two systems (i.e., child welfare system and TANF system) in different states.

Using a statewide linked administrative data set potentially will address some limitations mentioned earlier. For example, using clinical diagnoses of children's mental health as an indicator would avoid reporting bias caused by caregivers. Tracking families' specific welfare amounts and durations would help us further understand families' economic well-being and financial assistance conditions. Also, using a more comprehensive approach to capture families' financial well-being, which could be beyond family income to include other financial assets. More replicated studies are needed to understand the relationships among economic well-being, financial assistance, and children's outcomes. Additionally, future research can employ qualitative methods to understand why some financial assistance has positive effects on certain groups of families.

The other direction for future research is to employ natural experimental designs to enhance the causal inference framework. More rigorous designs should be carried out in order to provide additional policy and practice implications.

Furthermore, future research could test if caregivers' parenting stress is a mediator from family's economic well-being to children's behavioral health outcomes. More investigations on significant moderating effects should be conducted, such as examining social support, effective coping strategies, and parenting behaviors.

**Implication for Practice and Policy**

First, this research directly points out that child welfare workers should understand foster care providers' subjective economic pressure in addition to objective economic hardship. To promote children's healthy development, assessing caregivers' experiences of family financial well-being is equally important to assessing family income. One potential implication is to develop an individualized financial assistance package for each family based on their expenditures and incomes. A rigorous research design that tests the impact of several different benefit packages would build on several other related child welfare and financial assistance studies and help clarify the causal nature of this relationship.

Second, this finding of the relationship between TANF benefits and children's behavioral problems illustrates the fragility of families that receive TANF benefits. This finding reminds us to rethink whether financial and non-financial needs of TANF families are met. Also, more efforts are needed to eliminate the potential stigma and barriers of receiving TANF benefits (Stuber & Kronebusch, 2004). This might be done by providing more information on eligibility, reducing kinship caregivers' confusion on TANF, simplifying the application process, minimizing unnecessary personal questions, and setting up more easily accessible application locations.

Third, interactions between economic variables and foster care payments show foster care payments have some protective effects on families with economic pressure and without economic hardship. Thus, child welfare workers should continue providing foster care payments to caregivers. However, child welfare agencies and practitioners should also consider providing non-financial-related services to foster care families, particularly families without economic pressure (McHugh & Valentine, 2010). Decreasing the stigma of the child welfare system is needed as well when providing services to these families (Kemp, Marcenko, Hoagwood, & Vesneski, 2009).

Fourth, children in kinship care fare better than their counterparts in non-relative foster care, but there are financial differences between kinship families and non-relative foster care families. These differences included their families' financial well-being and financial assistance. This study provides some support for the recent increases in kinship care, with the caveat that kin caregivers may require financial assistance and other support.

**Conclusion**

This study using NSCAW II data investigated economic hardship, economic pressure, TANF benefits, and foster care payments among kinship care and non-relative foster care. Results indicate that economic pressure has consequences for children's healthy development. Regarding the role of financial assistance, this study found some significant, but unexpected results. More work is needed to further explore the effects of TANF benefits and foster care payments on foster children's well-being in various samples.

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# Chapter 4: Paper 3

**Abstract**

**Title:** Neighborhood disorder and child behavioral problems among kinship children: mediated by social support and moderated by race/ethnicity?

**Abstract:** Children in kinship care may be placed in similar neighborhoods as their birth families, which are predominantly characterized as distressed neighborhoods with high poverty and crime rates, poor-quality housing conditions, and few social resources. Disordered neighborhoods are negatively correlated to social support, but this dynamic may vary by race or ethnicity. However, children's previously established attachment and social bonding may offset the negative effects of distressed neighborhoods on child behavioral health. This study used NSCAW II wave 3 data to examine the relation between neighborhood disorder and children's internalizing and externalizing problems among children in kinship care and to test if caregivers' social support mediates the relation. Moreover, this study examined if race/ethnicity moderated the pathway from neighborhood disorder to social support, and from social support to children's internalizing and externalizing problems. Results showed that neighborhood disorder was indirectly associated with children's internalizing and externalizing problems through a mediator of social support. No racial/ethnic differences were identified. Implications for improving social support for kinship caregivers to ameliorate the effects of neighborhood disorder on children's behavioral health are discussed. Implementing effective neighborhood-level interventions could also promote positive outcomes for children in kinship care.

**Key words:** neighborhood disorder; social support; children's behavioral problems; kinship care

## Introduction

Children placed in kinship care usually remain in the same neighborhood as their original families (Rubin et al., 2008), which are predominantly characterized as distressed neighborhoods with high poverty and crime rates, poor quality housing conditions, few social resources, and more female-headed families (Berrick, 1997; Berrick, 2006; Coulton et al., 2007). Research has indicated that disadvantaged neighborhoods are associated with high child maltreatment reoccurrence rates (Coulton, Korbin, Su, & Chow, 1995), adverse child behavioral health outcomes (Butler et al., 2012; Caughy, O'Campo, & Muntaner, 2003; Ma, Grogan-Kaylor, & Lee, 2018; Villanueva et al., 2016), and juvenile delinquency (Huang & Ryan, 2014; Huang, Ryan, & Rhoden, 2016) relative to neighborhoods with higher material and other resources.

In current child welfare research, most neighborhood studies have examined the influences of distressed neighborhoods on child safety outcomes (Coulton, Korbin, & Su, 1999; Coulton et al., 2007; Drake & Pandey, 1996; Ernst, 2000; Freisthler, 2004). Although some evidence has shown that neighborhood disadvantage is associated with unfavorable outcomes among children without child maltreatment history, less is known about neighborhoods' impacts on outcomes among children who are involved in the child welfare system, particularly in kinship care. For children who have abuse and neglect history, the effects from neighborhoods on child development (i.e., behavioral problems) may be exacerbated by childhood trauma history (Manly, Cicchetti, & Barnett, 1994). Hence, this study aims to explore the relationships between neighborhood disorder, social support, and children's behavioral health outcomes among Black, White, and Hispanic children in kinship care.

**Neighborhood Disorder and Children's Behavioral Outcomes**

A neighborhood is defined as a collection of individuals, locations for populations, physical space and structure, and formal and informal social networks (Burton, Price-Spratlen, & Spencer, 1997; Coulton & Korbin, 2007). Crime, graffiti, people hanging out on the streets, and drug users are some signs of neighborhood disorder (Geis & Ross, 1998), which may hinder healthy child development. Among children who may not have child maltreatment history, substantial evidence has indicated that neighborhood disorder, including poverty, crime and violence, diverse race/ethnic composition, and unfavorable neighborhood physical conditions are associated with more child behavioral problems (Benson & Borman, 2010; Beyers, Bates, Pettit, & Dodge, 2003; Brown & Ackerman, 2011; Bubier, Drabick, & Breiner, 2009; Callahan et al., 2011; Cushon et al., 2011; De Marco & Vernon-Feagans, 2013; Pachter, Auinger, Palmer, & Weitzman, 2006).

The use of out of home placement in child welfare is usually accompanied by neighborhood changes (Berrick, 2006). However, in research on children in out-of-home placements, very limited numbers of studies have explored the influences of neighborhood-level factors on children's behavioral outcomes in child welfare. One of the few examples is Rufa and Fowler's (2016) study, which revealed that African American children in kinship care had more internalizing and externalizing symptoms than their counterparts in less distressed neighborhoods.

Compared to children who are placed in non-relative foster care, children in kinship care are less likely to move into better-resourced neighborhood environments through the placement process (Chapman, Wall, & Barth, 2004; Rubin et al., 2008). Children in kinship care may experience advantages of established attachment, stronger connections with the community, supportive family ties, closer cultural connections, and further continue children's school consistency and social engagement when staying in the same neighborhood (Berrick, 2006; Fawley-King, Trask, Zhang, & Aarons, 2017). Distressed neighborhoods, however, may offset these positive effects on children's short-term and long-term behavioral health outcomes. Furthermore, from a social benefit perspective, placing children in affluent neighborhoods with more social capital may maximize positive child outcomes and benefits may extend into adulthood (Barth, 1999).

As a contextual factor, neighborhoods influence children's behavioral health outcomes in both direct and indirect ways. Previous research has identified some mediators or moderators of adverse neighborhoods' effects on children's outcomes. For instance, identified mediators included neighborhood social cohesion, parenting, and family functioning (Fan & Chen, 2012; Mrug & Windle, 2009; Kohen, Leventhal, Dahinten, & McIntosh, 2008). Some studies found that buffering factors, such as child temperament and family cohesion, moderate the association between neighborhood disadvantage and child outcomes (Bush, Lengua, & Colder, 2010; Plybon & Kliewer, 2001). However, the mechanism of neighborhoods' impacts on child outcomes is inconclusive (Minh, Muhajarine, Janus, Brownell, & Guhn, 2017). More explorations about potential moderating and mediating factors are needed to understand how neighborhoods affect child well-being.

**Social Support and Children's Behavioral Outcomes**

Living in disadvantaged neighborhoods, kinship caregivers may experience insufficient social support from neighbors and other sources. The protective effect of social support on caregivers' well-being is clearly established in the literature, as numerous studies have indicated that social support reduces child care stress and burden, facilitates caregivers' physical health, and improves caregivers' life satisfaction (Gerard, Landry-Meyer, & Roe, 2006; Goodman, Potts, & Paszor, 2007; Kelley, Whitley, Sipe, & Yorker, 2007; Landry-Meyer, Gerard, & Guzell, 2005; Leder, Grinstead, & Torres, 2007). However, much is unknown about how social support, as perceived by caregivers, affects child well-being. In particular, what is the association between social support and children's behavioral health outcomes among families that live in distressed neighborhoods?

**Racial/Ethnic Differences in Neighborhood Disorder and Social Support**

The literature on racial/ethnic differences in neighborhood disorder and perceived social support is scant, but some differences have been discovered. For example, minorities are more likely to reside in highly disordered and poor neighborhoods (Duncan, Brooks-Gunn, & Klebanov, 1994; Franco, Pottick, & Huang, 2010; Williams & Collins, 2001). Also, minorities may perceive neighborhood differently from the majority because of different life experiences (Roosa et al., 2010). For instance, some factors, like racism, discrimination, and segregation, may be only applicable to minorities in this country (Pachter, Auinger, Palmer, & Weitzman, 2006). Furthermore, some racial/ethnic groups, such as African Americans, may be less able to obtain resources from neighborhoods compared to Whites (Bennett, 2011). Some research also suggests that Black children living in deprived neighborhoods may experience less support from home environments than Whites in similarly disadvantaged neighborhoods (Elder et al., 1995; Klebanov et al., 1997). Research regarding disparities in neighborhood structure and processes between Hispanic and non-Hispanic White or between Hispanic and non-Hispanic African American families is minimal. Observable and unobservable variations in neighborhood structure and processes influencing Latino children's behavioral outcomes have been identified (Roosa et al., 2010).

In terms of social support, there are variations in social support among different racial/ethnic groups (e.g., African Americans, Whites, and Hispanic). For instance, among caregivers whose children had emotional and behavioral problems, studies indicated that African Americans reported lower levels of perceived social support than non-Hispanic Whites (McCabe, Yeh, Lau, Garland, & Hough, 2003). Among foster caregivers, Shin and Lee (2011) found that Hispanic Americans had the lowest level of perceived social support, followed by African American caregivers and non-Hispanic Whites. Potentially underlying reasons may be related to sociocultural differences and structural disparities in social resources (Pachter, Auinger, Palmer, & Weitzman, 2006).

**Theories**

This study was guided by a theoretical framework which integrated social disorganization and social support theories. Social disorganization theory posits that low economic status, ethnic heterogeneity, and residential mobility, lead to community disorder, and in turn, increase crime and delinquency rates (Park & Burgess, 1925; Shaw & McKay, 1942; Shaw & Zorbaugh, 1929). Guided by social disorganization theory, the link between neighborhood disorder and mental health/physical health has been tested by numerous studies among different populations and results consistently show that neighborhoods have a negative influence on health and mental health (Browning & Cagney, 2002; Caughy, O'Campo, & Muntaner, 2003; Kim, 2010; Leventhal & Brooks-Gunn, 2000; Stockdale et al., 2007; Silver, 2000; Wickrama & Bryant, 2003).

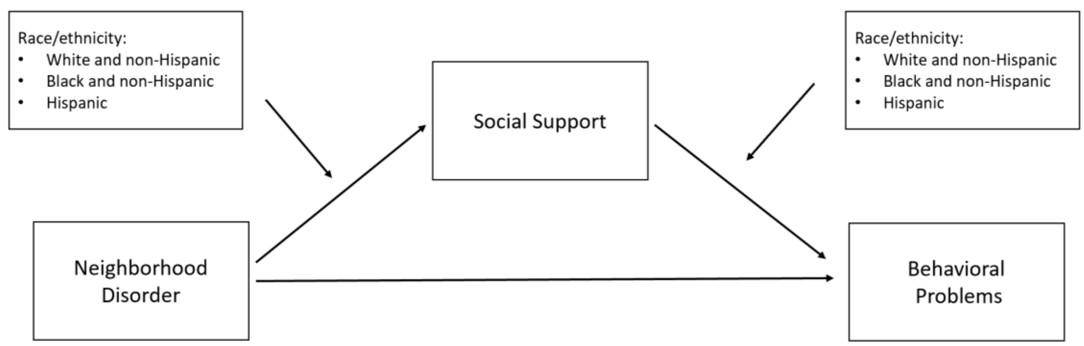
To understand the role of social support, this theoretical framework also integrated social support theory. Social support was operationalized as emotional, instrumental, informational, and appraisal support (House, 1981). This theory was also applied to explore the relationship between social support and health (Cassel, 1976), and social support been found to be a protective factor against the deleterious effects of stress on health and behavioral health outcomes (Uchino, Cacioppo, & Kiecolt-Glaser, 1996; Uchino, 2006). Social support theory has been widely used in kinship care studies (Kelley, Whitley, Sipe, & Yorker, 2000; Strozier, 2012). However, these studies have drawn attention to the association between kinship caregivers' social support and caregivers' well-being without expanding the link to kinship children's well-being.

**A Conceptual Model**

Integrating two theories, a conceptual model illustrating relationships among these concepts is presented in Figure 3_1. According to social disorganization theory, neighborhood disadvantage has adverse effects on children's behavioral health outcomes. But, social support contributes to positive child outcomes, as informed by social support theory.

As shown in Figure 3_1, the effect of neighborhood disorder on children's behavioral health outcomes is mediated by caregivers' social support. Furthermore, based on the literature on differences in neighborhood environments and social support among different racial/ethnic groups (Bennett, 2011; Shin & Lee, 2011), I hypothesize that race/ethnicity moderates the associations among neighborhood disorder, social support, and children's behavioral health outcomes.

*Figure 3_1*. Conceptual Framework




## Research Questions and Hypotheses

Guided by this conceptual framework, this study asks three questions: (1) Is neighborhood disorder associated with children's behavioral health outcomes in kinship care? (2) Does caregivers social support mediate the association between neighborhood disorder and children's behavioral health in kinship care? And (3) are there racial/ethnic (i.e., Black, Hispanic, and White) differences in these relationships in kinship care?

Research hypotheses include: (1) Neighborhood disorder is positively associated with increased children's internalizing and externalizing problems in kinship care; (2) social support mediates the associations between neighborhood disorder and kinship children's internalizing and externalizing problems and, more specifically, social support is related to decreases in children's behavioral problems; and (3) race/ethnicity moderates pathways from neighborhood disorder to kinship children's behavioral health outcomes through social support. Based on previous literature (Bennett, 2011; Elder et al., 1995; Klebanov et al., 1997; Pachter et al., 2006; Roosa et al., 2010; Shin & Lee, 2011), I specifically hypothesized that the effects of neighborhood disorder on social support would be stronger among African Americans than other racial/ethnic groups. The association between social support and children's behavioral problems would be stronger among non-Hispanic White, followed by Hispanic, and non-Hispanic Black children.

## Methods

### Sample Selection

This study used the NSCAW II wave 3 data. Details of NSCAW II's study design can be found in Dowd and colleague's research (2014). I selected children who were in kinship care and limited children's race and ethnicity to non-Hispanic Black (n = 193), non-Hispanic White (n =186), and Hispanic (n =147), which yielded a total of 528 children. Children whose racial identities are Asian, Pacific Islander, and Native American (n=34) were excluded from this study due to small sample sizes.

### Missing Data

Among the sample of 528 children, missing data ranged from 0.38% (child race/ethnicity) to 10.98% (poverty), except for social support (39.77%). Little's Missing Completely at Random (MCAR) test was conducted in the sample of 528 children. A significant $p$ value ($\chi^2$ =315.9; $p$ = 0.006) indicated that data were missing not completely at random.

Multiple imputation (MI) assumes data are missing at random (Saunders et al., 2006). While MCAR is a special case of missing at random, the assumption of MI may be violated. In addition, in order to obtain reliable results, the cutoff missingness percentage for carrying out MI needs to be below 20% (Graham, 2008; Saunders et al., 2006). However, social support as a key variable had almost 40% of missingness.

According to the NDACAN team, conducting MI in conjunction with weights was determined to be inappropriate (NDACAN, Personal communication, March 26, 2019).

