

Title: Factors Affecting the Use of Hospice and Palliative Care among Adolescent and Young Adult (AYA) Cancer Patients

Background and Purpose:

The purpose of this study is to examine factors affecting the use of hospice and palliative care among adolescent and young adult (AYA) patients diagnosed with cancer. A secondary data analysis of an existing dataset from Dr. Jennifer Mack's study, "*Barriers to Hospice and Palliative Care Utilization among Adolescent and Young Adult Cancer Patients Living in Poverty*" (hereafter referred to as original study) will be conducted. Prior research on disparities in end-of-life care utilization provided ample evidence on the role of major contributors, such as race/ethnicity, socioeconomic status, hospice knowledge, to the utilization rate of hospice and palliative care. However, the previous studies examined such disparities mostly among older populations, and our knowledge is still limited for younger populations. As my literature review shows that no peer-reviewed article from the original study has been published investigating such contributors, it is necessary to investigate factors associated with the use of hospice and palliative care among AYA population so that targeted efforts could be made to promote hospice and palliative care utilization among eligible younger patients and ensure their quality of life when facing serious or terminal illnesses. Andersen's Behavioral Model for Healthcare Utilization can be a useful framework to examine such factors, as it proposes that people's use of healthcare services may be explained by three different domains of population characteristics: predisposing, enabling, and need factors. Predisposing factors are sociodemographic in nature. Enabling factors are personal, family or community resources that provide means to access and use healthcare services. Need factors are perceived or evaluated health conditions and are the most immediate and critical factors in determining health care utilization. The model posits that these three domains of population characteristics affect health service use, which affects health outcomes. These health outcomes then affect characteristics in each domain and health service use. The model has been widely used in examining disparities in various healthcare services including hospice and palliative care (Andersen, 1995; Andersen & Newman, 2005). Therefore, guided by the model, predictor variables that correspond to factors from each of the model's three domains will be selected and tested for association with outcome variables on hospice or palliative care utilization.

Hypotheses:

Hypothesis 1. Compared to non-Hispanic Whites, minority racial/ethnic AYA patients are less likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 2. Compared to younger patients, older AYA patients are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 3. Compared to male patients, female AYA patients are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 4. Compared to patients with less education, AYA patients with more education are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 5. Compared to patients with lower income, AYA patients with higher income are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 6. Compared to uninsured or Medicaid/safety net insurance patients, AYA patients with TRICARE or private insurance are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Hypothesis 7. Compared to patient with stage I through III cancer, AYA patients with stage IV are more likely to receive hospice referral, hospice enrollment, hospice care at time of death, palliative care consultation, and palliative care at time of death.

Methods:

Dependent Variables

The proposed study will look at 5 binary dependent variables: hospice referral, hospice enrollment, enrolled in hospice at time of death, palliative care consultation, and receiving palliative care at time of death.

Independent Variables

Independent variables are selected to represent domains of the theoretical model. Race/Ethnicity, age (at time of death) and gender are Predisposing factors. Education, income and insurance types are Enabling factors. Cancer Stage is a Need factor.

Analysis Plan:

Variables will be recoded. Race/ethnicity will be combined into 4 categories: Non-Hispanic White, Hispanic White, Black, and Others. Age (at time of death) will be categorized into 3 intervals: 15-22, 23-29, and 30-39 (youth between 15-22 are likely to live with and/or depend on their parents). Gender includes 2 response options: Male and Female. Education will be collapsed into 3 categories: 1) High school/GED or less, 2) some vocational/business/trade school or some college, and 3) college graduate or higher. In an attempt to create mutually exclusive categories, insurance types are grouped into 3 categories: 1) No insurance, 2) Medicaid/CHIP or other safety net insurance, and 3) TRICARE, private insurance or others. In the original study, household income was obtained from interviews with patients' caregivers. However, there were only 35 interviews conducted. For this reason, we will use zip code (of the patient's primary residence) median income adjusted by living expenditure (due to three different research sites) as a proxy for a patient's social-economic status. While this may be a coarse proxy, it is the best-bet estimate that could be obtained. Regarding cancer stage, responses will be grouped into 2 categories: stage I to III and stage IV. Lastly, indicators will be used to capture differences between study sites.

