The Role of Verbal Competence and Multiple Risk on the Internalizing Behavior Problems of Costa Rican Youth

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ABSTRACT: This longitudinal study examined internalizing behavior problems (anxiety/depression) in early adolescence in relation to adversity in early childhood and child verbal competence. We hypothesized that verbal competence would act as a protective factor in the face of early adversity, that is, high verbal IQ would predict relatively lower internalizing problems in early adolescence primarily for those children who experienced the greatest adversity. The sample was based on 191 Costa Rican children and their mothers, who were recruited in infancy from an urban community and assessed again at 5 and 11–14 years. Families were generally lower-middle to working class. A total of 165 children (94 boys) participated in the early adolescent follow-up (mean age = 12.3 years). Internalizing problems were based on maternal report (Spanish Child Behavior Checklist). Our cumulative risk index (CRI) of adversity in early childhood consisted of home environment quality (HOME score), socioeconomic status, maternal depressed mood (CESD), and maternal IQ. Controlling for the effects of age, gender, internalizing problems at 5 years, and verbal IQ at 5 years, there was a significant interaction between early adversity and verbal IQ at age 11–14 years in predicting internalizing problems in early adolescence. Youth with high verbal IQ had comparable levels of internalizing problems regardless of high or low adversity in early childhood. In contrast, youth with low verbal IQ received higher internalizing problem ratings if they experienced high adversity early in life. The results raise the possibility that interventions to improve verbal competence might help lower the risk of internalizing problems in the face of early adversity.

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Internalizing behavior problems (IBP) in childhood such as symptoms of anxiety and depression are important markers for similar problems in adulthood.[1] However, there is still relatively little research on the operation of risk and protective factors to predict IBP. Risk factors for IBP include temperamental inhibition, exposure to stressful events and social adversity, parental anxiety, as well as parent–child interaction patterns such as insecure attachment and parental overcontrol.[2] Some factors have been associated with lower levels of IBP.[3] These include the child's emotion regulation and coping skills, verbal competence, maternal warmth, and kinship social support. There is a paucity of research on whether any of these factors moderate the impact of exposure to multiple risk factors in an early disadvantageous environment on later IBP.

The present study investigated the protective role of youth verbal competence on IBP using a longitudinal design. Based on research on IBP as well as theories of risk and resilience,[4] we tested two hypotheses. First, we expected that the cumulative combination of multiple risk factors early in life would predict IBP in early adolescence. Second, we expected that verbal competence would act as a protective factor and moderate the effects of multiple risk such that high verbal competence would reduce the risk of IBP, primarily for those youth who experienced greatest early adversity.

METHOD

Participants

This study used data from a longitudinal study of 191 Costa Rican children recruited in infancy and their mothers, from an urban community near San Jose as part of a community-based study of iron deficiency and child development.[5] Enrollment entailed door-to-door screening of the entire community and included all 12- to 23-month-old healthy infants. The community was predominantly lower-middle to working class. The average maternal education was 8.4 years. A total of 85% of the original cohort ($n = 162$; 87 boys) participated in the early childhood follow-up. The mean age of children was 60.3 months (SD = 1.1). At the early adolescence follow-up, data on 165 youth (94 boys) were available. The mean age of youth was 12.3 years with a range from 11 to 14 years.

Procedure and Measures

Our index of cumulative risk focused on aspects of the family environment at infancy. The quality of the family environment was assessed with the

Infancy-Toddler HOME. The socioeconomic status was measured by Hollingshead four-factor index. Mother's full scale IQ was assessed by the Wechsler Intelligence Scale for Adults-Revised. The Center for Epidemiologic Studies Depression Scale was used to assess maternal depressed mood. Following previous research,[6] each family environment variable was dichotomized to identify risk. The cumulative risk index (CRI) representing early adversity was computed by summing all binary risk factors for each family. In this sample, the mean number of risks was 1.2 (SD = 1.1). The Child Behavior Checklist (CBCL, parent report, Spanish version) was obtained at early childhood (age 5 years) and early adolescence (age 11–14 years) follow-ups to measure IBP. Verbal IQ scaled scores (Wechsler Scales; WPPSI-R and WISC-R) were the measure of verbal competence at both follow-ups.

