

Sticks and stones: The association between weight discrimination and mental and physical wellbeing

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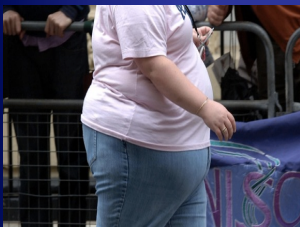
Presenter Disclosures

Angela Meadows

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationship to disclose

Weight stigma in daily life



- Bullying
- Legal
- Emergency
- Media
- Being 'Fat in Public'

MacCann & Roberts, 2013; Puhl & Heuer, 2009; Puhl et al, 2013a,b;
Rudolph et al, 2009; Schvey et al, 2013; Swami et al, 2010

Stress and the body

- Stress response associated with hypertension, heart disease, T2DM, hypercholesterolaemia
 - HPA, cortisol and other glucocorticoids
 - Increase risk of obesity, especially visceral obesity
- Social stress has negative impact on health
 - E.g. Perceived racial discrimination or mistreatment associated with increased risk of coronary events, breast cancer, HTN, respiratory illnesses, glucose intolerance, high waist circumference (RR 2–6)

Dohrenwend BP, 2000; Gee et al, 2008; Hatzenbuehler et al, 2013; McEwen, 1998; Meunig, 2008; Puhl & Heuer, 2010.

Correlates of weight stigma Actual / Perceived

Health	Behavioural
<ul style="list-style-type: none">• Reduced HRQoL• Mood & anxiety disorders• Suicidal ideation• Low self-esteem• Body dissatisfaction• Physical ill-health• May mediate association between BMI and health	<ul style="list-style-type: none">• Increased caloric intake• Binge eating and EDs• Avoidance of exercise• Social isolation• Avoidant coping strategies• Healthcare utilisation<ul style="list-style-type: none">– Preventive: reduced– Emergent: increased

Gudzune et al, 2013; Hatzenbuehler et al, 2009; Pearl et al, 2014; Puhl et al, 2007; Puhl & Heuer, 2010; Puhl et al, 2013; Rosenthal et al, 2013

Internalised Weight Stigma

- Accept and believe societal anti-fat attitudes and stereotypes leading to self-devaluation
 - Related to but distinct from self-esteem, body image, anti-fat bias
- Reduced HRQoL, independent predictor of physical and mental health impairment
- Avoidant coping, more maladaptive behaviours, fewer health behaviours

Durso & Latner, 2008; Lillis et al, 2011; Latner et al, 2013; Puhl et al, 2007; Vartanian & Novak, 2011.

Online study: “Life experiences of overweight individuals”

- Online recruitment via social media and forums
 - Diet, weight loss
 - Exercise, health and fitness
 - Plus-size fashion
 - Body image and size acceptance
- ‘Overweight’ adults, 18–69

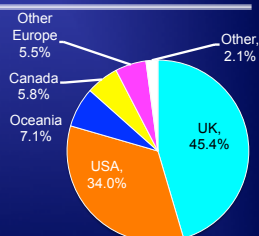
Questionnaires

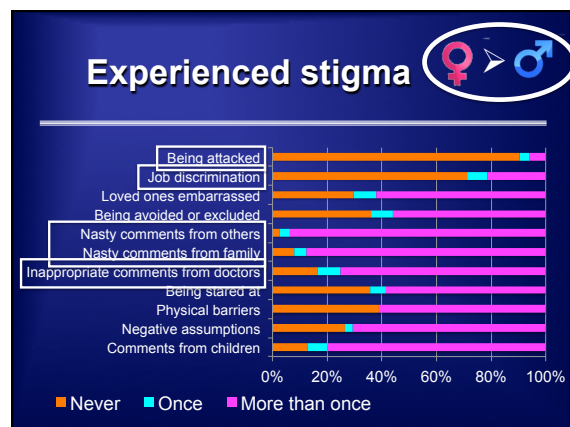
- Demographics, height and weight, dieting
- Eating behaviour
- Restriction of activities
- Body image and self-esteem
- Experienced and internalised weight stigma

