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Weight discrimination and body mass indexes as predictors of body esteem in members of the Bear subculture

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Abstract

Aims: The Bear subculture is a community of sexual minority men who are distinguished by their preference for muscular or large body build and pronounced body hair in men. Previous studies indicated that Bears experienced weight stigma within and outside the gay community. In this study we focused on body esteem in members of the Bear subculture and explored its associations with anthropological body mass indexes and experiences of weight discrimination.

Methods: The study, which included questionnaires and anthropological measurements, involved 64 cisgender sexual minority men from the Polish Bear community. Analyses focused on predictors of body esteem measured with The Body-Esteem Scale, including body mass indexes (e.g., waist circumference) and self-reported exposure to weight discrimination.

Results: Every three out of four study participants reported exposure to weight stigma. Greater exposure to weight discrimination predicted lower ratings of one's Physical Attractiveness, Upper Body Strength and Physical Condition. Body mass indexes were significantly and negatively related only to Physical Condition factor.

Discussion: Our study confirms previous observations of increased body mass indexes and exposure to weight stigma among Bears. Interestingly, weight discrimination but not body mass indexes consistently and negatively predicted self-assessed body esteem across its all dimensions.

Conclusion: Men from the Bear community constitute a population that may be particularly vulnerable to health inequalities due to increased body mass and weight stigma exposure. Health promotion interventions targeting this population should be tailored to Bears' subcultural norms, support healthier lifestyles and effective coping with stigma as opposed to focus on weight loss.

weight stigma; obesity; sexual minority men; body esteem; mental health

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INTRODUCTION

The Bear subculture consists of sexual minority men, most often gay or bisexual, who are distinguished by norms of physical attractiveness. This includes a preference for muscular or heavy-set physique in men, and more prominent

facial and body hair [1]. It is also emphasized in the literature that the appearance preferred in this group draws on the aesthetics of maturity and traditionally defined masculinity, and that the subculture locates itself outside of the dominant cultural norms that bind physical attractiveness with youth and slenderness [2]. Bear communities exist all over the world, including Australia [3], Brazil [4], China [5], the USA [2] and Poland [6].

The studies that were conducted in this population predominantly focused on sexual health of Bears and on the prevalence of behaviors associated with increased HIV transmission risk, such as sexual contacts without condoms [7,8,9]. However, due to physical attractiveness norms that Bears subscribe to, one of the key factors influencing their health may be overweight and obesity, which were found to be more prevalent in this group [6]. This includes not only physical health – since obesity has been linked with increased prevalence of such health issues as cardiovascular disease or diabetes [10], but also mental health – given that increased body mass has been associated with more frequent exposure to weight stigmatization [11].

Weight stigma is a multifaceted phenomenon that encompasses processes such as exposure to discrimination, as well as the internalized negative self-image associated with body size [12]. It has been shown to be related not only to mental health adversities, including depression, anxiety disorders and the use of psychoactive substances [12,13], but also to increased levels of physiological stress markers, such as cortisol and C-reactive protein [14]. Weight stigma has also been linked to maladaptive eating behaviors such as binge eating and poorer weight loss treatment outcomes [15,16]. Longitudinal studies demonstrated a significant relationship between the exposure to weight discrimination and an increased risk of future obesity [17,18]. Among the psychological characteristics, the one that seems particularly strongly affected by weight stigma is the body image (dis)satisfaction [11,19]. It captures feelings and appraisals of one's body and is thought to be indicative of the level of stress related to the body perception [20]. The dissatisfaction with one's body is increased in persons diagnosed with binge eating disorders [21] and predicts future development of eating disorders [22]. The results of a recent meta-analysis showed that it's also related to increased levels of depression and anxiety [23].

