Title: The Prevalence of Dysfunctional Breathing and its Association with Personality Type in a University Population

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Background: Dysfunctional breathing (DB) is an umbrella term used to describe an abnormal breathing pattern which can be psychologically or physiologically based. DB has been shown to be exacerbated at times of increased stress and to be related to anxiety disorders; both factors are common within a university setting, particularly around exam time. Personality types, specifically type A personality, share common risk factors with DB, suggesting a possible association. The prevalence of DB within a university population has not been previously investigated.

Aims: To investigate the prevalence of dysfunctional breathing within a university population and assess any association between DB and type A personality.

Methods: A cross sectional study was undertaken involving participants recruited at Brunel University. The primary outcome measure was the Nijmegen questionnaire (validated diagnostic tool for DB), and the secondary outcome measure was the breath hold test (BHT) (clinical diagnostic tool for DB). Additionally, the Behaviour Pattern Scale was used to classify participants as type A or type B personality.

Results: 40 participants completed the study. 17.5% (7/40) were positive for DB on the Nijmegen questionnaire (>23/64). Positive scores only occurred in women; consistent with previous data on gender and DB. 7.5% (3/40) had a positive result using the BHT (<20

seconds). 50% of participants were type A and 50% type B personality. Pearson's Chi-Square test was used which demonstrated a significant association between DB (Nijmegen questionnaire) and type A personality (p=0.037). No association was found between the results of the BHT and personality type (p=0.548), or between the Nijmegen questionnaire and BHT results (p=0.453). At baseline there were no significant differences in participant characteristics, other than gender, between the groups that received a positive or negative DB diagnosis.

Conclusion: Dysfunctional breathing may affect a significant percentage of people in a university population; and a significant association with type A personality type has been shown. Raising awareness of DB in the university population may lead to earlier diagnosis and timely referral to physiotherapy or counselling services as appropriate. A larger study is needed to further validate these findings.