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Research Paper

Eating Attitudes and Body Image Dissatisfaction among Naga Girl Students

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ABSTRACT

Background: The indigenous cultures are considered as immune to eating disorders due to their ascribed positive values towards fatness and body weight. Recent studies established prevalence of disordered eating behaviour and associated risk among indigenous college women. The Naga tribes of India, who live predominantly in the North-Eastern states, adapted a "performative culture" characterised by western lifestyle. ***Aim:*** We conducted a research on Naga College-going women to assess the prevalence of disordered eating and associated risk factors. ***Methods:*** A cross-sectional survey was conducted among 111 Naga girl students enrolled in a popular University in Nagaland state of India. A pre-tested self-report questionnaire with standard scales for assessing weight concerns, eating attitudes, body image dissatisfaction and fat talk responsiveness was used. ***Results:*** A larger proportion of the participants had normal weight (73.9%). Though disordered eating was less prevalent (6.3%), the participants had moderate levels of risk factors such as weight concerns, body image dissatisfaction and fat talk responsiveness. We found that 63.41% of the normal weight and 80% overweight participants thought to reduce weight. Among participants, 68.5% had no concern with shape, barring few over-weight students had high body image dissatisfaction (Mean = 47.2). While under-weight and normal weight students had similar levels of fat talk engagement, overweight respondents had highest fat talk scores (Mean = 27.6). ***Conclusions:*** This study demonstrated the low prevalence of disordered eating behaviour and moderate levels of risk factors among female Naga tribal students, indicating slow internalisation of Western thinness ideals among the girls.

Keywords: *Feeding and Eating Disorders; Body Dissatisfaction; Risk-factors; Students*

The research on eating attitudes and their risk factors among indigenous people is scarce (Black et al., 2015; Burt et al., 2020a). The eating disorder research was traditionally focused on affluent, educated, white and young women from Western societies (Pate et al., 1992), who was influenced by media-engineered cultural integration of "thin ideals" and accepted the ways of "body instrumentality" i.e. achieving ideal self

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through diet control and exercise (Pike & Dunne, 2015). In the contrary, the non-western societies associated "fatness" with beauty, affluence and wealth, thus the researchers believed that these cultural differences shielded them from eating disorders (Nasser, 1988; Rucker & Cash, 1992). However, globalisation and free trade have opened up the boundaries which resulted in acculturation and socio-economic transformation in non-western societies. Recent studies reported the increasing levels of body dissatisfaction and unhealthy eating attitudes among women in non-western countries like Brazil (Ribeiro-Silva et al., 2018), Jordan (Mousa et al., 2010), Malaysia (Latiff et al.,2018) and Pakistan (Khan et al., 2011), resulting in eating disorders. The emergence of eating disturbances and body image issues among female adolescent students in India was reported in Delhi (Sharma, 2017), Karnataka (Rashmi et al., 2016) and Tamil Nadu (Ganesan e al., 2018).

Though indigenous cultures are considered free of eating disturbances, few studies reported prevalence of eating disorders among the *Inuit* people in North America (Striegel-Moore et al., 2011a), Other Specified Feeding or Eating Disorders among Yiramarang adolescents (Burt et al., 2020a) and Binge eating among adults of Aboriginal and Torres Strait Islander Australians (Burt et al., 2020b). In India, only a few studies were conducted on eating disorders among indigenous people. Singh et al., (2013) reported the prevalence of eating disorders such as binge eating and bulimia nervosa among *Idu Mishmi* tribes of Arunachal Pradesh state.

Risk factors of Eating disorders

The risk factors of eating disorders among indigenous adolescents and adults include distorted body image or high body dissatisfaction (Herpertz-Dahlmann et al., 2001; Marchessault, 2004), disordered eating attitudes (Golden, 2003) and fat talk (Salk & Engeln-Maddox, 2011).

