

**Adverse Childhood Experiences and children's long-run outcomes:
The buffering role of community participation**

Master's Thesis

Name: Aya Kato

Student number: 747639

Thesis supervisor: Prof. Gabriele Mari

Word count: 8,163 words

Date: 20/06/2025

Abstract

Adverse Childhood Experiences (ACEs) is one of the social issues in the United States. Although there are some studies examining ACEs' negative effects on people, there are still few researches about long-term effects of ACEs and how this society tackles this problem and cuts off the negative cycle of the ACEs. This study examined the long-term effects on educational attainment and mental health of young adults with adverse experiences in their childhood and a buffering effect of community participation. Linear regression model was used to observe association between ACEs and outcomes, and in the model with interaction terms of ACEs and community participation, if community participation can mitigate ACEs' negative effects on outcomes was examined. While some negative association between ACEs and both outcomes were observed, no statistical evidence of a moderator effect of community participation was found. Based on the results, the importance of management of community activities and other possible ways of intervention was suggested.

Key words: ACEs, long-term effects, community participation, buffer, social/cultural capital

1. Introduction

Families play many roles in raising children, from supporting their development to nurturing their physical and mental health, to the transmission of values (Hammond et al., 2021). In turn, adversities within the family environment can have lasting effects on children. For example, previous studies about Adverse Childhood Experiences (ACEs), which comprise indicators of family instability and trauma including domestic violence, physical and emotional abuse, and parental incarceration, revealed that there is a significant association between having experienced ACEs before 5 years old and socio-emotional difficulties, as well as the likelihood of ADHD diagnosis in their middle childhood (Hunt et al., 2017). Choi et al. (2019) showed that ACEs also have long-run impacts. For one, students exposed to ACEs in their early childhood tend to have higher likelihood to be disciplined and suspended in high school (Pierce et al., 2022).

Whilst plenty of empirical evidence shows that children have a high chance of being exposed to a similar type of adverse experience compared to their parents (Coneus & Spiess, 2012; Almquist & Brannstrom, 2018), only a few studies have examined what kind of factors can cut off this intergenerational cycle, or what can act as a buffer to prevent these childhood experiences from having negative impacts on children's later lives. To fill this gap, this research will examine how ACEs affect children's lives in the long run focusing on whether participation in communities beyond the family and school environment can mitigate the impact of ACEs.

The importance of participation in communities can be grasped based on the concept of social capital and cultural capital. Social capital refers to the value of social networks (Dekker &

Uslaner, 2001) such as information, trust, and norms. There are several types of social capital, e.g., strong relationships between people who have similar backgrounds and interests, typically family and friends, is referred to as bonding social capital, which tends to be inward-looking and protective, and it provides material and emotional support (Claridge, 2018). Cultural capital is a set of cultural competencies which makes it possible for people to engage in a wide variety of cultural activities (Goulding, 2008). By interacting with people through their shared cultural characteristics, cultural capital enables people to have fulfilling interaction with others (Reed & Jhonson, 2023), building up a shared knowledge and cultural experiences, and generating expanded opportunities in their lives. It is said that cultural capital is acquired through identification with the important adults in people's lives (Bandura & Huston, 1961), such as through cultural activities in families, through interaction with adults who are important for them, or through formal educational situations (Reed & Johnson, 2023).

Both of these forms of capital are often acquired through interactions with family members, friends, and other children and adults. Therefore, it is possible that obtaining social and cultural capital through participation in communities can buffer the negative effects of ACEs, i.e., children might acquire a sense of security and a wider range of opportunities than what could be possible in families navigating adversity. Also, although schools can provide a community where children can accumulate social and cultural capital, ACEs limit students' school engagement (Pierce et al., 2022). Hence, this study will focus on communities beyond the family sphere and the school environment.

In the US, approximately 560,000 children were victims of abuse and neglect in 2022 (ACF, 2022). Although the number of victims has been slightly decreasing, it is regarded as one of the urgent social problems since the number of victims is equal to 8 children out of every thousand. The US government provides some prevention services and post-response services, however, there are still rooms to be improved. For example, psychological and systemic support will be needed although the government focuses on physical support such as child removal from home. Also, the support for children who were exposed to other adverse experiences than child abuse and neglect. In order to decrease the number of victims and foster constructing institutional support, the investigation of effects of ACEs and the factor which can be a buffer is necessary.

The Future of Families and Child Wellbeing Study is a national urban birth cohort, which consists of interviews of parents, and/or primary caregivers, and children about comprehensive family situations. The data collection has been conducted at children's born, and children turned 1, 3, 5, 9, 15, and 22 years old, meaning longitudinal data, therefore it can be a suitable data set to examine the long-run effects of ACEs on children in the US context.

2. Theoretical Background

2.1. Adverse Childhood Experiences

ACEs can be broadly defined as events which are stressful or traumatic and are experienced in people's early life course (Felitti et al., 1998). Typically, these traumatic events are measured within families. In line with previous research, ACEs can include; physical abuse, psychological abuse, physical neglect, emotional neglect, divorce or separation, mental health, substance use, parental incarceration, domestic violence.

Many studies have shown that ACEs have negative and lasting effects on the health, well-being, and opportunities available to children. Specifically, the effects in the cognitive, emotional, and social sphere, with respect to physical and mental health, and to socio-emotional difficulties (Pierce et al., 2022), since ACEs challenge the social and emotional development of children (Blodgett, 2012).

Also, studies have found that people who were exposed to several ACEs are most affected (Mersky et al., 2013). This is in line with the idea of cumulative disadvantages, as multiple ACEs leave imprints cumulatively and have negative impacts in the future (Almquist & Brannstrom, 2018). In addition, exposure to one ACE is significantly related to additional exposure, so if people experienced one ACE, it means they have a high possibility of being exposed to several ACEs (Dong et al., 2004).

About the timing of exposure to ACEs, many studies have shown that ACEs experienced at 5 years-old or younger are highly associated with negative outcomes in adolescence (Almquist & Brannstrom, 2018). It is because ACEs exposed in early childhood affect the development and structure of children's brain, which increases the likelihood of suffering from depression and mental ill health in adolescence or adulthood (Anderson & Teicher, 2008). Complexity of ACEs such as number of experiences, interrelation between ACEs, and timing are therefore necessary to consider the effects of ACEs.

2.2. The Role of Community Participation

Community participation can offer positive effects for people who have been exposed to ACEs.

Social capital and cultural capital can explain the benefits people gain through the interaction in communities. Social capital can be distinguished by two types; bonding social capital and bridging social capital. Bonding social capital is cultivated within high density relationships sharing similar backgrounds and interests by frequent interactions, such as families and friends. People can receive social support within this type of relationships since it enables people to get access to favors, information, and emotional support (Claridge, 2018). Another type of social capital is bridging. It refers to the connections between people belonging to different

types of groups. Bridging social capital can allow people to exchange their values, knowledges, so people will attain some abilities such as to gather information and to recognize new opportunities (Adler & Kwon, 2002).

Cultural capital is often referred to as the abilities that people need to obtain to participate in cultural activities (Goulding, 2008), i.e., based on their cultural capital, people will connect with each other, exchange values, and share characteristics. Cultural capital can be separated into three types of form. Objectified cultural capital indicates the material objects showing their social class such as books, computers, and arts. The second form is institutionalized cultural capital, which is recognition granted by an institution including academic degrees and job titles. Embodied cultural capital is the last one. It refers to the knowledge acquired over time through socialization and education, such as mastery of a language and matters. (Reed & Johnson, 2023). In other words, they can become both of people's subconscious dispositions and their social expression such as interests, hobbies, and occupations. Cultural capital is acquired, passed, and exchanged through people's interactions. As Bandura and Huston (1961) mentioned, interaction with adults who can have deep communication with children is effective for children to obtain cultural capital including parents and adults in an educational environment (Reed & Johnson, 2023).

From these perspectives, social capital and cultural capital are both cultivated through interactions with adults and friends who children can feel intimacy with and adults and children with different values. Therefore, it can be said that children can acquire them in appropriate environmental communities.

