The Evolutionary Psychology of Eating Disorders: The Sexual Competition Hypothesis

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Epidemiology of Eating Disorders

- 90-95% of cases are female
- AN prevalence 1.2-2.2% among women; BN 1.7-2.9% among women
- A peak at puberty for females but not males
- Onset mostly after puberty, peak age for AN is 18
- In community surveys BN has been found to be more than 3 times as prevalent as AN
- Anecdotal evidence that all EDs are more prevalent in western and westernised societies
Sexual Selection
Some Darwinian Hypotheses on Eating Disorders

• Reproductive suppression (Voland & Voland, 1989)
• Sexual Competition Hypothesis (SCH) (Abed, 1998)
• Reproductive Suppression of Subordinates (Mealey, 2001)
• Life History/Executive Functions (Salmon et al, 2009)
Sexual Competition Hypothesis (SCH)

• Eating disorders are a manifestation of female intra-sexual competition whereby autonomous females of reproductive age compete intensely with each other in the novel environment of large cities through the display of signs of youth and nubility through a strategy of the ‘pursuit of thinness’. This leads to ‘runaway female intra-sexual competition’, the extreme version of which is Eating Disorder.
The Sexual Competition Hypothesis is based on the idea that there is a mismatch between the design of the human female’s psychological adaptation for mate attraction and retention and for competing with rival females on the one hand and the modern human environment on the other.
Sexual Competition Hypothesis (Abed, 1998)

- Darwinian theory of sexual selection
- The evolution of the female nubile shape
- Drive to display visual cues of physical attractiveness
  - youth
  - good health
- Factors in the modern environment that intensify FISC
  - Autonomy (with a reduction in paternity certainty)
  - Socially imposed monogamy (leading to a reduction in eligible males)
  - Declining fertility
  - Instability of mateships
  - media images
  - Living in large cities
  - Improving standards of health
Youth

• Major determinant of female reproductive potential and mate value

• Features of advancing age:
  • weight gain
  • deterioration of hour-glass (nubile) figure

• Slimness associated with youthfulness
The Waist to Hip Ratio (WHR)

There is a universal male preference for a particular female waist to hip ratio that provided a visual signal (in the ancestral environment) for the female’s reproductive potential, reproductive history as well as current fertility.
Swami, Fredrick, et al 2010 International Body Project study

• 26 counties in 10 regions surveyed 7434 subjects. Main findings:
  
  • The vast majority showed a broadly similar body shape preference
  • Rural areas preferred relatively heavier bodies
  • Lower SES preferred relatively heavier bodies
  • Increased exposure to western media predicted preference for thinner bodies
  • Females consistently misconstrued males as preferring thinner bodies than is the case
Biased Cultural Transmission

• Certain cultural content engage our emotions and our evolved psychological mechanisms better than others and under the right circumstances will spread at the expense of the alternatives.

• Some ideas are ‘good to think’ precisely because they interdigitate with evolved psychological mechanisms, the output of which are often experienced as emotions, and this accounts for the widespread distribution of a small number of concepts across disparate cultures. (Fessler & Navarrete, 2003).
Explanatory power of the Sexual Competition Hypothesis

• Why Females?

• Why Reproductive age?

• Why the particular Geographical distribution of eating disorders?

• Explains the continuum model (adaptive pursuit of thinness at one end and eating disorders at the other).
Predictions of the Sexual Competition Hypothesis (Abed, 1998)

• ED patients will show a higher level of ISC compared to controls
• Societies with high fertility will show lower rates of EDs
• Increasing female autonomy in any given society will be associated with an increase in rate of EDs
• High stability of long-term mateships should be associated with lower rates of EDs and vice versa
• Exclusive lesbians should have a lower risk of EDs whereas exclusive male homosexuals a higher risk
“Arizona study” (Faer et al., 2005)

• Two subtypes of ISC operating in eating disorders? (mates vs. status)

• Hypothesized that anorexia will be primarily the result of Female ISC for status and bulimia to be related primarily to Female ISC for mates

• Tested in non-clinical population
Participants

• 202 adult undergraduate women

• Average age 21.8 (SD=5; range 19-54)

• 83.7% Caucasian, 5.4% Hispanic/Latino, 3.4% African American and 7.4% ‘other’

• 86.1% classed themselves as single and 97.4% as heterosexual
Measures

• 3 measures were created and tested for internal validity using Cronbach’s alpha:
  • General Competitiveness Scale
  • Female Competition for Status Scale
  • Female Competition for Mates Scale

• 4 subscales of the EDI (outcome measure) were used, these included: Body Dissatisfaction, Drive for Thinness, Bulimia and Perfectionism scales

• 2 forms of the Mate Value Inventory (MVI) (Kirsner et al, 2003) to measure participant ratings of Personal mate value and Ideal Partner mate value
Conclusions from Arizona Study

• both anorexic and bulimic behaviours are ultimately driven by female ISC for mates

• female ISC for status did indeed play a greater role in anorexic than in bulimic tendencies

• model supports the Sexual Competition Hypothesis (Abed, 1998)
The Loughborough Study
Abed et al, 2012

• To replicate US study in UK population

• Expand range of measures used taking into account recent work in related fields
AIMS: Replication with Extension

1. To replicate the findings of “Arizona study” on UK non-clinical population: To investigate whether eating psychopathology is associated with high ISC for mates.

2. To determine whether there is an association between eating psychopathology and Life History Strategy
Life History Theory

- Lifetime Energy Investment
  - Reproductive Effort
  - Mating Effort
  - Parental Effort
  - Somatic Effort
RESULTS 1

• 206 participants (female students, Loughborough University)

• Mean age 20.4 years (s.d. = 1.35, r 18-25)

• 93.7% white

• 90.3% heterosexual

• 51.2% single, 44.9% relationship
Summary Results of Loughborough Study

• In a non-clinical population abnormal eating attitudes and behaviours were predicted by:
  • ISC for mates
  • Fast (low-K) LH strategy
Intrasexual competition in homosexual individuals Li et al, 2010 (University of Texas)

• Study 1: 458 psychology students 220 females and 238 males were primed for competition cues and tested twice on the EAT-26 questionnaire. Females showed an increase in EAT-26 scores following priming but not males.

• Study 2: 383 participants (homosexuals: 61 females and 107 males). Similar design with addition of Body Shape Questionnaire. Heterosexual women and homosexual men showed increased scores on EAT-26 questionnaire in competitive situations whereas heterosexual males and homosexual women showed no change.
Male Eating Disorders and the Drive for Muscularity (Pope et al, 2002; Murray et al, 2016)
Preview of a clinical study

• Compared AN and BN pts with controls
• Measures of: Competition for mates & status; LH measures; Mate value measures
• Main conclusions: BN differed from AN and controls scoring significantly higher on competition for mates and fast LH
• Hence SCH was supported for clinical BN but not AN
• Possible explanations: Small sample size, possible distinct evolutionary roots of BN and AN and; problems with current classifications of EDs not reflecting the deep structure of these disorders.
Clinical utility of this research

• Theoretical – aetiology
  • novel approach to the investigation of the aetiology of eating psychopathology

• Potential for incorporation into clinical assessment of patients

• Potential for incorporation into psychological therapy (example: ‘Media literacy Programs’)

Conclusion

• Extant theories on EDs have poor explanatory value and make no testable predictions.
• SCH is a Darwinian formulation based on a gene-environment interaction model
• SCH has been supported by evidence from non-clinical populations and partially supported by one clinical study
• The theory has potential for being used in the assessment and treatment of ED patients
Thank You