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Brief Report

Longitudinal Relationships between Financial Difficulties and Eating Attitudes in Undergraduate Students

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Abstract

Objective: Previous research has shown a relationship between financial difficulties and poor mental health in students, but there has been no research examining such a relationship for eating attitudes.

Method: A group of 445 British undergraduate students completed the Index of Financial Stress and Eating Attitudes Test 26 item version at up to four time points across a year at university.

Results: Higher baseline financial difficulties significantly predicted higher eating attitudes score at times 3 and 4 (up to a year), after adjusting for demographic variables and baseline eating attitudes score. Lower family affluence also predicted higher eating attitudes at time 4 (up to a year). Higher eating attitudes score at baseline also significantly predicted greater financial difficulties at time 2 (3-4 months). Re-running these statistics split by gender showed these relationships were significant for women only.

Discussion: Greater financial difficulties and lower family affluence predict a worsening in eating attitudes over time in students. The relationship appears to be partially bi-directional, but is only apparent in female students.

Keywords: eating disorders; eating attitudes; financial difficulties; poverty; socio-economic status.

Longitudinal Relationships between Financial Difficulties and Eating Attitudes in Undergraduate Students

Socio-Economic Status (SES) has long been related to mental health problems, with early research suggesting that poverty increases the risk of emotional problems in children and adolescents[1]. Depression is linked to lower family affluence[2], poor living standards[3] and financial difficulties[4]. A number of studies have also found a relationship between debt and an elevated risk of a range of mental health problems[5]. However the relationship appears somewhat different for eating disorders, with higher SES and living in more affluent areas increasing risk[6]. Those with anorexia nervosa are more likely to come from affluent families[7] and have parents with higher education[8].

University students have high levels of eating disorder symptoms: one US college study[9] found that 13.5% of women and 3.6% of men screened positive for an eating disorder, while 11.2% of a German female college population developed a full or partial eating disorder over a 3 year period[10]. A number of studies have shown a relationship between debt and financial difficulties and poor mental in students[5], however there has been no research on financial difficulties and risk for eating disorders in this population. This study therefore used a longitudinal design to examine the between financial difficulties and eating attitudes in a sample of British undergraduates, hypothesising that increased financial difficulties predicts more severe eating attitudes and vice versa. This study also aimed to explore whether the effects of financial difficulties were independent of broader socio-economic status.

Method

Participants

Figure 1 displays a recruitment flow diagram. All participants had to complete the baseline survey and were then invited to complete the survey at follow-up. Those who only

completed one time point were excluded. A total of 445 participants completed the survey at baseline and at least one other time point. Time points were across just over a year during their first two years at university, 3-4 months apart each time point. Participants were 77.9% (N = 345) female and 89.4% (N = 396) of white ethnicity. Their mean age was 19.9 years (range = 17-57).

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Insert Figure 1 here

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A binary logistic regression was conducted to determine predictors of non-completion at time 3. This included age, gender, ethnicity, T1 and T2 EAT, T1 IFS and T1 FAS. The overall model significantly predicted drop-out: $\chi2$ = 11.61, df = 5, P < .05, 3.8%-5.1% variance explained. However no variables were significant predictors individually. The same formula was used for non-completion at time 4 with demographics, T1 EAT, T2 EAT, T3 EAT, T1 IFS and T1 FAS. The overall model did not significantly predict drop-out: $\chi2$ = 2.87, df = 5, P > .05, 2.6%-3.7% variance explained. No variables were significant predictors individually.

Procedure

The data was collected as part of a wider study into student finances and mental health. Every university students union in the UK was emailed and invited to advertise the research via email, websites or social media. Forty-six out of 114 universities agreed to do so. The survey was advertised as examining whether factors such as 'finances, demographics and alcohol use' were related to mental health in students. Due to the recruitment method it is not possible to determine the response rate.

Measures

Family Affluence Scale (FAS)[11]. This measures socio-economic status of adolescents using questions such as 'Do you have a bedroom to yourself?' Higher scores

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represent greater family affluence. This had a mean of 5.7 (*SD* = 1.6) in the current sample, similar to the norm of 5.3 for England[11].

Eating Attitudes Test-26 (EAT-26)[12]. This 26-item self-report questionnaire measures attitudes towards food and eating (e.g., 'I feel that food controls my life'). The total score was used in this study, with higher scores representing more severe attitudes and a score of 20+ suggests a possible eating disorder[12]. In the current sample 5.1% (n=5) of men and 19.4% (n=67) of women were above this. Cronbach's alpha was .93 in this sample at time 1 and mean score was 12.6 (*SD* = 14, Median = 8, Range= 0-69) for women, and 6.1 (*SD*= 7, Median= 3.5, Range= 0-39.) for men. The original validation paper showed a mean of 9.9 in female students in Canada[15]. There was good test-retest reliability with a correlation of *r*=.89 between times 1 and 2.

