Predictors of Refractory Eating Disorders in a Clinical Sample of Adolescents

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3 different patients…3 different journeys

- *Sarah*: Inpt → Day Hosp → Inpt → Day Hosp
- *Michelle*: Inpt → 5 years pass → Inpt
- *Tanya*: Inpt → Inpt → Day Hosp → Inpt → Day Hosp …→ …

What is common to all 3 is that they all require ongoing services

What the literature tells us:

- WHO ranks EDs as one of the priority mental illnesses for children and youth (2004)
- EDs rank as 3rd most common chronic illness among adolescent females (Fisher et al., 1995)
- Reviews of long-term studies in adults finds a recovery rate of 57% at 10-year follow-up (Steinhausen, 2002)
  - Repercussions for both pediatric and adult systems

Impact of these patients on hospital resources

- Statistics suggest: 1 out of 3 will relapse (Richard et al. 2005)
- Less individuals are able to access services
- Chronic patients tax the staff and resources available
- Important to study these patients as represent a significant proportion of patients in ED service

What are: REFRACTORY EDs?

- Definitional issues
  - Clear definition of recovery or relapse ≠ exist
    - Adequate length of symptom abatement?
    - What criteria defines a relapse?
    - Does it differ across diagnostic categories?
    - Limitations if only using rehospitalization criteria
- In current study:

  REFRACTORY = RETURN TO SAME TYPE TX

What are: REFRACTORY EDs

- Refractory in medical literature: refers to those who are resistant to treatment (US National Library of Medicine, 2012)
- Second round of the same-type treatment → theoretically equates to treatment resistance
- More generalizable and overcomes some past concerns with other operational definitions
- Does not come without limitations!

Theoretical Mechanisms

- Fairburn's et al. (1986) cognitive-behavioural model of BN
- Stice's (2002) maintenance factors:
  1. Thin ideal internalization
  2. Body dissatisfaction
  3. Negative affect
  4. Perfectionism
- *Fairburn et al. (2003) updated transdiagnostic model:*
  1. Core low self-esteem
  2. Interpersonal difficulties
  3. Perfectionism
  4. Mood intolerance
- SEEDS: Serious and Enduring Eating Disorders (Robinson, 2009)

Focus of this study

- To examine predictors of refractory EDs at initial intake assessment
- Is it possible to identify these individuals early on in care?
- Theoretically-driven predictors
- Special look at effects of additional maintenance factors
- Large transdiagnostic youth sample

Current evidence

- Few adolescent studies
- Not transdiagnsotic, therefore difficult to gain understanding for EDs in general
- Predictors are based on varying definitions of relapse or recovery
  - Difficult to compare across studies

Adult studies

- Predictors found in adult studies of relapse:
  - Purging symptomatology
  - Low BMI at referral
  - Longer duration of illness
  - Later age of onset
  - Negative attitudes re: weight and shape
  - Psychiatric comorbidity
- Not performed in all ED categories

Adult studies

- Only ONE transdiagnostic adult study to date (McFarlane, et al., 2008)
  - Severe pretreatment caloric restriction
  - Presence of residual symptoms at discharge
  - Slower response to treatment
  - Higher weight-related self-evaluation

From adult studies we learn…

- Predictors differ across diagnostic categories
- Predictors mix initial assessment measures with progress indicators
- Almost NO studies in EDNOS category
  - Known to be the most common diagnosis in adolescents

Youth studies

- Very limited adolescent studies; 2 in all
- Look at predictors of re-hospitalization (Castro et al., 2004):
  - Young age
  - Abnormal eating attitudes (55 or more on EAT)
  - Low rate of weight gain (less than 150 grams/day)
- Retrospective study of predictors of re-hospitalization (Steinhausen et al., 2008):
  - Paternal alcoholism
  - Eating disorder in infancy
  - Periodic overactivity
  - Low weight increase during first admission
  - Low BMI at first discharge

Predicts 69% of the time

What's missing?

- These youth studies only apply to AN and inpatient settings
- How the adult studies apply in youth
- Developmental appropriateness of the predictors
- Which others might be relevant

Maintenance Factors

- Fairburn's et al (2004) additional maintenance factors:

CORE LOW SELF-ESTEEM	INTERPERSONAL DIFFICULTIES
PERFECTIONISM	MOOD INTOLERANCE

Predictors to be examined in current study

- 11 in total
- Sequential order to allow for specific exploration of additional maintenance factors
  - BMI
  - Purging frequency
  - Chronicity of symptoms
  - Drive for thinness
  - Body dissatisfaction
  - Depressive symptoms
  - Anxiety

THEN

- Core low self-esteem
- Interpersonal difficulties
- Perfectionism
- Mood intolerance

Objectives of study

1. To investigate which variables from initial intake assessment predict the occurrence of a refractory ED
2. To explore at what accuracy able to predict
3. To investigate the predictive capabilities of the additional maintenance factors

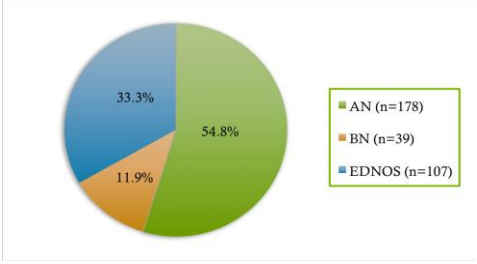
Participants

- N=324
- Data from Jan 2000 to Jan 2011
- 307 (94.8%) females; 17 (5.2%) males
- Age range: 8-18 years
- Mean age: 15.26 years (*SD*=1.78)
- Moderate to severe ED

