

Appendix, “Mental Health in Childhood and Human Capital,” by Janet Currie and Mark Stabile

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Underlying variables in the NLSY:

MAIN EXPLANATORY VARIABLES

Behavior Problem Index – Total, Hyperactivity, Antisocial, Depressed: The Behavior Problems Index is asked to parents of children 4-14. There are 26 questions asked for all children, and 2 questions asked only for children who have been to school. For each question, parents reply that the statement is “often true”, “sometimes true”, or “not true”. To convert into a total score, the NLSY sets “not true” equal to zero and “often true” or “sometimes true” equal to one, then sums the answers to the questions (so the maximum score is either 26 or 28). The NLSY then standardizes the total score by the child’s age. We convert this standardized score to one that has the same range as the score in the Canadian data (0-16). Subscores for hyperactivity, antisocial, and anxious/depressed (which we refer to in the paper as just “depressed”) are calculated in similar fashion, using subsets of the 28 questions. Though not used in this paper, subscores are also calculated for “headstrong”, “dependent”, “peer conflict”, and “withdrawal”.

The hyperactivity subscore has 5 questions:

1. He/she has difficulty concentrating, cannot pay attention for long
2. He/she is easily confused, seems to be in a fog
3. He/she is impulsive, or acts without thinking
4. He/she has a lot of difficulty getting his/her mind off certain thoughts (has obsessions)
5. He/she is restless or overly active, cannot sit still.

The antisocial subscore has 6 questions:

1. He/she cheats or tells lies
2. He/she bullies or is cruel or mean to others
3. He/she does not seem to feel sorry after he/she misbehaves
4. He/she breaks things on purpose or deliberately destroys his/her own or another’s things
5. He/she is disobedient at school
6. He/she has trouble getting along with teachers

The depression subscore has 5 questions:

1. He/she has sudden changes in mood or feeling
2. He/she feels or complains that no one loves him/her
3. He/she is too fearful or anxious
4. He/she feels worthless or inferior
5. He/she is unhappy, sad or depressed

We averaged children's scores for each of these indices over 1990, 1992 and 1994.

[Underlying variables: BPIZ1990-1994, HYPRZ1990-1994, ANTIZ1990-1994, ANXZ1990-1994]

Child Treatment

In 1990, 1992 and 1994, respondents were asked: "During the past 12 months has (child) seen a psychiatrist, psychologist or counselor about any behavioral, emotional, or mental problem?" In 1990, 1992 and 1994, respondents were also asked: "Does (child) regularly take any medicines or prescription drugs to help control his/her activity level or behavior?"

A child with at least one valid answer in any of these three years had the treatment variable set equal to one if his/her mother had answered yes at least once and set equal to zero otherwise.

[Underlying variables: CS902111, CS922211, CS94H-16, CS902139, CS922239, CS94H-18]

Maternal Activity Limitations

From 1990 to 1994, the NLSY created a variable set equal to one if the mother had any health problem limiting her ability to work and set equal to zero otherwise. A mother with at least one valid answer in any of these five years had the health limitation variable set equal to one if she had answered yes at least once and set equal to zero otherwise.

[Underlying variables: Q5867 (1990), Q1925 (1991), Q5923 (1992), Q10-5A (1993), Q11-5A (1994)]

Maternal Depression:

In 1992 and 1994, the mother was asked the following questions:

During the past week...
I had trouble keeping my mind on what I was doing.
I felt depressed.
I felt that everything I did was an effort.
My sleep was restless.
I felt sad.
I could not get going.

Possible responses were: Rarely/None of the time/1 Day; Some/A little of the time/1-2 Days/Occasionally/Moderate Amount of the Time/3-4 Days/Most/All of the Time/5-7 Days. These responses were given values 0, 1, 2, or 3. To create a depression score, we

summed the responses for each question, averaged over the two years, and chose a cutoff so that 10% of the mothers were depressed.

[Underlying variables: Q6245/Q6247/Q6249/Q6257/Q6271/Q6275 (1992), Q11-90G/Q11-90H/Q11-90I/Q11-90M/Q11-90T/Q11-90V (1994)]

Permanent Income

For 1990-2004, each family's "Total Net Family Income in Past Calendar Year" was converted to 2004 dollars using the BLS's Consumer Price Index. The results were then averaged to obtain a measure of permanent income.

[Underlying variables: *Created (1990-1992), TNFI (1993-2002), TNFI_TRUNC (2004)]

Mother Has More than High School Education

From 1990-1994, the NLSY asked mothers: "What is the highest grade or year of regular school that you have completed and gotten credit for?" We took the mother's highest answer to this question over this time period, then created a variable set equal to one if her answer was greater than 12, and 0 otherwise.

[Underlying variables: Q0421 (1990-92), Q3-4 (1993-94)]

DEPENDENT VARIABLES

Delinquency

Questions about violence, theft and drug use were asked as part of the young adult self-report for children 15 and older (as of December 31 of the calendar year).