2.3. ACEs and Social / Cultural Capital

According to Blodgett (2013), obtaining and cultivating resilience is essential for children who have been exposed to ACEs to control their situations, and it is encouraged through emotional safety, interaction with people, and opportunities to learn and contribute to others. In other words, resilience can be described as individuals' abilities of navigation and negotiation with their resources in themselves, families, and community within the situation where they face significant adversity (Zimmerman, 2013). Especially, problem solving skills, self-regulation, and relationships with caring adults can contribute to cultivating children's resilience, and it has been revealed that resilience developed by them can make children have cognitive development, social and academic success, and good mental health conditions (SAMHSA, 2019).

In fact, Okwori (2022) revealed that ACEs are strongly and positively related to mental health symptoms and resilience can act as a buffer to combat these effects of ACEs on mental health, e.g., among children with more than 4 ACEs, the odds of depression decreased when they had community resilience.

Social capital and cultural capital refer to abilities, knowledge, and values to deal with a lot of situations or to have many opportunities in their lives, which are obtained through interaction with people. Thus, it can be regarded as a part of community resources which develop resilience

of children. Therefore, this paper analyzed if cultivation of social and cultural capital can combat ACEs' negative effects with the assumption of social capital and cultural capital as a part of community resources. As it was mentioned above, social and cultural capital are obtained through interaction with adults and friends who children can feel intimacy with and adults and children with different values, and it can be assumed that community activities which the data used in this study includes have opportunities for children to meet these kinds of people, hence, community participation was used as a proxy variable of social and cultural capital.

3. Data and Method

3.1. Data

This study used the Future of Families and Child Wellbeing Study (FFCWS), which was formerly known as the Fragile Families and Child Wellbeing Study. It has a nationally-representative sample of nearly 5000 children born in large U.S. cities between 1998 and 2000. The sample was selected by using a stratified random sampling design. After all 77 US cities having populations of 200,000 or more were stratified into nine types of environments according to the generosity of welfare benefits, the degree of child support enforcement, and the strength of the local labor market, 16 cities were selected based on environmental level and population size. Although this study oversampled children born to unmarried parents at a three-to-one ratio since originally it aimed to collect data around non-marital childbearing, the dataset is nationally-representative of birth after weighted (Wagmiller, 2010). The FFCWS consists of the phone or in-home interviews with mothers, fathers, and/or primary caregivers at birth and again when children are ages 1,3,5,9,15, and 22, and interview of children beginning from at 9-year-old.

3.2. Method

This study set these hypotheses to examine ACEs effects on outcomes and moderating effects of community participation.

- Community participation can cultivate social capital and cultural capital which develop resilience of children
- ACEs have negative effects on capability (educational attainment, mental health)
- Community participation can mitigate the negative effects of ACEs on outcomes

First, we observed correlations between ACEs and each outcome variable. To examine the long-run effects of exposure to ACEs on outcomes, regression analysis was operated. Educational attainment variable was coded as a binary variable, so linear probability model was used,

whereas for mental health, regular linear regression model was used. After conducting an analysis with an outcome variable and ACEs, and an analysis with some control variables, a moderator analysis was handled. An interaction variable between ACEs and community participation was added, and observed the additional effects of ACEs on outcomes when children participated in community activities.

4. Description of Measures

4.1. Adverse Childhood Experiences

In this study, 9 categories of ACEs at years 1, 3, and 5 in FFCWS were examined; physical abuse, psychological abuse, physical neglect, emotional neglect, substance use, incarceration, domestic violence, mental health (depression and/or anxiety), and divorce/separation. Data related to ACEs were taken in year 9 as well, but previous studies focused on early childhood adverse experiences as it has more impacts on people (Almquist & Brannstrom, 2018; Hunt et al., 2017), therefore, this study also focuses on their experiences by year 5.

Physical abuse was measured in years 1, 3, and 5. In year 1, father and mother were asked “Have you spanked a child in last month?” In years 3 and 5, they answered these questions; The frequency of the past year you have “spanked child on bottom with bare hand,” “hit child on the bottom with belt or hand object,” “spalled child on the hand, arm, or leg,” “pinched child,” and “shook child.” If parents answered yes to any question in year 1 and reported these things happened at least once, they were coded as 1.

psychological abuse was asked in year 3 and 5. Parents were asked in the last year how many times have you “shouted, yelled, or screamed at child,” “threatened to spank/hit child but did not,” “swore or cursed at child,” “called child dumb or lazy or similar name,” and “said would send child away or kick out of house.” They were coded in the same way with physical abuse.

Physical neglect and emotional neglect also used the same way with physical and psychological abuse. Questions were as follows; in the past year the frequency of they have “left child home alone when some adults should be with them,” “not be able to make sure child got food needed,” “not able to take child got to a doctor/hospital,” and “been so drunk/high had problem taking care of child” for physical neglect. For emotional neglect was reported by the question; they weren't “able to show or tell child you loved child.”

Substance use was reported in year 1, 3, and 5. In year 1, mother and father were asked; “in past month did you smoke marijuana or pot,” “did you use cocaine/crack/speed/LSD/heroin/other hard drug,” “since child’s birth, has drinking/drugs interfered with your manage daily,” “with your personal relationships,” “since child’s birth, have you sought help/been treated for

drug/alcohol problem.” Mothers were asked if “father have problems keeping job/getting along because of drugs/alcohol.” In year 3 and 5, parents responded questions; In the past year did you used “sedatives,” “tranquilizers,” “amphetamines,” “analgesics,” “inhalants,” “marijuana,” “cocaine,” “LSD/hallucinogens,” “heroin,” and “did drug use interfere with works/school/home life” for drug use. For heavy drinks, we used the question; “in the past year, how often had 4 or more drinks in one day.” If respondents reported yes to at least one yes/no question, and answered almost every day to how often they drink 4 or more drinks, household substance use was coded as 1.

Incarceration was measured in years 1,3, and 5. In year 1 and 3, if father was in jail at each year's interview. In year 5, mothers and fathers were asked; have they “spent any time in jail in the last 2 years.” Household incarceration was coded as 1 if any of the questions were answered yes.

Domestic violence was reported by the same questions in years 1,3, and 5. It was reported by if mothers experienced the emotional, physical, and sexual abuse by children’s father or their partners. Questions were as follows; During the last month, they “force you to have sex/do sexual things,” “slap or kick you,” “hit you with fist or dangerous object,” try to isolate you from friends/family,” “try to prevent you from going to work/school,” and “withhold/try to control your money.” If women answered they have experienced these kinds of abuse, the household domestic violence was regarded as yes; coded as 1 regardless the frequency.

Household mental illness was recorded in years 1,3, and 5. In all years if parents meet depression criteria was reported and in years 1 and 3, whether they meet anxious criteria was also recorded. When any person meets any criteria, the household mental health situation was recorded as bad (coded as 1).

The last category is divorce/separation. In all these years, mothers were asked about their relationship with their child's fathers at the interviews. If they chose divorce/separation, this variable was coded as 1.

In order to score children's adverse experiences, cumulative ACEs score was created. If children have experienced each category’s types of experiences in any of these years, this category was coded as 1. Cumulative score was calculated by sum up of all categories’ score, which means maximum score would be 9, e.g., if a child experienced physical abuse at any of these years by 5, it would be coded as 1, and cumulative ACEs score by year 5 will be reported by adding every category’s score (0 or 1). In addition, categorical ACEs score was constructed to see the trend briefly by consolidating 4 or more ACE scores into one group as an extreme adversity; no ACE, 1 ACE, 2 ACEs, 3 ACEs, and 4+ ACEs.

4.2. Outcomes

Capability approach is based on the concept that well-being can be understood in terms of people's capabilities (Sen, 1992), which means having a range of choices makes people feel well-beings. It is useful when the effects of interventions are investigated in sociological and welfare contexts.