The body image indicates the discrepancy between an individual's perceived current body size and perceived ideal body size (Wertheim et al., 2004) and poor body image create concerns about body weight and shape (Rosenblum & Lewis, 1990) and often leads to body dissatisfaction. Body image disturbance is one of the diagnostic criteria for anorexia nervosa and bulimia nervosa in the DSM-V. Few Indian studies reported poor body image perception among tribal students in Telangana, India (Beulah Margaret & Sreedevi, 2017) and *Kinnauri* Indigenous tribal women in Himachal Pradesh (Sain, 1998). Fat talk is the negative interpersonal communication about one's physical appearance, eating, and exercise behaviours. Studies conducted among college students demonstrated that fat talk is associated with increased body dissatisfaction and drive for thinness (Salk & Engeln-Maddox, 2011). Fat talk amongst peers is a potent contributor to body dissatisfaction among female college students in India (Ahuja, & Banerjee, 2021).

The Naga tribes belong to the Indo-Mongoloid community, who live predominantly in North-Eastern India. Considered as a "primitive tribe" until a few decades ago, the cultural identity of Nagas has dramatically changed towards "performative culture". The 'new Naganess' is focused on bringing elegance and cosmopolitanism in lifestyle, through new performative events in the fashion sector such as fashion shows and beauty pageants (Wettstein, 2016). Mushrooming of the fashion media in a community indicates beginning of acculturation to unrealistic Western "thinness ideals" and subsequent body image distortions among aboriginal Women (McGarvey, 1995; Cinelli,2014). Whilst the research on body image disturbances and eating attitudes with Naga women is limited, there are studies that demonstrate the high prevalence of risk factors like underweight/ overweight

among the students. Significant levels of underweight reported by Longkumar (2013) among *Ao Naga* female and also by Mungreiphy and Kapoor (2010) among *Tangkhul Naga* tribal female students.

In this context, this research work was undertaken with female college students from a prominent educational Institution in Nagaland to assess the prevalence of risk factors of eating disorders such as body image, fat talk and their relationship with disordered eating attitudes.

MATERIALS AND MATHODS

Samples

A cross-sectional study was conducted among female students at Nagaland University, Kohima. After signing an informed consent document, participants completed study measures in paper-and-pencil format. The students were informed that their participation was voluntary, and students could withdraw at any time. The mean age of respondents was 22.73 (SD – 1.89) and majority of them enrolled in postgraduate courses (56.6%).

Study design

The survey research design was used in this study. The sample size was calculated using the formula suggested by Arya et al., (2012) by taking the minimum expected prevalence of eating disorder as 6.42% (Singh et al., 2013). By adding an assumed non-response rate of 15%, the sample size was estimated to be 111. Only female students, who expressed their willingness to participate in the study, were selected.

Measures

A pre-tested, self-report questionnaire in English was used for collecting demographic information like age, sex, education, height, dieting, current weight and height, lowest and highest weight during the past three years, and self-perceived ideal weight. BMI was estimated following WHO criteria. The study was conducted in accordance with the ethical guidelines for human experiments as laid down in the Helsinki Declaration (World Medical Association, 2013; Malla and Bhat, 2016).

Dieting status

The Dieting status of the respondents was assessed through the question 'At present, are you on a diet or doing something else to lose weight? The response options were 'No, I am happy with my weight'; 'No, but I should lose some weight'; 'No, because I need to put on weight" and 'Yes'. This question was dichotomized into 0 (non-dieters) for those participants who answered 'No, I am happy with my weight' or 1 for all other responses, "dieters; or those who think they should make changes to their weight". (Howe et al., 2013).

Eating attitude

The Eating Attitude Test-26 (EAT-26) (Garner, & Garfinkel, 1979) was used to identify the symptoms that are related to eating disorder or disordered eating behaviour. This 26-item questionnaire measures disordered eating through three subscales - dieting; bulimia and food preoccupation; and oral control (Always - 4; Never - 0). The total EAT-26 score ranges from 0 to 78, and participants with a composite score of >20 are considered to be at risk of having an eating disorder (Garner, & Garfinkel, 1979). The reliability (Cronbach α) of EAT-26 was reported in the range of 0.84 - 0.87 (Gleaves e al., 2014), while the current sample had acceptable level ($\alpha = 0.70$).

