

Making Weight: Chronic and Episodic Disordered Eating Among Military Personnel

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Acknowledgements

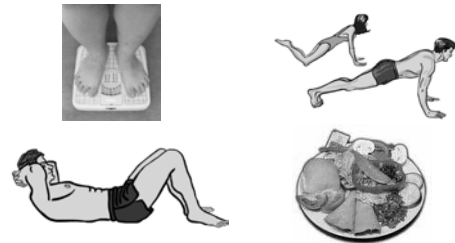
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Agenda

- Background
- Methods
- Findings
 - Chronic disordered eating
 - Episodic disordered eating
- Conclusions

Weight Control



Continuum

Wellness

- Realistic/positive body image
- Eating & drinking in response to body signals (i.e.: hunger, thirst, satiety)
- Positive attitude, balance & approach to
 - food choices
 - physical activity choices

Disordered Eating

- Worried about appearance, preoccupied with food, weight, exercise, looks
- Not responding to body signals in regards to fueling
- Dieting, restricting, fasting, bingeing, purging, compulsive eating,
- Compulsive exercising, unsafe exercise choices

Contributors to Disordered Eating

- Females
- Males



PUBLIC HEALTH INFORMATICS

Research Questions

- **Chronic Disordered Eating**
 - Prevalence of eating disorders among military personnel
 - Prevalence of eating disorders among military vs. civilian populations
 - Characteristics related to chronic eating disorders among military personnel

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Research Questions

- **Episodic Disordered Eating**
 - Prevalence of dangerous eating behaviors before weigh-ins
 - Patterns of disordered eating before weigh-ins
 - Factors related to trying to lose weight before weigh-ins

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Methods

- **Primary data collection**
 - Convenience sample
 - Surveyed 4346 military personnel
 - Self-report measure of eating and exercise behaviors
- **Measures**
 - 3 Eating Disorder Inventory (Garner, 1991) subscales assessing attitudes and behaviors concerning eating, weight, and shape
 - Drive for Thinness (DT): 7 items
 - Bulimia (B): 7 items
 - Body Dissatisfaction (BD): 9 items

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Measures

- **Independent variables that may predict eating disorder risk:**
 - Demographics (i.e. age, sex, branch of service)
 - Weight Control (i.e. difficulty maintaining weight)
 - Exercise (i.e. how unit conducts physical training)
 - Attitudes (i.e. worried at last weight in, smoke to control weight)

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Measures

Weight Control Behavior: Ever, Before PT Weigh-in, (*)
Before Military Training School

● Vomiting *	● Fasting *
● Use of laxatives *	● Skipping meals *
● Use of diuretics *	● Mild calorie restriction
● Use of prescription diet pills *	● Severe calorie restriction
● Use of over-the-counter (OTC) diet pills	● Increasing exercise
● Use of sauna	
● Use of rubber suit	
● Chewing and spitting *	

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Measures

- Trying to lose weight at last weigh-in
- Over weight standards at last weigh-in
- Ever being over the prescribed weight standards
- Ever being placed in a weight control program

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Analysis Plan

- Prevalence of chronic eating disorders
 - Classified at-risk group
 - DT score of 14 or greater
 - B score of 10 or greater
 - BD score of 16 or greater
 - Crosstabs by sex and branch of service
- Comparison to civilian populations
 - Unpaired t-tests to compared DT, B, BD scores by sex
 - To rates found in the general population and eating disorder patients

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Analysis Plan

- Characteristics of chronic eating disorders
 - Discriminant analysis to explain predictors of eating disorder risk
 - Separate analysis of male and female populations
 - Randomly selected equal numbers of male and female from "no risk" group
 - Entered demographic, weight control, exercise and attitude variables into the analysis

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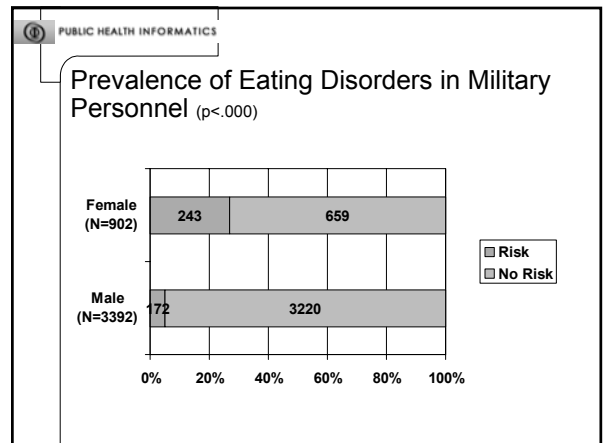
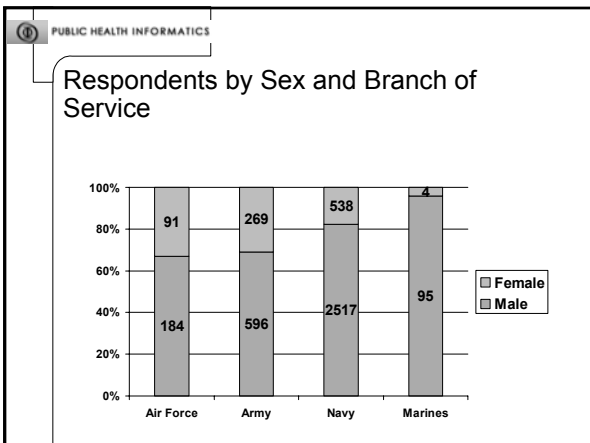
Analysis Plan