In many studies examining the effects of ACEs, exposure to ACEs have short and/or long run impacts on people's mental health situations (Tan, 2020; Houry & Mercy, 2019), as it can be said that if children are exposed to adverse experiences, it affects their well-being. In addition, education is the one of the biggest ways to make people empowered and to lead to their well-being by giving a lot of opportunities (APA, 2012). Also, a study indicated that dropout from a high school can be the expression of stress and risks which students have had through their schooling life (Hammond et al., 2007). Based on these perspectives and the concept of capability, mental health situations and educational attainment will be outcome variables in this study.

4.2.1. Educational Attainment

These data were reported from the interview in year 22. Young adults were asked their educational situation at year 22, and less than high school was coded as 0, and graduation from high school or more were coded as 1 to make a binary variable.

4.2.2. Mental Health

Young adults' mental health situations were also asked in year 22. They were asked if they "felt sad or depressed for 2 weeks or more," for depression, and "one or more month or more if worry anxiety in the past 12 months," for anxiety, and if so, experiences of specific symptoms were examined such as frequency of the feeling sad, loss of interest, and easily tired for depression, and worries more than others and difficulty to control their anxious for anxiety. If they answered yes to the yes/no questions and high frequency were observed, they were coded as 1. Mental health score was calculated by adding up all questions' score, scoring from 0 to 31. In addition, to capture the trend briefly, categorical mental health variable was created; if they have 0-5 symptoms they were coded as 0, 6-10 were coded as 1, 11-14 were coded as 2, 15-20 were coded as 3, and more than 20 were coded as 3.

4.3. Community Participation (Moderator)

This study will examine if community participation would be a buffer of ACEs' negative effects on people. ACEs were observed in children's early childhood by year 5, and as long-term effects were focused on, outcomes were corrected at year 22. Therefore, data of if they participated in community were taken between ACEs and outcome which means year 15. Youth were asked the frequency of their spending time on "athletic or sports teams," "group performance activities," "scouts or hobby clubs," "religious services," and "volunteer services."

If they answered more than once a week, it was coded as 2, at least once a month, or less than once a month were coded as 1, and never was coded as 0. Conclusive community participation score was calculated by adding up each kind of participation score, meaning coded from 0 to 10.

4.4. Control Variables

Some control variables were used in this study; parents' educational level at the base line, mother's age at child's birth, child's sex, child's ethnicity/race, neighborhood situation, poverty situation, child health situations, relation between child and parents, and child behavior.

Parents' educational levels were reported at the baseline. If they graduated high school or more, it was coded as 1 and less than high school was coded as 0. Mother's age at the child birth and child's sex were also recorded at the baseline. In this study, boys were coded as 1, and girls were 0. In year 22, young adults answered their ethnicity/race themselves and Hispanic was coded as 3, Black was coded as 2, White was coded as 1, and others were coded as 0 in this study.

In regard to neighborhood situations, neighborhood collective efficacy and neighborhood violence were used to measure. For neighborhood collective efficacy, young adults were asked these questions at year 15; "people around here are willing to help their neighbors," "this is a close-knit neighborhood," "people in this neighborhood generally don't get along with each other," "people in this neighborhood do not share the same values," "neighbors would get involved if children skip school," "neighbors would get involved if children spray paint buildings," "neighbors would get involved if children show disrespect to adults," and "neighbors would get involved if fight broke out in front of the house." If they answered "strongly agree" to the 1st and 2nd questions, "strongly disagree" to the 3rd and 4th questions, "very likely" to the other questions, they were coded as 1 and the neighborhood efficacy score was made by summing all categories' score, numbering from 0 to 6. At year 15, primary care givers were asked if they felt "afraid to let youth outside because of neighborhood violence," which was used to measure neighborhood violence. When they answered yes, it was coded as 1.

Regarding poverty, poverty categories taken at the baseline were used. In order to see the differences between households much above poverty line (+200%) and households less than poverty line and moderate, if their income is 200% or more than poverty line, it was coded as 1, and households less than 199% were coded as 0.

In order to measure child health situations, if they have ADD/ADHD, Autism, and/or disabilities and how they feel about their health conditions were used. In year 15, primary care givers were asked if a doctor diagnosed youth with "ADD/ADHD," "Autism," and/or "learning disabilities," and if they answered yes to each question, each score was coded as 1. Also, youth reported their own health conditions in five grades; "poor," "fair," "good," "very good," and "excellent," which were coded from 0 to 4.

The relationship between child and parents was reported in year 15. Youth were asked “how close do you feel with biological mother,” and “how close do you feel with biological father,” and they answered by 4 levels; “not very close,” “fairly close,” “quite close,” and “extremely close.” They were coded between 0 and 3, which is closer when the number is higher.

Referring to Pierce et al. (2022), child behaviors were measured by using child impulsivity, delinquency, and positive functioning as self-control. In year 15, young adults were asked how much they agree with these sentences; “I don't spend enough time thinking over a situation before I act,” “I often say and do things without considering the consequences,” “The plans I make don't work out because I haven't gone over them,” “I often make up my mind without taking the time to consider,” “I often say whatever comes into my head without thinking first,” and “I often get into trouble because I don't think before I act.” If they answered “strongly agree”, it was coded as 1 and made up the impulsivity score from 0-6. For delinquency, they were answered if they have done specific action in year 9, such as “Purposely damaged or destroyed property that wasn't yours,” “Taken or stolen something from another person or from a store,” “Taken money at home, like from your mother's purse/ dresser,” “Cheated on a school test,” “Had a fist fight with another person,” “Hurt an animal on purpose,” “Trespassed into somebody's garden, backyard, house, or garage,” “Ran away from home

Skipped school without an excuse,” “Secretly taken a sip of wine, beer, or liquor,” “Smoked marijuana, grass, pot, weed,” “Smoked a cigarette or used tobacco,” “Been suspended or expelled from school,” “Written things or spray painted on walls or sidewalks or cars,” “Purposely set fire to a building, a car, or other property or tried to do so,” “Avoided paying for movies, bus or subway rides or food,” and “Thrown rocks or bottles at people or cars.” If they answered yes, 1 was coded and the delinquency score was calculated by adding all questions' score, numbering between 0-17. Positive functioning was measured by engagement, perseverance, optimism, connectedness, and happiness which made up 20 questions. In year 15, youth were asked these questions; “I love life,” “I get so involved in activities that I forget about everything else,” “I am a cheerful person,” “I have friends that I really care about,” “I get completely absorbed in what I am doing,” “I keep at my schoolwork until I am done with it,” “Once I make a plan to get something done, I stick to it,” “There are people in my life who really care about me,” “I finish whatever I begin,” “I think good things are going to happen to me,” “I feel happy,” “When I do an activity, I enjoy it so much that I lose track of time,” “I am a hard worker,” “I believe that things will work out, no matter how difficult,” “When I have a problem, I have someone who will be there for me

I have a lot of fun,” “When I am learning something new, I lose track of time,” “In uncertain times, I expect the best,” “When something good happens to me, I have people to share news with,” and “I am optimistic about my future.” If they answered “strongly agree,” they were coded 1 and a conclusive positive functioning score was made by adding all questions' score, 0-20.