Therefore, I excluded cases with missing values and conducted the analysis on the sample with complete cases (N = 263) for my final models, including 86 Black and non-Hispanic children, 104 White and non-Hispanic children, and 73 Hispanic children. Comparisons of variables between complete cases (N = 263) and dropped cases (N = 265) were conducted, and no statistically significant differences were found as shown in Appendix 3_A.

**Measures**

**Dependent variables: Internalizing and externalizing problems.** The dependent variables were children's internalizing and externalizing problems, measured using the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). Kinship caregivers responded to items relating to the frequency of children's behavioral problems using a three-point scale (1= *not sure*, 2 = *somewhat or sometimes true*, and 3= *very true or often true*). Standardized t-scores with normal distributions were used to accommodate two versions of the CBCL measures for different ages of children, with higher scores indicating more behavioral problems. The CBCL is a well-established measure with good reliability and validity, with Cronbach's $\alpha$ from 0.78 to 0.97 (Achenbach, 1991; Achenbach & Rescorla, 2001).

**Independent variable: Neighborhood disorder.** Neighborhood disorder was measured by the Community Environment Scale (CES; Furstenberg, 1990) and included five items on assaults and muggings, delinquent behaviors, open drug use or dealing, unsupervised children, and groups of teens hanging out using a 3-point scale (1= *not a* *problem at all*, 2 = *somewhat of a problem*, and 3 =*a big problem in your neighborhood*). The average score of five items, ranging from 1 to 3, was used in this study with higher scores indicating more neighborhood disorder and the Cronbach's $\alpha$ in this sample was 0.87.

**Mediator: Social support.** Social support was measured by 11 questions with a 5-point Likert-type scale (1 = *I get much less than I would like* and 5 = *I get as much as I like*) using the Duke-UNC Functional Social Support Questionnaire (Broadhead, Gehlbach, deGury, & Kaplan, 1998). The average score of these 11 items, ranging from 1 to 5, were used in the study with higher scores indicating higher levels of social support. The Cronbach's $\alpha$ was 0.90 in the current study.

**Covariates**

**Children's characteristics.** Child age was measured in years and was treated as a continuous variable. Child race/ethnicity was recoded as dummy variables with three categories: 1 = *Black and non-Hispanic*, 2 = *White and non-Hispanic*, and 3 = *Hispanic.* I used White and non-Hispanic as a reference group in multivariate analysis. Child sex was recoded as 1 = *female* and 0 = *male*. Child maltreatment type was assessed by child welfare workers, and it was recoded as 1 = *physical abuse*, 2 = *sexual abuse*, 3 = *neglect*, and 4 = *others.* Neglect was the reference group as it is the most prevalent child maltreatment type (Rebbe, 2018). Child special health needs or behavioral problems were assessed by the child welfare worker and coded as 1 = *has special needs or behavior problems* and 0 = *no special needs/behavior needs*.

**Caregivers' characteristics.** Caregiver's age was recoded as a dummy variable (1 = > *54 years old* and 0 = ≤ *54 years old*). This variable was derived from a constructed categorical variable with 54 as a cutoff score as it had less missing data compared to the continuous caregivers' age variable. The cutoff of caregiver's age was constructed by the NSCAW research team, which reflected caregivers' average age. Caregivers' sex was recoded as 1 = *female* and 0 = *male*. Caregivers' marital status was recoded as 1 = *married* and 0 = *other, including separated, divorced, widowed, and never married*. Caregivers' highest educational level was measured as 1 = *high school graduate and above* and 0 = *less than high school*. Caregivers' working status was measured as 1 = *employed* and 0 = *unemployed*.

**Placement characteristics.** The family poverty level was measured by a derived and recoded variable to indicate whether kinship families lived below the federal poverty line (1 = *below the federal poverty line* and 0 = *above the federal poverty line*). The number of children in the household was measured as a continuous variable.

## Data Analytic Plan

Data cleaning and univariate and bivariate analyses were conducted using Stata 15.0 (StataCorp, 2017). Because of the NSCAW's stratified and clustered sampling strategy, the sampling weight using "svy, subpop" was applied to all analyses. Bivariate analyses, including ANOVA tests and chi-square tests, were conducted to compare similarities and differences in characteristics among the three racial/ethnic groups.

A moderated mediation regression analysis, using the command "svy, subpop: sem" in Stata 15.0 (StataCorp, 2017), was conducted to answer the research questions. The moderated mediation analysis is a method that integrates moderation and mediation (Edwards & Lambert, 2007). The mediation analysis, through a set of path analyses, is first used to explore relationships among variables by using regression functions. The moderation analysis is then combined with the mediation analysis by adding more variables. One approach is to add two interaction terms: one product between a moderator and an independent variable, and the other product between the moderator and the mediator, into the mediation regression model (Baron & Kenny, 1986; James & Brett, 1984; Edwards & Lambert, 2007). In this case, social support, as the meditator, was included in the model first to test if social support mediated the association between neighborhood disorder and children's behavioral problems. The second step was to combine two moderation analyses into the mediation analysis. The first new variable was an interaction between race/ethnicity and neighborhood disorder, and the second new variable was an interaction between race/ethnicity and social support. More specifically, "Black and non-Hispanic × neighborhood disorder," "Hispanic × neighborhood disorder," "Black and non-Hispanic × social support," and "Hispanic × social support" were included in the model as interaction terms.

Standardized t-scores of internalizing and externalizing problems met the normality assumption. To assess multicollinearity among independent variables and covariates, the variance inflation factor (VIF) test was conducted with VIF scores ranging from 1.06 to 1.24. Because VIF scores were much less than 10, no problematic multicollinearity was detected (Hair, Anderson, Tatham, & Black, 1995). Other assumptions, including homogeneity of variance, independence of residuals, and linearity, were tested, and no assumptions were violated. The sample size of 263 with an effect size of 0.15 and ten predictors would have 0.99 power in linear multiple regression, according to G*Power (Buchner, Erdfelder, & Faul, 1996).

# Results

## Descriptive and Bivariate Results

Descriptive results and bivariate comparisons of variables among the three different racial/ethnic groups are presented in Table 3_1. There were no statistically significant differences in internalizing and externalizing behaviors among three racial/ethnic groups. Also, no significant difference was found in self-report neighborhood disorder and social support among the racial/ethnic groups. Black and non-Hispanic families' self-report neighborhood disorder (*M* = 1.17, *SD* = 0.37) was similar to Whites' (*M* = 1.13, *SD* = 0.28) and Hispanics' (*M* = 1.10, *SD* = 0.26). Consistent with the literature, Blacks (*M* = 4.16, *SD* = 0.93) and Hispanics (*M* = 4.16, *SD* = 0.95) had lower levels of perceived social support than Whites (*M* = 4.35, *SD* = 0.62). Bar charts of children's internalizing and externalizing behavioral problems' standardized t scores, clinical range scores, and borderline scores are presented in Appendices 3_B-C. Visualized comparisons among these three racial/ethnic perceptions of neighborhood disorder and social support are presented in Appendices 3_C-D.

In terms of children's characteristics, the average child age was nine years old, but Hispanic children were older than Whites and Blacks with a statistically significant difference ($F_{(1, 64)} = 4.66$, $p = 0.03$). Among the whole sample, almost half were boys (n = 150; 48.45%), but 73.27% (n = 45) of Black children in kinship care were girls. For children in kinship care, other type of child maltreatment (n = 134; 43.06%), such as parental substance use, was the primary reason to be involved in the child welfare system.

Most caregivers were women (n = 230; 82.56%), particularly among Black families (n = 77; 96.61%). In contrast, more Hispanic caregivers were men ($\chi^2$ (2) = 23.65,

$p = 0.06$). The majority of caregivers were younger than 54 years old, and one quarter of them (n = 98; 39.81%) completed high school or more additional education. Among them, more than half of caregivers were not employed (n = 136; 57.3%).

Nearly half of households were below the federal poverty line (n = 110; 41.3%), but statistically significant differences were found among different racial/ethnic groups ($\chi^2$ (2) = 18.33, $p = 0.02$). Specifically, more Black and non-Hispanic families (n = 45; 63.11%) lived below the federal poverty line compared to White and non-Hispanic (n = 36; 35.18%) and Hispanic families (n = 29; 30.77%).

The results of multivariate regression analyses for internalizing and externalizing problems are presented in Table 3_2 and Table 3_3, respectively.

Table 3_1. *Descriptive and Bivariate Results (N = 263)*

| Variable | Whole Sample (N = 263) | | White (N = 86) | | Black (N = 104) | | Hispanic (N = 73) | | F/ $\chi^2$ | P |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | M (SD)/% | N | M (SD)/% | N | M (SD)/% | N | M (SD)/% | | |
| Internalizing problems | 263 | 51.43 (12.22) | 104 | 54.12 (10.52) | 86 | 51.84 (11.89) | 73 | 45.63 (13.81) | F (1, 64)=1.00 | 0.32 |
| Externalizing problems | 263 | 52.39 (12.71) | 104 | 53.36 (12.04) | 86 | 56.29 (11.99) | 73 | 46.38 (12.80) | F (1, 64)=3.34 | 0.07 |
| Neighborhood Disorder | 263 | 1.17 (0.37) | 104 | 1.13 (0.28) | 86 | 1.30 (0.53) | 73 | 1.10 (0.26) | F (1, 64)=1.86 | 0.18 |
| Social support | 263 | 4.25 (0.80) | 104 | 4.35 (0.62) | 86 | 4.16 (0.93) | 73 | 4.16 (0.95) | F (1, 64)=0.00 | 1.00 |
| Child age | 263 | 8.59 (4.00) | 104 | 8.28 (4.02) | 86 | 7.83 (4.07) | 73 | 10.00 (3.58) | F (1, 64)=4.66 | 0.03* |
| Child sex | 263 | | | | 86 | | | | $\chi^2$ (2) =18.88 | 0.08 |
| Male | 150 | 48.45% | 62 | 59.19% | 41 | 26.73% | 47 | 49.72% | | |
| Female | 113 | 51.55% | 42 | 40.81% | 45 | 73.27% | 26 | 50.28% | | |
| Child race | 263 | | | | | | | | | |
| White and non-Hispanic | 86 | 25.84% | 86 | 25.84% | 0 | 0.00% | 0 | 0.00% | - | - |
| Black and non-Hispanic | 104 | 49.34% | 0 | 0.00% | 104 | 49.34% | 0 | 0.00% | | |
| Hispanic | 73 | 24.82% | 0 | 0.00% | 0 | 0.00% | 73 | 24.82% | | |
| Child maltreatment | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (6) = 1.67 | 0.99 |
| Sexual abuse | 16 | 10.33% | 6 | 8.98% | 5 | 11.08% | 5 | 12.22% | | |
| Physical abuse | 41 | 15.23% | 16 | 16.01% | 13 | 14.73% | 12 | 14.19% | | |
| Neglect | 72 | 31.39% | 26 | 30.78% | 23 | 28.57% | 23 | 35.54% | | |
| Other | 134 | 43.06% | 56 | 44.24% | 45 | 45.62% | 33 | 38.05% | | |
| Child special health needs | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) = 9.44 | 0.13 |
| Yes | 52 | 16.99% | 26 | 21.13% | 9 | 4.94% | 17 | 21.31% | | |
| No | 211 | 83.01% | 78 | 78.87% | 77 | 95.06% | 56 | 78.69% | | |
| Caregivers' age | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) = 10.48 | 0.16 |
| < = 54 | 170 | 66.98% | 59 | 41.1% | 64 | 81.67% | 47 | 67.76% | | |
| > 54 | 93 | 33.02% | 45 | 58.9% | 22 | 18.33% | 26 | 32.24% | | |
| Caregivers' sex | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) = 23.65 | 0.06 |
| Male | 33 | 17.44% | 13 | 15.93% | 9 | 3.39% | 11 | 35.09% | | |
| Female | 230 | 82.56% | 91 | 84.07% | 77 | 96.61% | 62 | 64.91% | | |
| Caregivers' education | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) = 12.33 | 0.23 |
| High school and more | 98 | 39.81% | 44 | 42.31% | 32 | 42.53% | 22 | 21.71% | | |
| Other | 165 | 60.19% | 60 | 57.69% | 54 | 57.47% | 51 | 78.29% | | |
| Caregivers' employment | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) = 3.89 | 0.57 |
| Employed | 127 | 42.7% | 49 | 37.45% | 47 | 43.61% | 31 | 52.18% | | |
| Unemployed | 136 | 57.3% | 55 | 62.55% | 39 | 56.39% | 42 | 47.82% | | |
| Poverty level | 263 | | 104 | | 86 | | 73 | | $\chi^2$ (2) =18.33 | 0.02* |
| Below poverty | 110 | 41.3% | 36 | 35.18% | 45 | 63.11% | 29 | 30.77% | | |
| Above poverty | 153 | 58.7% | 68 | 64.82% | 41 | 36.89% | 44 | 69.23% | | |
| Number of children in the household | 263 | 2.18 (1.28) | 104 | 2.03 (1.30) | 86 | 2.63 (1.09) | 73 | 1.98 (1.31) | 38.77 | 0.07 |

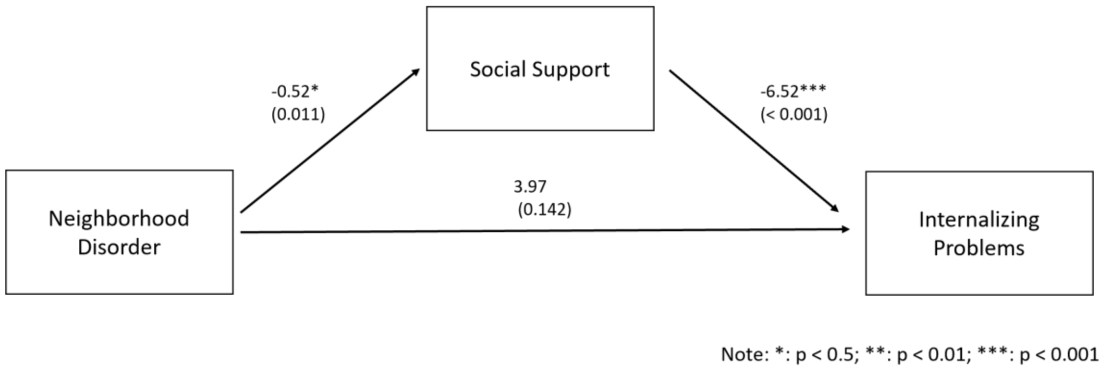
Note: * $p < 0.05$; mean and % were weighted.

## Results of Internalizing Problems Models

**Mediation.** To answer research questions one and two, the first stage of the analysis was to set up a simple mediation model in which children's internalizing problems was regressed on neighborhood disorder mediated by social support. The results of the simple mediation model (see details in Table 3_2 and Figure 3_2) showed that neighborhood disorder did not predict children's internalizing problems (B = 3.97, $p = 0.142$) directly, but it was associated with decreased social support (B = -0.52, $p = 0.011$). To that end, social support was associated with decreased children's internalizing problems (B = -6.52, $p < 0.001$). The results identified a significant indirect effect of neighborhood disorder on children's internalizing problems (B = 3.38, $p = 0.046$), and the total effect of neighborhood disorder on children's internalizing problems was significant (B= 7.35, $p = 0.002$). Neighborhood disorder in this study did not have direct effects on children's internalizing problems, but it was associated with children's internalizing problems through caregivers' social support.

The results of a model with social support as a predictor but not a mediator were reported in Appendix 3_F Model 1. Neighborhood disorder did not predict internalizing problems with B = 4.12 and $p = 0.143$. Compared to neighborhood disorder's coefficient (B= 3.97, $p = 0.142$) while social support functioned as a mediator, a smaller coefficient indicated that some variance was explained by the mediating effect of social support.

*Figure 3_2*. Mediation Model on Internalizing Problems




In this mediation model, some significant covariates were identified. Children with a history of sexual abuse (B = 6.45, $p$ = 0.003) had more internalizing problems than their counterparts with neglect history. Black and non-Hispanic (B = -5.66, $p$ = 0.006) and Hispanic (B = -8.67, $p$ < 0.001) children had fewer internalizing problems with a comparison to White and non-Hispanic. Children had lower levels of internalizing behavioral problems if caregivers were older than 54 years (B = -0.06, $p$ = 0.005) compared to when they were younger than 54 years and had more children in the house (B = -0.09, $p$ = 0.008).