Although several cross-sectional studies demonstrated that Bears were characterized by higher BMI [5,6] compared to other sexual minority men, only one study so far measured weight stigma exposure in this population and explored its association with mental health indicators such as general self-esteem [24]. Consistently with studies conducted in other populations, exposure to weight discrimination in self-identified Bears was related to decreased self-esteem [24]. Similar associations were observed by authors of qualitative analyses conducted in this community [1]. Bears revealed in their narratives that they experienced discrimination and prejudice related to their body look both within and outside of the gay community [25,26]. Although for many men, becoming members of Bear subculture contributed to a profound re-evaluation of the body ideals and restoration of feelings of self-worth [1,26], others still struggled with internalized weight stigma due to their body size [25]. The relationship between actual size of the body and body satisfaction in Bears may be therefore complex as it seems to be affected by both weight stigma processes and subcultural norms around the body specific to Bears. Since Bear subculture counters Western mainstream body ideals which favor fit and slender V-shaped silhouettes in men [27] and instead it celebrates larger bodies [1] one can expect to observe positive associations between body size and body satisfaction in this population. One of the previous studies in fact demonstrated positive association between BMI and general self-esteem in self-identified Bears [24]. None of the previous research, however, investigated body esteem in Bears and its relationship with actual body size as reflected by anthropological indexes, as well as the exposure to weight stigma. In this study we aimed at filling this gap.

In this study we focused on: (a) the evaluation of anthropological body mass indexes including waist circumference (WC), waist-to-hip ratio (WHR), waist-to-height ratio (WHtR) and Body Mass Index (BMI), (b) the evaluation of weight discrimination experiences, and (c) investigating the relationship between body satisfaction, the anthropological body mass indexes, and weight

stigma in members of the Polish Bear subculture. We hypothesized that there is a positive association between the anthropological body mass indexes and weight stigma exposure in the group, and that there is a negative relationship between weight discrimination and body esteem. Due to the lack of conclusive evidence in the literature, the investigation of the associations between anthropological body mass indexes and body image satisfaction in Bears was of an exploratory character.

MATERIAL AND METHODS

Procedure

The participants were recruited among members and followers of Bears of Poland Association via social media and mailing lists, as well as during various events organized for Bears. Meetings with the participants, during which questionnaire data were collected together with anthropological measurements, took place in selected cities in Poland in 2017. The study was approved by the Bioethical Committee of Jagiellonian University. Written consent was obtained from all study participants.

Participants

Out of 64 cisgender men who completed the questionnaire and had their anthropological measurements taken, 60 were gay, three bisexual, and one man stated that he does not define his sexual identity. Mean age in the sample was 36.1 years (SD = 7.9 years). The youngest participant was 25, and the oldest was 61. The majority of the participants (N = 43; 67.2%) received higher education and lived in cities with population of more than 500,000 (N = 35; 54.7%). Experiencing financial difficulties was revealed by approximately one fifth of the sample (N = 13; 20.3%).

Measures

The demographic questionnaire included information on year of birth, sexual and gender identities, the size of the place of residence, education, as well as financial situation (a question regarding whether the current income is sufficient to cover the necessary expenses). Other questionnaires included Polish adaptation of the Body-Esteem Scale (BES) [28,29], and translation of the Experiences of Discrimination Index used in the CARDIA study (Coronary Artery Risk Development in Young Adults) [30].

The Body Esteem Scale consists of 35 items describing body parts, functions, and performance. Each item is rated on a 5-point scale with regard to feelings it evokes (1—strong negative feelings, 3—no feelings, 5—strong positive feelings). The results were computed in three sub-scales: Physical Attractiveness (PA), that is the self-assessment of body's attractiveness, Upper Body Strength (UBS), the assessment of the body's fitness and strength, and Physical Condition (PC), which refers to the fortitude and agility of one's body.

The Experiences of Discrimination Index [30] allows to assess the exposure to discrimination defined as being prevented from doing something, being made to feel inferior or hassled in the following seven situations: at school, at work, at home, getting a job, housing or medical care as well as in the street/in a public setting. Having consulted the members of Bear community, one more context of weight stigma experience was included, which encompassed the Internet activity, as well as social media browsing and using dating apps for sexual minority men. The total index value ranged from 0 to 8 points.