Table 1: Percentage of categorical variables and means of continuous variables

variable	Category (min, max)	Mean	se	Percent
Cumulative ACEs score (up to Y5)	(0,9)	2.91	1.83	
Categorical ACEs by Y5	0			12.82
	1			8.96
	2			20.52
	3			20.91
	4+			36.79
Educational attainment	>high school			10.92
	>=high school			89.08
Mental health	(0,31)	6.03	7.71	
Categorical Mental health	0-5			59.01
	6-10			17.02
	11-15			10.58
	16-20			4.1
	20+			9.3
Community participation	(0,10)	3.67	2.43	
Mother's education	less than high school			34.73
	>=high school			65.27
Father's education	less than high school			34.4
	>=high school			65.6
Mother's age (at child's birth)		25.26	6.08	
Child's sex	girl			47.8
	boy			52.2
Child ethnicity/race	other			45.73
	White			16.03
	Black			27.46
	Hispanic			10.78
Neighborhood efficacy	(0-24)	15.13	4.99	
Neighborhood violence	no fear			81.85
	feel scary			18.15
Poverty level	poverty			61.94
	above poverty			38.06
ADHD	no			83.56
	ADHD			16.44
Autism	no			97.65
	Autism			2.35
Disability	no			93.26
	Disability			6.74
Health situation	(0,4)	2.97	0.95	
Child close to mother	(0,3)	2.37	0.87	
Child close to father	(0,3)	1.63	1.18	
Impulsivity	(0-6)	0.94	1.38	
Delinquency	(0-15)	1.23	1.76	
Positive functioning	(0-20)	11.43	4.64	

5. Results

5.1. Descriptive Analysis

5.1.1. Means and Ratio

Table 1 shows descriptive data of each variable which was used in this study. The mean of the cumulative ACEs score is 2.91. The ratio of people with no adverse experiences in childhood is 12.8%, with 1 ACE is 9%, with 2 ACEs is 20.5%, with 3 ACEs is 20.9%, and with 4 or more ACEs is 36.8%. It means the percentage of young adults who have been exposed to a large number of adverse experiences reaches approximately 37%. Outcome. 10.9% of respondents could not finish high school whereas nearly 90% of them graduated from high school or more. Also, approximately 60 percent of respondents reported they do not have any mental health problems or have only few symptoms at 22 years, whereas people who have 6-10 symptoms and 16-20 symptoms reached 17 percent and 10.6% each. Additionally, it showed slightly lower than 10 percent of people having more than 20 mental related symptoms.

For moderator, the mean of community participation is 3.67 which means the average frequency of the participation into community at year 15 was more than once a week or at least once a few months into two community activities.

In control variables, mothers' and fathers' educational attainment levels were included. Both mothers and fathers, over 65 percent of them attained high school graduation or more, while roughly 35 % of parents have not graduated from even high school in this survey. Variables related to child's demographics, a little bit more boys than girls were included in this study, and for ethnicity/race, each proportion of White, Black, and Hispanic people are 16%, 27%, and 11%, with 45% of other ethnicity/race children. The average neighborhood efficacy point was 15, and only 18 percent of mothers have felt scared in their neighborhood. For households' economic level, about 38% of them have 200 percent or more income than the poverty line, whereas approximately 62 percent of them live in the moderate or poverty level. Variables regarding children's health situations show 16.4%, 2.4%, and 6.7% of children have been diagnosed as ADHD, Autism, and having learning disabilities. Children described their health conditions and the average score was 2.97 which indicates self-recognition of their health condition is mostly good or better. The variables measuring how children feel close to their parents showed children felt relatively closer to mother than to father. As the means of Impulsivity and Delinquency score points at low levels and positive functioning score average was around 11, children's self-control level can be said generally high.

5.1.2. Association between ACEs and outcomes

Table 2 and Table 3 express the categorized outcomes' frequencies and percentages of each category. In Table 2, it is able to be seen that the proportions of people who graduated from high school or more decrease as ACEs' score level become higher; although the percentage at 1 ACE is the highest, the percentage of people attained high school graduation is 92.8% at 0 ACE, 91.7% at 2 ACEs, 88.4% at 3 ACEs, and 86.4% at 4 or more ACEs. As we could see this trend, the proportion of people who did not finish high school reached 13.6% at 4+ ACEs score whereas 7.22 % at 0 ACE. From these perspectives, it can be said that there can be a negative correlation between ACEs score and Educational attainment.

Table 3 shows the relation between ACEs score and Mental health situations. It is difficult to see a clear association between ACEs and mental health from this table, however, regarding 0-5 mental health, the ratio of people with 0-5 is decreasing as ACEs score increases from 61.3% at no ACE to 55.3% at 4 or more ACEs. In addition, among the people with more than 20 symptoms of mental problems, 10.8% of them have 4 or more adverse experiences in their childhood, which is the biggest ratio. From these aspects, it can be argued that the relationship between ACEs and mental health can be more explicit when both measurements are extreme, and there is a high possibility of positive association between them, suggesting that if ACEs score becomes higher, mental health score also increases.

Table 2: Association between ACEs and Educational Attainment

Categorical ACEs by Y5	Educational attainment		Total
	< high school	> = high school	
0 (n)	13	167	180
(%)	7.22	92.78	100.00
1 (n)	7	198	205
(%)	3.41	96.59	100.00
2 (n)	54	593	647
(%)	8.35	91.65	100.00
3 (n)	80	609	689
(%)	11.61	88.39	100.00
4+ (n)	172	1,092	1,264
(%)	13.61	86.39	100.00
Total (n)	326	2,659	2,985
(%)	10.92	89.08	100.00

Table 3: Association between ACEs and Mental Health

Categorical ACEs by Y5	Categorical mental health					Total
	0-5	6-10	11-15	16-20	20+	
0 (n)	106	24	20	6	17	173
(%)	61.27	13.87	11.56	3.47	9.83	100.00
1 (n)	124	34	15	10	16	199
(%)	62.31	17.09	7.54	5.03	8.04	100.00
2 (n)	392	101	60	27	47	627
(%)	62.52	16.11	9.57	4.31	7.5	100.00
3 (n)	407	110	72	22	57	668
(%)	60.93	16.47	10.78	3.29	8.53	100.00
4+ (n)	684	225	140	54	133	1,236
(%)	55.34	18.2	11.33	4.37	10.76	100.00
Total (n)	1,713	494	307	119	270	2,903
(%)	59.01	17.02	10.58	4.1	9.3	100.00

5.2. Regression Analysis with continuous ACEs

The results from linear regression analysis will be described. This study used two outcomes; Educational attainment and Mental health, and educational attainment was set as a binary variable; if people have graduated high school or more, which was coded as 1, if people attained less than high school, which was coded 0, and mental health is continuous variable range from 0 to 31. Therefore, for educational attainment, linear probability model was used and a simple linear regression model was applied for mental health. Model structures are the same both when the outcome is educational attainment and mental health. Model 1 and Model 4 are the base model which shows simple relationships between ACEs and outcomes without any control variables. In Model 2 and Model 5, some control variables were added to observe more realistic main effects of ACEs on outcomes. And for Model 3 and Model 6, an interaction term with a moderator was included, which evaluates how the moderator affects size and direction of effects of ACEs.

In table 4, the cumulative ACEs score was used as an independent variable, which is a continuous variable, whereas the categorized ACEs variable was used in table 5 to see if there are some specific trends in each category of ACEs.

5.2.1. Linear Probability Regression (Educational Attainment)

In the analysis with educational attainment, Model 1 shows that ACE has the statistically significant effects on educational attainment, i.e., the coefficient of -0.017 means that when

ACEs score category become higher, the probability of people achieving high school or more decreases by 1.7%. It indicates that ACEs have negative influences on people's educational attainment. However, Model 2 which is with control variables showed an insignificant coefficient of ACE. In addition, there is no evidence of the significant association between community participation and educational attainment as the coefficient of community participation did not show the statistical significance. From these perspectives, it can be said that ACEs can affect educational attainment indirectly, and other variables such as other family backgrounds have more effects in the long-term. It is because while the significant association between ACEs and educational attainment was shown in Model 1, there is no statistical significance in Model 2 with control variables and some variables such as mother's education and poverty level have strong and significant effects, which may have long-term effects on educational attainment of children. Therefore, it is suggested that there is not significant evidence of ACEs' effects lasting in the long-term on their educational attainment.

In Model 3, moderator analysis was conducted by adding an interaction term expressing how much the possibility of ACEs affecting educational attainment changes as community participation increases by one unit. In this analysis, the interaction term's coefficient is not significant, meaning that there is no statistical evidence of the buffering effect of community participation on ACEs' negative effects on educational attainment.