Body image dissatisfaction

A 16-item version of the Body Shape Questionnaire (BSQ) (Evans & Dolan, 1993) was used to measure respondent's body image dissatisfaction The BSQ is a self-reported questionnaire consisting of questions regarding respondents' opinion about their body appearance over the past four weeks scored on a six-point Likert scale. The reliability of BSQ with current sample is 0.90.

Fat talk

The Nine-item Fat Talk Scale (Clarke et al., 2010) was used to assess the respondent's tendency to engage in fat talk with friends. This scale describes nine scenarios where a woman conversing with a female friend and the fat talk arises. Participants indicated how recently their own response would be similar to that of the women described in the scenarios, on a 5-point Likert scale (1 = never; 5 = always). High scores in the Fat Talk Scale indicate a greater tendency of participants to engage in the fat talk. The reliability of Fat Talk scale was 0.83., which is close to the value of 0.82 reported by Clarke *et al.*, (2010).

Data analysis

All statistical analyses were performed using SPSS (Ver. 20). Using Pearson Correlation Coefficient was used to assess the linear relationship between participants BMI and EAT 26 sub-scales, Body shape concerns and Fat talk engagement scores. Independent t test was used to assess the significant mean differences in Body Shape and at Talk scores between High and Low risk participants identified by EAT-26 as well as the EAT-26, BSQ and at talk scores of dieters and non-dieters. Chi-square test was used to assess how the eating disorder risk factors varied across BMI and Weight status classes. Through One-way ANOVA, the mean differences in Body shape concerns and Fat talk engagement scores among Under-weight, Normal weight and Overweight was assessed.

RESULTS

Classification of students based on Eating attitude and risk factors

The classification of students based on BMI status, weight concerns, EAT-26 and Body Shape Questionnaire scores is displayed in Table 1.

Table 1. Classification of respondents by BMI, weight concerns and Eating attitudes (N=111)

Classification	Number of respondents
BMI	
Under weight (BMI < 18.5 kg/m^2)	24 (21.6)
Normal weight (18.5 ≥ BMI ≤ 24.9 kg/m^2)	82 (73.9)
Over weight (BMI ≥ 25kg/m2)	5 (4.5)
Weight concerns	
Satisfied with current weight	19 (17.1)
Want to be thinner	57 (51.4)
Want to be heavier	35 (31.5)
Diet status	
Non-dieter	59(53.2)
Dieter	52 (46.8)
EAT-26 Score	
High risk (>20)	7 (6.3)
Low risk (<20)	104 (93.7)

**Figures given in parentheses indicate percentage*

Regarding weight status, a larger proportion of the sample had normal weight (73.9%), and no student was obese (Table 1). It was observed that majority of the students had weight concerns (82.9%) and expressed their desire to be thinner (51.4%) or heavier (31.5%) (Table 1). Over-half of students didn't follow any specific diet pattern to manage weight (53.2%). Only 6.3% participants exceeded the high-risk cut-off EAT–26 scores. Regarding the body image dissatisfaction as measured by BSQ, 68.5% had no concern with shape, while 22.5% and 8.1% expressed mild and moderate concern. (Table 1).

Eating disorder features across BMI and weight status

Relationship between BMI and weight concern status

The relationship between BMI and weight concern status is displayed in Table 2.

Table 2. Chi-square Analysis of weight concern status across BMI categories

BMI Class	n	Weight concern status			χ^2
		Satisfied	Thinner	Heavier	
Under weight (BMI < 18.5 kg/m^2)	24	4	1	19	36.49**
Normal weight (18.5 ≥ BMI ≤ 24.9 kg/m^2)	82	15	52	15	
Over weight (BMI ≥ 25kg/m2)	5	0	4	1	

***Significant at 0.01 level (p<0.01)*

The Chi-square analysis indicated that (Table 2) weight concerns of the subjects differed significantly across BMI categories (χ^2=36.49; df=4; p=0.000), while 63.41% of the normal weight and 80% overweight subjects thought to reduce weight.

Relationship between Eating Attitude with BMI and weight concerns

To assess if the eating attitude differ across BMI and weight status categories, Chi-square statistic was computed. (Table 3).

