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**Comment on “Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study”**

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We were interested to read the article by Hjortebjerg et al. on the relationship between road traffic noise and behavioral problems in children. We were especially interested in the variables considered in this study, because we believe it is insufficient to assess the influence of the noise environment on behavioral disorders of children without also factoring in the impact of parents’ mental and neurological health.

Hjortebjerg et al. mentioned that environmental factors such as noise can cause anxiety and mood swings in adults, and an earlier study published in *EHP* (Power et al. 2011) concluded that environmental noise was associated with cognitive problems in adults. This is relevant because parents are primary influences on the personality and behavior of their children (Méndez-Venegas and Maya-del Moral 2011; Ortiz et al. 2011; Morales et al. 2002). Thus, it is unclear whether variation in children’s behavior is really caused by ambient noise or whether it is a result of disorders in their parents, who themselves may have been influenced by noise exposure. To study the relationship between environmental noise and behavioral problems in children, it is necessary to first rule out problems in parents that may affect their children’s behavior.

*The authors declare they have no actual or potential competing financial interests.*

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**Response to “Comment on ‘Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study’”**

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We agree with Lezama et al. that the mental health of a parent may influence child behavior. Several family-level factors, including poor maternal mental health, have been demonstrated to pose a risk for behavioral problems in infancy and early childhood (Maggi et al. 2010). In our study, we had information on self-reported maternal mental health problems during pregnancy, and we adjusted for this covariate in the analysis. In response to the letter by Lezama et al. and to further assess this covariate we have conducted a sensitivity analysis in which we excluded women with mental health problems ( $n = 491$ ). Exclusion of these women did not change the results of our study on either the total difficulties score (adjusted odds ration [OR] = 1.07; 95% confidence interval [CI]: 1.00, 1.14,

compared with OR = 1.07; 95% CI: 1.00, 1.14 before exclusion) or the hyperactivity/inattention subscale (adjusted OR = 1.11; 95% CI: 1.03, 1.18, compared with adjusted OR = 1.10; 95% CI: 1.03, 1.18 before exclusion). This suggests that the associations between exposure to residential road traffic noise in early childhood and child behavior problems were not driven by maternal mental health problems.

We did not have information on the mental health of the father during pregnancy or of either parent after pregnancy, and our assessment of maternal mental health may not have fully captured mental health during pregnancy. Consequently, we cannot rule out that this may have affected the estimates in our study. There are, however, only very limited and inconclusive literature investigating the association between traffic noise and mental health among adults, which prevents us from commenting on the size of a possible effect modification by parental mental health.

*The authors declare they have no actual or potential competing financial interests.*

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