Correlates of Mental Illness and Wellbeing in Children: Are They the Same? Results From the UK Millennium Cohort Study

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Objective: To investigate a framework of correlates of both mental illness and wellbeing in a large, current, and nationally representative sample of children in the United Kingdom.

Method: An ecologic framework of correlates including individual (sociodemographic and human capital), family, social, and wider environmental factors were examined in 12,347 children aged 11 years old from the UK Millennium Cohort Study. Mental illness and wellbeing scores were standardized to allow comparisons, and the variance explained by the different predictors was estimated.

Results: Mental illness and wellbeing were weakly correlated in children ($r = 0.2$), and their correlates were similar in some instances (e.g., family structure, sibling bullying, peer problems) but differed in others (e.g., family income, perceived socioeconomic status, cognitive ability, health status, neighborhood safety). The predictors included in the study explained 47% of the variance in symptoms of mental illness, with social relationships, home environment, parent health, cognitive ability, socioeconomic status, and health factors predicting large amounts of variance. A comparatively lower 26% of the variance in wellbeing was explained by the study variables, with wider environment, social relationships, perceived socioeconomic status, and home environment predicting the most variance.

Conclusion: Correlates of children's mental illness and wellbeing are largely distinct, stressing the importance of considering these concepts separately and avoiding their conflation. This study highlights the relevance of these findings for understanding social gradients in mental health through the life course and the conceptualization and development of mental illness and wellbeing in childhood as precursors to lifelong development in these domains.

Key words: psychopathology, mental health, determinants, psychiatric epidemiology, social gradient

According to the World Health Organization, health has long been defined as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity."[1(p1)] Despite the definition's emphasis on wellbeing, until recently the focus of research has primarily been on mental illness.[2] Moreover, those studies that state their focus as wellbeing often focus on symptoms of mental illness,[3-5] underlining the conflation of these two concepts.

Mental illness is one of the major causes of life years lost[6] and has a negative impact on a range of domains through the life course, including economic activity, relationships, and physical health.[7] Longitudinal research has shown that the precursors and first onset of mental disorder are often observed in childhood[8,9]; hence, understanding the predictors of childhood symptomatology can provide insight into which individuals might be at greater risk of experiencing psychopathology through the life course. Wellbeing is construed variously as a combination of positive emotions, engagement, meaningful relationships, and a sense of accomplishment[10,11] or as flourishing in aspects of feeling and functioning,[12] thus reflecting the positive aspects of mental health. Although less is known about the continuities and discontinuities of wellbeing through childhood and into adulthood, the arguments for focusing on children's wellbeing are supported by research demonstrating the strong relevance of childhood in shaping lifelong outcomes, the observation of health inequalities in childhood,[13,14] and the effects of childhood emotional health on adult wellbeing.[15,16]

Theoretically, there is much debate around whether these two constructs represent two ends of the same spectrum of mental health or two distinct domains that overlap and interact.[2,12,17] Little research has examined the possible conceptual and aetiological differences in these constructs by examining the similarities and differences in the predictors of mental illness and wellbeing in children. Rather, studies in children have focused mainly on mental illness (e.g., British Child and Adolescent Mental Health Survey[18] and the Great Smoky Mountain Study[19]) and only more recently on wellbeing (e.g., Children's Worlds study[20]). Although these studies provide relevant information regarding one or the other outcome, the predictors included are different and, where overlap does exist, often differently measured. Hence, the present study investigated and compared a wide range of predictors of children's mental ill-health and subjective wellbeing in the same sample of

children from a nationally representative birth cohort study in the United Kingdom.

Children develop as individuals in society within multiple and interacting domains and influences, including their family, peers, and wider community. Recognizing the multiple influences on children's mental health and situating the research in ecologic systems theories[21] and the proximal aspects of the social determinants of health,[22] a range of determinants were examined within a framework that included information about the individual, their family, and the wider environment.