The anthropological measurements included body mass, body height, waist circumference and hip circumference. Height was measured with a portable stadiometer, and circumferences—with a stretch-resistant tape, and in compliance with the WHO STEPS protocol [31]. Waist circumference was measured at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest. In the case of difficulties in identifying the place of measurement, stemming from the body mass, the waist circumference was measured at the level of the umbilicus. The hip circumference measurement was taken around the widest portion of the buttocks. Based on the anthropological measurements, the BMI and other anthropological indexes were calculated, including the WHR (waist-to-hip ratio), and the WHtR (waist-to-height ratio).

Additionally, the WC, WHR and WHtR indexes were dichotomized in compliance with

the cut-off values suggested in the literature to illustrate the cardiometabolic risk in the study sample [32]. Waist circumference ≥100 cm, WHR ≥0.96 and WHtR ≥0.57 were recognized as indicative of elevated risk for cardiometabolic disorders. The regular categories of the BMI were also used to distinguish men with body mass within the normal range (18.5 kg/m2< BMI < 24.9 kg/m2), body mass indicative of overweight (25.0 kg/m2 < BMI < 29.9 kg/m2), and obesity (30.0 kg/m2 . BMI).. To compare the prevalence of abdominal obesity in the study sample with Polish general population, the following cut-off points suggested by WHO were used: waist circumference exceeding 102 cm and WHR equal or greater than 0.90 [33].

Statistical Analyses

The analyses were conducted by the means of R Software [34]. The scores from the Body-Esteem Scale were recalculated into sten (standard ten) scores to enable comparisons of the study sample with the Polish population. To that end, One-Sample t-Test was used. To explore the relationships between the analyzed variables Spearman's rank correlation coefficients were calculated. Then, in order to analyze the relationships of body mass indexes, weight stigma experience, and body esteem, regression analyses adjusted for age were performed.

RESULTS

The anthropological measurements and values of body mass indexes are displayed in Table 1. In the case of 6 (9.4%) men the BMI values were within the normal range, in another 20 (31.2%) the values indicated overweight, and in the case of the remaining 38 (59.4%)—obesity. In 50 (78.1%) participants the waist circumference exceeded the cut-off value for abdominal obesity proposed by Macek and colleagues [32]. For the WHR and the WHtR indexes, the corresponding number was 47 (73.4%) individuals [32]. With reference to the cut-off values for abdominal obesity recommended by the WHO, as much as 47 (73.4%) participants were characterized by abdominal obesity based on waist circumference, and 64 (92.2%) men—based on the WHR [33].

Table 1. Anthropological measurements and body mass indexes in study sample

	M (SD)	Med	Min	Max	Skewness
Body mass (kg)	101.2 (22.8)	96.05	56.4	163	.44
Body height (cm)	177.2 (7.1)	178.5	153	199	-.46
Waist circumference (cm)	110.2 (16.8)	108.2	77.9	159	.41
Hip circumference (cm)	109.6 (11.2)	108.4	87	148	.79
Body Mass Index (kg/m^2)	32.1 (6.4)	31.4	21.3	48.1	.64
Waist-to-Hip Ratio	1.00 (.08)	1.0	.83	1.22	.31
Waist-to-Height Ratio	.62 (.09)	.61	.46	.85	.52

Only 15 (23%) persons from the sample declared having not experienced weight discrimination in any of the included situations (Table 2). On average, the participants experienced discrimination in 2 situations (M = 2.2; median = 2). Nearly half of the sample (29 men) revealed having experienced stigma in at least 3 situations. The most common contexts for this type of discrimination were: at school/university and on the Internet.

Table 2. Exposure to weight discrimination in study sample

	N	%
At school/university	40	62.5%
On the Internet (e.g., social media, dating apps)	33	51.6%

In the street/in a public setting	22	34.4%
At home	21	32.8%
At work	11	17.2%
Getting medical care	9	14.1%
Getting a job	4	6.2%
Getting housing	1	1.6%

The mean scores for each all three factors of the Body-Esteem Scale are presented in Table 3. The analysis of the sten (standard ten) scores showed that, compared to the Polish population, the participants did not differ significantly with regard to how they assessed their Physical Attractiveness (PA), but they did differ in their assessments of their Upper Body Strength (UBS) and Physical Condition (PC), which were significantly lower. The scores in all three BES factors significantly and negatively correlated with the scores of the Experiences of Discrimination Index (Table 4).