Categorical variables will be summarized with frequencies, which can be plotted in a Pareto chart (frequency and percentage on the left and right vertical axes, respectively, with a line superimposed to represent cumulative percentage). Contingency tables coupled with chi-square tests will be used for bivariate associations. Clustered bar charts and multi-level pie charts are the options for graphical presentation. Logistic regression will be used to explore whether the proposed independent variables are associated with each of the outcomes. Variance inflation factor (VIF) will be used to check for multicollinearity. Parameter estimates can be interpreted in terms of odds ratios. We will test if the effect of education is moderated by age. The hypothesis is that the effect of education can vary depending on whether AYA patients live with and/or depend on their parents. Before including *age*education* in the model, we will cross tabulate the interaction to verify no combinations have zero observations. The deviance statistic can be used to evaluate the goodness-of-fit. The fitted model will also be compared against the null model (that includes only the intercept).

References

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 36(1), 1–10.

Andersen, R. M., & Newman, J. F. (2005). Societal and individual determinants of medical care utilization in the United States. *The Milbank Quarterly*, 83(4).
<https://doi.org/10.1111/j.1468-0009.2005.00428.x>

BUDGET NARRATIVE
The University of Alabama

***Factors Associated with Hospice and Palliative Care Use among
Adolescent and Young Adult Patients***

PERSONNEL COSTS

Name	Position Title	% of FTE	Base Salary	Federal Amount Requested
Hyunjin Noh	PI	21%	89,992	6,374
Chuong Bui	Statistician	20%	77,735	3,794
Total				

Hyunjin Noh, PhD (PI) Dr. Noh is an Associate Professor in the School of Social Work at The University of Alabama. She will lead the execution of all project activities and supervise drafting and submission of project reports and publications. She will provide expertise, project management and coordination. Dr. Noh will dedicate 21% effort during the 3-month project (.63 calendar months). Base salary: \$89,992. Requested salary: \$6,374.

Dr. Chuong Bui, PhD (Co-Investigator) Dr. Bui serves as a Research Statistician at the Alabama Life Research Institute at the University of Alabama. He holds a PhD in Applied Economics with expertise in generalized linear (mixed) models, structural equation modeling, survival analysis, latent class analysis, statistical tests, power analysis, as well as data visualization. He will lead all quantitative data analysis, contribute to data interpretation, and participate in the production of manuscripts, conference presentations, and other dissemination opportunities. Dr. Bui will dedicate 20% calendar year effort (.6 Calendar months) to this project. Base salary: \$77,735. Requested salary: \$3,794.

Total Requested Salaries: \$10,169

FRINGE BENEFITS

The proposal fringe benefit rate of 32% is an ESTIMATE of the actual costs that might be charged, based on an average of UA's actual cost experience. ACTUAL fringe charges will be based on an individual's election and may, therefore, vary significantly from the estimate used in the proposed budget. Costs in Fringe Benefit Rate Include: Social Security (FICA), retirement, Workman's Compensation, Health/Hospitalization Insurance, Unemployment Insurance and Total Disability Insurance. Employee personal withholding and deductions are not included in fringe calculations.

Total Requested Fringe: \$3,254

INDIRECT COSTS

The on-campus indirect rate is set at 49% of modified total direct costs (MTDC), per the current rate agreement between the University of Alabama and the U.S. Department of Health and Human Services (DHHS), signed 01/15/2019. (Under the terms of the rate agreement, equipment, capital expenditures, charges for patient care, tuition remission, rental costs, scholarships and fellowships, as well as the portion of each subcontract in excess of \$25,000 are excluded from modified total direct costs.) For this project, the estimated indirect costs will be \$6,577.

TOTAL DIRECT COSTS: \$13,423
TOTAL INDIRECT COSTS: \$6,577
TOTAL PROJECT COSTS: \$20,000

TIMELINE OF STUDY ACTIVITIES

Timeline of Study Activities	Month 1		Month 2		Month 3	
	Week 1-2	Week 3-4	Week 1-2	Week 3-4	Week 1-2	Week 3-4
Data preparation for analysis						
Descriptive analysis						
Logistic regression analysis						
Summary and visualization of results						
Drafting final reports						
Manuscripts for submission to peer-reviewed journals						

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Hyunjin Noh

eRA COMMONS USER NAME (credential, e.g., agency login): HYUNJIN_NOH

POSITION TITLE: Associate Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Seoul National University, Korea	B.A.	02/00	Social Welfare
Seoul National University, Korea	M.A.	08/03	Social Welfare
University of Wisconsin-Madison	M.S.S.W.	12/05	Social Work
University of Wisconsin-Madison	Ph.D.	08/12	Social Work