Table 3_2. *Neighborhood Disorder, Social Support, and Children's Internalizing Problems (N = 263)*

| | Model 1: Mediation | | | | | | Model 2: Moderated mediation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Regress on social support | | | Regress on internalizing problems | | | Regress on social support | | | Regress on internalizing problems | | |
| Variables | B | P | 95% CI | B | P | 95% CI | B | P | 95% CI | B | P | 95% CI |
| Neighborhood disorder | -0.52 | 0.011 * | [-0.91, -0.12] | 3.97 | 0.142 | [-1.36, 9.29] | -0.64 | 0.014 * | [-1.14, -0.14] | 1.54 | 0.743 | [-7.80, 10.88] |
| Social support | - | - | - | -6.52 | <0.001 *** | [-9.10, -3.94] | - | - | - | -7.13 | <0.001 *** | [-10.27, -3.99] |
| Child race/ethnicity (ref. White) | | | | | | | | | | | | |
| Black Non-Hispanic | -0.11 | 0.440 | [-0.38, 0.17] | -5.66 | 0.006 ** | [-9.67, -1.64] | -0.43 | 0.315 | [-1.27, 0.42] | -21.63 | 0.149 | [-51.21, 7.95] |
| Hispanic | -0.23 | 0.145 | [-0.53, 0.08] | -8.67 | < 0.001 *** | [-12.45, -4.89] | 0.04 | 0.956 | [-1.27, 1.34] | 0.14 | 0.989 | [-19.73, 20.00] |
| Black x Neighborhood disorder | - | - | - | - | - | - | 0.26 | 0.488 | [-0.48, 0.99] | 5.68 | 0.370 | [-6.89, 18.25] |
| Hispanic x Neighborhood disorder | - | - | - | - | - | - | -0.24 | 0.674 | [-1.40, 0.91] | -5.12 | 0.482 | [-19.59, 9.35] |
| Black x Social support | - | - | - | - | - | - | - | - | - | 2.14 | 0.423 | [-3.17, 7.46] |
| Hispanic x Social support | - | - | - | - | - | - | - | - | - | -0.85 | 0.654 | [-4.65, 2.94] |
| Child age | 0.01 | 0.407 | [-0.01, 0.04] | 0.002 | 0.992 | [-0.54, 0.55] | 0.01 | 0.316 | [-0.01, 0.04] | 0.06 | 0.833 | [-0.53, 0.66] |
| Child sex (ref. male) | 0.18 | 0.152 | [-0.07, 0.44] | 0.89 | 0.657 | [-3.09, 4.87] | 0.17 | 0.196 | [-0.09, 0.43] | 0.78 | 0.699 | [-3.24, 4.81] |
| Child maltreatment (ref. neglect) | | | | | | | | | | | | |
| Physical | -0.01 | 0.927 | [-0.34, 0.31] | 1.28 | 0.610 | [-3.72, 6.29] | -0.02 | 0.885 | [-0.34, 0.30] | 0.86 | 0.734 | [-4.18, 5.89] |
| Sexual | -0.17 | 0.389 | [-0.57, 0.22] | 6.45 | 0.003 ** | [2.23, 10.68] | -0.18 | 0.388 | [-0.60, 0.24] | 6.35 | 0.005 ** | [2.04, 10.66] |
| Other | -0.48 | <0.001 *** | [-0.73, -0.23] | 0.73 | 0.724 | [-3.39, 4.86] | -0.50 | <0.001 ** | [-0.75, -0.25] | 0.20 | 0.922 | [-3.96, 4.37] |
| Child special needs | -0.29 | 0.074 | [-0.61, 0.03] | 6.50 | 0.084 | [-0.89, 13.89] | -0.29 | 0.082 | [-0.61, 0.04] | 6.47 | 0.069 | [-0.52, 13.47] |
| Caregivers' age (ref. < 54) | -0.06 | 0.635 | [-0.33, 0.20] | -3.53 | 0.005 ** | [-5.97, -1.08] | -0.07 | 0.627 | [-0.33, 0.20] | -3.75 | 0.003 ** | [-6.17, -1.33] |
| Caregivers' sex (ref. male) | -0.28 | 0.131 | [-0.66, 0.09] | 2.23 | 0.300 | [-2.03, 6.50] | -0.28 | 0.130 | [-0.65, 0.09] | 2.00 | 0.337 | [-2.13, 6.13] |
| Caregivers' education (ref. high school or less) | 0.33 | 0.004 ** | [0.11, 0.55] | 2.75 | 0.162 | [-1.13, 6.63] | 0.33 | 0.006 ** | [0.10, 0.56] | 2.47 | 0.222 | [-1.54, 6.47] |
| Caregivers' employment (ref. unemployed) | -0.11 | 0.502 | [-0.42, 0.21] | -0.85 | 0.719 | [-5.57, 3.87] | -0.13 | 0.402 | [-0.43, 0.17] | -1.37 | 0.555 | [-5.97, 3.23] |
| Number of children in the household | -0.09 | 0.051 | [-0.18, 0.01] | -1.24 | 0.008 ** | [-2.16, -0.33] | -0.09 | 0.083 | [-0.18, 0.01] | -1.34 | 0.011* | [-2.36, -0.31] |
| Household poverty (ref. below poverty line) | 0.08 | 0.509 | [-0.16, 0.33] | 7.01 | 0.001 ** | [2.90, 11.13] | 0.09 | 0.432 | [-0.01, 0.33] | 7.24 | 0.001 ** | [3.04, 11.43] |
| Direct effects (Neighborhood disorder on internalizing problems) | | | | 3.97 | 0.142 | [-1.36, 9.29] | | | | 1.54 | 0.743 | [-7.80, 10.88] |
| Indirect effects (Neighborhood disorder on internalizing problems) | | | | 3.38 | 0.046 * | [0.05, 6.70] | | | | 4.55 | 0.050 | [-0.01, 9.11] |
| Total effects (Neighborhood disorder on internalizing problems) | | | | 7.35 | 0.002 ** | [-9.10, -3.94] | | | | 6.08 | 0.249 | [-4.36, 16.54] |
| Direct effects (Social support on internalizing problems) | | | | -6.52 | <0.001 *** | [-9.10, -3.94] | | | | -7.13 | <0.001 *** | [-10.27, -3.99] |
| R square | | | | | | 0.53 | | | | | | 0.55 |

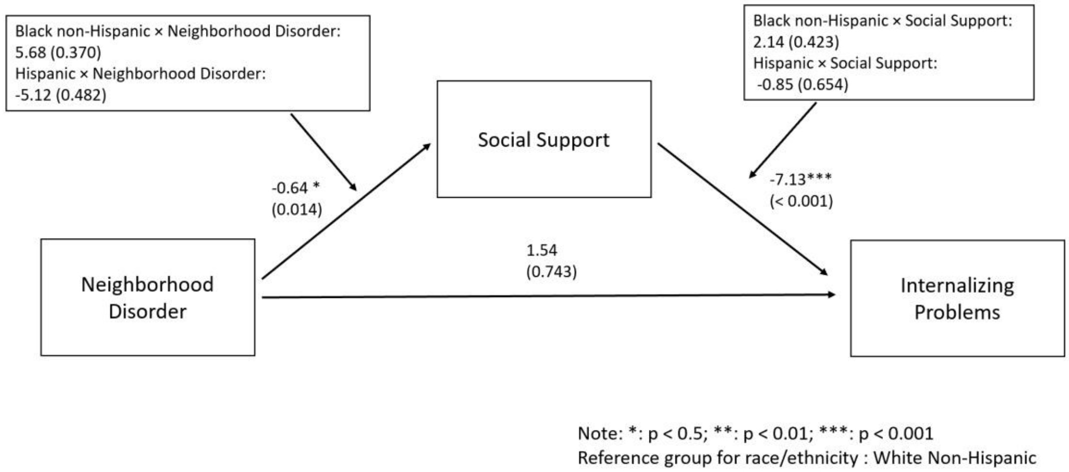
Note: * p < 0.05; ** p < 0.01; *** p < 0.001

**Moderated mediation.** To answer research question three, the analysis then moved to estimate the moderated mediation model. I first regressed neighborhood disorder on social support, then regressed social support on children's internalizing problems. Race/ethnicity (reference group: White and non-Hispanic) moderated the relationship between neighborhood disorder and social support and the relationship between social support and children's internalizing problems.

Again, the results of the mediation analysis indicated that neighborhood disorder was inversely associated with social support (B = -0.64, $p$ =0.014), while social support, in turn, predicted lower levels of children's internalizing problems (B = -7.13, $p < 0.001$). This validated that social support was a mediation. However, the results did not reveal significant moderation effects of race/ethnicity in the pathways from neighborhood disorder to social support, and from social support to children's internalizing problems. (See coefficients and $p$ values in Figure 3_3.) No significant direct and indirect effects of neighborhood disorder on children's internalizing problems were found after including interaction terms.

Similar to the mediation model, other significant covariates included having childhood sexual abuse history (B = 6.35, $p$ =0.005) were associated with more internalizing behavioral problems compared to neglect and living below the federal poverty line (B = 0.09, $p$ =0.001). However, having a caregiver age older than 54 (B = -3.75, $p$ =0.003) was associated with lower behavioral problems compared to having a caregiver younger than 54 years and to having more children in the house (B = -1.34, $p$ =0.011).

*Figure 3_3.* Moderated Mediation Model on Internalizing Problems



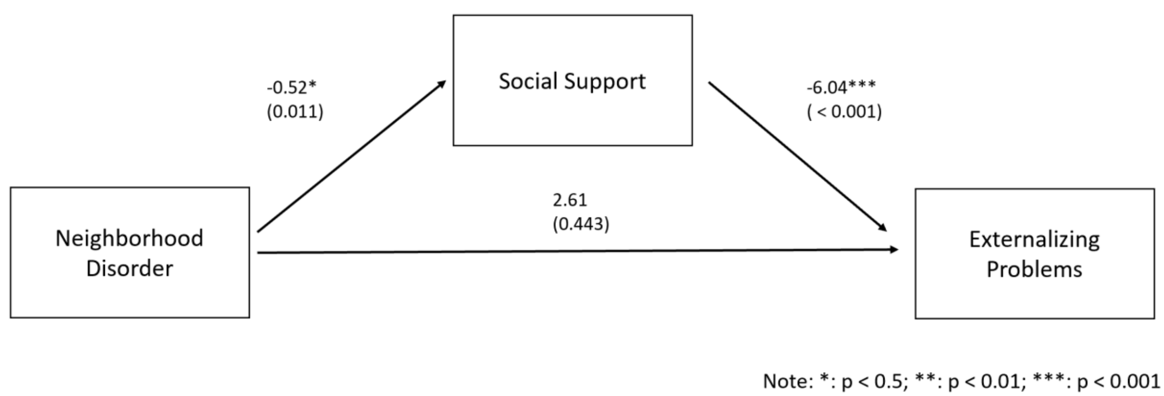

**Results of Externalizing Problems Models**

**Mediation.** A set of similar analyses were conducted to examine if social support mediated the association between neighborhood disorder and children's externalizing problems. Results in Table 3_3 and Figures 3_4 and 3_5 revealed that social support mediated the association between neighborhood disorder and children's externalizing problems. The coefficient of neighborhood disorder (B = 2.61, $p$ = 0.443) on children's externalizing problems with social support as a mediator was smaller than the coefficient of neighborhood disorder (B = 2.81, $p$ = 0.416; See results in Appendix 3_G) on children's externalizing problems without the mediating role of social support, which indicated that social support worked as a mediator.

The pathway from neighborhood disorder to social support was significant and inverse (B = -0.52, $p$ = 0.011), and social support was associated with decreased children's externalizing problems (B = -6.04, $p$ < 0.001). However, as with internalizing problems, neighborhood disorder had no significant direct effect on children's externalizing problems (B = 2.61, $p$ = 0.443). But the total effect of neighborhood disorder on children's internalizing problems was significant (B = 5.74, *p* = 0.021), which indicated that neighborhood disorder still had some negative influences on child externalizing behavior, fully mediated through primary caregivers' perceived social support.

Another significant finding was that Hispanic children had fewer externalizing problems (B = -6.33, *p* = 0.002) compared to White and non-Hispanic and Black and non-Hispanic children.

*Figure 3_4.* Mediation Model on Externalizing Problems



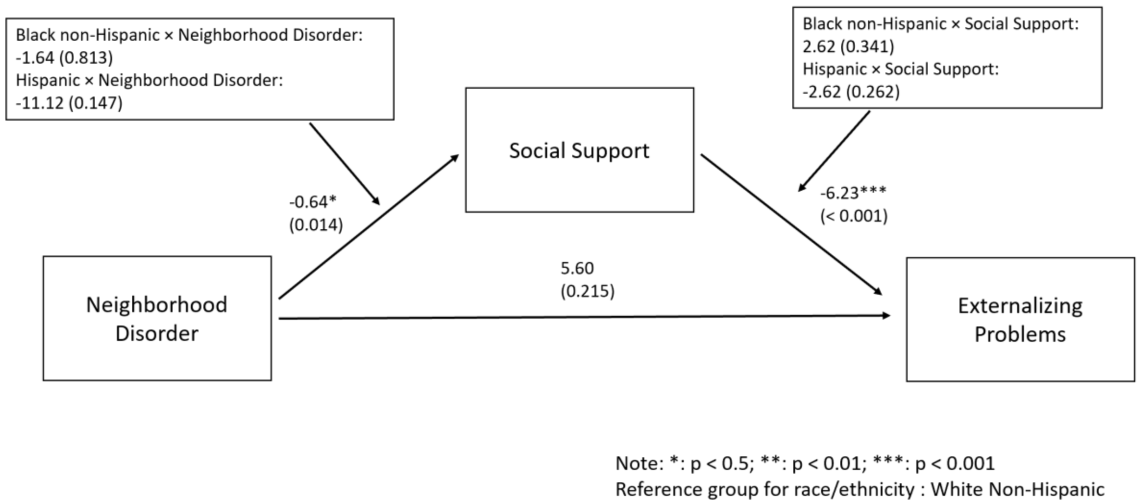

**Moderated mediation.** To examine the research question three, a moderated mediation was conducted. Results showed that neighborhood disorder had significant indirect effects on children's externalizing problems (B = 3.98, *p* = 0.02), which operated through social support (B = -0.64, *p* = 0.014). Social support (B = -6.23, $p < 0.001$) was negatively associated with children's externalizing behavioral problems. However, neighborhood disorder had no direct effect on children's externalizing behavioral problems (B = 5.60, *p* = 0.215). No significant moderation results of race/ethnicity were found in this analysis.

Table 3_3. *Neighborhood Disorder, Social Support, and Children's Externalizing Problems (N = 263)*

| | Model 1: Mediation | | | | | | Model 2: Moderated mediation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Regress on social support | | | Regress on externalizing problems | | | Regress on social support | | | Regress on externalizing problems | | |
| Variables | B | P | 95% CI | B | P | 95% CI | B | P | 95% CI | B | P | 95% CI |
| Neighborhood disorder | -0.52 | 0.011 * | [-0.91, -0.12] | 2.61 | 0.443 | [-4.15, 9.37] | -0.64 | 0.014 ** | [-1.14, -0.14] | 5.60 | 0.215 | [-3.34, 14.54] |
| Social support | - | - | - | -6.04 | <0.001 *** | [-8.82, -3.26] | - | - | - | -6.23 | <0.001 *** | [-9.02, -3.44] |
| Child race/ethnicity (ref. White) | | | | | | | | | | | | |
| Black Non-Hispanic | -0.11 | 0.440 | [-0.38, 0.17] | 1.13 | 0.633 | [-3.57, 5.83] | -0.43 | 0.315 | [-1.27, 0.42] | -8.11 | 0.622 | [-40.82, 24.61] |
| Hispanic | -0.23 | 0.145 | [-0.53, 0.08] | -6.33 | 0.002 ** | [-10.17, -2.49] | 0.04 | 0.956 | [-1.27, 1.34] | 15.80 | 0.202 | [-8.70, 40.30] |
| Black x Neighborhood disorder | - | - | - | - | - | - | 0.26 | 0.488 | [-0.48, 0.99] | -1.64 | 0.813 | [-15.47, 12.18] |
| Hispanic x Neighborhood disorder | - | - | - | - | - | - | -0.24 | 0.674 | [-1.40, 0.91] | -11.12 | 0.147 | [-26.26, 4.02] |
| Black x Social support | - | - | - | - | - | - | - | - | - | 2.62 | 0.341 | [-2.84, 8.08] |
| Hispanic x Social support | - | - | - | - | - | - | - | - | - | -2.41 | 0.262 | [-6.66, 1.84] |
| Child age | 0.01 | 0.407 | [-0.01, 0.04] | 0.07 | 0.851 | [-0.63, 0.77] | 0.01 | 0.316 | [-0.01, 0.04] | 0.10 | 0.789 | [-0.62, 0.81] |
| Child sex (ref. male) | 0.18 | 0.152 | [-0.07, 0.44] | -1.63 | 0.493 | [-6.34, 3.09] | 0.17 | 0.196 | [-0.09, 0.43] | -2.01 | 0.358 | [-6.35, 2.33] |
| Child maltreatment (ref. neglect) | | | | | | | | | | | | |
| Physical | -0.01 | 0.927 | [-0.34, 0.31] | 3.73 | 0.232 | [-2.44, 9.89] | -0.02 | 0.885 | [-0.34, 0.30] | 3.46 | 0.289 | [-3.00, 9.91] |
| Sexual | -0.17 | 0.389 | [-0.57, 0.22] | 2.55 | 0.355 | [-2.92, 8.02] | -0.18 | 0.388 | [-0.60, 0.24] | 2.20 | 0.408 | [-3.08, 7.48] |
| Other | -0.48 | <0.001 *** | [-0.73, -0.23] | -2.63 | 0.322 | [-7.91, 2.64] | -0.50 | <0.001 *** | [-0.75, -0.25] | -2.72 | 0.258 | [-7.48, 2.04] |
| Child special needs | -0.29 | 0.074 | [-0.61, 0.03] | 3.54 | 0.358 | [-4.10, 11.17] | -0.29 | 0.082 | [-0.61, 0.04] | 3.12 | 0.399 | [-4.22, 10.46] |
| Caregivers' age (ref. < 54) | -0.06 | 0.635 | [-0.33, 0.20] | -3.09 | 0.136 | [-7.17, 0.99] | -0.07 | 0.627 | [-0.33, 0.20] | -3.80 | 0.076 | [-8.02, 0.42] |
| Caregivers' sex (ref. male) | -0.28 | 0.131 | [-0.66, 0.09] | 1.96 | 0.504 | [-3.88, 7.81] | -0.28 | 0.130 | [-0.65, 0.09] | 1.82 | 0.486 | [-3.36, 7.00] |
| Caregivers' education (ref. high school or less) | 0.33 | 0.004 ** | [0.11, 0.55] | 3.93 | 0.181 | [-1.87, 9.73] | 0.33 | 0.006 | [0.10, 0.56] | 3.77 | 0.188 | [-1.89, 9.43] |
| Caregivers' employment (ref. unemployed) | -0.11 | 0.502 | [-0.42, 0.21] | -4.24 | 0.201 | [-10.79, 2.31] | -0.13 | 0.402 | [-0.43, 0.17] | -4.37 | 0.169 | [-10.65, 1.90] |
| Number of children in the household | -0.09 | 0.051 | [-0.18, 0.01] | 0.09 | 0.900 | [-1.32, 1.50] | -0.09 | 0.083 | [-0.18, 0.01] | -0.22 | 0.757 | [-1.62, 1.18] |
| Household poverty (ref. below poverty) | 0.08 | 0.509 | [-0.16, 0.33] | 2.95 | 0.282 | [-2.48, 8.38] | 0.09 | 0.432 | [-0.01, 0.33] | 2.99 | 0.228 | [-1.92, 7.91] |
| Direct effects (Neighborhood disorder on externalizing problems) | | | | 2.61 | 0.443 | [-4.15, 9.37] | | | | 5.60 | 0.215 | [-3.34, 14.54] |
| Indirect effects (Neighborhood disorder on externalizing problems) | | | | 3.13 | 0.475 | [-1.16, 2.45] | | | | 3.98 | 0.020 ** | [0.65, 7.30] |
| Total effects (Neighborhood disorder on externalizing problems) | | | | 5.74 | 0.021 * | [0.88, 10.60] | | | | 9.60 | 0.055 | [-0.22, 19.37] |
| Direct effects (Social support on externalizing problems) | | | | -6.04 | <0.001 *** | [-8.82, -3.26] | | | | -6.23 | <0.001 *** | [-9.02, -3.44] |
| R square | | | | | | 0.47 | | | | | | 0.49 |