5.2.2. Linear Regression (Mental Health)

Model 4 to 6 explain the results with mental health as an outcome. As a mental health variable is continuous, the coefficient of ACEs shows how much the score of mental health changes because of the switching to a higher category of ACEs. In Model 4, the coefficient of ACE is 0.25 and it is statistically significant at the 1% level, which means mental health score rises by 0.25 as ACEs' category changes to higher. It indicates that ACEs have negative effects on mental health. The size of ACE's coefficient becomes bigger in Model 5 (0.42), which is also significant. This change would be made by control variables added in this model, removing other variables' effects on mental health and explaining the effect of ACEs better. From Model 4 and 5, it is suggested that ACEs have long-term effects on mental health, i.e., if children were exposed to adversity, there is a high possibility of having mental problems in their young adulthood.

The coefficient of community participation did not show statistical significance in Model 5. In addition, there is no statistical evidence of a mitigating effect of community participation on ACEs negative effects on mental health since the coefficient of the interaction term does not show significance in Model 6.

Table 4: Result of Regression Analysis with continuous ACEs

RESULT ①	Educational attainment				Mental health	
	Model 1 (sd)	Model 2 (sd)	Model 3 (sd)	Model 4 (sd)	Model 5 (sd)	Model 6 (sd)
Cumulative ACEs score (up to Y5)	-0.017*** (0.003)	-0.007 (0.004)	-0.003 (0.009)	0.249*** (0.086)	0.423*** (0.118)	0.157 (0.207)
Community Participation		0.005 (0.003)	0.008 (0.006)		0.032 (0.076)	-0.211 (0.161)
Interaction ACEs # Community Participation			-0.001 (0.002)			0.074 (0.047)
Mother's Education						
>=high school		0.085*** (0.021)	0.084*** (0.021)		0.083 (0.459)	0.108 (0.458)
Father's Education						
>=high school		0.004 (0.019)	0.005 (0.019)		0.504 (0.432)	0.461 (0.431)
Mother's age (at child's birth)		0.001 (0.001)	0.001 (0.001)		0.041 (0.033)	0.043 (0.033)
Child's sex						
Boy		-0.033** (0.014)	-0.033** (0.014)		-2.314*** (0.372)	-2.319*** (0.372)
Child's ethnicity/race						
White		0.045* (0.027)	0.046* (0.027)		0.258 (0.727)	0.237 (0.727)
Black		0.037 (0.027)	0.037 (0.027)		-1.260* (0.683)	-1.288* (0.683)
Hispanic		0.016 (0.028)	0.016 (0.028)		0.653 (0.780)	0.664 (0.779)
Neighborhood efficacy		-0.002 (0.001)	-0.002 (0.001)		0.066* (0.037)	0.070* (0.038)
Neighborhood violence						
Feel scary		-0.031 (0.020)	-0.031 (0.020)		-0.285 (0.480)	-0.281 (0.478)
Poverty Level						
Above poverty		0.051*** (0.015)	0.051*** (0.015)		0.948** (0.413)	0.960** (0.413)
Child's ADHD						
Yes		-0.080*** (0.026)	-0.080*** (0.026)		-0.834 (0.521)	-0.842 (0.521)
Child's Autism						
Yes		0.069 (0.061)	0.070 (0.061)		2.998* (1.739)	2.941* (1.754)
Child's learning disabilities						
Yes		-0.042 (0.043)	-0.041 (0.043)		-0.347 (0.839)	-0.401 (0.841)
Health situation		-0.002 (0.008)	-0.002 (0.008)		-0.230 (0.209)	-0.233 (0.209)
Child close to mother		-0.020** (0.009)	-0.021** (0.009)		-0.410* (0.231)	-0.394* (0.231)
Child close to father		0.005 (0.006)	0.005 (0.006)		-0.579*** (0.162)	-0.584*** (0.162)
Impulsivity		-0.030*** (0.007)	-0.030*** (0.007)		0.050 (0.150)	0.049 (0.150)
Delinquency		-0.007 (0.006)	-0.007 (0.006)		0.049 (0.107)	0.053 (0.107)
Positive functioning		0.003 (0.002)	0.003 (0.002)		-0.199*** (0.045)	-0.203*** (0.045)
Constant	0.946*** (0.011)	0.878*** (0.054)	0.868*** (0.059)	5.222*** (0.308)	8.224*** (1.487)	9.039*** (1.557)
Observations	2,985	1,847	1,847	2,903	1,802	1,802
R-squared	0.008	0.095	0.096	0.003	0.093	0.095

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.3. Regression Analysis with categorized ACEs

5.3.1. Linear Probability Regression (Educational Attainment)

Table 5 shows the results using categorized ACEs as an independent variable. In Model 2-1, the coefficients of 3 ACEs and 4 or more ACEs are statistically significant with the size of -0.044 and -0.064 for each, which means that people with 3 ACEs are 4.4% less likely and people with 4+ ACEs are 6.4% less likely to graduate from high school compared to people with no experience of ACE. On the other hand, the coefficient of 1 ACE also shows significance and a positive effect on educational attainment. In Model 2-2, the coefficients of 3 ACEs and 4 or more ACEs still show statistical significance. They indicate that 5% higher not to finish high school when young adults had been exposed to 3 ACEs and 4.5% higher with 4 or more ACEs. The coefficient of 1 ACE becomes non-significant in this model. From these perspectives, it is suggested that ACEs' long-term effects on educational attainment are evident when ACEs score is relatively large. While it was indicated that ACEs affect educational attainment constantly as ACEs score become higher in table 4 using continuous ACEs variable, in table 5, the coefficients of 3 ACEs and 4+ ACEs are negative with statistical significance and the coefficient of 1 ACE shows statistical evidence of positive effect on educational attainment although it is weak, which suggests that there might be different long-term effects depends on the degree of adversity.

The coefficient of community participation in Model 2-2 shows a positive effect on educational attainment with statistical significance, meaning if people participate in community activities, they have a 0.5% higher possibility of graduation from high school.

In Model 2-3, although the coefficient of interaction term of 1 ACE and community participation is significant, but regarding that the coefficient with statistical evidence is only this one, it can be said that there is still little evidence of a buffering effect of community participation on ACEs' negative effects on educational attainment, which is the similar result to table 4.

5.3.2. Linear Regression (Mental Health)

For mental health, although all coefficients in Model 2-4 have no statistical evidences, the coefficient of 4 or more ACEs in Model 2-5 shows statistical significance with the size of 1.49, meaning if people had experienced 4 or more adversity in their childhood, mental health score in their young adulthood can be 1.49 points higher than people with no ACEs. Since Model 2-5 controls other variables' effects by adding control variables, it can be suggested that ACEs have long-term effects on mental health especially when the score of ACEs is extreme.

The coefficient of community participation in Model 2-5 does not show statistical evidence. Also, all coefficients of interaction terms in Model 2-6 are insignificant, therefore,

it can be said that there is no statistical evidence of a moderator effect of community participation on negative association between ACEs and mental health, which is the same result as table 4.

Although the trend we could get from both analyses using different measurements of ACEs are similar, it was suggested that the long-term effects of ACEs may differ depending on the degree of adversity. In addition, in both analyses, there is no statistical evidence of a buffering effect of community participation on ACEs' negative effects.