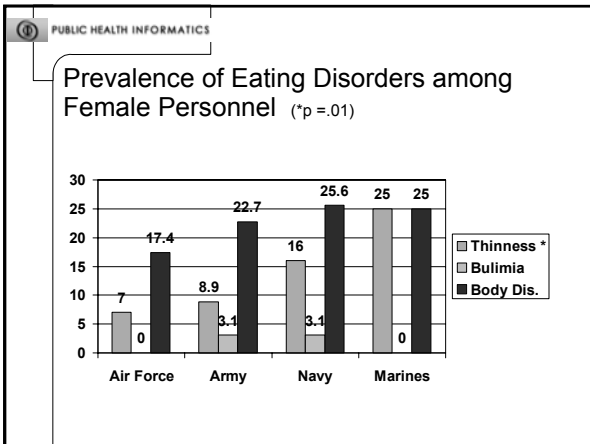
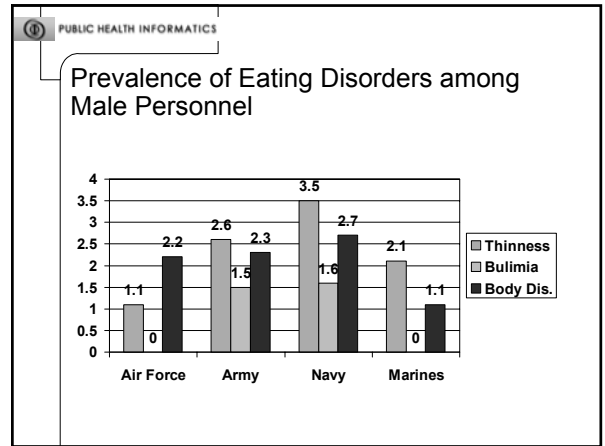
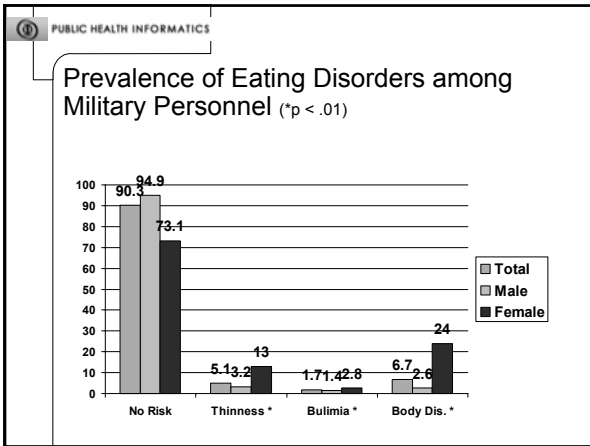
- Prevalence of eating behaviors before weigh ins
 - Examined eating behaviors before weigh-ins at PT tests and before military training school
 - Crosstabs by sex and branch of service
- Patterns of disordered eating
 - Principal components factor analysis, varimax rotation
 - Eating behaviors before weigh-ins before PT tests and before military training school
 - Separate analyses by sex

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Analysis Plan

- Factors related to trying to lose weight before weigh ins
 - Categorized respondents by situation "at last weigh-in"
 - Trying to lose weight
 - Within weight standards
 - Discriminant analysis to explain predictors of trying to lose weight at last weigh-in
 - Entered demographic, weight control, exercise and attitude variables into the analysis





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Prevalence of Eating Disorders: Military vs. Civilian Females

	USUHS Females	Comparison Group (Garner, 1991)	Eating Disorder Patients (Garner, 1991)
EDI Subscale	M (SD)	M (SD)	M (SD)
Drive for Thinness	5.3 (5.9)	5.5 (5.5)	14.5 (5.6)*
Bulimia	1.4 (2.8)	1.2 (1.9)	10.5 (5.5)*
Body Dissatisfaction	9.9 (7.6)	12.2 (8.3)	16.6 (8.3)*

* P < .01 for test of statistical significance for mean subscale scores between military women and a female college comparison group, and between military women and eating disorder patient norms.