Such questions include:

In the last year, about how many times have you:

Hurt someone badly enough to need bandages or a doctor?

Taken something from a store without paying for it?

Damaged school property on purpose?

We recode the answers as zero if the answer is never, and 1 otherwise.

Questions about drug use ask whether the respondent has ever used marijuana, cocaine, LSDs, uppers, downers or amphetamines, or sniffed or huffed substances to get high. We code a one if the respondent answers yes to any of these questions.

We set young adult delinquency equal to 1 if the respondent has answered yes to any of the above questions on the young adult self-administered questionnaire at any time from 2000-2004, and 0 otherwise.

[Underlying variables:

Child drugs: CSAS061 / CSAS066 / CSAS071 / CSAS076 / CSAS081 (2000-04)

Child misbehavior: CSAS040B / CSAS040D / CSAS040E (2000-2004)

YA drugs: YASR-24A / YASR-27A / YASR-27E / YASR-38A (2000-04)

YA misbehavior: YASR-60C / YASR-60E / YASR-60F (2002-2004)]

Grade Repetition

A variety of questions concerning grade repetition are asked both of children and young adults. We combined these answers to determine whether the child or young adult had ever repeated a grade after 1994 (i.e. between 1995 and 2004).

[Underlying variables:

Child grade repetition: CS901557 / CS921651 / CS94-8,
BKGN-37 / BKGN-29D / BKGN-37A.01 (2000-2004)

MS961531-55 / MS985005A-J, N

YA grade repetition: Q4-14 (1996-2004), Q4-15_000001-12 (1996-2004)]

In School

In 2000, 2002 and 2004, young adults were asked “Are you currently attending or enrolled in regular school, that is in an elementary school, a middle school, a high school, a college, or graduate school?” We set the variable *inschool* equal to one if the respondent had answered yes for the most recent year that he/she was between the ages of 16 and 19, and zero otherwise.

[Underlying variables: Q4-1 (2000-2004)]

Special Education

In 1998, each respondent was asked: “Has your child participated in any of the following programs in the past year? (Circle all that apply) d. Special education/handicapped.”

In 2000, 2002 and 2004, each respondent was asked of her child: “During the past school year, did he/she participate in special education or a program for handicapped children?”

A child with at least one valid answer to any of these four questions had the special education variable set equal to one if his/her mother had answered yes at least once and set equal to zero otherwise.

[Underlying variables: MS985004D (1998), BKGN-29D (2000-2004)]

Standardized Test Scores

Peabody Individual Achievement Tests (PIATs) were administered to children with PPVT ages of 5 to 14. We use the mathematics test and the reading recognition test. The NLSY reports age-normed percentile scores which are then converted into standard scores (mean 100 and standard deviation 15). We further transformed these scores to have mean 0 and standard deviation 1. We then assigned each child a score equal to the average of their non-missing scores from 1998 to 2004.

[Underlying variables: MATHZ1998-2004, RECOGZ1998-2004]

Underlying Variables in the NLSCY:

Sample: Children who were between the ages of 4 to 11 in Cycle 1 (1994). These children were between the ages of 12 to 19 in Cycle 5 (2002).

MAIN EXPLANATORY VARIABLES

Mental Health Variables

1. **Hyperactivity Score** in Cycle 1 (1994). From abecs06. Questions:

a) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Can't sit still, is restless or hyperactive?

b) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is distractible, has trouble sticking to any activity?

c) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Fidgets?

d) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Can't concentrate, can't pay attention for long?

e) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is impulsive, acts without thinking?

f) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Has difficulty awaiting turn in games or groups?

g) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Cannot settle to anything for more than a few moments?

h) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is inattentive?

2. **Emotional Disorder Score** in Cycle 1 (1994). From abecs08. Questions:

- a) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Seems to be unhappy, sad or depressed?
- b) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is not as happy as other children?
- c) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is worried?
- d) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Cries a lot?
- e) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Appears miserable, unhappy, tearful, or distressed?
- f) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is nervous, highstrung or tense?
- g) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Has trouble enjoying %him/her% self?
- h) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is too fearful or anxious?

3. **Aggression Score** in Cycle 1 (1994). From abecs09. Questions:

- a) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Gets into many fights?
- b) HOW OFTEN WOULD YOU SAY THAT %FNAME%: When another child accidentally hurts %him/her% (such as by bumping into %him/her%), assumes that the other child meant to do it, and then reacts with anger and fighting?
- c) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Physically attacks people?
- d) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Threatens people?
- e) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Is cruel, bullies or is mean to others?
- f) HOW OFTEN WOULD YOU SAY THAT %FNAME%: Kicks, bites, hits other children?

4. **Combined Behavior Problem Index:**

Consists of the sum of the three scores above plus the prosocial behavior score (NLSCY question ABEC07) the indirect aggression score (NLSCY question ABEC10) and the property offense score (NLSCY question ABEC11). The score is scaled by 4.75 to take on a range of 0 through 16.