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

*Figure 3_5.* Moderated Mediation Model on Externalizing Problems




## Discussion

This study examines the pathway from neighborhood disorder to child behavioral outcomes and to compare the pathway across racial/ethnic groups in kinship care, which fills a gap in research by asking if neighborhoods matter in kinship placement. Previous research on neighborhood and child behavioral problems points to the need to test these dynamics in kinship care (Huang & Ryan, 2014).

As this study's findings suggest, the relationship between neighborhood disorder and children's behavioral problems in kinship care is not direct. This finding is different from other neighborhood research among non-child-welfare-involved children with evidence indicating that neighborhood disorder has deleterious effects on children's behavioral problems (Minh et al., 2017). Although children in kinship care often live in disadvantaged neighborhoods, they may keep strong attachments to caregivers and the community. This may explain why neighborhood disorder does not have a direct effect on children's well-being, but rather is mediated through caregivers' social support.

This study finds that social support is negatively associated with children's behavioral health outcomes. The protective role of social support is well-documented in the literature with evidence suggesting social support could promote healthy mental health and could potentially buffer the adverse effects from neighborhood disadvantages (Kim & Ross, 2009; Mair, Roux, & Morenoff, 2010). This study finds that living in the disordered neighborhood is associated with weaker social support for caregivers, which is related to worse behavioral health outcomes for children. It is expected that the level of social support is lower among individuals who reside in relatively disordered neighborhoods because neighbors may be less likely to develop social relationships with residents and build cohesive community environments if they have concerns on safety or mistrust neighbors, in addition to having scarce resources in the neighborhoods (Kim, 2010; Ross, Mirowsky, & Pribesh, 2001).

Furthermore, this study identifies the pathway from neighborhood disorder to children's behavioral health outcomes in kinship care, which is through caregivers' social support. This finding is aligned with some previous studies (Byrnes & Miller, 2012; Kim, 2010). Neighborhood adversities would have some negative effects on child development, but may improve through some other factors, including, in this study, via caregivers' social support. The results imply that enhancing kinship families' social support, including instrumental and non-instrumental support, would benefit children's well-being.

Unexpectedly, this study does not find that race/ethnicity moderated the pathways from neighborhood disorder to social support and from social support to children's behavioral health outcomes. One possible explanation is that these pathways are universal across different racial/ethnic groups of kinship families. Another possibility is that differences in neighborhood disorder and social support among different racial/ethnic groups may have been captured by these two measures to some extent. Race/ethnicity is more than an identity: It is an intersection of economic, social, political, and environmental factors that influences individuals' well-being (Putnam-Hornstein, Needell, King, & Johnson-Motoyama, 2013).

As revealed in the simple mediation models, results suggest that there are some significant racial/ethnic differences in children's behavioral health outcomes, however. For instance, Black and non-Hispanic and Hispanic compared to White and non-Hispanic have fewer internalizing problems assessed by caregivers. Caregivers' assessment of children's behavioral problems may be subjective (Barth, 2008). Thus, the difference could also be interpreted as caregivers' different perceptions, awareness, and literacy of children's behavioral problems (Kouyoumdjian, Zamboanga, & Hansen, 2003). Also, in the mediation only model, results show that Hispanic children compared to White and non-Hispanic children have fewer externalizing problems, which is consistent with findings of children's delinquent behaviors in kinship care (Ryan, Hong, Herz, & Hernandez, 2010). Hispanic families have a stronger familial concept and emphasize more on building the family solidarity when compared to White families, which may help Hispanic children overcome some neighborhood disadvantages while in kinship placement (Ryan, Hong, Herz, & Hernandez, 2010).

As kinship care has become a common type of out-of-home placement in many countries, this study provides empirical evidence to support the advantages of using kinship care as alternative care for maltreated children. Although children's behavioral problems are affected by other challenges, the benefits of using kinship care for children's well-being may outweigh the negative effects from neighborhoods.

**Strengths and Limitations and Directions for Future Research**

As one of the very few studies to explore relationships between the neighborhood context and children's behavioral problems, it is noteworthy to mention the strengths of this study. First, this study used a nationally representative dataset; thus, the results were generalizable to kinship children in the U. S. Second, this study produced some evidence on neighborhoods' indirect effects on children's health outcomes and highlighted the significant role of caregivers' social support on outcomes of importance in kinship care practice. Third, this study validated that relationships among neighborhood, social support, and children's internalizing and externalizing problems were similar across different racial/ethnic groups, despite some differences in the behaviors themselves.

Despite these strengths, this study has some limitations. First, this study did not treat neighborhoods as a cluster variable, due to lack of availability of specific residence information. Neighborhood characteristics were reported by caregivers, so inconsistent information might exist at the neighborhood level. For future research, one might include more neighborhood level variables and treat observations as nested within neighborhoods. Second, this study did not control for some neighborhood structure variables, such as urban or rural areas and population composition, because this study cannot identify the boundary of each neighborhood for each participant without more geographic data. Future research should address this limitation. Third, this study excluded Asian/Pacific Islander and Native American children due to small sample sizes, but they are understudied and underserved in child welfare research and practice (Zhai & Gao, 2009);

therefore, this group could be a focus of future research. Lastly, this study was a cross-sectional study with a relatively small sample size, and the generalizability may be limited by the deletion of missing cases. Thus, future research should examine the relationships in a longitudinal study with a larger sample size. Also, this study used cross-sectional data; children might only stay in this placement for a few days or months. The effects of neighborhood environments on children's behavioral health may be not obvious in a short period. Moreover, this study used caregivers' self-report assessments on all key variables, which may have brought in bias.

**Implications for Practice**

This study has implications for child welfare practice. First, child welfare workers should assess neighborhood environments and familial social capital prior to placing children in kinship care. As kinship caregivers' social support has an influence on children's behavioral problems, it is imperative that we provide services for caregivers to strengthen social support. Social support could not only benefit children in care, but also increase caregivers' psychological well-being (Kelley, Whitley, Sipe, & Yorker, 2000). To enhance caregivers' social support, evidence-supported programs, such as kinship foster care families training program (Fuentes-Peláez et al., 2016) and kinship support groups (Strozier, 2012), have improved caregivers' social support and a broader implementation of these programs may strengthen kinship families. Community-based agencies, such as faith-based organizations, may help improve caregivers' social support as an informal resource (Assari, 2013).

Though this study does not find a direct association between neighborhood disorder and children's well-being, we cannot ignore the indirect impact of neighborhood disorder on children's behavioral outcomes. Therefore, at the neighborhood level, interventions that aim at decreasing neighborhood disorder and improving social cohesion among neighbors should be implemented. Some neighborhood level interventions to advance child development, such as the Dudley Street Neighborhood Initiative (DSNI) in Boston, Healthy Neighborhoods Health Families (HNHF) in Ohio, and the Vital Village Network in Boston, should be implemented in these communities (DSNI, n.d.; HNHF, n.d.; Vital Village, n.d.). Place-based efforts such as Promise Neighborhoods in Baltimore may also make a difference (Promise Neighborhoods Institute at PolicyLink, n.d.). These interventions facilitate community residents to work together to improve multiple facets of neighborhoods, including housing revitalization, public safety, workforce development, educational interventions, community resources, and virtual communities, which eventually improve children and families' well-being (Sandel et al., 2016). In addition, programs that help increase social support among kinship caregivers may also improve social cohesion among residents, which would decrease neighborhood disorder.

**Conclusion**

This study advances the research and knowledge of neighborhood disorder, social support, and children's behavioral problems in kinship care among Black, White, and Hispanic kinship families. The results have implications for implementing social support interventions for relative caregivers and neighborhood-level interventions to improve children's behavioral health outcomes in kinship care.

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## Chapter 5: Summary

The use of kinship care as a form of out-of-home placement in response to child maltreatment is on the rise around the world. A comparison of proportions of kinship foster care and non-relative foster care in several countries indicates the increasing usage of kinship care as a priority for substitute care. In Spain, recent data showed that 75% of children in out of home care were in kinship care, while 25% were in non-relative homes (del Valle & Bravo, 2013). In New Zealand and Australia, half of children removed from their family of origin were placed in kinship care (Australian Institute of Health and Welfare, 2017; del Valle & Bravo, 2013). In other countries, kinship care comprises a substantial proportion of out-of-home care and percentages are presented in parentheses: Italy (40.4%), Netherlands (36%), Ireland (32.1%), Sweden (30%), Norway (22.6%), Germany (22.0%), and UK (19.7%) (del Valle & Bravo, 2013). In the United States, children in kinship care in the child welfare system have increased from 28% to 32% in the past decade (Department of Health and Human Services' Administration for Children and Families, 2009-2018).

Placing children within their family, community, and cultural networks aligns with the concept of family continuity (Worrall, 2001). In the U.S., implementing family-centered practice in child welfare has a long tradition. The philosophy of family-centered practice is influenced by several policies, including the Adoption Assistance and Child Welfare Act of 1980, the Adoption and Safe Families Act of 1997, and the 2018 Family First Prevention Services Act (Children’s Defense Fund, 2018; Child Welfare Information Gateway, n.d.). Under these policies, kinship care, as a type of family-centered practice, is one of the priorities for out-of-home care. Kinship care has some demonstrated positive effects on child development, but it may also put children at risk (Epstein, 2017; Leinaweaver, 2014) for living in poverty and in distressed neighborhoods (Ernst, 2001; Hegar & Scannapieco, 1999; Shlonsky & Berrick, 2001).

## Overview of Major Research Findings

The overarching goal of this dissertation was to understand multiple challenges in kinship care, particularly economic disadvantages and neighborhood disadvantages, and their associations with children's behavioral health outcomes. To achieve this goal, three studies were conducted using NSCAW II data. The NSCAW II is a longitudinal study with three waves to investigate the well-being of children who come in contact with the child welfare system (Dowd et al. 2014). Paper 1 developed a new kinship typology based on financial assistance that families received and examined factors associated with receiving TANF and foster care payments. Paper 2 examined longitudinal relationships among economic hardship, economic pressure, TANF benefits, foster care payments, and children's behavioral problems in kinship care and non-relative foster care. Paper 3 examined the association between neighborhood disorder and children's behavioral problems and tested the mediating role of social support and the moderating role of race/ethnicity.

Paper 1 defined a new kinship typology: TANF only, FC only, TANF + FC, and None. Using wave 2 data from NSCAW II, paper 1 found that sexual abuse and other type of maltreatment, children's externalizing problems, married caregivers, and receiving social services were significantly associated with receiving foster care payments. Living in poverty and in a single-adult household were associated with receiving TANF benefits. However, Asian/ Pacific Islander or Native American children in care, children's internalizing problems, and employed caregivers were associated with lower odds of receiving foster care payments, while being a licensed foster caregiver was associated with lower odds of receiving TANF benefits.

Paper 2 analyzed three waves of data from NSCAW II. Children who remained either in kinship care or in non-relative foster care across three waves were selected. A multilevel longitudinal analysis was used to examine associations among the study variables and results indicated that economic pressure as a subjective measure of economic well-being was positively associated with children's internalizing and externalizing problems, as was receiving TANF benefits. Receiving foster care payments was associated with lower externalizing problems. Significant interaction terms showed that foster care payments had positive effects on children's behavioral health outcomes among families without economic hardship (i.e., living in poverty) and families with economic pressure.

Paper 3 used the third wave of NSCAW II data and studied the relationships between neighborhood factors, social support, and children's behavioral outcomes in non-Hispanic Black, non-Hispanic White, and Hispanic children. Results showed that neighborhood disorder was associated with lower social support, while higher levels of social support, in turn, predicted lower children's internalizing problems. No significant direct and indirect effect of neighborhood disorder on children's internalizing problems were found. Results showed that neighborhood disorder had a significant indirect effect on children's externalizing problems, operating through social support. Social support was negatively associated with children's externalizing behavioral problems.

Race/ethnicity did not significantly moderate the pathways from neighborhood disorder to social support and from social support to children's behavioral problems.

**Key Implications for Social Work**

The findings from this dissertation provide some implications to address challenges in kinship care and promote children's well-being.

The results of paper 1 imply that kinship families experience economic hardship, but may not get financial assistance. It is imperative for child welfare workers and policy makers to think about how to increase kinship caregivers' awareness of financial resources and to make the right resources accessible for kinship caregivers.

The results of paper 2 imply that assessing caregivers' subjective experiences of family financial well-being is equally important to assessing family incomes. Findings point to the challenges and hardships of families that receive TANF benefits, with implications for evaluating financial and non-financial needs of kinship families who receive (or are eligible to receive) TANF. Furthermore, child welfare agencies and practitioners should continue providing financial assistance and non-financial related services to foster care families (kin and non-kin).

The findings of paper 3 first imply that child welfare workers should assess neighborhood environments and caregivers' social support prior to placing children in kinship care. Second, to enhance caregivers' social support, some evidence-supported programs could be replicated and implemented on a broader scale for kinship caregivers. Lastly, neighborhood-level interventions to decrease neighborhood disorder and to improve neighborhood collective efficacy are needed. It is notable that the dynamics of neighborhood disadvantage, social support, and child behavioral outcomes are consistent across race and ethnicity in this sample.

**Future Directions for Broader Kinship Care Research**

This dissertation created a nuanced understanding of multiple factors that were associated with children's behavioral health outcomes. This dissertation also sheds light on future directions for broader kinship care research, beyond the scope of this dissertation.

Currently, the opioid crisis has affected thousands of American families (Nuzum & Pierson, 2019). As a result, grandparents are increasingly stepping in to take care of their grandchildren as informal and temporary kinship caregivers (Lent & Otto, 2019). As more children are placed in kinship care due to parental substance use and parental incarceration (Barrio & Hughes, 2000; Denby, 2012; Kroll, 2007), research is warranted to understand children's well-being in this type of kinship care. It is also imperative to expand child well-being to educational, psychological, and physical health outcomes, which were not included in the present study. Moreover, developing and evaluating interventions to support kinship caregivers and to improve children's well-being is warranted. These interventions could be peer-support groups, parenting groups for relatives, and app-based information platforms for caregivers to navigate available resources (Alford, Denby, & Gomez, 2019; Denby, 2011; Landry-Meyer, 1999).

In summary, this dissertation contributes to the literature on understanding kinship families' economic well-being and neighborhood quality, and children's behavioral health outcomes. The results of this dissertation provide some implications for policy makers, child welfare practitioners, and researchers.