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Prevalence of Eating Disorders: Military vs. Civilian Males

	USUHS Females	Comparison Group (Garner, 1991)	Eating Disorder Patients (Garner, 1991)
EDI Subscale	M (SD)	M (SD)	M (SD)
Drive for Thinness	2.6 (3.9)	2.2 (4.0)	14.5 (5.6)*
Bulimia	1.1 (2.4)	1.0 (1.7)	10.5 (5.5)*
Body Dissatisfaction	4.7 (4.6)	4.9 (5.6)	16.6 (8.3)*

* P < .0001 for test of statistical significance for mean subscale scores between USUHS men and norms for a male college comparison group, and between USUHS men and norms for an eating disorder patient group.

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Characteristics Related to Chronic Eating Disorders: Put into the Discriminant Analysis

Demographics	Weight Control	Exercise	Attitude
<ul style="list-style-type: none"> Age Ethnicity Primary job Branch Education level 	<ul style="list-style-type: none"> History of overweight Where eat most meals Smoke to control weight Difficulty maintaining 	<ul style="list-style-type: none"> How unit conducts PT Exercise habits (last 6 months) 	<ul style="list-style-type: none"> Appearance in self-evaluation Weights/self-evaluation Fair standards Command support Enforcement of standards Standards important for fitness and duty Would you maintain standards if not required Worried at last weigh-in Standards important for appearance

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Characteristics Related to Chronic Eating Disorders

Females	Males
<ul style="list-style-type: none"> Age Smoke to control weight Difficulty maintaining weight Importance of weight in self-evaluation Worried at last weigh-in 	<ul style="list-style-type: none"> History of overweight Where eat most meals Smoke to control weight Difficulty maintaining weight Importance of weight in self-evaluation Worried at last weigh-in

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Characteristics Related to Chronic Eating Disorders

	Female		Male	
	No Risk	Risk	No Risk	Risk
Age	X=29.8	X=28.7	N/A	N/A
History of overweight	N/A	N/A	24.2%	75.8%
Weight/self-evaluation	X=5.5	X=6.2	X=5.4	X=5.8
Worried at last weigh-in	X=2.2	X=4.6	X=2.3	X=5.2
Smoke to control weight	30.5%	69.5%	18.2%	81.8%
Difficulty maintain weight	48.8%	51.3%	20.9%	70.1%

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Characteristic: Where males eat most meals (p = .385)

	No Risk	Risk
Home	75.6%	68.3%
Work	6.0%	10.2%
Fast food	6.5%	9.6%
Dining facility	6.0%	6.0%
Restaurant	3.6%	1.8%
Other	2.4%	4.2%

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Eating/Exercise Behavior Before PT Weigh-ins

	Males	Females
Increasing exercise *	21.1%	31.7%
Mild calorie restriction *	28.8%	39.4%
Severe calorie restriction *	11.2%	16.1%
Skipping meals *	15.6%	23.1%
Fasting *	10.4%	15.0%
Total N	3392	902

* p = .000

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Dieting Behavior Before PT Weigh-ins (* not significant by sex)

	Males	Females
Using a sauna	8.0%	11.6%
OTC diet pills	5.4%	13.2%
Using a rubber suit *	5.4%	6.5%
Using laxatives	2.4%	6.9%
Using diuretics	2.0%	6.7%
Vomiting *	1.0%	1.0%
Using prescription diet pills	0.9%	4.0%
Chewing & spitting *	0.5%	0.4%
Total N	3392	905

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Dieting Behavior Before PT Weigh-ins by Branch

	Air Force	Army	Navy	Marine Corps
Skipping meals	14.4%	22.6%	15.8%	17.2%
Using a sauna	6.9%	10.3%	8.1%	20.2%
Mild calorie restriction	27.4%	38.4%	29.4%	23.2%
Increasing exercise	18.1%	30.6%	21.9%	17.2%
Total N	277	872	3075	99

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Patterns: Dieting Behavior Before PT Weigh-ins

- **Males**
 - Factor 1
 - Vomiting
 - Chew & spit
 - Prescription diet pills
 - Factor 2
 - Laxatives
 - Diuretics
 - OTC diet pills
 - Sauna suit
 - Factor 3
 - Fasting
 - Severe calorie restriction
 - Meal skipping
 - Factor 4
 - Increased exercise
 - Sauna
 - Mild calorie restriction
- **Females**
 - Factor 1
 - Fasting
 - Skipping meals
 - Mild calorie restriction
 - Severe calorie restriction
 - Increased exercise
 - Factor 2
 - Diuretics
 - OTC diet pills
 - Prescription diet pills
 - Rubber suit
 - Factor 3
 - Vomiting
 - Laxatives
 - Factor 4
 - Chew & spit

PUBLIC HEALTH INFORMATICS

Dieting Behavior Before Military Training School (* not significant by sex)