RESULTS AND DISCUSSION

A hierarchical linear regression analysis was conducted to predict IBP at age 11–14 years from age, gender, CRI, IBP at age 5 years and verbal IQ at age 5 and 11–14 years. The overall model was significant, accounting for 25% of the variance. The CRI accounted for significant proportion of variance in IBP at 11–14 years ($\Delta r^2 = 0.03$, $P < 0.05$) after partialling out the effects of age, gender, IBP, and verbal IQ at age 5 years. This result suggests that the role of early adversity extends beyond the stability of IBP and child characteristics. There was also a significant interaction between the CRI and verbal IQ in early adolescence, $\Delta F(1, 118) = 7.83$, $P < 0.01$. The interaction accounted for 5% additional variance in IBP at age 11–14 years while controlling for the other main effects and the interaction of CRI by verbal IQ at age 5 years. The nature of the interaction was explored by estimating CBCL Internalizing scores at 1 SD above and below the mean on the CRI and verbal IQ predictors (see Fig. 1). Contrary to our expectations, high verbal IQ in early adolescence did not reduce the risk of IBP for youth who experienced greatest early adversity. Rather, youth with high verbal IQ had comparable levels of IBP under both adversity levels. On the other hand, youth with low verbal IQ received high IBP ratings if they experienced high adversity early in life.

This interaction suggests four conclusions. First, it appears that high verbal competence confers stability to youth's psychosocial adjustment regardless of the adversity level rather than acting as a protective factor to benefit primarily those children from high-risk families. Second, verbal IQ in early adolescence, but not in early childhood, moderated the role of early adversity on IBP, indicating that the same factor may act as either a protective or vulnerability factor in different periods of development. Third, the combination of early high adversity and low verbal IQ seems to render children most vulnerable to the highest level of IBP in early adolescence. This result appears to fit with the concept of "double jeopardy"—in this case worse outcome among children
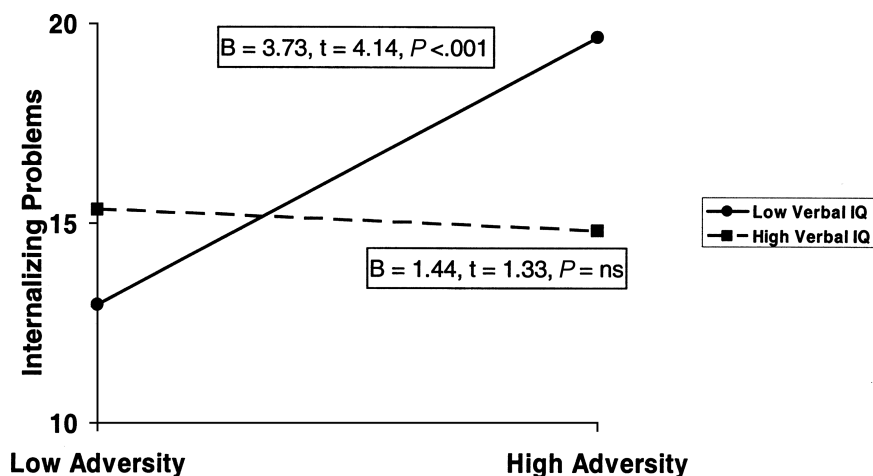
FIGURE 1. Interaction between early adversity level and verbal IQ at age 11–14 years predicting mother ratings of internalizing problems in early adolescence.

who experience both multiple risk and poor personal resources. Numerous processes could explain this pattern: youth with less verbal competence are likely to experience poor social and academic competence as well as poor problem solving and coping skills, which in turn may contribute to higher IBP. Finally, improving verbal competence might be a fruitful target for interventions to decrease anxiety and depression symptoms in at-risk youth.

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