A. Personal Statement

I have the content and methodological expertise, training, and experiences as lead investigator that are needed to successfully conduct this proposed secondary data analysis project, "Factors Affecting the Use of Hospice and Palliative Care among Adolescent and Young Adult (AYA) Cancer Patients." I have research background in health disparities and social work with a focus on end-of-life and palliative care. My research areas include end-of-life care decision making, pain and symptom management in rural communities, palliative care education, and racial disparities in end-of-life care. I have authored or co-authored multiple secondary data analysis articles on end-of-life care and advance care planning using the statewide (Alabama Long-Term Care Needs Survey) and nationwide datasets (NHATS) as well as survey data collected by individual studies. I have also conducted several, internally or externally funded research studies utilizing mixed-methods or qualitative methods. I have over 20 published manuscripts on my research areas in collaboration with many researchers across disciplines. My most recent project was a pilot study of an educational intervention to improve palliative care knowledge among family caregivers of cognitively impaired older adults in Alabama: the effectiveness of this intervention has been reported in a peer-reviewed article (Noh et al., 2020). Another recent study I led quantitatively examined racial differences in experiences of pain and needs for pain management among community-dwelling older adults in rural areas, which developed into my current study of transportation barriers in pain management among rural residents in Alabama. My earlier research studies explored end-of-life decision making, such as hospice use (Noh and Schroepfer, 2015; Noh et al., 2017) and advance care planning (Noh et al., 2018). Therefore, I have experience and understanding needed for successfully leading the proposed secondary data analysis study through close collaboration with my statistician (Chuong Bui, PhD, at the Alabama Life Research Institute at the University of Alabama).

1. Suntai, Z., Noh, H., & Won, C. (2021). Examining Racial Differences in the Informal Discussion of Advance Care Planning among Older Adults: Application of the Andersen Model of Healthcare Utilization. *Journal of Applied Gerontology*. <https://doi.org/10.1177%2F0733464821993610>
2. Noh, H., Lee, L., & Won, C. (2020). Educational intervention to improve palliative care knowledge among informal caregivers of cognitively impaired older adults. *Palliative & Supportive Care*. 1-9. doi:10.1017/s1478951520001200.
3. Noh, H., Kim, J., Sims, O., Ji, S., & Sawyer, P. (2018). Racial differences in associations of perceived health and social and physical activities with advance care planning, end-of-life concerns and hospice knowledge. *American Journal of Hospice & Palliative Medicine*. 35 (1), 34-40.

4. Oh, H., Noh, H., Sims, O., Guo, Y., & Sawyer, P. (2018). A comparison of urban and non-urban African American older adults on health-related characteristics. *Social Work in Health Care*, 57 (9), 762-773.

B. Positions and Honors

Positions and Employment

2002	Research Assistant, Seoul National University, Seoul, Korea
2004	Research Assistant, Department of Family Services, State of Wisconsin, Madison, WI
2005-2011	Project Manager, University of Wisconsin-Madison, Madison, WI
2012	Adjunct Faculty, Georgia State University Gerontology Institute
2012-2018	Assistant Professor, The University of Alabama School of Social Work
2018-present	Associate Professor, The University of Alabama School of Social Work

Honors

2003	University Fellowship, Graduate School, University of Wisconsin- Madison (full tuition and stipend)
2011	Vilas Research Travel Award, University of Wisconsin-Madison
2012	Best Presentation Award, The 23rd Annual Southeastern Student Mentoring Conference in Gerontology & Geriatrics
2013-2015	Health Disparities Research Training Program, Deep South Resource Center for Minority Aging Research (RCMAR)
2016	President's Faculty Research Award, The University of Alabama
2019	Honorable Mention Poster Award: Excellence in Research, Social Work Hospice & Palliative Care Network's 7th General Assembly, March 17-19, 2019, Orlando, FL.
2020	Fellow, The Gerontological Society of America

C. Contributions to Science

1. Racial Disparities and Differences in End-of-Life Care Preferences

I have conducted multiple studies to examine potential contributors to racial differences in end-of-life care and advance care planning. I have published, as first or co-author, secondary data analyses to report racial differences in end-of-life care receipt, as well as advance care planning and hospice knowledge. Findings of the studies unanimously show racial differences in end-of-life care, related knowledge, and advance care planning, suggesting the need for tailored approaches to address misconceptions about end-of-life comfort measures and promote end-of-life communications among racial minority groups.