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## Appendices

Appendix 1_A. Factors Associated with Receiving Foster Care Payments and TANF Benefits at Wave 3 (N=218)

| | Model 1 Foster Care Payment | | | Model 2 TANF | | |
|---|---|---|---|---|---|---|
| Variables | OR | *P* | 95% CI | OR | *P* | 95% CI |
| Child age | 1.04 | 0.509 | [0.92, 1.19] | 0.93 | 0.403 | [0.79, 1.10] |
| Child sex (ref. male) | 0.15 | 0.003** | [0.04, 0.50] | 0.38 | 0.162 | [0.10, 1.49] |
| Child race/ethnicity | | | | | | |
| Black and non-Hispanic | 0.27 | 0.062 | [0.07, 1.07] | 0.84 | 0.864 | [0.10, 6.75] |
| Hispanic | 0.36 | 0.188 | [0.08, 1.66] | 1.33 | 0.787 | [0.16, 11.23] |
| Other | 0.01 | 0.013* | [0.01, 0.40] | 2.20 | 0.683 | [0.05, 102.8] |
| Child maltreatment (ref. neglect) | | | | | | |
| Physical | 3.31 | 0.187 | [0.55, 19.97] | 0.11 | 0.093 | [0.01, 1.47] |
| Other | 2.39 | 0.185 | [0.65, 8.77] | 0.50 | 0.363 | [0.11, 2.28] |
| Child internalizing problems | 0.91 | 0.051$^{+}$ | [0.83, 1.00] | 1.05 | 0.232 | [0.97, 1.14] |
| Child externalizing problems | 1.08 | 0.050$^{+}$ | [1.00, 1.16] | 0.93 | 0.081 | [0.85, 1.01] |
| Caregiver age | 1.03 | 0.278 | [0.97, 1.10] | 0.97 | 0.247 | [0.91, 1.03] |
| Caregiver gender (ref. male) | 0.16 | 0.021* | [0.03, 0.75] | 0.32 | 0.140 | [0.07, 1.47] |
| Caregiver education (ref. less than high school) | 0.69 | 0.584 | [0.18, 2.69] | 1.48 | 0.624 | [0.30, 7.17] |
| Caregiver marital status (ref. not married) | 5.40 | 0.036* | [1.12, 25.94] | 3.21 | 0.160 | [0.62, 16.58] |
| Poverty | 1.47 | 0.287 | [0.71, 3.04] | 1.19 | 0.725 | [0.44, 3.19] |
| Caregiver employment (ref. unemploeyed) | 1.08 | 0.910 | [0.28, 4.12] | 0.70 | 0.477 | [0.26, 1.90] |
| Caregiver physical health | 1.08 | 0.007** | [1.02, 1.13] | 0.94 | 0.083 | [0.88, 1.01] |
| Caregiver mental health | 0.97 | 0.442 | [0.91, 1.04] | 0.91 | 0.024* | [0.84, 0.99] |
| Legal guardianship | 1.81 | 0.507 | [0.30, 10.83] | 2.52 | 0.284 | [0.46, 13.97] |
| Licensed foster caregiver+ | - | - | - | 0.11 | 0.124 | [0.01, 1.88] |
| Number of children (ref. >3 children) | 0.01 | <0.001*** | [0.01, 0.03] | 0.18 | 0.242 | [0.01, 3.28] |
| Single-adult household (ref. non-single adult household) | 8.57 | 0.009** | [1.77, 41.61] | 9.37 | 0.020* | [1.45, 59.32] |
| Services | 4.31 | 0.005** | [1.57, 11.85] | 0.12 | 0.589 | [0.12, 3.33] |

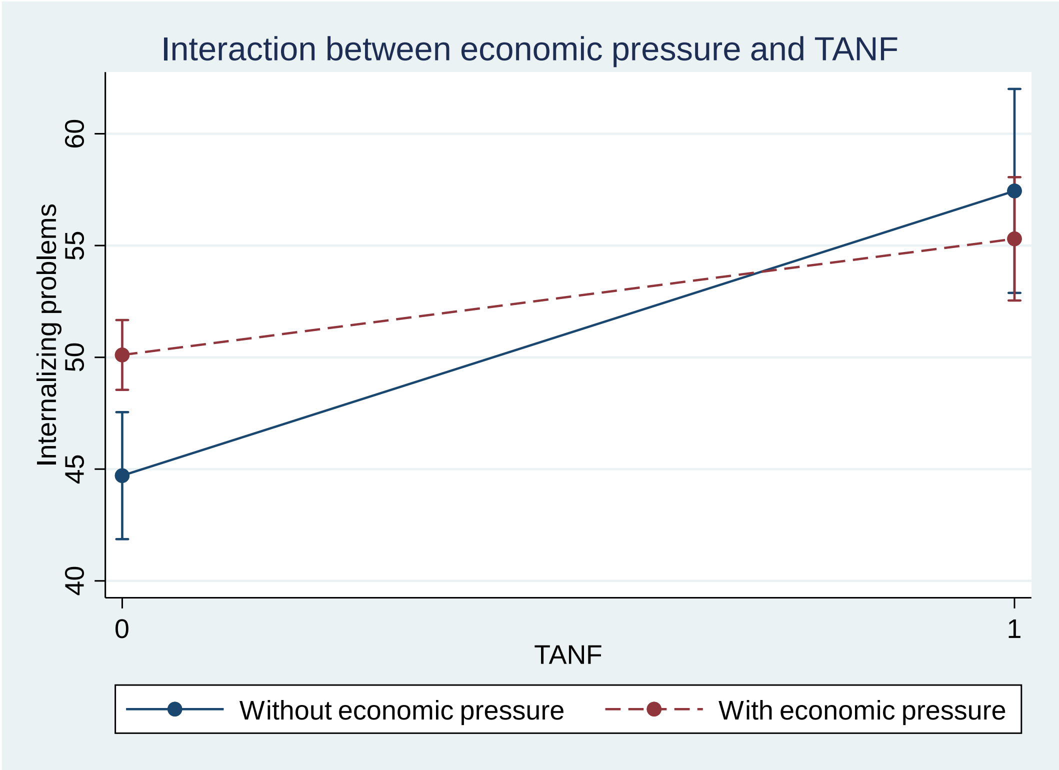
Note: * p < 0.05; ** p < 0.01; *** p < 0.001; $^{+}$ p < 0.01; + foster care licensure status was removed from the regression model 1 because almost all the licensed caregivers received foster care payments. The sample was selected from complete cases of kinship children who stayed with the same caregiver from wave 2 to wave 3.

# Appendix 2_A. Predictors of Children's Behavioral Problems in Kinship Care

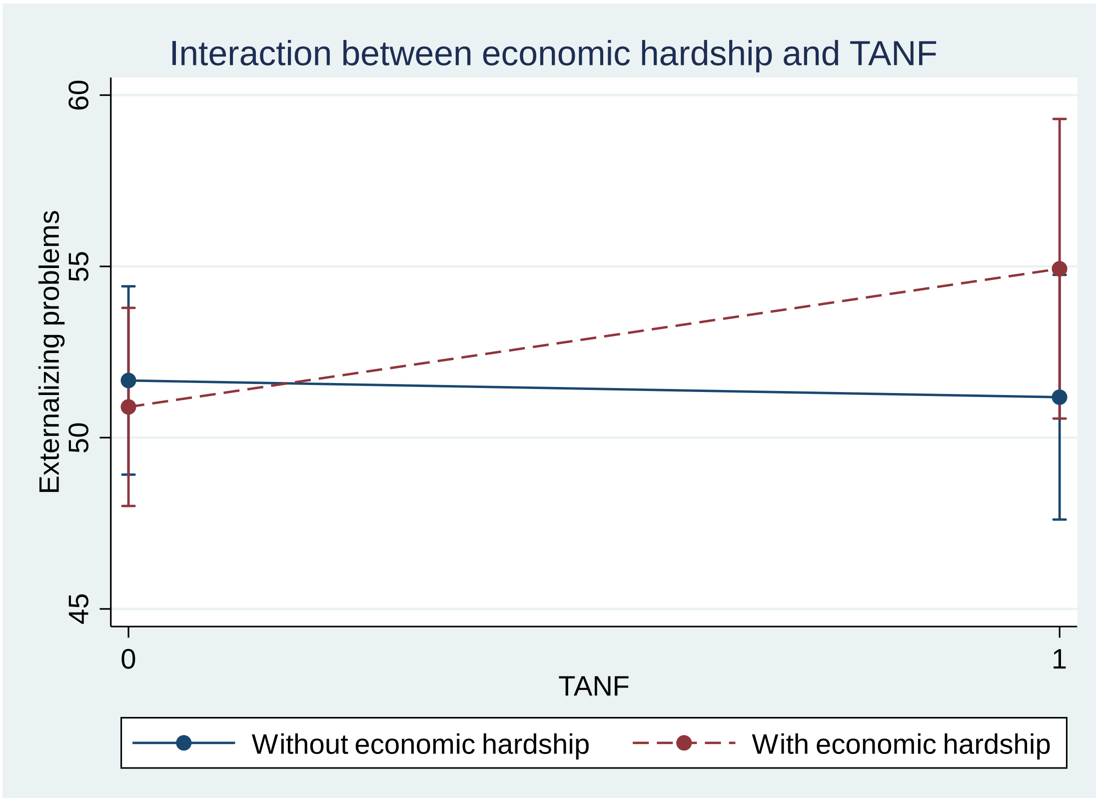
| | Internalizing | | | | | | Externalizing | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 Main Effects | | Model 2 Economic hardship × Financial assistance | | Model 3 Economic pressure × Financial assistance | | Model 1 Main Effects | | Model 2 Economic hardship × Financial assistance | | Model 3 Economic pressure × Financial assistance | |
| Variable | B | *p* | B | *p* | B | *p* | B | *p* | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | | | | | | | | | |
| Time-varying variables | | | | | | | | | | | | |
| Economic hardship | 1.07 | 0.338 | -0.21 | 0.875 | 1.02 | 0.380 | 0.74 | 0.587 | -1.73 | 0.178 | 0.77 | 0.572 |
| Economic pressure | 4.92 | 0.003** | 4.84 | 0.003** | 5.42 | 0.001** | 4.67 | 0.016* | 4.47 | 0.013* | 4.96 | 0.012* |
| TANF benefits | 5.71 | <0.001*** | 3.40 | 0.066 | 12.74 | <0.001*** | 2.98 | 0.017* | -0.49 | 0.768 | 4.15 | 0.039* |
| Foster care payments | -0.23 | 0.889 | -0.55 | 0.763 | -0.83 | 0.767 | -1.84 | 0.388 | -3.83 | 0.140 | 0.20 | 0.924 |
| Economic hardship × TANF | - | - | 3.40 | 0.124 | - | - | - | - | 4.52 | 0.004** | - | - |
| Economic pressure × TANF | - | - | - | - | -7.54 | 0.009** | - | - | - | - | -1.17 | 0.610 |
| Economic hardship × Foster care payment | - | - | 0.63 | 0.636 | - | - | - | - | 3.22 | 0.713 | - | - |
| Economic pressure × Foster care payment | - | - | - | - | -0.06 | 0.983 | - | - | - | - | -2.40 | 0.331 |
| Time-invariant variables | | | | | | | | | | | | |
| Child age at wave 1 | -0.13 | 0.630 | -0.17 | 0.508 | -0.04 | 0.874 | 0.01 | 0.985 | -0.03 | 0.937 | 0.06 | 0.875 |
| Child sex (ref. male) | -3.35 | 0.125 | -3.74 | 0.086 | -3.29 | 0.095 | -1.80 | 0.379 | -2.63 | 0.225 | -1.75 | 0.399 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | | | | | | | | | |
| Black and non-Hispanic | -2.79 | 0.334 | -2.44 | 0.372 | -2.84 | 0.315 | -0.57 | 0.804 | -0.18 | 0.932 | -0.60 | 0.800 |
| Hispanic | -4.54 | 0.042* | -4.59 | 0.038* | -4.30 | 0.065 | -6.14 | 0.023* | -5.74 | 0.027* | -6.36 | 0.021* |
| Other | 7.21 | 0.262 | 7.99 | 0.221 | 6.49 | 0.243 | 14.01 | 0.024* | 14.99 | 0.021* | 13.41 | 0.035* |
| Child maltreatment (ref. neglect) | | | | | | | | | | | | |
| Physical abuse | 4.02 | 0.065 | 4.05 | 0.067 | 4.23 | 0.064 | 3.52 | 0.281 | 4.14 | 0.216 | 3.48 | 0.286 |
| Sexual abuse | 9.81 | 0.004** | 9.72 | 0.004** | 9.64 | 0.003** | 5.19 | 0.209 | 5.13 | 0.217 | 5.15 | 0.219 |
| Other | 1.58 | 0.284 | 1.44 | 0.323 | 1.64 | 0.313 | 1.44 | 0.584 | 1.41 | 0.587 | 1.33 | 0.612 |
| Child Medicaid | -2.04 | 0.364 | -2.24 | 0.326 | -2.52 | 0.268 | -2.69 | 0.425 | -3.53 | 0.299 | -2.94 | 0.383 |
| Caregiver age at wave 1 | -0.19 | <0.001*** | -0.21 | <0.001*** | -0.19 | 0.001** | 0.12 | 0.192 | 0.11 | 0.237 | 0.12 | 0.201 |
| Caregiver sex (ref. male) | 1.34 | 0.629 | 1.28 | 0.627 | 1.26 | 0.671 | 0.43 | 0.887 | -0.52 | 0.866 | 0.62 | 0.838 |
| Caregiver marital status (ref. not married) | -0.40 | 0.782 | -0.42 | 1.50 | -0.32 | 0.851 | -1.24 | 0.614 | -1.67 | 0.528 | 0.62 | 0.838 |
| Caregiver education level (ref. less than high school) | -7.67 | 0.005** | -7.65 | 0.005** | -7.60 | 0.007** | -5.23 | 0.046* | -5.04 | 0.045* | -5.15 | 0.051 |
| Caregiver physical health | -0.12 | 0.065 | -0.12 | 0.054 | -0.13 | 0.065 | -0.02 | 0.807 | -0.02 | 0.839 | -0.03 | 0.743 |
| Caregiver mental health | -0.54 | <0.001*** | -0.56 | <0.001*** | -0.55 | <0.001*** | -0.50 | <0.001 *** | -0.55 | <0.001 *** | -0.50 | <0.001 *** |
| Caregiver employment (ref. unemployed) | -1.32 | 0.428 | -1.81 | 0.309 | -1.33 | 0.453 | 1.62 | 0.513 | 0.77 | 0.756 | 1.62 | 0.515 |
| Different caregivers (ref. no different caregiver) | -4.48 | 0.017* | -4.97 | 0.006** | -3.90 | 0.054 | 0.49 | 0.870 | 0.34 | 0.912 | 0.86 | 0.776 |
| Number of children in the household (ref. > 3 children) | 0.58 | 0.816 | 0.43 | 0.867 | 0.70 | 0.785 | 2.93 | 0.328 | 2.52 | 0.383 | 2.83 | 0.344 |
| wave | -1.29 | 0.198 | -1.33 | 0.179 | -1.28 | 0.205 | -0.66 | 0.548 | -0.66 | 0.554 | -0.63 | 0.570 |
| Random-effects Level 1 (Time) | | | | | | | | | | | | |
| | B | | B | | B | | B | | B | | B | |
| Variance of intercept | 23.38 | | 23.33 | | 20.30 | | 20.08 | | 19.08 | | 19.77 | |
| Variance of residual | 32.15 | | 31.82 | | 30.20 | | 21.39 | | 19.75 | | 21.30 | |
| ICC | 0.42 | | 0.42 | | 0.40 | | 0.48 | | 0.49 | | 0.48 | |

Note: Number of observations:488; * p < 0.5; ** p < 0.01; *** p < 0.001.