Index of Financial Stress (IFS)[13]. The IFS measures financial difficulties over the past six months (e.g., 'Was unable to heat home'). Higher total scores represent greater financial difficulty. Cronbach's alpha was .70 and the mean score was 1.7 (*SD* = 1.7) in this sample at time 1. There are no norms to compare this score to. There was good test-retest reliability with a correlation of *r*=.80 between times 1 and 2.

The EAT and IFS were completed at all time points, the FAS was only completed at time 1.

Data analysis

Data was analysed using SPSS version 21. Any participants who completed fewer than 50% of EAT-26 items were excluded. Individual missing items were replaced with the mode. The IFS was normally distributed, however a Kolmogorov-Smirnov test demonstrated that the EAT-26 score was non-normally distributed ($D(445) = .19$, $P < .001$). Skewness was just within normal range (2.0), but kurtosis was out of normal range (4.7). The data could not be satisfactorily transformed as this is appropriate for skewness but not kurtosis. A

ZREDIS*ZPRED plot suggested there was not any clear heteroscedasticity or non-linearity[1]. Hierarchical linear multiple regression was therefore used, though it is important to acknowledge the limitations imposed by non-normal distribution. The first set of regressions tested whether financial difficulties (IFS) at baseline predicted eating a (EAT) at later time points, after adjusting for socio-economic status (FAS score), baseline EAT score, gender, ethnicity and age. The same analysis was then used to see whether EAT at baseline predicted IFS at later time points, thus 6 analyses in total were conducted. Listwise deletion was used for missing data.

Results

Higher baseline EAT scores were significantly predicted only by demographics of female gender: $\beta=-.19$, $p<.001$. Higher baseline IFS was significantly predicted by lower baseline FAS ($\beta= -.26$, $P < .001$), female gender ($\beta= -.14$, $P < .001$) and older age (17-19 vs. 20-29 $\beta= .15$, $P <. 001$; 17-19 vs. 30+ $\beta= .22$, $P <. 001$). Higher baseline FAS was significantly predicted by lower baseline IFS ($\beta= -.27$, $P < .001$), older age (17-19 vs. 20-29 $\beta= -.15$, $P <. 001$; 17-19 vs. 30+ $\beta= -.18$, $P <. 001$), and white compared to 'Other' ethnicity ($\beta= -.12$, $P < .01$).

<u>Impact of financial difficulties on later eating attitudes</u>

The final regression models with demographics, baseline financial difficulties and baseline Eating Attitudes Test (EAT) scores significantly predicted EAT scores at time 2 (F [10,382] = 146.44, $P < .001$, adjusted R^2 = .79), time 3 (F [10,243] = 39.54, $P < .001$, adjusted R^2 = .60) and time 4 (F [10,217] = 54.73, $P < .001$, adjusted R^2 = .70). Table 1 displays the effects of the individual predictors within those multiple regressions. Higher T1 Index of Financial Stress (IFS) scores predicted significantly higher EAT at T3 and T4. Lower Family Affluence Scale (FAS) scores at T1 were also associated with significantly higher EAT at time 4.

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[1] Plot not shown due to limitations on number of figures but are available upon author request.

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Impact of eating attitudes on later financial difficulties

The final regression models with demographics, baseline IFS and baseline EAT significantly predicted IFS at time 2 (F [10,383] = 76.1, $P <$ .001, adjusted R^2 = .66), time 3 (F [10,254] = 30.83, $P <$ .001, adjusted R^2 = .53) and time 4 (F [10,225] = 18.27, $P <$ .001, adjusted R^2 = .42). Table 2 displays the results of the multiple regressions. Higher baseline EAT Total predicted significantly higher IFS scores at T2 only.

Differences by Gender

The data was split by gender and the above significant analyses repeated to determine whether the relationship between IFS and EAT held for both men and women. Baseline IFS significantly predicted EAT at T3 for women (β=.17, p<.01), but not men (β= .19, $P >$ .05). Baseline IFS significantly predicted EAT at T4 for women (β= .10, P<.05), but not men (β=.01, $P >$ .05). Baseline FAS significantly predicted EAT at T4 for women (β= -.11, $P <$ .05), but not men (β= -.11, $P >$ .05). Finally, baseline EAT significantly predicted IFS at T2 for women (β= .09, $P <$ .05), but not men (β= .02, $P >$ .05).

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Insert Table 2 here

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Discussion

This study examined the longitudinal relationship between financial difficulties and eating attitudes in university students. Greater financial difficulties predicted more severe eating attitudes up to a year later after controlling for baseline eating attitudes and demographic variables. Previous studies have shown a relationship between financial

difficulties and poor mental health in students[5]. This finding appeared to be independent from the impact of family affluence, with lower family affluence also predicting higher eating attitudes a year later. There was however no effect of family affluence on baseline scores, suggesting that lower family affluence leads to greater chronicity eating attitudes over time. This goes against previous studies showing higher family affluence in those with eating disorders[6,7], but in line with general population studies showing a relationship between lower SES and disordered eating.[14,15]

The hypothesis of a bi-directional relationship was partly supported as more severe eating attitudes predicted greater short-term financial difficulties at 3-4 months. Thus those with more severe eating difficulties might be more vulnerable to short term financial difficulties. These findings however appear to hold only for female students, in line with other findings of a link between parental education and eating disorders in women but not men[8].