- a. Burgio, K. L., Williams, B. R., Dionne-Odom, J. N., Redden, D. T., Noh, H., Goode, P. S., Kvale, E., Bakitas, M., & Bailey, F. A. (2016). Racial differences in processes of care at end of life in VA medical centers: planned secondary analysis of data from the BEACON trial. *Journal of Palliative Medicine*. 19(2), 157-163.
- b. Noh, H., Kim, J., Sims, O., Ji, S., & Sawyer, P. (2018). Racial differences in associations of perceived health and social and physical activities with advance care planning, end-of-life concerns and hospice knowledge. *American Journal of Hospice & Palliative Medicine*. 35 (1), 34-40.
- c. Kwak, J., Cho, Y., Lee, Y., Noh, H., & Roh, S. (2019). Differences in Advance Care Planning between American Indian and White Older Adults. *Research in Gerontological Nursing*. 12 (1), 34-43.
- d. Suntai, Z., Noh, H., & Won, C. (2021). Examining Racial Differences in the Informal Discussion of Advance Care Planning among Older Adults: Application of the Andersen Model of Healthcare Utilization. *Journal of Applied Gerontology*. <https://doi.org/10.1177%2F0733464821993610>

2. Pain Management and Palliative Care in Rural Communities

Patients in Alabama, where the majority of counties is rural, experience a distinct set of impediments to optimal pain and symptom management due to various issues, such as limited availability of specialists and facilities for pain treatment, lack of transportation, lack of health literacy, and limited income, to name a few. To explore existing models of community-based pain management and palliative care, my colleagues and I conducted and published a systematic review. This review developed into a mixed-methods study I led to examine pain and its treatment and needs for community-based pain treatment services in rural areas from perspectives of patients, family caregivers, and service providers. My research team reported

our findings in the national conferences, with manuscripts currently in preparation. To further investigate the issue of transportation barriers found in the study, I co-authored a systematic review on the issue and recently launched a research project as PI on transportation issues in palliative care in rural areas. Additionally, to address the palliative care informational needs of many family caregivers interviewed in my prior study, I designed and conducted a pilot study to explore the effectiveness of an educational intervention in improving palliative care knowledge among family caregivers of cognitively impaired older adults. I am PI on all of the studies.

- a. Noh, H., De Sayu, R., Anderson, K., & Ford, C. (2016). Community-based participatory research on issues around palliative and end-of-life care: literature review. *Journal of Hospice & Palliative Nursing*. 18(3), 249-255.
- b. Noh, H., Halli, A., & Lee, L. (2019). Association between Level of Pain and Depression among Chronically Ill Older Adults in Rural Alabama. Poster presented at the Gerontological Society of America's 71st Annual Scientific Meeting, Austin, Texas, November 13-17, 2019.
- c. Suntai, Z., Won, C., & Noh, H. (2020). Access Barrier in Rural Older Adults' Use of Pain Management and Palliative Care Services: A Systematic Review. *American Journal of Hospice & Palliative Medicine*. <https://doi.org/10.1177/>
- d. Noh, H., Lee, L., & Won, C. (2020). Educational intervention to improve palliative care knowledge among informal caregivers of cognitively impaired older adults. *Palliative & Supportive Care*. 1-9. doi:10.1017/s1478951520001200.

3. End-of-Life Communications and Decision-Making

To explore strategies to address challenges in end-of-life discussion and promote open communications and informed decision-making about end-of-life care, I led a study to examine end-of-life care service providers' perceptions of information needs and areas of desired control among seriously ill individuals. In addition, my colleagues and I published articles examining end-of-life communications and decision-making in three special populations: caregivers of dementia patients, youth caregivers of Huntington's Disease patients, and families of VA patients who died during hospice or palliative care discussions. The findings of these studies highlight the urgent need for timely end-of-life discussions and provision of tailored information and education for patients and families with different disease trajectories. To further develop this body of my research, I led a mixed-methods study on advance care planning for cognitively impaired older adults in Alabama and am in the process of manuscript preparation.