Appendix 2_B. The Interactions between Economic Pressure and TANF Benefits on Children's Internalizing Problems in Kinship Care



Appendix 2_C. Significant Interaction between TANF and Economic Hardship for Children's Externalizing Problems in Kinship Care



Appendix 2_D. Predictors of Children's Behavioral Problems without Interactions in Non-Relative Foster Care

| | Internalizing | | Externalizing | |
|---|---|---|---|---|
| Variable | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | |
| Time-varying variables | | | | |
| Economic hardship | 2.64 | 0.196 | 7.92 | 0.068 |
| Economic pressure | 0.372 | 0.842 | -6.18 | 0.103 |
| TANF benefits | -8.38 | 0.234 | -5.38 | 0.350 |
| Foster care payments | 1.11 | 0.653 | -2.63 | 0.712 |
| Child age | -1.39 | 0.016* | -1.29 | 0.040* |
| Child sex (ref. male) | -2.07 | 0.497 | -2.01 | 0.617 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | |
| Black and non-Hispanic | 1.41 | 0.764 | -0.45 | 0.944 |
| Hispanic | -4.91 | 0.305 | 2.87 | 0.636 |
| Other | 17.30 | 0.018* | -1.34 | 0.895 |
| Child maltreatment (ref. neglect) | | | | |
| Physical abuse | 4.56 | 0.267 | 7.33 | 0.173 |
| Sexual abuse | -2.05 | 0.863 | -8.52 | 0.569 |
| Other | -7.54 | 0.233 | -5.50 | 0.369 |
| Child Medicaid | -1.67 | 0.748 | -12.47 | 0.080 |
| Caregiver age | -0.25 | 0.140 | -0.26 | 0.256 |
| Caregiver sex (ref. male) | 14.31 | 0.017* | 21.51 | 0.001** |
| Caregiver marital status (ref. not married) | -0.49 | 0.871 | 0.52 | 0.879 |
| Caregiver education level (ref. less than high school) | -1.50 | 0.795 | 4.53 | 0.454 |
| Caregiver physical health | 0.02 | 0.925 | -0.06 | 0.793 |
| Caregiver mental health | 0.36 | 0.30 | -0.06 | 0.793 |
| Caregiver employment (ref. unemployed) | -8.14 | 0.031* | 0.62 | 0.015* |
| Different caregivers (ref. no different caregiver) | -3.12 | 0.382 | -15.34 | 0.001** |
| Number of children in the household (ref. > 3 children) | 1.34 | 0.650 | 0.18 | 0.964 |
| Wave | -3.11 | 0.016* | 2.96 | 0.494 |
| Random-effects Level 1 (Time) | | | | |
| | B | | B | |
| Variance of intercept | 5.14 | | 13.84 | |
| Variance of residual | 41.73 | | 48.07 | |
| ICC | 0.11 | | 0.22 | |

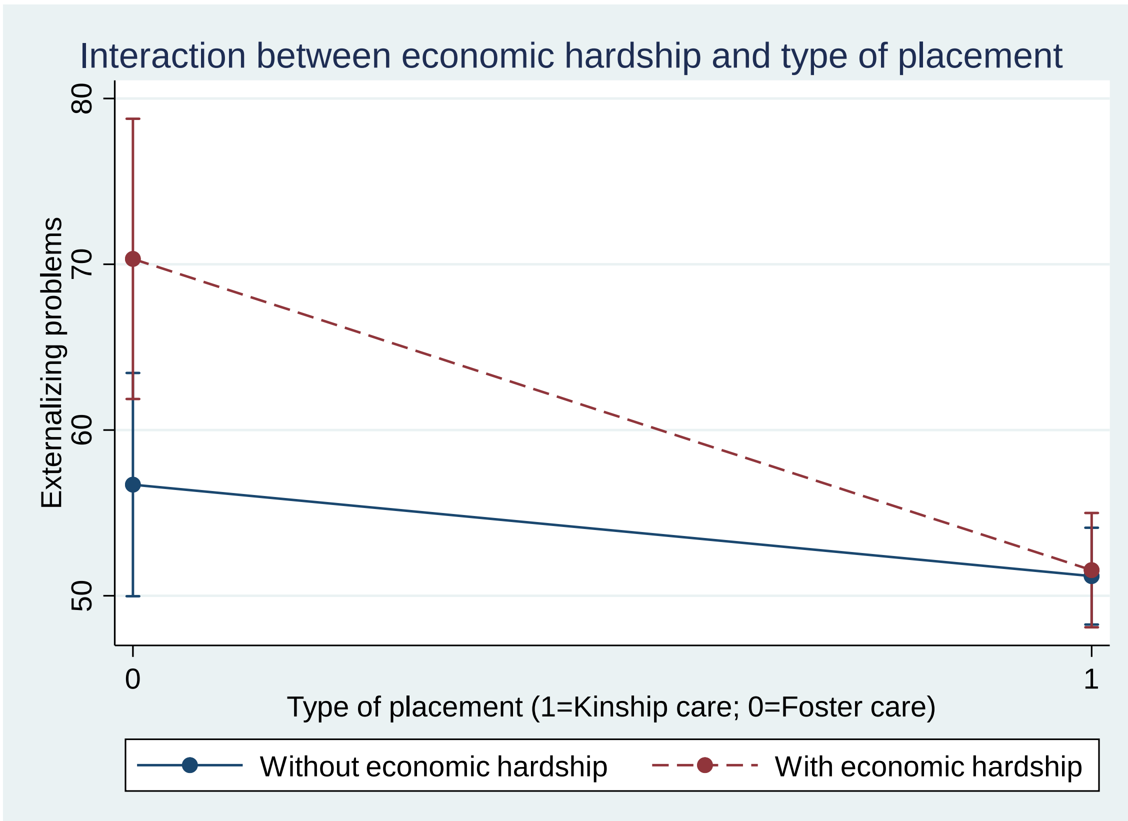
Note: Number of observations:154; * p < 0.5; ** p < 0.01; *** p < 0.001. Interactions were not conducted in the non-relative foster care sample because key variables: economic hardship, economic pressure, TANF benefits, and foster care payments were not significant.

Appendix 2_E. Predictors of Children's Behavioral Problems In Kinship Care and Non-Relative Foster Care with an Interaction Term between Economic Hardship or Economic Pressure and the Type of Placement

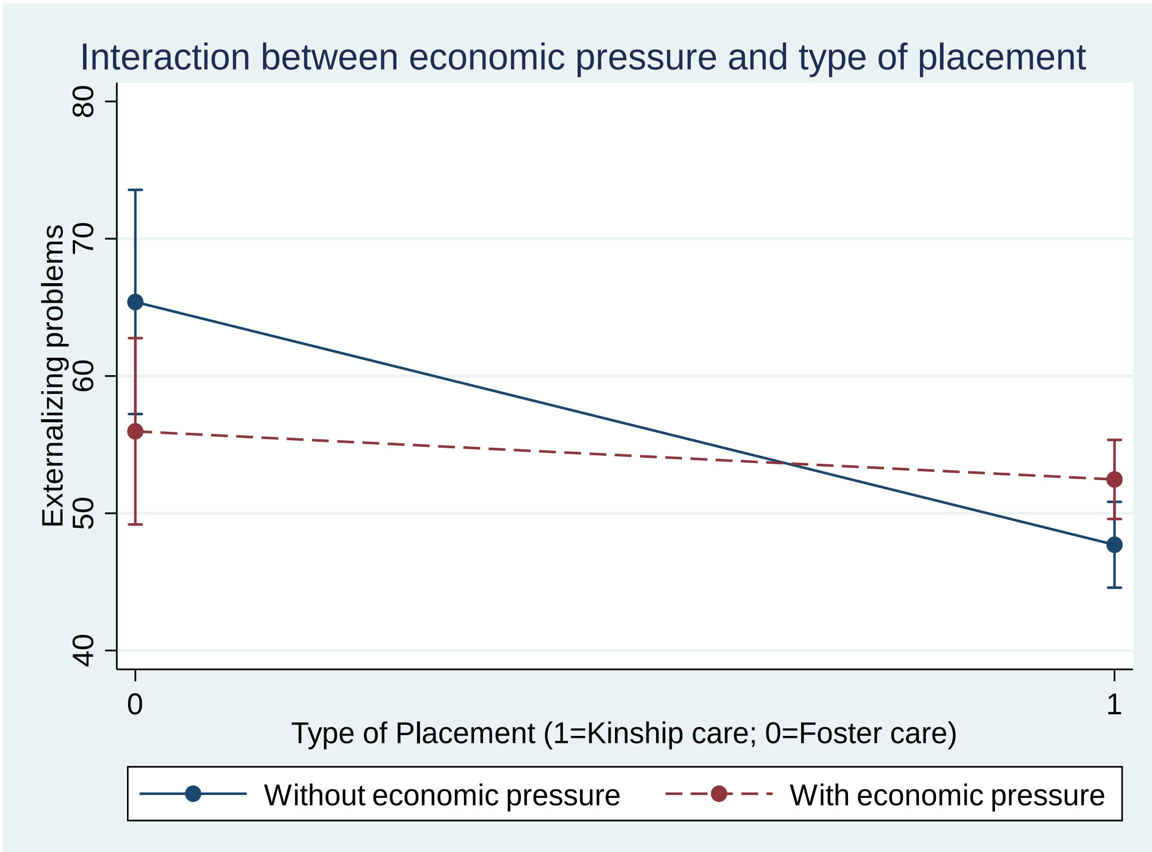
| | Internalizing Problems | | | | Externalizing Problems | | | |
|---|---|---|---|---|---|---|---|---|
| | Economic hardship × Type | | Economic pressure × Type | | Economic hardship × Type | | Economic pressure × Type | |
| Variable | B | *p* | B | *p* | B | *p* | B | *p* |
| Fixed-effects Level 2 (Individual) | | | | | | | | |
| Time-varying variables | | | | | | | | |
| Economic hardship | 6.48 | 0.092 | 1.21 | 0.194 | 13.62 | 0.009** | 1.50 | 0.264 |
| Economic pressure | 3.71 | 0.016* | -1.50 | 0.584 | 2.58 | 0.160 | -9.42 | 0.050 |
| TANF benefits | 5.67 | <0.001*** | 5.65 | <0.001*** | 2.78 | 0.046* | 2.63 | 0.030* |
| Foster care payments | 0.18 | 0.914 | 0.05 | 0.976 | -1.18 | 0.573 | -1.11 | 0.602 |
| Economic hardship × Type | -5.72 | 0.186 | - | - | -13.26 | 0.018* | - | - |
| Economic pressure × Type | - | - | 6.05 | 0.053 | - | - | 14.18 | 0.009** |
| Time-invariant covariates | | | | | | | | |
| Child age at wave 1 | -0.12 | 0.641 | -0.13 | 0.562 | 0.09 | 0.791 | 0.03 | 0.930 |
| Child sex (ref. male) | -4.47 | 0.023* | -4.61 | 0.020* | -1.14 | 0.642 | -1.42 | 0.552 |
| Child race/ethnicity (ref. White and non-Hispanic) | | | | | | | | |
| Black and non-Hispanic | -2.78 | 0.316 | -2.97 | 0.287 | -2.03 | 0.463 | -2.55 | 0.354 |
| Hispanic | -7.31 | 0.001** | -6.96 | 0.011* | -9.41 | 0.017* | -9.30 | 0.012* |
| Other | 8.44 | 0.016* | 8.21 | 0.022* | 2.78 | 0.683 | 2.49 | 0.710 |
| Child maltreatment (ref. neglect) | | | | | | | | |
| Physical abuse | 1.73 | 0.385 | 2.07 | 0.300 | 3.32 | 0.263 | 3.35 | 0.241 |
| Sexual abuse | 6.83 | 0.051 | 7.34 | 0.031* | 1.48 | 0.739 | 2.19 | 0.585 |
| Other | -2.80 | 0.221 | -2.52 | 0.234 | -3.52 | 0.340 | -3.29 | 0.342 |
| Child Medicaid | -2.48 | 0.267 | -2.73 | 0.207 | -3.41 | 0.315 | -3.74 | 0.267 |
| Caregiver age at wave 1 | -0.21 | 0.001** | -0.20 | 0.001** | -0.01 | 0.866 | 0.001 | 0.907 |
| Caregiver sex (ref. male) | 3.11 | 0.300 | 2.95 | 0.314 | 2.17 | 0.488 | 2.10 | 0.503 |
| Caregiver marital status (ref. not married) | -0.84 | 0.596 | -1.08 | 0.504 | 0.21 | 0.926 | -0.25 | 0.904 |
| Caregiver education level (ref. less than high school) | -6.18 | 0.005** | -6.19 | 0.005** | -2.30 | 0.333 | -2.23 | 0.338 |
| Caregiver physical health | -0.12 | 0.041* | -0.11 | 0.057 | -0.10 | 0.158 | -0.10 | 0.138 |
| Caregiver mental health | -0.44 | <0.001*** | -0.45 | <0.001*** | -1.86 | 0.440 | -0.37 | <0.001*** |
| Caregiver employment (ref. unemployed) | -3.27 | 0.086 | -2.70 | 0.130 | -0.22 | 0.440 | -0.62 | 0.796 |
| Type of family-based foster care (ref. Non-kin foster care) | -9.10 | 0.003** | -13.77 | <0.001*** | -5.52 | 0.115 | -17.69 | <0.001*** |
| Different caregivers (ref. no different caregiver) | -4.12 | 0.003** | -3.77 | 0.009** | -0.22 | 0.933 | 0.60 | 0.825 |
| Number of children in the household (ref. > 3 children) | 2.05 | 0.379 | 1.81 | 0.432 | 2.26 | 0.526 | 1.88 | 0.592 |
| wave | -1.53 | 0.103 | -1.51 | 0.090 | -0.71 | 0.497 | -0.69 | 0.448 |
| Random-effects Level 1 (Time) | | | | | | | | |
| | B | | B | | B | | B | |
| Variance of intercept | 30.86 | | 29.34 | | 36.43 | | 35.79 | |
| Variance of residual | 35.29 | | 35.62 | | 26.18 | | 27.25 | |
| ICC | 0.47 | | 0.39 | | 0.59 | | 0.57 | |

Note: Number of observations: 642; * p < 0.5; ** p < 0.01; *** p < 0.001.

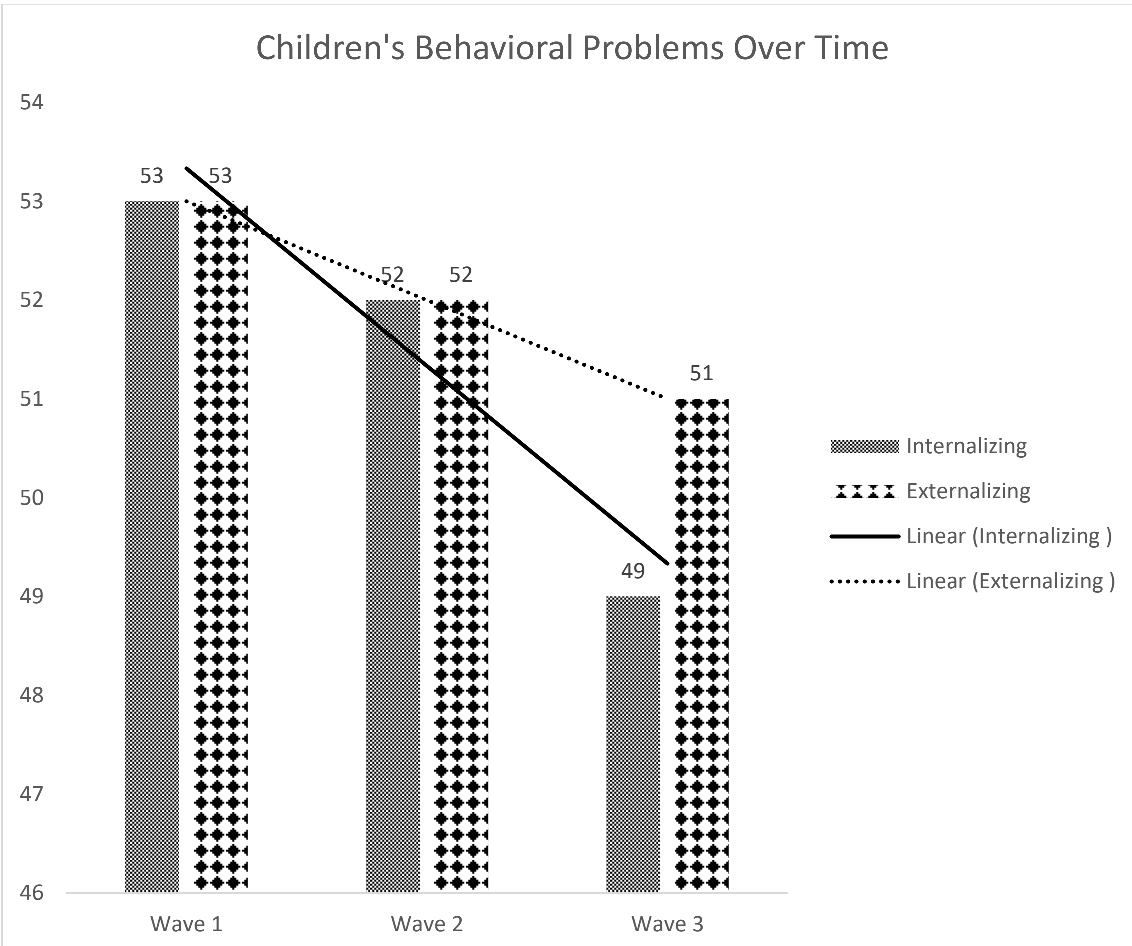
Appendix 2_F. Significant Interaction between the Type of Placement and Economic Hardship for Children's Externalizing Problems in Kinship Care and Non-Relative Foster Care



