“IT RUNS IN THE FAMILY” – THE ETIOLOGICAL INFLUENCES OF EATING DISORDER SYMPTOMS

Pedro Horta¹ Isabel Brandão² Ana Miguel¹ Francisco Coutinho² Manuel Araújo¹

¹ Department of Psychiatry and Mental Health, Vila Nova de Gaia/Espinho Healthcare Center, PORTUGAL;

² Department of Psychiatry and Mental Health, São João HealthCare Center, PORTUGAL;

pedro.horta@chvng.min-saude.pt

INTRODUCTION

Eating disorders, including **anorexia nervosa (AN)** and **bulimia nervosa (BN)** increase substantially in adolescence and are responsible for major psychosocial impairment. [1]

It has been known for some time that eating disorders ‘run in families’, with a 7- to 12-fold increase in the prevalence of AN and BN in relatives of eating-disordered probands compared to families of controls. [2]

Emerging evidence suggests that genetic and environmental influences in early adolescence sustain the continuity of eating disorder symptoms such as **drive for thinness**, **body dissatisfaction** and **bulimia**. [3]

The goal of this paper is to review the existing literature about genetic and environmental influences on disordered eating attitudes and behaviors and expose a clinical case observed in the Psychiatry outpatient unit regarding 3 sisters (2 twins) with Eating Disorder.

RESULTS

There is a **high genetic overlap** in the susceptibility to AN and BN, and the two disorders, as well as symptoms of these disorders, share many environmental risk factors, including negative life events, weight teasing, and social pressures. [4,5]

Similarly to other eating disorders symptoms, body dissatisfaction, and related concerns about body weight and shape showed moderate to high heritability estimates in adolescence and in adulthood, with the remaining variance explained by non-shared environmental influences. [6]

Just like in eating disorders, shared environmental influences on weight and shape concerns play a role only in children and younger adolescents. Twin studies also suggest *that* new genetic influences come online in later stages of adolescence, whereas the contribution of shared environmental influences declines with age. [2,5,7]

Regarding individual symptoms, a recent study indicates similar continuity of each symptom (drive for thinness, body dissatisfaction and bulimia) across adolescence and emerging adulthood, which appears to be underpinned by largely nonspecific and stable genetic influences. Genetic innovation was observed only when participants reached emerging adulthood. When observing within-symptom continuity, **drive for thinness** and **body dissatisfaction** symptoms showed a pattern of high continuity across development and high correlations with each other, whereas **bulimia** symptoms were moderately stable and less associated with the other two symptoms. This indicates that drive for thinness and body dissatisfaction symptoms may be associated with higher genetic vulnerability than bulimia symptoms in young people. [3]

CLINICAL CASE

C, female, 21 years old, Bulimia Nervosa, attends consultations in the Psychiatry outpatient unit.

C has 2 twin sisters who live in Brazil, 4 years older than her. She describes her childhood growing up in Brazil as “difficult” due to a permanent sense of insecurity. She remembers that she was very close to her sisters and that they were very shy and spent most of the time with each other. She recalls her father to be very judgmental about what they eat, and the meals were always a very stressful period. Her mother was a very elegant woman who was “always buying healthy food magazines”. When C was in the 9th grade they started frequenting Family Therapy sessions when both her sisters began binge-eating and purging simultaneously.

Later, after a comment of her father, C started a restrictive diet and shortly after began binge-eating and purging. She came to Portugal where she is currently living with her father. She is now at IMC 22,3 kg/m² and is still struggling with compulsions but is slowly recovering. Her sisters, with whom she has not been for 2 years remain in Brazil with their mother. Both have been diagnosed with Anorexia Nervosa and are receiving treatment at an inpatient clinic in São Paulo, Brazil.

CONCLUSION

All three symptoms (body dissatisfaction, drive for thinness and bulimia) are supported largely by stable genetic influences and non-shared environmental effects tend to be transient and contribute to change in symptoms over time. However, risk for bulimia symptoms may involve additional genetic, environmental and biological factors that are not shared with other symptoms of Eating Disorders. The clinical case exemplifies the importance of etiological influences in Eating Disorders in general and its symptoms specifically.

The beforementioned results of genetic continuity carry implications for molecular genetic studies of eating disorders: they provide preliminary support for broadening phenotypes included in molecular genetic studies to encompass a wide range of eating pathology phenotypes, to increase power to detect shared susceptibility loci. [8]

Future studies need to continue examining how the risk and maintenance factors for Eating Disorders operate across development to inform the translation of the etiological findings to clinical practice.

REFERENCES

- [1] Kessler, R. C., Shahly, V., Hudson, J. I., Supina, D., Berglund, P. A., Chiu, W. T., ... Andrade, L. H. (2014). A comparative analysis of role attainment and impairment in binge-eating disorder and bulimia nervosa: Results from the WHO world mental health surveys. *Epidemiology and Psychiatric Sciences*, 23(01), 27–41.
- [2] Klump, K. L., Burt, S. A., McGue, M., & Iacono, W. G. (2007). Changes in Genetic and Environmental Influences on Disordered Eating Across Adolescence. *Archives of General Psychiatry*, 64(12), 1409
- [3] Waszczuk, M. A., Waaktaar, T., Eley, T. C., & Torgersen, S. (2019). Etiological influences on continuity and co-occurrence of eating disorders symptoms across adolescence and emerging adulthood. *International Journal of Eating Disorders*, 52(5), 554–563.
- [4] Bulik, C. M., Kleiman, S. C., & Yilmaz, Z. (2016). Genetic epidemiology of eating disorders. *Current Opinion in Psychiatry*, 29(6), 383–388
- [5] Fairweather-Schmidt, A., & Wade, T. D. (2015). Changes in genetic and environmental influences on disordered eating between early and late adolescence: A longitudinal twin study. *Psychological Medicine*, 45(15), 3249–3258
- [6] Klump, K. L., Burt, S. A., Spanos, A., McGue, M., Iacono, W. G., & Wade, T. D. (2010). Age differences in genetic and environmental influences on weight and shape concerns. *International Journal of Eating Disorders*, 43(8), 679–688.
- [7] Wade, T. D., Hansell, N. K., Crosby, R. D., Bryant-Waugh, R., Treasure, J., Nixon, R., ... Martin, N. G. (2013). A study of changes in genetic and environmental influences on weight and shape concern across adolescence. *Journal of Abnormal Psychology*, 122(1), 119–130.
- [8] Smoller, J. W., Andreassen, O. A., Edenberg, H. J., Faraone, S. V., Gatt, S. J., & Kendler, K. S. (2018). Psychiatric genetics and the structure of psychopathology. *Molecular Psychiatry*, 1