Table 3. Chi-square Analysis of BMI status across eating attitude risk categories

BMI Class	n	Eating Attitude Score		χ^2
		Low risk (<20)	High Risk (>20)	
A. BMI Class				
Under weight (BMI < 18.5 kg/m^2)	24	24	0	3.334^{NS}
Normal weight (18.5 ≥ BMI ≤ 24.9 kg/m^2)	82	76	6	
Over weight (BMI ≥ 25kg/m2)	5	4	1	
B. Weight Concern				
Satisfied with weight	19	18	1	0.105^{NS}
Want to be thinner	57	53	4	
Want to be heavier	35	33	2	

NS Not-significant

Data displayed in tables 3 indicate that 7.31% of the normal weight and 20% of overweight subjects had high risk for eating disorders (Table 3). However, fewer than 5% subjects across all weight concern classes showed high risk for eating disorders. Chi-square analysis revealed that the subjects in the BMI and weight status classes were not significantly different on risk levels of eating disorders (p>0.05) (Table 3).

Eating disorder risk factors across BMI and weight status

To assess the mean differences in eating disorder risk factors- body image dissatisfaction and fat talk engagement, across BMI and weight status classes, one way ANOA was conducted (Table 4 and 5).

Table 4. One-way ANOVA analysis of mean differences in body image dissatisfaction and fat talk engagement levels by current BMI

Risk factors	BMI classes			F
	Under weight (n = 24)	Normal weight (n = 82)	Over weight (n=5)	
Body Image Dissatisfaction	25.25 (9.34)[a]	34.16 (12.26[a]	47.2 (9.07)[b]	9.531**
Fat Talk Engagement	19.17 (7.83)[a]	23.5 (7.66)[ab]	27.6 (2.88)[b]	4.116*

***Significant at 0.01 level (p<0.01); *Significant at 0.05 level (p<0.05); NS – Not-significant*

Following Cooper and Taylor (1988) the body shape dissatisfaction cut-off, it was found that only overweight students had mild body shape concerns (BSQ 38 to 51).

One-way ANOVA results (Table 5) indicates statistically significant difference in Body image dissatisfaction [F(2, 108) = 9.531; P<0.01] and fat talk engagement [F(2,108) = 4.116; P<0.05] scores across three weight categories.

Table 5. One-way ANOVA analysis of mean differences in body image dissatisfaction and fat talk engagement levels by weight concern status

Risk factors	Weight concern status			F
	Satisfied with current weight (n = 19)	Want to be thinner (n = 57)	Want to be heavier (n=35)	
Body Image Dissatisfaction	28.53 (10.15)[a]	39.35 (12.33)[b]	24.51(6.59)[a]	23.693**
Fat Talk Engagement	23.05 (8.45)[ab]	24.67 (7.23)[ab]	19.45 (7.40)[ac]	5.252**

***Significant at 0.01 level (p<0.01); NS – Not-significant*

Since body image dissatisfaction and fat talk engagement scores had equal variance, the Tukey's HSD posthoc analysis was performed. Results indicated that body image dissatisfaction differed significantly across three weight categories (p<0.05; Tukey's HSD). The over-weight students had higher scores body image dissatisfaction (Mean = 47.2), which differed significantly from under-weight and normal weight students (p<0.05; Tukey's HSD). Regarding fat talk engagement, under-weight and normal weight students had similar levels of fat talk scores, while overweight respondents had highest fat talk scores (Mean = 27.6) which is significantly different from under-weight group (Table 4).

Only students who thought of reducing weight had mild body shape concerns (BSQ range 38 to 51). Table 5 shows the results of one-way ANOVA on the mean differences in Eating Attitude, body image dissatisfaction and fat talk engagement scores across weight concern classes of respondents. While weight concern groups differed significantly in body image dissatisfaction [F(2,108)=23.693; P<0.05] and fat talk engagement [F(2,108) = 5.252; P<0.05], they had similar eating attitude. Since the weight concern groups had unequal variance in the body shape dissatisfaction, Games-Howell postdoc test was used to assess the group mean differences. Results indicated that students who want to be thinner had high

body shape dissatisfaction (Mean = 39.35), which is significantly different from other two groups ($p<0.01$). Since the fat talk scores had equal variance across the groups, the Tukey's HSD posthoc analysis was used. The students who desire to be heavier had significantly low body shape dissatisfaction (Mean = 19.45).