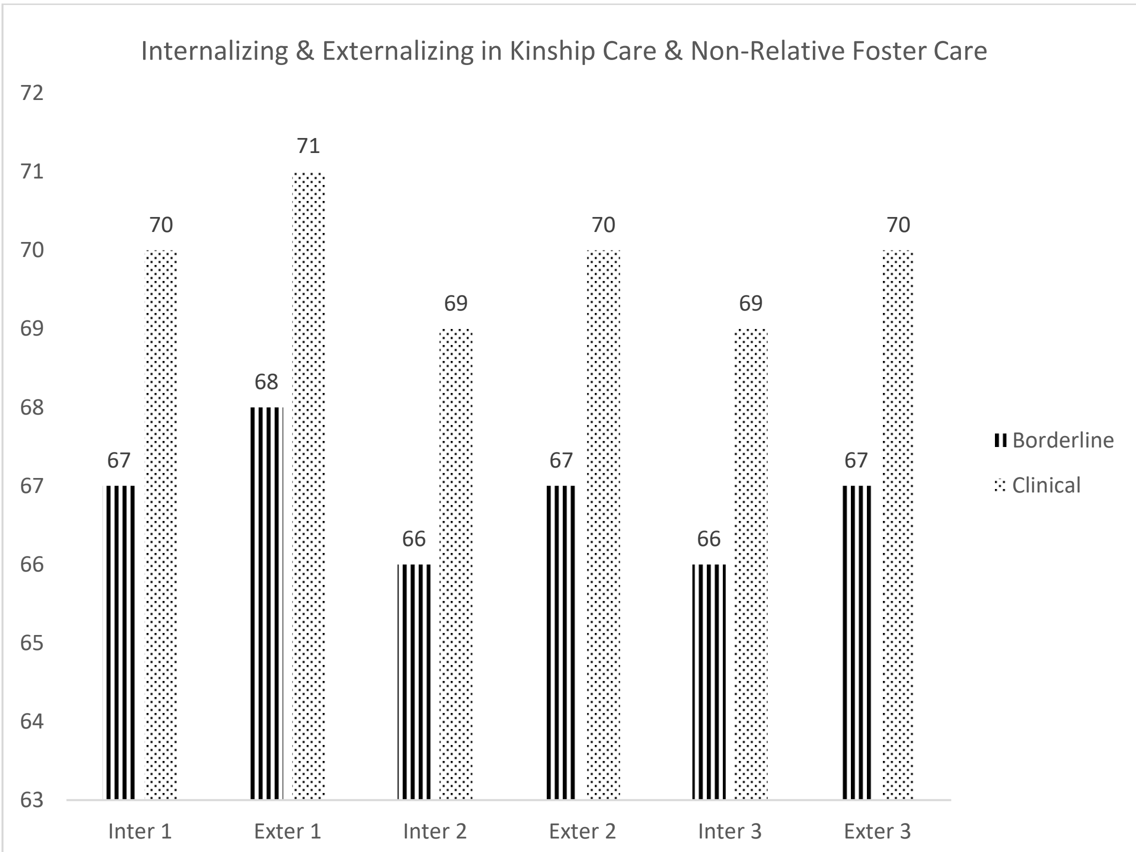
Appendix 2_G. Significant Interaction between the Type of Placement and Economic Pressure for Children's Externalizing Problems in Kinship Care and Non-Relative Foster Care



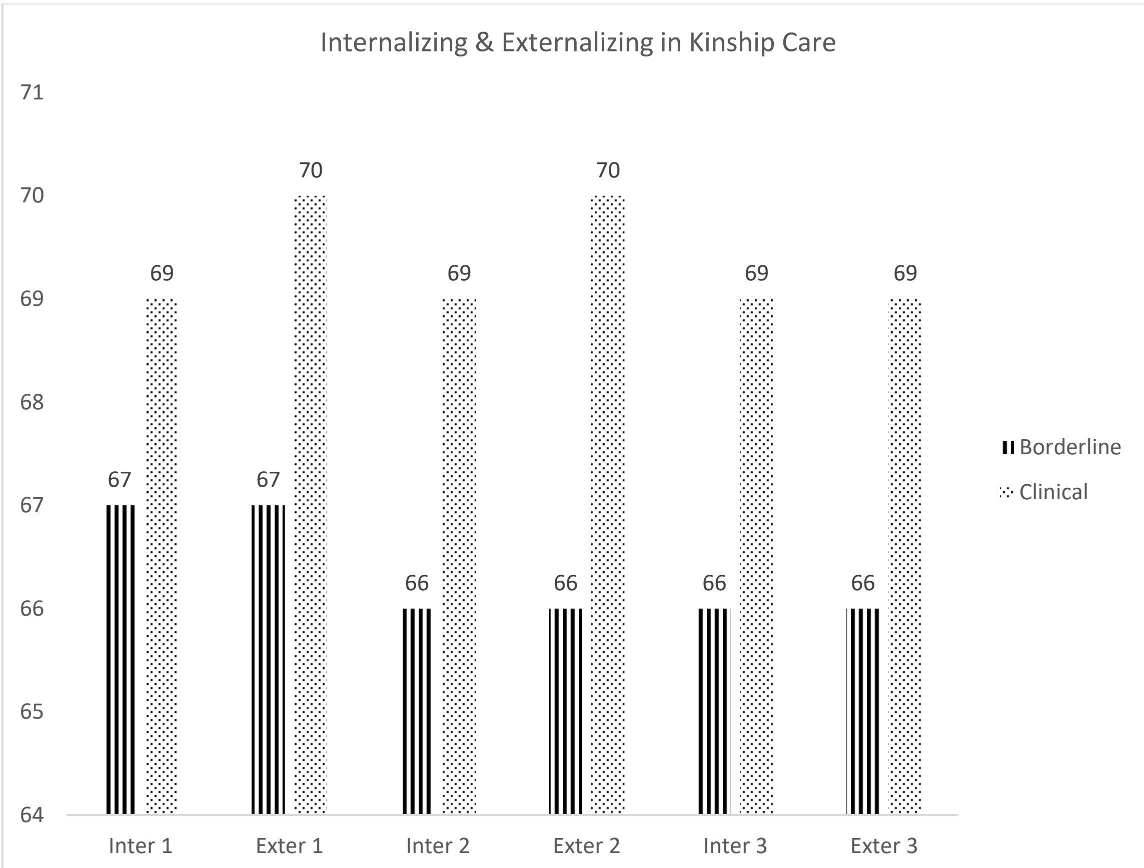
Appendix 2_H. Children's Behavioral Problems across Three Waves in Kinship and Non-Relative Foster Care Using T Scores



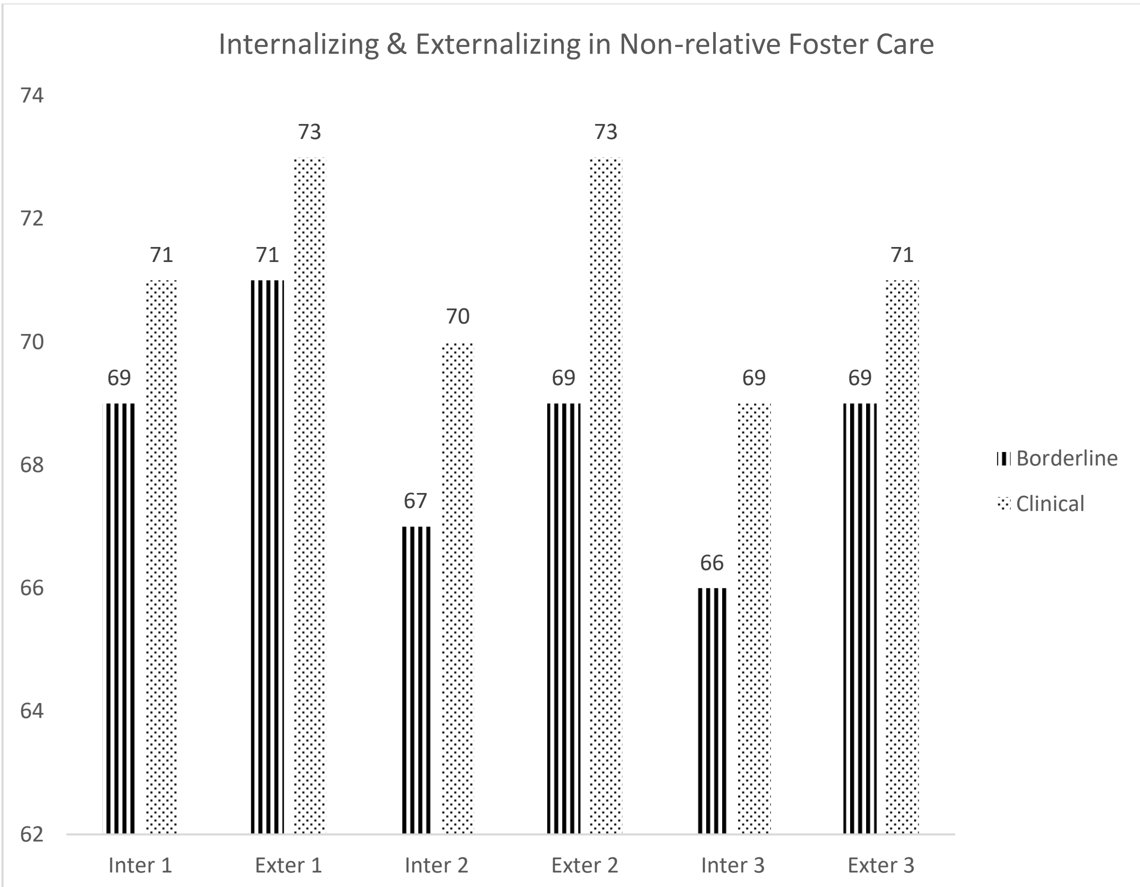
Appendix 2_I. Children's Behavioral Problems across Three Waves in Kinship and Non-Relative Foster Care Using Borderline and Clinical Scores



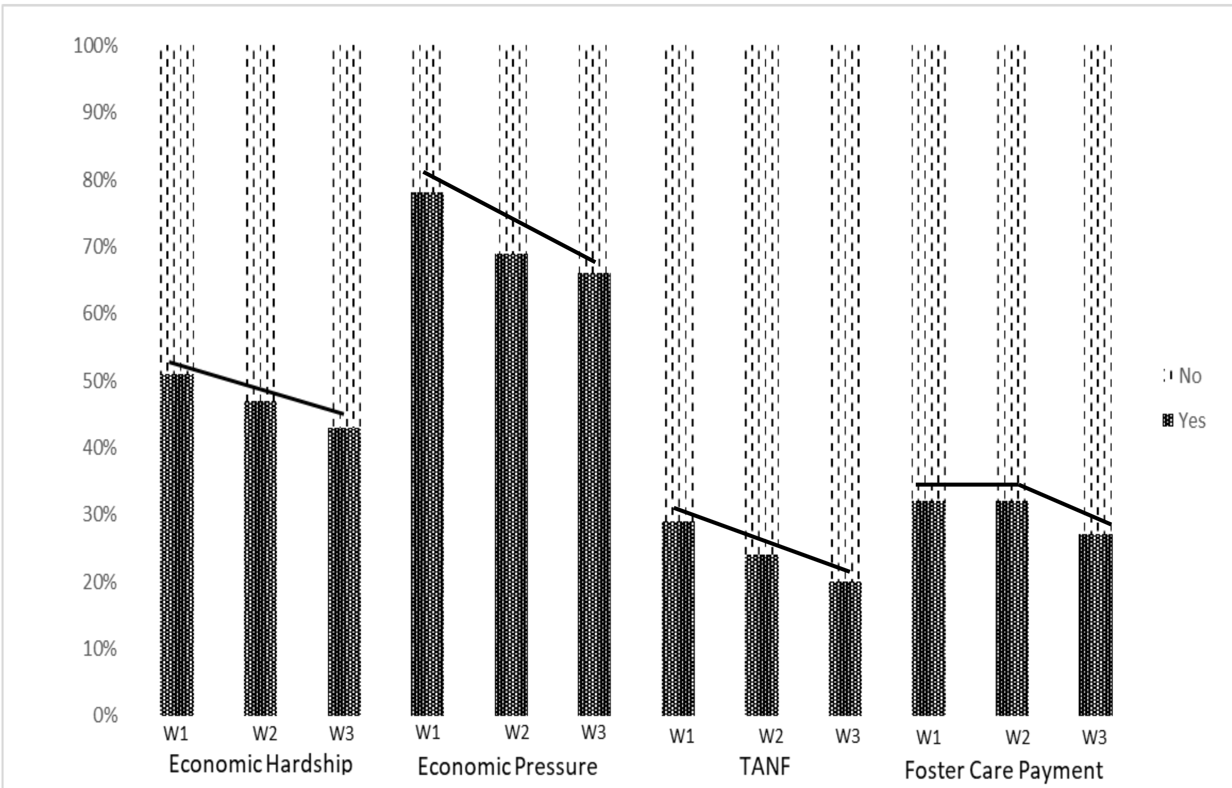
Appendix 2_J. Children's Behavioral Problems across Three Waves in Kinship Using Borderline and Clinical Scores



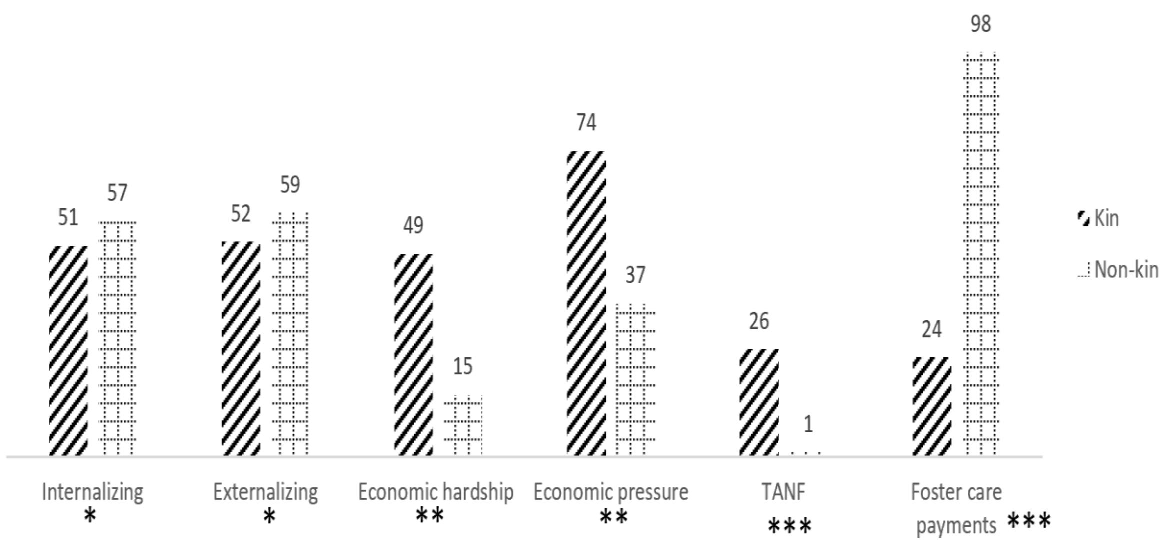
Appendix 2_K. Children's Behavioral Problems across Three Waves in Non-Relative Foster Care Using Borderline and Clinical Scores



Appendix 2_L. Economic Hardship, Economic Pressure, TANF, and Foster Care Payment across Three Waves in Kinship and Non-Relative Foster Care



Appendix 2_M. A Comparison of Key Variables between Kinship and Non-Relative Foster Care



