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Title: Bidirectional association between wheezing and mental health problems in adolescence: Pelotas, birth cohort, 1993

Prof. Ana Maria 11017 Menezes anamene@terra.com.br MD ¹, Mrs. Natalia 11094 Gomez-Cofre natycofre20@hotmail.com , Mr. Jeovany 11095 Martinez-Mesa jeovanymm@yahoo.es MD , Mr. Ricardo 11096 Noal ricardonoal@gmail.com MD , Mr. Pedro C. 11104 Hallal prchallal@gmail.com , Mrs. Maria Cecilia 11105 Assunção cecilia.epi@gmail.com , Mrs. Cora L. 11114 Araujo cora.araujo@terra.com.br and Mrs. Luciana 11123 Anselmi luanselmi@terra.com.br . ¹ Post-Graduate Program in Epidemiology, Federal University of Pelotas, Pelotas, RS, Brazil, 96085470 .

Body: Introduction: several studies have shown association between wheezing and mental health problems in children and adolescents that can occur in both directions. Objective: to assess longitudinally the bidirectional association between wheezing and mental health problems in adolescents at 11 and 15 years of age. Methods: individuals belonging to the 1993 birth cohort, in Pelotas, Brazil, were followed at 11 and 15 years old. Wheezing was assessed as “presence of wheezing in the last 12 months”, based on the International Study of Asthma and Allergies in Childhood (ISAAC). Mental health problems were assessed with the Strengths and Difficulties Questionnaire (SDQ). For the analysis, the total of subjects was divided in two samples from which teenagers with the outcomes (wheezing/mental health problems) at 11 years old were excluded. Results: in the crude analysis for mental health problems at age 11 as predictor of wheezing at age 15, there was a statistical significant association for both sexes: males [RI = 1.64 (95% CI 1.16, 2.31), p = 0.005], and females [RI = 1.68 (95% CI 1.28, 2.19), p <0.001]; after adjustment for confounders, the association was maintained only for females [RI = 1.66 (95% CI 1, 16, 2.36), p = 0.005]. When wheezing at age 11 was evaluated as predictor of mental health problems at 15 years old, there was a statistical significant association in the crude analysis only for boys [β = 0.98 (95% CI 0.09, 1.87), p = 0.031]; after adjusting for confounders, this association was no longer statistically significant (p = 0.652). Conclusions: girls who present mental health problems at age 11 have a high risk for developing wheezing at 15 years old.