- a. Noh, H., & Schroeffer, T.A. (2015). Terminally ill African American elders' access to and use of hospice care. *American Journal of Hospice and Palliative Medicine*. 32(3), 286-297.
- b. Noh, H., Guo, Y., Halli-Tierney, A., & Anderson, K. (2017). Hospice staff perceptions of information needs among patients and families during hospice admissions visits. *Journal of Hospice & Palliative Nursing*. 19 (1), 82-99.
- c. Noh, H., & Kwak, J. (2018). End-of-life decision making for persons with dementia: proxies' perception of support. *Dementia: The International Journal of Social Research and Practice*. 17 (4), 478-493.
- d. Noh, H. (2019). Areas of control desired by patients and families referred to hospice care: perspectives of hospice admissions staff. *Journal of Applied Gerontology*. 38(5), 656-672

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/1DaEcoPGirm5B/bibliography/public/>

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

1. Oct 2019 –
Alabama Transportation Institute Faculty Research Grant (\$39,752)
Transportation and Pain and Symptom Management in Rural Alabama
PI: Hyunjin Noh

Completed Research Support

1. Oct 2018 – Nov 2019
CSU Palliative Care Institute Seed Grant (\$9,962)
Palliative Care Knowledge, Attitudes and Needs among Caregivers of Cognitively Impaired Older Adults

PI: Hyunjin Noh

2. Aug 2018 – May 2019
Community Engagement Graduate Fellowship (\$41,100)
Promoting Advance Care Planning for Persons with Dementia
PI: Hyunjin Noh; Co-PI: Nicole Ruggiano
3. June 2017 – June 2018
The University of Alabama – Pickens County Partnership Grant (\$25,000)
Understanding Pain Management Needs among Community Dwelling Older Adults with Chronic Illness
PI: Hyunjin Noh; Co-PI: Anne Halli-Tierney
4. July 2015 – June 2018
Deep South RCMAR Pilot Grant/National Institute on Aging (\$50,000)
Understanding Perceptions of Advance Care Planning by Race and Health Status
PI: Hyunjin Noh
5. Aug 2013 – Nov 2015
The University of Alabama Research Grant Committee Award (\$5,996)
Hospice Staff Perceptions of the Influence of Pre-enrollment Visits in Decisions to Choose Hospice Care among Seriously Ill African Americans
PI: Hyunjin Noh
6. Nov 2011– May 2012
Robert Wood Johnson Foundation Health & Society Scholars Program Population Health Dissertation Grant (\$6,000)
Terminally Ill African American Elders' Choice to Receive Hospice Care
PI: Hyunjin Noh

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: CHUONG BUI

eRA COMMONS USER NAME (credential, e.g., agency login): CNBUI06

POSITION TITLE: Research statistician

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Nha Trang University, Vietnam	Bachelor	07/2009	Business Administration
University of Tromsø, Norway	M.Sc.	06/2011	Economics
Auburn University, USA	Ph.D.	05/2018	Applied Economics

A. Personal Statement

I work full-time at the Alabama Life Research Institute (ALRI) at The University of Alabama as a Research Statistician whose responsibilities include assisting grant proposals and analyzing data for post-award studies. I have assisted in a number of grant proposals, in which I consulted on study design, analytic plans and power analysis. I contribute to post-award studies through data management, statistical analysis and facilitating development of presentations and manuscripts. Engaging on a daily basis in data analysis, I have extensive experience in analysis of both cross-sectional and longitudinal data (including growth curve, latent change score, and mediation analysis). I am well-versed in mixed-effect models, structural equation modeling, survival analysis, latent class analysis, regularization, and machine learning (e.g., random forest, clustering). In addition to analytical skills, I possess project management skills to handle multiple time-sensitive projects in a timely manner. I'm an experienced SAS (and HLM) user with working knowledge of R, Mplus and Tableau.

I am enthused to work in the proposed project well prepared to carry out the statistical as outline in the application. I will participate in study reports, manuscripts, conference presentations, and other dissemination opportunities as appropriate.

B. Positions and Honors**Position and Employment**

2009-2011 Research Assistant, Faculty of Biosciences, Fisheries and Economics, University of Tromsø
 2011-2013 Quantitative Analyst, WorldFish Philippines
 2013-2018 Research Assistant, Department of Agri. Economics and Rural Sociology, Auburn University
 7/2018-present Research Statistician, Alabama Life Research Institute, The University of Alabama

C. Contributions to Science

I contribute to research primarily as a statistician whose responsibilities include data management, statistical analysis and facilitating development of presentations and manuscripts. I have expertise in a variety of methods including mixed-effect models, structural equation modeling, survival analysis, latent class analysis, regularization, and machine learning (e.g., random forest, clustering). Studies for which I served as statistician include the following:

Mixed-effect models

- a. Lochman, J. E, Vernberg, E., Glenn, A.,..., & **Bui, C.** (2021). Effects of Autonomic Nervous System Functioning and Tornado Exposure on Long-Term Outcomes of Aggressive Children. *Research on Child and Adolescent Psychopathology*. doi: 10.1007/s10802-020-00753-1.
- b. Taylor, W. C, **Bui, C.**, Paxton, R. J., Maity, S., Walker, T. J., Robertson, M. C., Sadruddin, S. M., Hare-
Everline, N., & Craig, D. W. (2021). A systematic evaluation of six different physical activity routines: A strategic science approach. *Translational Journal of the American College of Sports Medicine*, 2021 6(1): 1-13
- c. Paxton, R. J., **Bui, C.**, Fullwood, D., Stolley, M., Oliver, J. S., Wang, K., & Dubay J. W. (2020). Are physical activity and sedentary behavior associated with cancer-related symptoms in real time? A Daily diary study. *Cancer Nursing*. 2020 Nov 4. doi: 10.1097/NCC.0000000000000908.
- d. Lochman, J. E., Glenn, A. L., Powel, N. P., Boxmeyer, C. L., **Bui, C.**, Kassing, F., Qu, L., Romero, D. E., & Dishion, T. (2019). Group versus individual format of intervention for aggressive children: Moderators and predictors of outcomes through four years after intervention. *Development and Psychopathology*, 2019: 1-19.

Generalized Estimating Equations

- a. Thoma, S. J., Scofield, J., May, K., Hartin, T., & **Bui, C.** (2021). Judging Character: How valence and domain support character judgments in children and adult. *Cognitive Development*, 58 (2021) 101014.
- b. May, K., Chapman, M., Scofield, J., DeCoster, J., & **Bui, C.** (2020). Does group membership affect children's judgments of social transgressions? *Journal of Experimental Child Psychology*, 189 (2020) 104695.

Generalized linear regression

- a. Nguyen, T. A. T., Nguyen, K. A. T., **Bui, C.**, Jolly, C.M., & Nguelifack, B. M. (2021). Shrimp farmers risk management and demand for insurance in Ben Tre and Tra Vinh provinces in Vietnam. *Aquaculture Reports*, 19 (2021) 100606.
- b. Nguyen, K. A. T., Jolly, C. M., **Bui, C.**, & Le, T. (2016). Aquaculture and poverty alleviation in Ben Tre Province, Vietnam. *Aquaculture Economics & Management*, 20: 82-108.

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing research support:

1. Project title: **Facial Affect Sensitivity Training for young children with CU traits**

Begin-End Dates: 02/06/2020 - 1/31/2022; Project #: 1R61MH117192-01A1; Amount: \$380,283

Lead Principal Investigator: Bradley White (University of Alabama)

My role: Co-I

Sponsor agency: National Institute of Health

2. Project title: **Assessing the Malleability of Spatial Abilities in Individuals with Down Syndrome**

Begin-End Dates: 04/01/2020 - 3/31/2023; Award #: 1R15HD100851-01; Amount: \$441,520

Lead Principal Investigator: Edward Merrill (University of Alabama)

Role: Co-I

Sponsor agency: National Institute of Health

3. Project Title: ***An Evaluation of Alabama's Treatment Courts: Do Drug Courts Help to Eradicate Opioid Abuse?***

Lead Principal Investigators: John Lochman & Nicole Powell (University of Alabama)

Begin-End Dates: 01/01/2019 - 12/31/2022; Amount: \$160,000

My role: Statistician

Sponsor agency: Department of Justice (subaward through Alabama Administrative Office of the Courts)

4. Project title: ***Lifestyle Interventions for High-Risk Cancer Survivors and Non-Cancer Controls***

Lead Principal Investigator: Raheem Paxton (University of Alabama)

My role: Statistician

Sponsor agency: Industry-funded (NSA – The Makers of Juice Plus)

5. Project title: ***The Mind and Mentors Program (MIMP)***

Lead Principal Investigator: Mercy Mumba (University of Alabama)

Begin-End Dates: 9/28/2019 - 8/31/2021; Project #: 1R61AT010802-01; Amount: \$783,788

My role: Monitoring Committee member

Sponsor agency: National Institute of Health

Past research support:

1. Project title: *Head Start University Partnerships: Dual Generation Approaches*

Lead Principal Investigator: Ansley Gilpin (University of Alabama)

Role: Statistician

Sponsor agency: National Institute of Health

2. Project title: *Individual and Group Intervention Formats with Aggressive Children*

Lead Principal Investigator: John E. Lochman (University of Alabama)

Role: Statistician

Sponsor agency: National Inst. of Drug Abuse and National Inst. of Child Health & Human Development