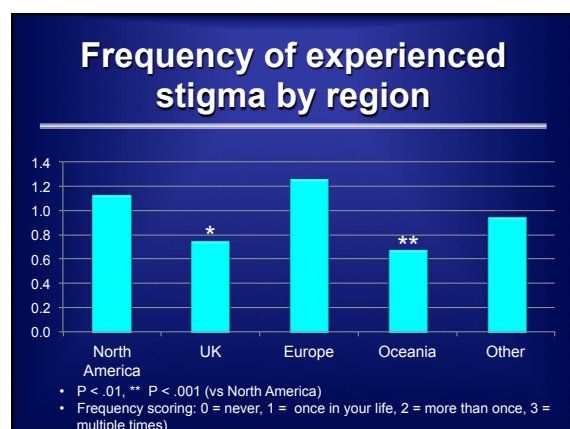
Brown et al, 1990; Cash, 2000; Durso & Latner, 2008; Myers & Rosen, 1999; Quinn & Crocker, 1999; Robinson & Bacon, 1989; Rosenberg, 1979; Stice et al, 2000; van Strien et al, 1986

Participants

- N = 379, 88% female
- 71% White
- Mean BMI 36.8
 - SD 8.9, range 25.0–76.2
- Mean age 37.6 years
- Educated
 - 69% at least UG degree
 - 37% higher degree
- Employment
 - 57% white collar, 19% education, 7% unemployed







Types of stigma: North America vs UK

- North American participants reported significantly higher frequency of all types of stigma experience except being physically attacked
- However both anti-fat attitudes in general and internalised weight stigma were significantly higher in the UK (note, 'OW/OB' sample).

Partial correlations (controlling for BMI)

Partial correlations (BMI)	IWS	SSI	AFA	Dieting	Self- esteem	Appearance evaluation	REACT- Exercise	REACT- Eating	Gender	Education	BMI
IWS		.200***	.466***	.354***	-.685***	-.793***	.498***	.457***	NS	-.197***	NS
SSI			NS	NS	-.343***	-.155**	.238***	.252***	.261***	NS	.561***

- No significant correlation with age, employment
- Nominal variable coding: Dieting (1=WL dieting, 2=Watching, 3=Not dieting); Gender (0=male, 1=female); Education (1=low to 6=high)

IWS=Internalised weight stigma, SSI=Stigmatising Situations Inventory, AFA=Anti-fat Attitudes, REACT=Restriction of activities.

Partial correlations (controlling for BMI & dieting)

Partial correlations (BMI, Dieting)	DEBQ- Restraint	DEBQ- External	DEBQ- Emotional	BE6	BE3	BED	EDDS Total
IWS	.253***	.380***	.484***	.387***	.378***	NS	.658***
SSI	.151**	.114*	.155**	NS	NS	0.101	.237***

- Nominal variable coding: BED (1=Yes, 0=No)
- No significant correlation with BN, BED diagnosis

DEBQ=Dutch Eating Behaviour Questionnaire, BE3/6=Binge eating in previous 3/6 months, BED=Binge Eating Disorder (DSM-V), EDDS=Eating Disorders Diagnostic Survey.

Regression models (*Include age, gender, and BMI as covariates)

	Internalised Stigma	Experienced Stigma	Full Model* R ²
Self-Esteem	✓	✓	.51
Appearance Evaluation	✓	-	.64
Exercise in public	✓	✓	.31
Eating in public	✓	✓	.29

Regression models

(*Include age, gender, BMI, and dieting as covariates)

	Internalised	Experienced	Full model ^a R ²
Restraint	✓	-	.42
External Eating	✓	✓	.19
Emotional Eating	✓	-	.28
Binge Eating 3m	✓	-	.19
Binge Eating 6m	✓	-	.21
EDDS Total	✓	✓	.53

- Coefficients: Internalised >> experienced stigma
- Internalised stigma more important in driving disordered eating

Mediation effects

	Experienced Total Effect	Experienced Direct	Indirect (via IWS)	Indirect BCI 95%
Self-esteem	29.5	15.7	13.7	7.08, 20.61
Exercise in public	2.68	1.58	1.10	0.53, 1.78
Emotional Eating	1.54	0.74	0.80	0.40, 1.26
Binge Eating 3m	0.41	0.18	0.23	0.12, 0.38
EDDS Total	28.3	15.6	12.7	6.5, 20.6