Table 5: Result of Regression Analysis with categorized ACEs

RESULT ©		Educational attainment				Mental health	
VARIABLES		Model 2-1	Model 2-2	Model 2-3	Model 2-4	Model 2-5	Model 2-6
		(sd)	(sd)	(sd)	(sd)	(sd)	(sd)
Categorical ACEs							
	1	0.038*	0.014	0.111	-0.304	0.111	0.164
		(0.023)	(0.028)	(0.075)	(0.795)	(1.082)	(1.947)
	2	-0.011	-0.026	0.020	-0.307	-0.534	0.286
		(0.022)	(0.026)	(0.075)	(0.665)	(0.896)	(1.659)
	3	-0.044*	-0.050*	-0.021	-0.090	-0.060	-0.646
		(0.023)	(0.027)	(0.076)	(0.664)	(0.897)	(1.660)
	4+	-0.064***	-0.045*	0.006	0.818	1.486*	0.443
		(0.022)	(0.026)	(0.073)	(0.638)	(0.885)	(1.612)
Community participation			0.005*	0.016		0.031	-0.073
			(0.003)	(0.012)		(0.076)	(0.304)
Interaction Term							
	1ACE # Community Participation			-0.025*			-0.025
				(0.014)			(0.418)
	2ACEs # Community Participation			-0.011			-0.204
				(0.013)			(0.330)
	3ACEs # Community Participation			-0.007			0.148
				(0.013)			(0.339)
	4+ACEs # Community Participation			-0.012			0.286
				(0.013)			(0.324)
Mother's Education							
	>=high school		0.086***	0.086***		0.125	0.185
			(0.021)	(0.021)		(0.461)	(0.458)
Father's Education							
	>=high school		0.005	0.007		0.525	0.499
			(0.019)	(0.019)		(0.430)	(0.429)
Mother's age (at child's birth)			0.001	0.001		0.040	0.041
			(0.001)	(0.001)		(0.033)	(0.032)
Child's sex							
	Boy		-0.034**	-0.034**		-2.311***	-2.341***
			(0.014)	(0.014)		(0.372)	(0.372)
Child's ethnicity/race							
	White		0.045*	0.045*		0.269	0.225
			(0.027)	(0.027)		(0.730)	(0.732)
	Black		0.038	0.038		-1.201*	-1.282*
			(0.027)	(0.027)		(0.688)	(0.692)
	Hispanic		0.015	0.014		0.765	0.774
			(0.028)	(0.028)		(0.785)	(0.785)

RESULT ②		Educational attainment			Mental health		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VARIABLES		(sd)	(sd)	(sd)	(sd)	(sd)	(sd)
Neighborhood efficacy			-0.002 (0.001)	-0.002 (0.001)		0.069* (0.037)	0.074** (0.037)
Neighborhood violence							
	Feel scary		-0.032 (0.020)	-0.032 (0.020)		-0.315 (0.477)	-0.319 (0.475)
Poverty Level							
	Above poverty		0.051*** (0.015)	0.051*** (0.015)		1.020** (0.414)	1.012** (0.415)
Child's ADHD							
	Yes		-0.079*** (0.026)	-0.080*** (0.026)		-0.830 (0.519)	-0.839 (0.520)
Child's Autism							
	Yes		0.067 (0.061)	0.067 (0.061)		2.983* (1.723)	2.898* (1.749)
Child's learning disabilities							
	Yes		-0.041 (0.043)	-0.040 (0.044)		-0.275 (0.832)	-0.366 (0.829)
Health situation			-0.002 (0.008)	-0.002 (0.008)		-0.219 (0.209)	-0.223 (0.209)
Child close to mother			-0.020** (0.009)	-0.019** (0.009)		-0.391* (0.231)	-0.378 (0.232)
Child close to father			0.005 (0.006)	0.005 (0.006)		-0.567*** (0.162)	-0.585*** (0.162)
Impulsivity			-0.030*** (0.007)	-0.030*** (0.007)		0.045 (0.150)	0.042 (0.150)
Delinquency			-0.007 (0.006)	-0.007 (0.006)		0.049 (0.105)	0.050 (0.106)
Positive functioning			0.003 (0.002)	0.003 (0.002)		-0.201*** (0.045)	-0.203*** (0.045)
Constant		0.928*** (0.019)	0.890*** (0.057)	0.843*** (0.083)	5.792*** (0.597)	8.900*** (1.617)	9.292*** (1.995)
Observations		2,985	1,847	1,847	2,903	1,802	1,802
R-squared		0.010	0.097	0.099	0.004	0.097	0.101

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6. Discussion and Conclusion

This paper analyzed the long-term effects of ACEs on educational attainment and mental health and examined a buffering effect of community participation. In table 4, cumulative ACEs score was used as an independent variable while categorized ACEs score was used in table 5.

From the analysis in table 4, it was suggested that there is a negative association of ACEs with educational attainment in their young adult era, but this relationship might be limited or

indirect since there is no statistical evidence in Model 2 in which control variables were added. The relationship between community participation and educational attainment was not observed and the mitigating effect of community participation was not proved statistically. For mental health, it was revealed that there is a significant association between ACEs and youth's mental health situations, i.e., the effects of adversity in their childhood last long at least until their young adulthood. However, there was no statistical evidence of association of community participation with mental health and of moderator effect of community participation.

Comparing the analyses in table 4 and table 5, it was indicated that the effect size and direction might change depending on the ACE's score. In other words, if people had been exposed to extreme adversity in their childhood, the negative effects on outcomes become bigger. The results related to community participation and buffering effects showed a similar one to previous analyses, meaning both direct effects of community participation on outcomes and moderator effects of community participation on ACEs' negative effects were not proved statistically.

Regarding these results, it can be said that this study could not find explicit moderation effects of community participation. Since we could see the negative association between ACEs and outcomes, the reasons why a buffering function has not been observed can be explained by the community participation variable.

The first reason can be related to the hypothesis we set before the analysis; "Community participation can cultivate social capital and cultural capital which develop resilience of children," i.e., if community participation cannot be a proxy for social and cultural capital, buffering effects cannot be observed. In regard to there is a previous study showing community resilience can mitigate negative effects on mental health (Okwori, 2022), meaning community resilience can act as a buffer, there is a possibility that just participation in community activities could not work as measures of social and cultural capital. Although in Zimmerman's study (2013) community resilience was captured by having access to a trusted adult or mentor, participation in sports, clubs, and organized activities, and residence in a supportive neighborhood, in this paper, social and cultural capital were measured just if people have participated in community activities and the factors of neighborhood, who they met in the community, and what they obtained were controlled by control variables. In other words, the variable of community participation in this paper was insufficient to measure social and cultural capital and could not see the effects of community resilience of children.

The second reason is that there is a possibility that community participation has bias led by parents' decision makings. This variable was constructed based on the interview when young adults were 15 years old, and there could be a high probability that their parents are highly related to their decision of if they participate in these activities, which kind of activities they enter, and how often they go. Although parents should have foremost responsibility for children's development, children exposed to ACEs can have parents who cannot provide enough care for

the children, hence, these children can be further away from community participation. In fact, there is a slight negative relationship between ACEs score and community participation score. We could not obtain effective results since this study could not control this bias.

However, through this discussion, it was suggested that community participation might not work effectively only by people participating, i.e., what kind of abilities and relationships the community can provide and cultivate to children is crucial, indicating the importance of management of these community activities. In addition, it was implied that seeking effective ways for children with adverse experiences to participate in a community being freed from the constraints of their parents' effects is also needed.

There are still limited studies focusing on effects of participation in community on children's well-being. Therefore, the study which is considering contents of activities and what people can attain and is controlling parents' decision-making bias will be expected.

In addition, there is another perspective to discuss reflecting the result we got, which is if there are other ways to combat adversity than community participation.

As this paper also mentioned, it is academically proved that development of resilience in children is effective to mitigate ACEs' negative effects on people especially when mental health is set as an outcome. For example, Cohrdes and Mauz (2020) stated that self-efficacy and emotional stability can have positive effects on mental health situations, i.e., the mental problems led by emotional neglect can be mitigated by these characteristics. Authors regarded trust in personal competence, self-efficacy, and control when they were exposed to stressful events, emotional stability, as main parts of resilience, and suggested the importance of public health intervention to develop these characteristics in children (Clements-Nolle & Waddington, 2019). Community development can act as the place to supply these opportunities, however, comprehensive implementations were suggested which involve not only school, juvenile justice, and medicine, but also students, pedagogical staff and parents in this study (Cohrdes & Mauz, 2020). In another research, it was revealed that the positive childhood experiences can act as a buffer, which reduces depressive symptoms of people with ACEs (Fabio et al., 2025). Through positive childhood experiences, consisting of secure attachment relationships with a trusted adult, significant social support, and participation in early intervention programs, children's resilience is cultivated which makes them be able to cope with adversities (Poole et al., 2017). It also can be experienced through their community participation, however, the author emphasized the effectiveness of early intervention, which is different from our study.