Description of EDP

- Three levels of service:
  - Inpatient
  - Day hospital
  - Outpatient/Comprehensive Assessments
- Two intensive treatment programs
- Servicing Champlain LHIN and INPTs provincially
- Receive referrals from:
  - Family physicians/Community
  - Internal referrals
  - Provincial Triage

Diagnostic breakdown of sample



Measures

- Demographic data
- CDI (Kovacs, 1985)
- MASC (March, 1997)
- EDI-2 (Garner, 1991)
  - Mood intolerance → impulse dysregulation
  - Core low self-esteem → ineffectiveness
  - Interpersonal difficulties → interpersonal distrust
- Purging Frequency (EDI-SC & EDEQ-A)

Procedures

- Secondary use of clinical data
- Only measures from initial intake assessment were used
- Attained REB approval from CHEO (primary site) and University of Ottawa (secondary site)

Analytic plan

- Sequential binomial logistic regression
  - 2 blocks used
- Bonferroni correction used
  - α=.0045 (.05/11)
- Outcome measure: refractory status
  - 0 = single-episode
  - 1 = refractory

Results - Descriptive

- n=229 (70.7%) SINGLE-EPISODE
- n=95 (29.3%) REFRACTORY
- # of tx encounters ranged from: 2 to 6 rounds
- Max: 6 inpatients stays
- Max: 3 Day hospital stays

Results - Descriptive

	Single episode (n=229)		Refractory (n=95)		Possible range
	Mean (SD)	Reported range	Mean (SD)	Reported range	
ED Related Variables					
Chronicity of ED (months)	18.97 (15.12)	3 – 66	11.57 (8.42)	1 – 40	--
Body Mass Index (kg/m^2)	18.17 (3.07)	12.4 – 27.3	17.20 (2.64)	12.8 – 28.0	--
Purging frequency	11.21 (11.17)	1 – 45	13.34 (12.39)	1 – 42	--
Drive for Thinness	12.49 (7.59)	0 – 21	14.88 (6.77)	0 – 21	0 – 21
Body Dissatisfaction	14.40 (9.53)	0 – 27	17.41 (9.29)	0 – 27	0 – 28
Depressed Mood (t-score)	65.68 (18.12)	34 – 100	67.87 (18.28)	34 – 100	34 – 100
Anxiety (t-score)	58.97 (12.57)	28 – 87	59.97 (11.58)	36 – 90	25 – 100
Maintenance Variables					
Perfectionism	7.17 (4.69)	0 – 18	6.69 (4.87)	0 – 18	0 – 18
Ineffectiveness	10.46 (8.72)	0 – 28	11.93 (9.13)	0 – 28	0 – 28
Interpersonal Distrust	5.25 (4.59)	0 – 18	5.92 (4.75)	0 – 17	0 – 18
Impulsivity	5.98 (6.14)	0 – 27	7.51 (7.35)	0 – 27	0 – 27

Results – Predictors (n=324)

	B	Wald χ^2 (*p*value)	Odds Ratio	95% CI for Odds Ratio Lower	Upper	Model χ^2 (*p* value)	-2 Log likelihood	Hosmer & Lemeshow χ^2 (*p* value)	Nagelkerke R^2
Block 1: ED related						103.39 (.000)	288.65	3.13 (.926)	.389
Chronicity of ED	-.295	**58.80 (.000)**	**.744**	.690	.803				
BMI	-.145	2.41 (.120)	.865	.721	1.039				
Purging frequency	.224	**45.52 (.000)**	**1.251**	1.172	1.335				
Drive for Thinness	-.061	1.78 (1.82)	.941	.860	1.029				
Body Dissatisfaction	.203	**22.33 (.000)**	**1.224**	1.126	1.332				
Depressed Mood	-.162	**30.61 (.000)**	**.850**	.803	.901				
Anxiety	.036	3.42 (.065)	1.036	.998	1.077				
Block 2: Maintenance						60.93 (.000)	227.72	12.12 (.146)	.567
Perfectionism	-.094	4.46 (.035)	.911	.835	.993				
Ineffectiveness	.165	**10.74 (.001)**	**1.180**	1.069	1.302				
Interpersonal Distrust	.232	**16.89 (.000)**	**1.261**	1.129	1.409				
Impulsivity	.201	**17.20 (.000)**	**1.222**	1.112	1.344				

Accuracy rate:
91.7% of single-episode
69.5% of refractory

Results - Predictors

- Chronicity: every additional month ↓ refractory by 25.6%
- Purging: every additional purging episode ↑ refractory by 25.1%
- Body dissatisfaction: every unit increase ↑ refractory by 22.4%
- Depressed mood: every unit increase ↓ refractory by 15.0%

- Ineffectiveness: every unit increase ↑ refractory by 18.0%
- Interpersonal distrust: every unit increase ↑ refractory by 26.1%
- Impulse dysregulation: every unit increase ↑ refractory by 8.3%

Discussion

- Found that 30% are affected in youth transdiagnostic samples
- Found that predictors at assessment can reliably predict refractory cases almost 70% of the time
- The additional maintenance factors contribute over and above the ED variables

Conclusions

- Worthy to study this population
- Should assess chronicity of illness, purging frequency, body dissatisfaction, depressed mood, impulse regulation, interpersonal distrust and ineffectiveness at initial intake assessment for identification of refractory EDs
- Operational definition used in study appears useful for classification purposes

Future Directions

- Continue to study Fairburn's maintenance model in youth
- Continue to study developmental aspects of what maintains the ED
- Study progress predictors
- Study the additional maintenance factors over time

THANK-YOU!

QUESTIONS?

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