Summary: Internalised vs Experienced stigma

- Internalised stigma crosses gender, BMI boundaries
- Only small correlation between experienced and internalised stigma
 - Experienced stigma common but not ubiquitous
 - Internalised stigma from fat-shaming environment?
- Internalised stigma significant driver of negative outcomes and mediates relationships with experienced stigma

Implications

- Targeting anti-fat bias not very successful
- Target internalisation?
 - Victim blaming?
 - May be partially protective
 - Mostly qualitative and anecdotal data
- Develop intervention and test effect on health and health behaviours

Weight Stigma Conference

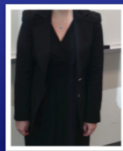
Sign up for updates at:
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Thanks



Suzanne Higgs, PhD



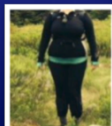
Andrea Bomback, PhD



Janelle Messenger, PhD



Natalie Ingraham, MPH



Catherine Womack, PhD

Regional distribution of sample (text)

- UK 45.4%
- USA 34.0%
- Canada 5.8%
- Oceania 7.1%
- Other Europe 5.5%
- Other 2.1%

Frequency of experienced stigma by region (text)

- Across all 11 domains measured by the Stigmatising Situations Inventory, North America and Europe reported the highest levels of stigma
 - 1.1 and 1.2 on a scale from 0=Never to 3=Multiple times
 - UK and Oceania averaged score of 0.7

Results: Experienced stigma (text)

- Women experienced more than men
- Over 90% received nasty comments from friends, family, colleagues, strangers
- Over 80% experienced stigma in healthcare settings
- Over one-quarter in employment settings
- Being stared at, physical barriers common
- 10% physically attacked, 6% more than once

Results: Partial Correlations: Experienced Stigma (text)

- Not correlated with age, employment, dieting, or anti-fat attitudes
- Strong correlation with BMI, $r = .56$ and gender, $r = .26$ (both $p < .001$)
- Controlling for BMI, negatively correlated with self-esteem, appearance evaluation, avoidance of exercising and eating in public

Results: Partial Correlations: Internalised Stigma (text)

- Not correlated with BMI or gender
- Strong correlation with all other measures in expected directions; all correlations stronger than for experienced stigma
- Only moderate correlation between experienced and internalised weight stigma ($r = .20$, $p < .001$)

Results: Partial Correlations: Eating Behaviour (text)

- Experienced and internalised weight stigma both significantly correlated with restrained, external and emotional eating, and symptom scores on the Eating Disorders Diagnostic Scale. Correlations larger for internalised.
- Binge eating behaviour only correlated with internalised stigma

Results: Regression Models (text)

- Regression model included age, gender, and BMI as covariates.
- Internalised and experienced stigma were significant predictors of restriction of public activities (R-squared exercise .31, eating) and self-esteem (R-squared .51)
- Experienced stigma not significant predictor appearance evaluation but model R-squared = .64

Regression Models – eating behaviours (text)

- Regression model included age, gender, BMI, and dieting as covariates.
- Internalised stigma was significant predictors of all outcomes. Experience stigma significant predictor of external eating and EDDS symptom score.
- Total model R-squared (from top to bottom): Restrained .42, External .19, Emotional .28, Binge Eating in previous 3 months .19, 6 months .21, EDDS symptom scores .53

Results: Mediation effects (text)

- Total effects of experienced stigma on all outcomes at least partially mediated via internalised weight stigma
- After controlling for internalised stigma, direct effects of experienced stigma on appearance evaluation, dietary restraint, emotional eating, and binge eating became non-significant.

UNUSED SLIDE			
Types of Stigma Experience: North America vs UK			
	North America	UK	<i>p</i>
Nasty comments from family	1.107	0.852	.006
Loved ones embarrassed	0.984	0.727	.020
Nasty comments from children	1.383	1.067	.010
Nasty comments from others	1.305	0.849	< .001
Being excluded	1.195	0.864	.021
People making assumptions	1.526	0.991	< .001
Being stared/pointed at	0.870	0.501	< .001
Inappropriate comments from doctors	1.471	0.988	< .001
Employment settings	0.459	0.187	< .001
Physical barriers	0.956	0.471	< .001