In addition, there are some suggestions in previous studies which are not related to resilience. Yu et al. (2024) mentioned that parenting intervention called ATTACH moderated the negative association between maternal ACEs and child's CTRA scores. CTRA refers to Conserved Transcriptome Response to Adversity, which has a risk of some diseases if it increases. This program consists of psychoeducational parenting intervention to encourage mothers with ACEs to have reflective ability. This study is not about children's ACEs and the

negative effects on them but intergenerational effects of ACEs. However, children tend to be exposed to similar adversity to their parents' (Coneus & Spiess, 2012; Almquist & Brannstrom, 2018), therefore, this kind of intervention can cut off the negative cycle and can be regarded as a preventing action of ACEs. Science Daily (2024) also argued the importance of preventive strategies as several measurements related to resilience did not have statistical evidence of buffering effects.

Also, there are some studies indicating the effect of socioeconomic perspective. Shu et al. (2025) revealed that socioeconomic inequality is mediating the part of association between ACEs and some health symptoms and argued that interventions targeting socioeconomic inequality are necessary to tackle ACEs' negative effects. This suggestion is consistent with our results since the study of Shu et al. (2025) uses income level as a socioeconomic status and our study showed poverty levels have great impacts on both outcomes. In addition, although more empirical evidence is needed, Touloumakos and Barrable (2020) mentioned that regular nature engagement can act as an additional protective factor since stress reduction effect (Razani et al., 2019) and positive impacts on mental health (Kotera et al., 2020) of exposure to nature are shown in previous large studies.

Although there are only few studies about long-term ACEs' effects on educational attainment, Giovanelli et al. (2023) indicated that there is negative association between ACEs and their future educational status. In addition, Giovanelli et al. (2023) argued that this negative association can be compensated by a comprehensive early childhood education program, which is providing educational, family, and health care services to young children and their families. Also, it might not be regarded as a study about long-term effects of ACEs, but Houtepen et al. (2020), researching ACEs experienced between 0-16 years and educational attainment at 16 years old, revealed that parental education level and income can attenuate negative relationship between ACEs and educational attainment. Although there was no evidence that other socioeconomic factors can mitigate the negative effects of ACEs, some factors representing socioeconomic status can work as a partial buffer.

To sum up, from these studies, it can be argued that there is still a possibility that community participation can work as an effective intervention since other studies indicated the necessity of resilience as well, however, what multiple studies have in common is intervention should be comprehensive and in their early childhood. Therefore, comprehensive support involving the whole society targeting children's early era when they can be exposed to adversity will be required.

References

- Adler, P. S., & Kwon., S.K. (2002). Social Capital: Prospects for a New Concept. *The Academy of Management Review*, 27(1), 17-40.
- Almquist, Y.B., & Brannstrom, L. (2018). Childhood Adversity and Trajectories of Disadvantage through Adulthood: Findings from the Stockholm Birth Cohort Study. *Social Indicators Research*, 136(1), 225-245.
- American Psychological Association. (2012). Facing the school dropout dilemma. Washington, DC: Author. Retrieved from <http://www.apa.org/pi/families/resources/school-dropout-prevention.aspx>
- Anderson, S.L., & Teicher, M.H. (2008). Stress, sensitive periods and maturational events in adolescent depression. *Trend Neurosci*, 31(4), 183-191.
- Bandura, A., & Huston, A. C. (1961). Identification as a process of incidental learning. *The Journal of Abnormal and Social Psychology*, 63(2), 311–318.
- Blodgett, C. (2012). A Review of Community Efforts to Mitigate and Prevent Adverse Childhood Experiences and Trauma. APPI Review of Community Efforts.
- Choi, J.K., Wang, D., & Jackson, A.P. (2019). Adverse experiences in early childhood and their longitudinal impact on later behavioral problems of children living in poverty. *Child Abuse & Neglect*, 98, 1-10.
- Claridge, T. (2018). Functions of social capital - bonding, bridging, linking. *Social Capital Research*, 1-7.
- Clements-Nolle, K. & Waddington, R. (2019). Adverse Childhood Experiences and Psychological Distress in Juvenile Offenders: The Protective Influence of Resilience and Youth Assets. *Journal of Adolescent Health*, 64(1), 49-55.
- Cohrdes, C., & Mauz, E. (2020). Self-Efficacy and Emotional Stability Buffer Negative Effects of Adverse Childhood Experiences on Young Adult Health-Related Quality of Life. *Journal of Adolescent Health*, 67, 93-100.
- Coneus, K., & Spiess, K. C. (2012). The intergenerational transmission of health in early childhood— Evidence from the German socio-economic panel study. *Economics & Human Biology*, 10, 89–97.
- Dekker, P. & Uslaner, E.M. (2001). *Social Capital and Participation in Everyday Life* (1st ed.). Routledge.
- Dong, M., Anda, R.F., Felitti, V., Dude, S.R., Williamson, D., Thomason, T., Loo, C.M., & Giles, W.H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 28(7), 771-784.
- Fabio, R.A., Centorrino, R., Capri, T., Mento, C., & Picciotto, G. (2025). Beneficial Childhood Experiences Mitigate the Negative Effects of Adverse Childhood Experiences in Adults. *Journal of Clinical Psychology in Medical Settings*, 32, 306-315.

- Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V. & Marks, J.S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, 14(4), 245-254.
- Giovanelli, A., Mondì, C.F., Reynolds, A.J., & Ou, S. (2023). Evaluation of Midlife Educational Attainment Among Attendees of a Comprehensive Early Childhood Education Program in the Context of Early Adverse Childhood Experiences. *JAMA Netw Open*, 6(6).
- Goulding, A. (2008). Libraries and Cultural Capital. *Journal of Librarianship and Information Science*, 40(4), 235-237.
- Hammond, R., Cheney, P., & Pearsey, R. (2021). Chapter 01- Changes and Definitions. *SOCIOLOGY of the family*.
https://freesociologybooks.com/Sociology_Of_The_Family/01_Changes_and_Definitions.php
- Hammond, C., Linton, D., Smink, J., & Drew, S. (2007). Dropout risk factors and exemplary programs.
- Houry, D.E., & Mercy, J.A. (2019). Preventing Adverse Childhood Experiences (ACEs); Leveraging the Best Available Evidence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Houtepen, L.C., Heron, J., Suderman, M.J., Fraser, A., Chittleborough, C.R., & Howe, L.D. (2020). Associations of adverse childhood experiences with educational attainment and adolescent health and the role of family and socioeconomic factors: A prospective cohort study in the UK. *PLoS Medicine*, 17(3).
- Hunt, T.K.A., Slack K.S., & Berger, L.M. (2017). Adverse childhood experiences and behavioral problems in middle childhood. *Child Abuse & Neglect*, 67, 391-402.
- Kotera, Y., Richardson, M., & Sheffield, D. (2020). Effects of Shinrin-Yoku (forest bathing) and nature therapy on mental health: a systematic review and meta-analysis. *International Journal of Mental Health and Addiction*, 1-25.
- Okwori, G. (2022). Role of Individual, Family, and Community Resilience in Moderating Effects of Adverse Childhood Experiences on Mental Health Among Children. *Journal of developmental and behavioral pediatrics: JDBP*, 43(7), 452-462.
- Patten S. B. (1997). Performance of the Composite International Diagnostic Interview Short Form for major depression in community and clinical samples. *Chronic diseases in Canada*, 18(3), 109-112.
- Pierce, H., Jones, M.S., & Gibbs, B.G. (2022). Early adverse childhood experiences and exclusionary discipline in high school. *Social Science Research*, 101, 1-14.
- Razani, N., Niknam, K., Wells, N.M., Thompson, D., Hills, N.K., Kennedy, G., et al. (2019). Clinic and park partnerships for childhood resilience: a prospective study of park prescriptions. *Health Place* 57, 179-185.