	Males	Females
Skipping meals	6.3%	10.4%
Fasting	5.0%	8.2%
Using diuretics	1.1%	3.3%
Using laxatives	1.0%	3.2%
Vomiting *	0.6%	0.7%
Chewing & spitting *	0.4%	0.4%
Total N	3392	902

PUBLIC HEALTH INFORMATICS

Patterns: Dieting Behavior Before Military Training School

- **Males**
 - Factor 1
 - Vomiting
 - Laxatives
 - Chew & spit
 - Factor 2
 - Fasting
 - Skipping meals
- **Females**
 - Factor 1
 - Fasting
 - Skipping meals
 - Factor 2
 - Laxatives
 - Diuretics
 - Factor 3
 - Vomiting
 - Chew & spit

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Dieting Before Last Weigh-in/In Weight Standards at Last Weigh-in (p=.000)

Category	Male (%)	Female (%)
Diet/In Standards	14.6	19.8
Diet/Not in Standards	11.9	16.8
No Diet/In Standards	62.4	55.3
No Diet/Not in Standards	11.1	8.1

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Characteristics Related to Dieting before Last Weigh in: Entered into Discriminant Analysis

Demographics	Weight Control	Exercise	Attitude
<ul style="list-style-type: none"> • Age • Sex • Ethnicity • Primary job • Branch • Education level 	<ul style="list-style-type: none"> • History of overweight • Where eat most meals • Smoke to control weight • Difficulty maintaining 	<ul style="list-style-type: none"> • How unit conducts PT • Exercise habits (last 6 months) 	<ul style="list-style-type: none"> • Appearance in self-evaluation • Weight/self-evaluation • Fair standards • Command support • Enforcement of standards • Standards important for fitness and duty • Would you maintain standards if not required • Worried at last weigh-in • Standards important for appearance

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Characteristics Related to Trying to Lose Weight at Last Weigh-in

	Trying to Lose Wt		Not Trying	
	In standards	Not in Standards	In Standards	Not in Standards
History of overweight	37.4%	61.1%	11.0%	32.8%
Difficulty maintaining weight	54.6%	75.3%	10.7%	28.9%
Worried at last weigh-in	4.0 (2.21)	5.1 (2.08)	1.6 (1.39)	2.7 (2.03)
Fairness of weight & fitness standards	5.6 (1.56)	5.2 (1.77)	5.9 (1.41)	5.3 (1.84)
Importance for fitness for duty	3.7 (2.01)	2.8 (1.71)	4.5 (1.95)	3.4 (1.94)

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Characteristics Related to Trying to Lose Weight at Last Weigh-in

Exercise Habits, last 6 months	Trying to Lose Wt		Not Trying	
	In standards	Not in Standards	In Standards	Not in Standards
Consistent	54.4%	58.5%	64.3%	63.0%
On and off	26.9%	24.4%	17.5%	19.5%
Before PT only	9.5%	8.6%	5.4%	5.7%
Don't exercise	9.2%	8.6%	12.6%	11.7%
Total N	651	537	2536	435

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Characteristics Related to Trying to Lose Weight at Last Weigh-in

Ever over weight Standards?	Ever in weight control program?		
	Yes	No	Total
Yes	488 (36.7)	843 (63.3)	1331 (31)
No	26 (.9)	2940 (99.1)	2966 (69)
Total	514 (12)	3783 (88.0)	4297

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- ### Conclusions
- Chronic disordered eating
 - More prevalent among females
 - Drive for thinness more likely among Navy females
 - Similar levels as civilian general population, regardless of sex
 - Related to worry about and problems with weight loss, smoking to control weight, and importance of weight in self-evaluation
 - Females: related to younger age
 - Males: related to history of overweight and eating location

- PUBLIC HEALTH INFORMATICS
- ### Conclusions
- Episodic disordered eating
 - More prevalent among females
 - Some behaviors just as prevalent for males
 - Rubber suit, vomiting, chewing and spitting
 - Some behaviors more prevalent in some branches
 - Army: skipping meals, sauna, exercise
 - Marine Corps: sauna
 - Females tend to rely on "safer" diet behaviors first than males

- PUBLIC HEALTH INFORMATICS
- ### Conclusions
- Dieting and being within standards at last weigh-in
 - Females more likely to diet before weigh-ins
 - Those who try to lose weight but are not in weight standards are more likely to
 - Have a history of overweight
 - Have difficulty maintaining their weight
 - Be more worried about the weigh-in
 - Disagree that weight and fitness standards are fair
 - Disagree that standards are important for duty
 - Exercise inconsistently
 - Nearly 2/3 of those over weight standards are not referred to a weight control program

Recommendations

- Develop interventions and policies that reduce disordered eating behaviors and attitudes.
 - Separate weigh-in and fitness procedures
 - Education and counseling on proper weight management techniques and health dangers of disordered eating
- Develop strategies and policies that promote early detection and referral for weight control problems