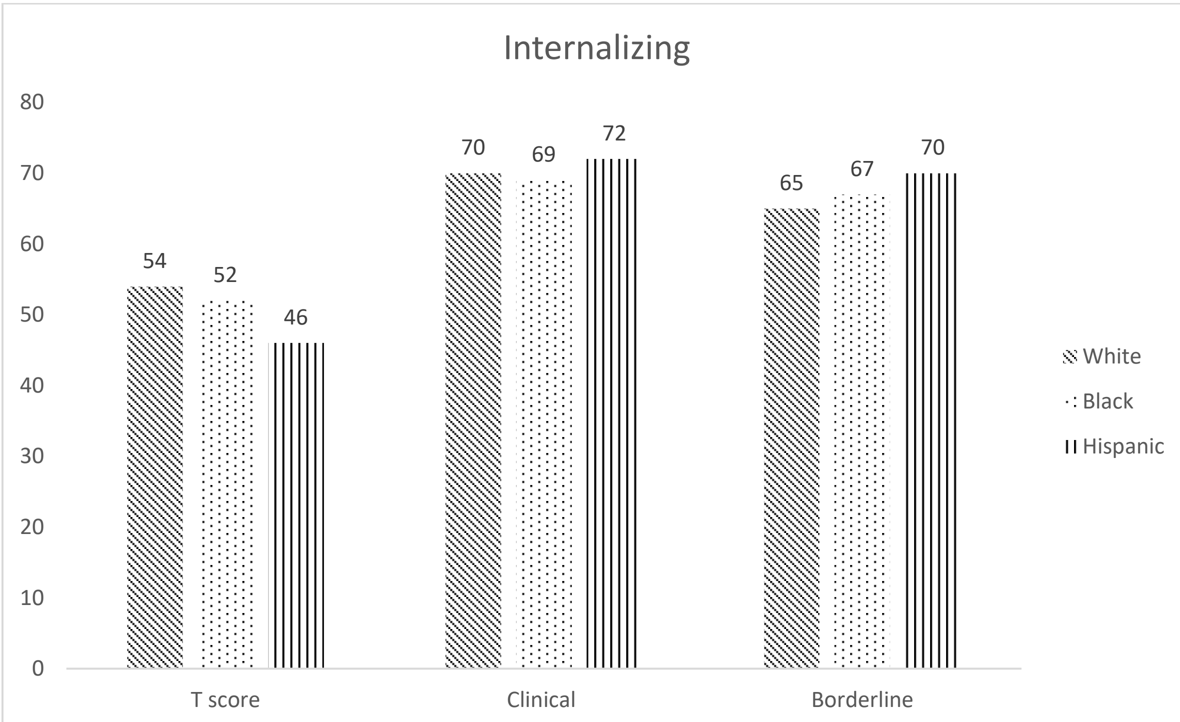

Note: * p < 0.05; ** p < 0.01; *** p < 0.001

Appendix 3_A. A Comparison between Complete Cases and Dropped Cases

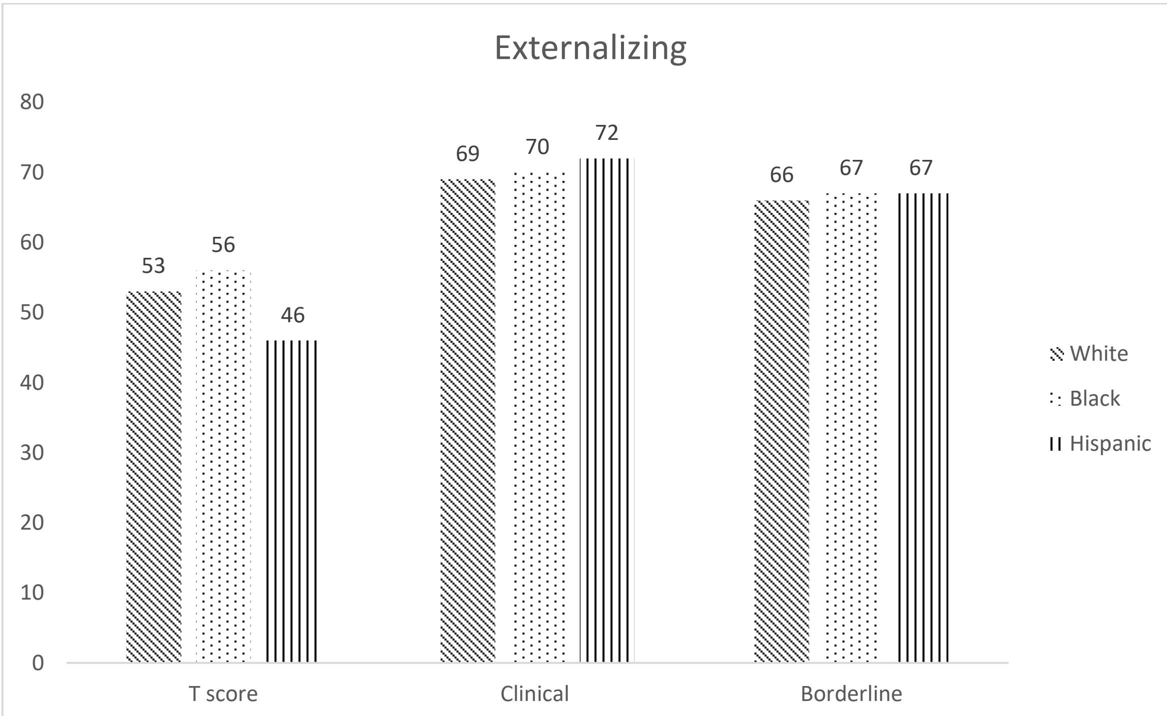
| Variables | Complete Cases (N = 263) | | Dropped Cases (N = 265) | | t/Chi-square | *P* |
|---|---|---|---|---|---|---|
| | N | Mean (SD)/% | N | Mean (SD)/% | | |
| Internalizing problems | 263 | 51.43 (12.22) | 237 | 49.48 (11.27) | 0.99 | 0.32 |
| Externalizing problems | 263 | 52.39 (12.71) | 237 | 51.29 (12.12) | 0.37 | 0.71 |
| Neighborhood Disorder | 263 | 1.17 (0.37) | 241 | 1.17 (0.34) | 0.01 | 0.99 |
| Social support | 263 | 4.25 (0.80) | 55 | 3.84 (0.98) | 1.67 | 0.10 |
| Child age | 263 | 8.59 (4.00) | 265 | 9.45 (4.46) | -1.13 | 0.26 |
| Child sex | 263 | | 265 | | 76.74 | 0.27 |
| Male | 150 | 48.45% | 133 | 60.81% | | |
| Female | 113 | 51.55% | 132 | 39.19% | | |
| Child race | 263 | | 263 | | 114.70 | 0.34 |
| White and non-Hispanic | 86 | 25.84% | 82 | 37.36% | | |
| Black and non-Hispanic | 104 | 49.34% | 107 | 29.93% | | |
| Hispanic | 73 | 24.82% | 74 | 32.71% | | |
| Child maltreatment | 263 | | 193 | | 142.84 | 0.08 |
| Sexual abuse | 16 | 10.33% | 10 | 5.82% | | |
| Physical abuse | 41 | 15.23% | 23 | 7.16% | | |
| Neglect | 72 | 31.39% | 69 | 40.18% | | |
| Other maltreatment | 134 | 43.06% | 91 | 46.84% | | |
| Child special health needs | 263 | | 186 | | 101.6 | 0.06 |
| Yes | 52 | 16.99% | 47 | 31.64% | | |
| No | 211 | 83.01% | 139 | 68.36% | | |
| Caregivers’ age | 263 | | 241 | | 101.6 | 0.06 |
| < = 54 | 170 | 66.98% | 88 | 47.09% | | |
| > 54 | 93 | 33.02% | 153 | 52.91% | | |
| Caregivers’ sex | 263 | | 241 | | 23.88 | 0.58 |
| Male | 33 | 17.44% | 19 | 12.35% | | |
| Female | 230 | 82.56% | 222 | 87.65% | | |
| Caregivers’ education | 263 | | 239 | | 5.95 | 0.74 |
| High school and more | 98 | 39.81% | 89 | 36.4% | | |
| Other | 165 | 60.19% | 150 | 63.6% | | |
| Caregivers’ employment | 263 | | 241 | | 95.38 | 0.15 |
| Employed | 127 | 42.7% | 120 | 56.72% | | |
| Unemployed | 136 | 57.3% | 121 | 43.28% | | |
| Poverty level | 263 | | 207 | | 15.26 | 0.53 |
| Below poverty | 110 | 41.3% | 75 | 36.23% | | |
| Above poverty | 153 | 58.7% | 132 | 63.77% | | |
| Number of children in the household | 263 | 2.18 (1.28) | 265 | 2.11 (1.17) | 49.86 | 0.70 |

Note: % was weighted

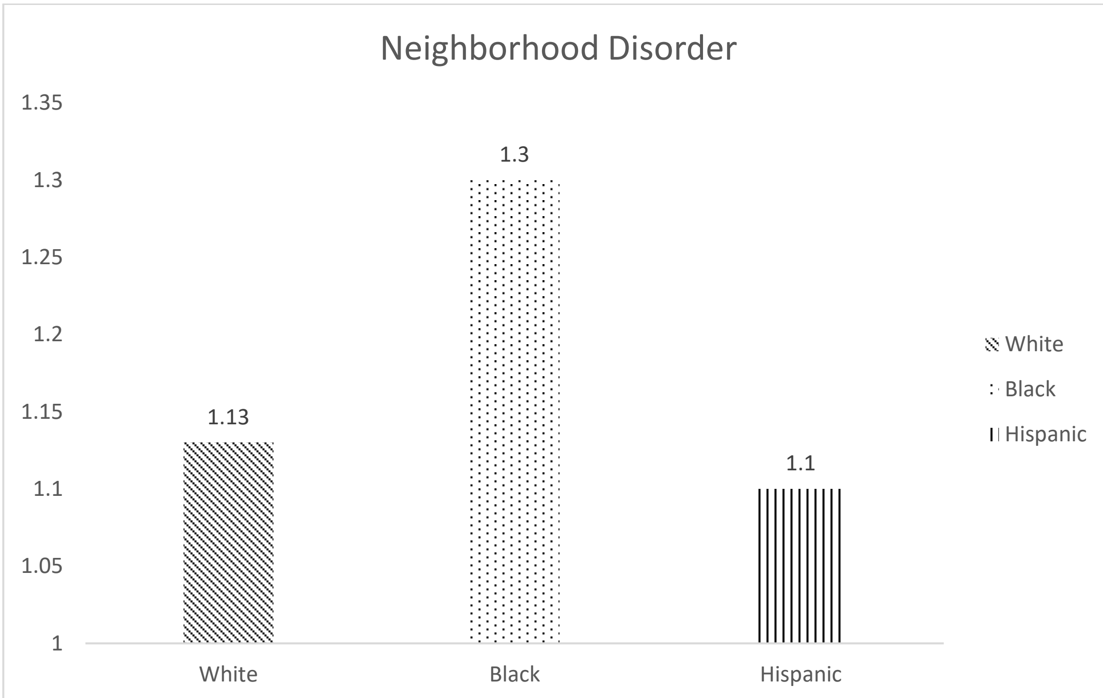
Appendix 3_B. T Scores, Clinical Scores, and Borderline Scores of Children's Internalizing Problems by Race/Ethnicity



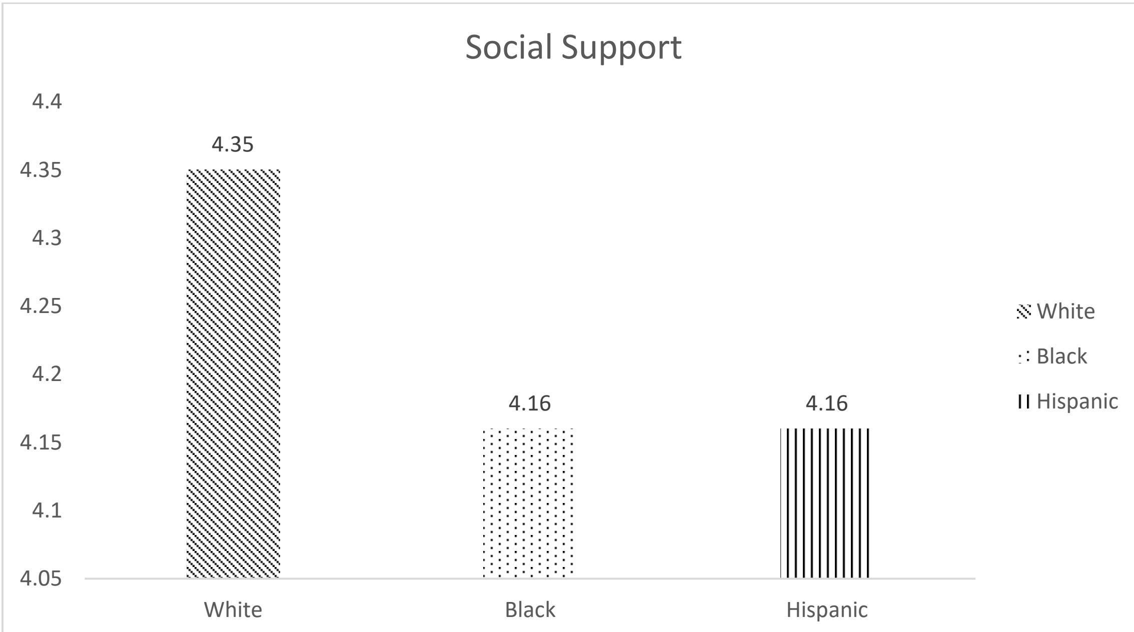
Appendix 3_C.  T Scores, Clinical Scores, and Borderline Scores of Children's Externalizing Problems by Race/Ethnicity



Appendix 3_D. Neighborhood Disorder by Race/Ethnicity



Appendix 3_E. Social Support by Race/Ethnicity



Appendix 3_F. Predictors of Children's Internalizing Problems without Mediation (N = 263)

| | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | Without mediation and moderation | | | Without mediation but with moderation | | |
| Variables | B | P | 95% CI | B | P | 95% CI |
| Neighborhood disorder | 4.14 | 0.143 | [-1.44, 9.72] | 1.54 | 0.743 | [-7.80, 10.89] |
| Social support | -6.39 | <0.001*** | [-9.09, -3.70] | -7.13 | < 0.001*** | [-10.27, -3.99] |
| Child race/ethnicity (ref. White) | | | | | | |
| Black Non-Hispanic | -4.99 | 0.039* | [-9.73, -0.25] | -21.63 | 0.149 | [-51.21, 7.95] |
| Hispanic | -8.09 | <0.001*** | [-11.91, -4.27] | 0.14 | 0.989 | [-19.73, 20.00] |
| Black x Neighborhood disorder | - | - | - | 5.68 | 0.370 | [-6.89, 18.25] |
| Hispanic x Neighborhood disorder | - | - | - | -5.12 | 0.482 | [-19.59, 9.35] |
| Black x Social support | - | - | - | 2.15 | 0.423 | [-3.17, 7.46] |
| Hispanic x Social support | - | - | - | -0.85 | 0.654 | [-4.65, 2.94] |
| Child age | -0.07 | 0.772 | [-0.58, 0.43] | 0.06 | 0.833 | [-0.53, 0.66] |
| Child sex (ref. male) | 1.00 | 0.647 | [-3.35, 5.36] | 0.78 | 0.699 | [-3.24, 4.81] |
| Child maltreatment (ref. neglect) | | | | | | |
| Physical | 1.07 | 0.656 | [-3.71, 5.86] | 0.86 | 0.734 | [-4.18, 5.89] |
| Sexual | 5.17 | 0.022 | [0.77, 9.57] | 6.35 | 0.005** | [2.04, 10.66] |
| Other | 0.65 | 0.782 | [-4.00, 5.30] | 0.20 | 0.922 | [-3.96, 4.37] |
| Child special needs | 6.49 | 0.077 | [-0.73, 13.70] | 6.47 | 0.069 | [-0.52, 13.47] |
| Caregivers' age (ref. < 54) | -0.14 | 0.897 | [-2.34, 2.05] | -3.75 | 0.003* | [-6.17, -1.33] |
| Caregivers' sex (ref. male) | 1.97 | 0.403 | [-2.71, 6.66] | 2.00 | 0.337 | [-2.13, 6.13] |
| Caregivers' education (ref. high school or less) | 3.40 | 0.078 | [-0.39, 7.19] | 2.47 | 0.222 | [-1.53, 6.47] |
| Caregivers' employment (ref. unemployed) | -0.74 | 0.761 | [-5.57, 4.10] | -1.37 | 0.555 | [-5.97, 3.24] |
| Number of children in the household | -1.25 | 0.014* | [-2.24, -0.26] | -1.34 | 0.011* | [-2.36, -0.31] |
| Household poverty (ref. below poverty) | 7.02 | 0.002* | [2.61, 11.43] | 7.24 | 0.001** | [3.04, 11.43] |
| R square | | | 0.46 | | | 0.48 |

Note: * p < 0.05; ** p < 0.01; *** p < 0.001

Appendix 3_G. Predictors of Children's Externalizing Problems without Mediation (N = 263)

| | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | Without mediation and moderation | | | Without mediation but with moderation | | |
| Variables | B | P | 95% CI | B | P | 95% CI |
| Neighborhood disorder | 2.81 | 0.416 | [-4.05, 9.67] | 5.60 | 0.215 | [-3.34, 14.54] |
| Social support | -5.94 | <0.001*** | [-8.80, -3.09] | 5.60 | <0.001*** | [-9.02, -3.44] |
| Child race/ethnicity (ref. White) | | | | | | |
| Black Non-Hispanic | 1.51 | 0.571 | [-3.78, 6.80] | -8.11 | 0.622 | [-40.82, 24.61] |
| Hispanic | -5.92 | 0.002** | [-9.60, -2.24] | 15.80 | 0.202 | [-8.70, 40.30] |
| Black x Neighborhood disorder | - | - | - | -1.64 | 0.813 | [-15.47, 12.18] |
| Hispanic x Neighborhood disorder | - | - | - | -11.12 | 0.147 | [-26.26, 4.02] |
| Black x Social support | - | - | - | 2.62 | 0.341 | [-2.84, 8.08] |
| Hispanic x Social support | - | - | - | -2.41 | 0.262 | [-6.66, 1.84] |
| Child age | 0.01 | 0.972 | [-0.64, 0.66] | 0.10 | 0.789 | [-0.62, 0.81] |
| Child sex (ref. male) | -1.61 | 0.505 | [-6.40, 3.19] | -2.01 | 0.358 | [-6.35, 2.33] |
| Child maltreatment (ref. neglect) | | | | | | |
| Physical | 3. 61 | 0.218 | [-2.18, 9.41] | 3.46 | 0.289 | [-3.00, 9.91] |
| Sexual | 1.60 | 0.553 | [-3.75, 6.95] | 2.20 | 0.408 | [-3.08, 7.48] |
| Other | -2.65 | 0.325 | [-8.00, 2.69] | -2.72 | 0.258 | [-7.48, 2.04] |
| Child special needs | 3.50 | 0.348 | [-3.88, 10.88] | 3.12 | 0.399 | [-4.22, 10.46] |
| Caregivers' age (ref. < 54) | -0.52 | 0.754 | [-3.85, 2.80] | -3.80 | 0.076 | [-8.02, 0.41] |
| Caregivers' sex (ref. male) | 1.74 | 0.557 | [-4.15, 7.63] | 1.82 | 0.486 | [-3.36, 7.00] |
| Caregivers' education (ref. high school or less) | 4.35 | 0.147 | [-1.57, 10.27] | 3.77 | 0.188 | [-1.88, 9.43] |
| Caregivers' employment (ref. unemployed) | -4.20 | 0.216 | [-10.90, 2.51] | -4.37 | 0.169 | [-10.65, 1.90] |
| Number of children in the household | 0.10 | 0.892 | [-1.32, 1.51] | -0.22 | 0.757 | [-1.62, 1.18] |
| Household poverty (ref. below poverty) | 2.87 | 0.298 | [-2.59, 8.32] | 2.99 | 0.228 | [-1.92, 7.91] |
| R square | | | 0.35 | | | 0.37 |

Note: * p < 0.05; ** p < 0.01; *** p < 0.001

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