These links need to be further explored to confirm the relationship and determine causal mechanisms for the relationship. The relationship between financial difficulties and eating attitudes may relate to models suggesting binge eating represents a need to escape from self-awareness[16]. Those at risk of an eating disorder might be acutely sensitive to failures to manage a budget or cope financially, and binge eating might be a way to escape from this awareness of personal failings and associated negative affect. It may also relate to findings of low perceived control over external events in those with eating disorders[17,18], with those who are high risk for an eating disorder being prone to feeling they are not in control of their financial situation, and therefore engage in restricting behaviours as a way to exert control in other areas of their life.

This study is limited by the self-selected sample which is heavily female and its use of a measure of eating attitudes rather than eating disorder behaviours. There is also a high level of drop out though there is no evidence that drop out was influenced by the variables

measured here. The Family Affluence Scale is designed for use with adolescents so is not ideal for an adult population. The Index of Financial Stress measures difficulties over a six month period so there is a possible partial overlap between time points. It is important to note the limitations of using regression with data with high levels of kurtosis, and the small sample size for regression analysis split by gender. However, the findings suggest the need for further exploration of the link between greater financial difficulties and more severe eating attitudes, including studies of clinical groups and factors that might mediate or moderate these associations.

References

1. Costello EJ, Angold A, Burns BJ, Erkanli A, Stangl DK, Tweed DL. The Great Smoky Mountains Study of Youth Functional Impairment and Serious Emotional Disturbance Arch Gen Psychiatry 1996; 53:1137-1143.

2. Ritsher JEB, Warner J, Johnson JG, Dohrenwend BP. Inter-generational longitudinal study of social class and depression: a test of social causation and social selection models. Br J Psychiatry 2001; 178: 84-90.

3. Lorant L, Croux C, Weich S, Deliege D, Mackenbach J, Ansseau M. Depression and socio-economic risk factors: 7-year longitudinal population study. Br J Psychiatry 2007; 190: 293-298.

4. Skapanakis P, Weich S, Lewis G, Singleton N, Araya R. Socio-economic position and common mental disorders: Longitudinal study in the general population in the UK. Br J Psychiatry 2006; 189: 109-117.

5. Richardson T, Elliott PA, Roberts R. The Relationship between Debt and Mental and Physical Health: A Systematic Review and Meta-Analysis. Clin Psych Review 2013; 33: 1148-1162.

6. Nevonen L, Norring C. Socio-economic variables and eating disorders: a comparison between patients and normal controls. Eat Weight Disord 2004; 9: 279-284.

7. Hjern A, Lindberg L, Lindblad F. Outcome and prognostic factors for adolescent female in-patients with anorexia nervosa: 9- to 14-year follow-up. Br J Psychiatry 2006; 189: 428-432.

8. Ahern JC, Chiesa F, af Klinteberg B, Koupil I. Psychosocial Determinants and Family Background in Anorexia Nervosa—Results from the Stockholm Birth Cohort Study. Int J Eat Disord 2012; 45: 362–369.

9. Eisenberg D, Nicklett EJ, Roeder K, Kirz NE. Eating disorder symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. J Am Coll Health 2011; 59:700-707.

10. Jacobi C, Fittig E, Bryson S, Wilfley D, Kraemer H, Taylor CB. Who is really at risk? Identifying risk factors for subthreshold and full syndrome eating disorders in a high-risk sample. Psychol Med 2011; 41:1939-1949.

11. Boyce W, Torsheim T, Currrie C, Zambon A. The Family Affluene Scale as a Measure of National Wealth: Validation of An Adolescent Self-Report Measure. Social Indicators Research, 2006; 78:473-487.

12. Garner DM, Olmsted MP, Bohr Y, Garfinkel PE. The Eating Attitudes Test: psychometric features and clinical correlates. Psychol Med 1982; 12:871-878.

13. Siahpush M, Carlin JB. Financial stress, smoking cessation and relapse: results from a prospective study of an Australian national sample. Addiction 2006; 101:121-127.

14. Power Y, Power L, Canadas MB. Low socioeconomic status predicts abnormal eating attitudes in Latin American female adolescents. Eating Disorders 2008; 16:136-145.

15. Reagan P, Hersch J. Influence of race, gender, and socioeconomic status on binge eating frequency in a population-based sample. Int J Eat Disorder 2005; 38: 252-256.

16. Heatherton TF, Baumeister RF. Binge eating as escape from self-awareness. Psychol Bull 1991; 110:86-108.

17. Dalgleish T, Tchanturia K, Serpell L, Hems S, de Silva P, Treasure J. Perceived control

over events in the world in patients with eating disorders: a preliminary study. Pers Indiv Differ 2001; 31:453-460.

18. Sassaroli S, Gallucci M, Ruggiero GM. Low perception of control as a cognitive factor of eating disorders. Its independent effects on measures of eating disorders and its interactive effects with perfectionism and self-esteem. J Behav Ther Exp Psych 2008; 39:467-488.