Relationship between BMI with risk factors

Results displayed in Table 6 shows that there was significant positive correlation observed between BMI with EAT-26 Dieting ($r=0.215$; $p<0.05$), body shape dissatisfaction ($r=0.462$; $p<0.01$) and fat talk engagement ($r=0.318$; $p<0.01$).

Table 6. Correlations of BMI scores with EAT 26, Body Shape Preoccupation and Fat Talk

	BMI	EAT 26 Dieting	EAT 26 Bulimia	EAT 26 Oral Control	EAT 26 Total	Body Shape dissatisfaction	Fat Talk Engagement
BMI	1						
EAT 26 Dieting	0.215*	1					
EAT 26 Bulimia	-0.064	0.285**	1				
EAT 26 Oral Control	-0.360**	0.149	0.234*	1			
EAT 26 Total	-0.006	0.840**	0.634**	0.548**	1		
Body shape dissatisfaction	0.462**	0.507**	0.114	-0.112	0.348**	1	
Fat Talk Engagement	0.318**	0.410**	0.205*	-0.108	0.315**	0.620**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

However, BMI had significant negative correlation with EAT-26 Oral control ($r=-0.360$; $p<0.05$). The EAT-26 Dieting scores had positively and significantly correlated with body shape dissatisfaction ($r=0.507$; $p<0.01$) and fat talk engagement ($r=0.410$; $p<0.01$). While EAT-26 Bulimia score had significant and positive correlation with fat talk engagement ($r=0.205$; $p<0.05$) the EAT 26 Oral control scores are not correlated with body shape dissatisfaction and fat talk engagement. The EAT-26 eating attitude scores were significantly and positively correlated with body shape dissatisfaction ($r=0.348$; $p<0.01$) and fat talk engagement ($r=0.315$; $p<0.05$). The body shape dissatisfaction had significant correlation with fat talk engagement ($r=0.620$; $p<0.01$) (Table 6).

DISCUSSION

This study assessed the eating attitudes, body shape dissatisfaction and fat talk engagement among 111 UG and PG female students of Naga tribe in a popular University in Nagaland. Over one-third of the subjects had normal BMI, and one-fourth were under-weight. Mungreiphy and Kapoor (30), reported prevalence of normal weight and underweight among 346 *Tangkhul Naga* women (20-29 years age) of Manipur state, as 78% and 18.4% respectively. Low levels of over-weight and obesity was also reported among *Rengma Naga* tribes of Assam state (Rengma et al., 2015). These findings could imply that Naga women tend to have normal weight and about one-fourth of them are likely to be under-weight.

Interestingly, our study showed that over three-fourth of students had weight concerns and over half of them desired of losing weight. Interestingly, over-half of the students with

normal weight expressed their desire to reduce weight. Studies on naïve Americans (Story et al., 1994; Osvold & Sodowsky, 1995), Samoan women (Brweis et al., 1998), ethnic Fijian girls (Becker et al., 202), Australian Yiramarang and Aboriginal and Torres Strait islander people (Burt et al., 2020a; Burt et al., 2020b) also reported weight concerns among normal weight people. Another study conducted among tribal students in Telangana state showed that late adolescent women had significantly higher weight concerns than early adolescents (Beulah Margaret et al., 2018). When indigenous women with normal BMI had weight concerns, they follow unhealthy weight control behaviours (Story et al., 1994), which often lead to eating disorders (Killen et al., 1996). Previous studies conducted on *Chippewa* women in Michigan (Rosen et al., 1988) and American Indian and Alaska Native adolescents (Story et al., 1994) found that indigenous girls with weight concerns follow weight control methods.