- Reed, E., & Johnson, B. (2023). Overview of cultural capital theory's current impact and potential utility in academic libraries. *The Journal of Academic Librarianship*, 49(6).
- Poole, J.C., Dobson, K.S., & Pusch, D. (2017). Childhood adversity and adult depression: The protective role of psychological resilience. *Child Abuse & Neglect*, 64, 89-100.
- Science Daily. (2024 January 18). Relationships with caring adults provide a buffer against depression, anxiety, regardless of adverse childhood experiences. Science Daily.
https://www.sciencedaily.com/releases/2024/01/240118122102.htm?utm_source=chatgpt.com
- Sen, A. (1992). *Inequality Re-examined*. Oxford: Clarendon Press.
- Shu, Y., Zhang, Z., Wang, H., Wang, C., Dou, L., Wang, W., Zhang, L., Bi, J., & Wu, M. (2025). The long-term effects of adverse childhood experiences on adult health and behaviors: mediating role of socioeconomic inequality. *BMC Public Health*, 25, 1950.
- Substance Abuse and Mental Health Services Administration. (2019). *Childhood Resilience*. SAMHSA. <https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/childhood-resilience>
- Tan, A. (2020). *Adverse Childhood Experiences and Depressive Symptoms: Protective Effects of Dietary Flavonoids*. ProQuest Dissertations & Theses Global.
- Touloumakos, A.K., & Barrable, A. (2020). Adverse Childhood Experiences: The Protective and Therapeutic Potential of Nature. *frontiers in Psychology*, 11.
- U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2024). *Child Maltreatment 2022*.
- Wagmiller, Jr. R.L. (2010). *How Representative Are the Fragile Families Study Families?: A Comparison of the Early Childhood Longitudinal Study-Birth Cohort and Fragile Families Samples*. Center for Research on Child Wellbeing, Princeton University.
- Yu, Z., Cole, S., Ross, K., Hart, M., Anis, L., & Letourneau, N. (2024). Childhood Adversities and the ATTACHTM Program's Influence on Immune Cell Gene Expression. *International Journal of Environmental Research and Public Health*, 21, 776.
- Zimmerman, M.A. (2013). Resiliency theory: a strengths-based approach to research and practice for adolescent health. *Health education & behavior: the official publication of the Society for Public Health Education*, 40(4), 381-383.

CHECKLIST ETHICAL AND PRIVACY ASPECTS OF RESEARCH

INSTRUCTION

This checklist should be completed for every research study that is conducted at the Department of Public Administration and Sociology (DPAS). This checklist should be completed *before* commencing with data collection or approaching participants. Students can complete this checklist with help of their supervisor.

This checklist is a mandatory part of the empirical master's thesis and has to be uploaded along with the research proposal.

The guideline for ethical aspects of research of the Dutch Sociological Association (NSV) can be found on their website (http://www.nsv-sociologie.nl/?page_id=17). If you have doubts about ethical or privacy aspects of your research study, discuss and resolve the matter with your EUR supervisor. If needed and if advised to do so by your supervisor, you can also consult Dr. Bonnie French, coordinator of the Sociology Master's Thesis program.

PART I: GENERAL INFORMATION

Project title:

Adverse Childhood Experiences and children's long-run outcomes:

The buffering role of community participation

Name, email of student:

Aya Kato, 747639ak@student.eur.nl

Name, email of supervisor:

Gabriele Mari, mari@essb.eur.nl

Start date and duration:

10/04/2025-20/06/2025

Is the research study conducted within DPAS

☒ YES ☐ NO

If 'NO': at or for what institute or organization will the study be conducted?

(e.g. internship organization)

PART II: HUMAN SUBJECTS

1. Does your research involve human participants.

☒ YES - NO

If 'NO': skip to part V.

If 'YES': does the study involve medical or physical research?

☒ YES - NO

Research that falls under the Medical Research Involving Human Subjects Act ([WMO](#)) must first be submitted to [an accredited medical research ethics committee](#) or the Central Committee on Research Involving Human Subjects ([CCMO](#)).

2. Does your research involve field observations without manipulations that will not involve identification of participants.

☒ YES - NO

If 'YES': skip to part IV.

3. Research involving completely anonymous data files (secondary data that has been anonymized by someone else).

☒ YES - NO

If 'YES': skip to part IV.

PART III: PARTICIPANTS

1. Will information about the nature of the study and about what participants can expect during the study be withheld from them? YES - ☒ NO
2. Will any of the participants not be asked for verbal or written 'informed consent,' whereby they agree to participate in the study? YES - ☒ NO
3. Will information about the possibility to discontinue the participation at any time be withheld from participants? YES - ☒ NO
4. Will the study involve actively deceiving the participants? YES - ☒ NO
Note: almost all research studies involve some kind of deception of participants. Try to think about what types of deception are ethical or non-ethical (e.g. purpose of the study is not told, coercion is exerted on participants, giving participants the feeling that they harm other people by making certain decisions, etc.).
5. Does the study involve the risk of causing psychological stress or negative emotions beyond those normally encountered by participants? YES - ☒ NO
6. Will information be collected about special categories of data, as defined by the GDPR (e.g. racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, genetic data, biometric data for the purpose of uniquely identifying a person, data concerning mental or physical health, data concerning a person's sex life or sexual orientation)? YES - ☒ NO
7. Will the study involve the participation of minors (<18 years old) or other groups that cannot give consent? YES - ☒ NO
8. Is the health and/or safety of participants at risk during the study? YES - ☒ NO
9. Can participants be identified by the study results or can the confidentiality of the participants' identity not be ensured? YES - ☒ NO
10. Are there any other possible ethical issues with regard to this study? YES - ☒ NO

If you have answered 'YES' to any of the previous questions, please indicate below why this issue is unavoidable in this study.

What safeguards are taken to relieve possible adverse consequences of these issues (e.g., informing participants about the study afterwards, extra safety regulations, etc.).

Are there any unintended circumstances in the study that can cause harm or have negative (emotional) consequences to the participants? Indicate what possible circumstances this could be.

Please attach your informed consent form in Appendix I, if applicable.

Continue to part IV.

PART IV: SAMPLE

Where will you collect or obtain your data?

The data will be obtained from Future of Families and Child Wellbeing Study.

<https://ffcws.princeton.edu/documentation>

Note: indicate for separate data sources.

What is the (anticipated) size of your sample?

The sample size is approximately 4,700.

Note: indicate for separate data sources.

What is the size of the population from which you will sample?

The data sample was collected in 20 cities with populations over 200,000 across the United States.

Note: indicate for separate data sources.

Continue to part V.

Part V: Data storage and backup

Where and when will you store your data in the short term, after acquisition?

The digital data will be stored in the personal password-protected laptop.

Note: indicate for separate data sources, for instance for paper-and pencil test data, and for digital data files.

Who is responsible for the immediate day-to-day management, storage and backup of the data arising from your research?

I will have a responsibility to handle data management, storage and backup processes hence it is the study which will be conducted by myself.

How (frequently) will you back-up your research data for short-term data security?

The data will be back-up every-time I will use data sets for analyse.

In case of collecting personal data how will you anonymize the data?

The data was already anonymized when I retrieved.

Note: It is advisable to keep directly identifying personal details separated from the rest of the data. Personal details are then replaced by a key/ code. Only the code is part of the database with data and the list of respondents/research subjects is kept separate.

PART VI: SIGNATURE

Please note that it is your responsibility to follow the ethical guidelines in the conduct of your study. This includes providing information to participants about the study and ensuring confidentiality in storage and use of personal data. Treat participants respectfully, be on time at appointments, call participants when they have signed up for your study and fulfil promises made to participants.

Furthermore, it is your responsibility that data are authentic, of high quality and properly stored. The principle is always that the supervisor (or strictly speaking the Erasmus University Rotterdam) remains owner of the data, and that the student should therefore hand over all data to the supervisor.

Hereby I declare that the study will be conducted in accordance with the ethical guidelines of the Department of Public Administration and Sociology at Erasmus University Rotterdam. I have answered the questions truthfully.

Name student: Aya Kato

Name (EUR) supervisor:

Gabriele Mari

Date: 04/25/2025

Date: 26 May 2025