METHOD

Participants
Participants were from the Millennium Cohort Study (MCS), a UK birth cohort study of individuals born at the start of this millennium (September 2000 to January 2002). More details of the study design, variables, and attrition can be found at www.cls.ioe.ac.uk.[23] In the present study, 12,347 children who had the study outcomes of interest (mental illness and subjective wellbeing) available at age 11 years (wave 5 of the study) were included. The analyzed sample was 50.2% girls, had a mean age of 11.17 years (standard deviation 0.33), and 84.5% identified as White, 8.4% as Asian, 3% as Black, 2.9% as mixed ethnicity, and 1.2% as other ethnicities. Ethics permissions for each wave of data collection were received as described in the study documentation.[23]

Measurement: Mental Illness
Symptoms of mental illness representing the 2 broad domains of prevalent symptomatology in childhood—internalizing and externalizing problems—were measured using the Emotional Symptoms and Conduct Problems subscales of the Strengths and Difficulties Questionnaire,[24] a widely used questionnaire of psychopathology symptoms in the United Kingdom since the late 1990s. A parent or caregiver (95% mothers, 4% fathers, 1% other) responded by indicating how true (not true, somewhat true, certainly true) statements about the child were. Items are aggregated to create a mental ill-health score (mean 3.21, standard deviation 2.95), with higher scores indicating greater symptoms.

Measurement: Mental Wellbeing
Mental wellbeing was assessed using a measure developed for the youth survey of the British Household Panel Study in the 1990s.[25] This questionnaire consists of indicators of 6 different aspects of wellbeing in domains that are appropriate to children, including school, family, friends, school work, appearance, and life as a whole. Children respond by indicating their level of happiness with each aspect of their lives on a 7-point scale ranging from not at all happy to extremely happy. The score is aggregated to represent overall wellbeing (mean 35.66, standard deviation 6.39), with higher scores indicating greater wellbeing.

Measurement: Correlates
Based on an ecosystems framework and incorporating social determinants at the individual level, 10 blocks of predictors grouped into 4 key areas were investigated, which began at the individual child level and then included the family, social relationships, school, and wider environment: (1) child sociodemographic factors, including their demographic characteristics, socioeconomic status, and perceived wealth and inequality; (2) human capital factors, including cognitive abilities and health status; (3) family factors,

including family structure, home environment, and parent health; and (4) social and environmental factors, including social relationships and the wider school and neighborhood environments. The variables included in each key area and how they were operationalized are detailed below. Descriptive statistics (proportions for categorical variables and means for continuous scale scores) are presented in Table 1.

Child Sociodemographic Factors
Child Demographics. Child demographic characteristics included were sex (coded 0 = male, 1 = female), age (in years) at assessment (estimated from month and year of birth and month and year of the wave 5 assessment), and ethnicity grouped into 5 broad groupings (White, Asian, Black, mixed, and other ethnic groups).

Socioeconomic Factors. Household income was represented in UK equivalized quintiles (1 = lowest income quintile, 5 = highest income quintile). Employment status of parents was represented as neither parent works (compared to either or both parents working). Parent education was represented by the highest National Vocational Qualifications level in the household (levels 1–5, where level 1 represents attaining General Certificate of Secondary Education grade D to G and level 5 represents having a higher degree or diploma[26]), with separate categories for other/overseas qualifications and no qualifications. Housing status was categorized as living in own home versus rented or other property (hence, 1 = does not own home).

Child Perceptions of Socioeconomic Status. Children's satisfaction with their family's wealth was measured using an adaptation of Schor's Consumer Involvement Scale,[27] which assesses how satisfied children are with their family's material possessions and wealth (e.g., wishing the family could afford to buy more of what the child wants), with higher scores indicating greater dissatisfaction. Children's perception of relative wealth and inequality was assessed with their responses to the question, "Compared with your friends, is your family richer, poorer, or the same?"

Human Capital Factors
Cognitive Factors. Children's cognitive ability was assessed using an aggregate latent score derived from the British Ability Scales,[28] using the naming vocabulary, picture similarity, pattern construction, and verbal similarities scores at 3, 5, 7, and 11 years old, respectively. Learning and communication difficulties were assessed by whether the child had a special educational needs status (1 = child has special educational needs status) and parent reports of communication difficulties (1 = child has communication difficulties).

Health. Physical health markers included in analysis were early childhood developmental motor delay, which was estimated from parent-reported motor development at 9 months of age; indication from a parent on whether the child had any serious or chronic illness (e.g., asthma, diabetes); and a variable indicating the child's body mass index was above the overweight threshold for the child's age and sex based on the classification of the International Obesity Task Force.[29]

Family Factors
Family Structure. Family characteristics included in the analyses were whether the child was in a single-parent household, number of siblings (0, 1, 2, or ≥3), and birth parity (eldest child). All these data are available from the household grid in the MCS.

Home Environment. Three aspects of the home environment were included in the analysis. Safety of the home environment as represented by whether any parent or caregiver currently smoked in the home and the home environment as rated by an interviewer during