Other Key Variables:

1. **Average Income:** Average real family income (in 2002 dollars). This variable is the average over all five cycles if family income is available for all five cycles. This variable is the average over Cycles 1 to 4 if family income is missing in Cycle 5 (2002).
2. **Mom's education 1994:** This is an indicator for the mother having more than high school education in Cycle 1 (1994). momhs1994=1 if momedu1994>2. This variable is derived from aedpq02, aedpq04, aedsq02, aedsq04 and admcd06.

3. **Child Treatment**

Children are classified as taking drug treatment for mental health treatment if the PMK answers yes to one of the following questions:

a) DOES HE/SHE TAKE THE FOLLOWING PRESCRIBED MEDICATION ON A REGULAR BASIS: Ritalin?

b) DOES HE/SHE TAKE THE FOLLOWING PRESCRIBED MEDICATION ON A REGULAR BASIS: Tranquilizers or nerve pills?

Children are classified as visiting a doctor for mental health treatment based on the following question:

IN THE PAST YEAR, HOW MANY TIMES HAVE YOU SEEN OR TALKED ON THE TELEPHONE ABOUT CHILD'S PHYSICAL OR MENTAL HEALTH WITH: A psychiatrist or psychologist?

5. **PMK Activity Limitations**

The PMK is asked if they have are restricted in their daily activities.

The PMK Depression Score variable is derived using the responses to the following questions.

- a) How often have you felt this way during the past week: I did not feel like eating, my appetite was poor?
- b) How often have you felt this way during the past week: I felt like I could not shake off the blues even with help from family or friends?
- c) How often have you felt this way during the past week: I had trouble keeping my mind on what I was doing?
- d) How often have you felt this way during the past week: I felt depressed.
- e) How often have you felt this way during the past week: I felt that everything I did was an effort?
- f) How often have you felt this way during the past week: I felt hopeful about the future.
- g) How often have you felt this way during the past week: My sleep was restless.
- h) How often have you felt this way during the past week: I was happy.
- i) How often have you felt this way during the past week: I felt lonely.
- j) How often have you felt this way during the past week: I enjoyed life.
- k) How often have you felt this way during the past week: I had crying spells.
- l) How often have you felt this way during the past week: I felt that people disliked me.

The possible responses to these questions were Rarely or none of the time (less than 1 day), Some or a little of the time (1-2 days), Occasionally or a moderate amount of the time (3-4 days) or Most or all of the time (5-7 days). The total score varies between 0 – 36, where a high score represents the presence of symptoms of depression.

We used the chose a cutoff such that 10 percent of the mothers in the survey were classified as depressed.

DEPENDENT VARIABLES:

1. **Delinquent Behavior <16:** This is an indicator variable for delinquent behaviour in Cycle 5 (2002) for children who were under the age of 16 (i.e. between the ages of 12 to 15) in Cycle 5. This variable is derived from the following variables:

a) During the past 12 months, about how many times were you questioned by the police about anything that they thought you did?

b) I steal outside my home.

c) I vandalize.

d) During the past 12 months, about how many times were you questioned by the police about anything that they thought you did?

e) During the past 12 months, about how many times have you run away from home?

2. **Delinquent Behavior 16-19:** This is an indicator variable for delinquent behaviour in Cycle 5 (2002) for children who were between the ages of 16 to 19 in Cycle 5. This variable is derived from the following:

a) During the past 12 months, about how many times have you stolen something?

b) During the past 12 months, about how many times have you damaged or destroyed anything that didn't belong to you (for example, damaged a bicycle, car, school furniture, broken windows or written graffiti)?

c) During the past 12 months, about how many times have you attacked someone with the idea of seriously hurting him/her?

d) During the past 12 months, about how many times have you carried a weapon for the purpose of defending yourself or using it in a fight?

e) During the past 12 months, about how many times have you sold any drugs?

3. **Standardized Math Score:** Standardized version of the raw math test scores in Cycle 5 (2002). Math test scores are available only for children in the sample who were between the ages of 12 to 15 in Cycle 5. Name of original variable in NLSCY: emacs01

4. **In School:** This is an indicator variable for the child being still in school in Cycle 5 (2002). This variable is available for children who were between the ages of 16 to 19 in Cycle 5 (2002). `Inschool_dum1=1` if `eedyeq1a=2` or `eedyeq1a=4`.

5. **Repeated Grade:** This is an indicator variable for the child having at least one grade-repetition episode taking place in the time period between Cycle 1 and Cycle 5 (i.e. between 1994 and 2002). This variable is available for children of all ages in the sample. This variable is created from eedydq50, eedcd03, dedcd03, cedcd03, bedcd03, eedyed12 and aedcd01 for children who were between the ages of 16 to 19 in Cycle 5 (2002). This variable is created from eedcd01, eedcd03, dedcd03, cedcd03 and bedcd03 for children who were under the age of 16 in Cycle 5 (2002).