The EAT-26 indicated that 6.3% of the students had "Eating disorder risk" based on their attitude, feeling and behaviour towards eating. Singh et al., (2013) also reported similar eating disorder prevalence among *Idu Mishmi* tribes in Arunachal Pradesh with 6.42% subjects exhibiting signs of binge eating and 1.38% with bulimia nervosa. However, the students in the BMI and weight status classes were not significantly different on whether they have high risk or low risk of eating disorders. While previous studies conducted among First Australians (Burt et al., 2020c) and indigenous Aboriginal and Torres Strait Islander in Australia (Hay, & Carriage, 2012) reported over 8% prevalence of eating disorders, Canadian research indicated 17.5% aboriginal girls had risk of eating disorders (Marchessault, 2003). Considering the higher eating disorder prevalence reported in Western countries, the proportion was lower among Naga tribes.

Regarding the body image dissatisfaction, over 90% Naga female students had mild concern over body shape. The early adolescent tribal girls in Telangana state of India (Beulah Margaret et al., 2018) had high appreciation for body image. While the tribal girls from India satisfied with their body shape (Beulah Margaret et al., 2018), the Malaysian women belong to rural areas had negative body image (Swami et al., 2012). Past studies conducted among Australian indigenous girls (McCabe et al., 2005) reported positive body image perception, while the indigenous women from in Canada (Marchessault, 2003), Fijian adolescent girls (Becker et al., 2002) and Australian Yiramarang and aboriginal and Torres Strait islander people in Australia (Burt et al., 2020a; Burt et al., 2020c) indicated high levels of body image dissatisfaction. Our study also indicated that the overweight was positively related to body shape dissatisfaction and students higher BMI were likely to experience negative body image. This finding is consistent with research conducted among Hispanic women (Fitzgibbon et al., 2000), Fijian girls (Williams et al., 2006) and Native Americans (Smith et al., 2020).

Our research showed that the female tribal students with high risk of eating disorders had negative body image and more body shape dissatisfaction than the low-risk group. Further analysis also showed a significant positive relationship between eating attitude and body shape dissatisfaction. This is consistent with Indian research showing positive relationship between body dissatisfaction and eating disorder risk among female students in medical students in Chandigarh (Gupta et al., 2017) and undergraduate students in Hyderabad, India (Singh & Gadiraju, 2020). Research conducted among ethnic minorities in South Africa (Gitau et al., 2014) and USA (Smith et al., 2020) also demonstrated relationship between body dissatisfaction and eating attitudes.

Fat talk engagement indicate frequencies with which women engage in speaking negatively about the weight and shape of their bodies. Substantial body of research indicate that women engaged in fat talk are vulnerable to body dissatisfaction and disordered eating (Salk & Engeln-Maddox, 2011; Engeln, & Salk, 2016). Our research indicated that overweight and normal weight students who thought of reducing their weight were engaged in fat talk frequently than underweight subjects. This result is consistent with the findings of Barwick et al., (2012) that fat talk is common among normal weight and over-weight undergraduate female students. In this research, we found that fat talk engagement had positive association with body image dissatisfaction. Literature on eating disorders identified that fat talk lead to internalisation of thin ideals (Salk & Engeln-Maddox, 2011), and result in body shape dissatisfaction (Sharpe et al., 2013).

The strength of this research work is the focus on prevalence of eating disorders and its risk actors among Naga tribe female students. This research shows new insights into weight concerns and associated risk actors like body shape dissatisfaction among Naga female and their engagement in fat talk. One of the limitations of the study is its "self-report" nature, where the key risk factors of eating disorders including BMI were collected through voluntary disclosure of the respondents, which could compromised the richness of data. Due to high proportion of refusals/ incomplete questionnaires, the sample size was reduced.

CONCLUSION AND FUTURE RESEARCH DIRECTION

Though indigenous cultures were assumed to be immune to the body ideals, the modernisation of cultures has deeply impacted their cultural values and made them vulnerable to eating disorders. Our work indicated low prevalence of disordered eating behaviour among female Naga tribal students enrolled in an Indian University. Despite that the Naga culture is more "performative", the internalisation of Western thinness ideals is relatively slow among the girls. Mild body shape dissatisfaction and moderate level of fat talk engagement corroborated with low prevalence of disordered eating. Though there is no alarming increase in disordered eating, the rising levels of the risk factors especially among normal weight students require immediate attention.

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Conflict of Interest

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