Table 3. Raw and sten scores for Body-Esteem Scale factors in study sample

	Raw score	Sten score	t	p
	M (SD)	M (SD)		
Physical Attractiveness	40.2 (6.8)	5.5 (2.1)	.00	.999
Upper Body Strength	29.5 (6.3)	4.04 (2.1)	-5.63	<.001
Physical Condition	40 (9.2)	3.7 (2.05)	-7.09	<.001

Table 4. Correlation matrix for all analyzed variables

Variable	M (SD)	1	2	3	4	5	6	7
1. BMI[1]	32.1 (6.4)	—-						
2. WHR[2]	1.00 (.08)	.59*	—-					
3. WHtR[3]	.62 (.09)	.93*	.76*	—-				
4. WC[4]	110.2 (16.8)	.92*	.76*	.96*	—-			
5. BSE_PA[5]	3.66 (.62)	-.10	-.06	-.11	-.11	—-		
6. BSE_UBS[6]	3.28 (.70)	-.05	-.09	-.10	-.16	.55*	—-	
7. BSE_PC[7]	3.08 (.71)	-.025*	-.24	-.32*	-.33*	.52*	.79*	—-
8. EDI[8]	2.20 (1.84)	.52*	.41*	.51*	.56*	-.31*	-.26*	-.43*

Note: [1]BMI—Body Mass Index; [2]WHR—Waist-to-Hip Ratio; [3]WHtR—Waist-to-Height Ratio; [4]WC—waist circumference; [5]BSE_PA—Physical Attractiveness; [6]BSE_UBS—Upper Body Strength; [7]BSE_PC—Physical Condition; [8]EDI—Experiences of Discrimination Index

Of all three factors comprising the Body-Esteem Scale, only Physical Condition was found to be significantly correlated with anthropological body mass indexes such as BMI, WC and WHtR (Table 4). The Experiences of Discrimination Index scores were significantly correlated not only with the BES factors (negatively) but also with all anthropological indexes (positively).

Table 5. Associations between body mass indexes, weight stigma, and Body-Esteem Scale factors

		Physical Attractiveness			Upper Body Strength			Physical Condition		
		B [95% CI]	β (SE)	p	B [95% CI]	β (SE)	p	B [95% CI]	β (SE)	p
Model 1	EDI[1]	-.11[-.19;-.03]	-.33 (.12)	.007	-.10[-.20;-.01]	-.27 (.12)	.033	-.16[-.24;-.07]	-.41 (.12)	<.001

Model 2	BMI[2]	-.01[-.03;.02]	-.08 (.13)	.646	-.01[-.03;.03]	-.03 (.13)	.813	-.06[-.06;.01]	-.25 (.13)	.057
Model 3	WHR[3]	-.99[-3.25;1.28]	-.13 (.15)	.386	-1.27[-3.84;1.30]	-.15 (.15)	.328	-3.16[-5.63;-.68]	-.38 (.14)	.013
Model 4	WHtR[4]	-.81[-2.76;1.13]	-.12 (.14)	.407	-.92[-3.14;1.29]	-.12 (.14)	.408	-2.90[-5.00;-.79]	-.36 (.13)	.008
Model 5	WC[5]	-.01[-.01;.01]	-.11 (.14)	.412	-.01[-.02;.01]	-.17 (.14)	.204	-.02[-.02;-.01]	-.38 (.13)	.005
Model 6	BMI[2]	.02[-.01;.05]	.18 (.15)	.241	.02[-.01;.06]	.20 (.16)	.211	.01[-.03;.03]	.001 (.15)	.995
	EDI[1]	-.15[-.25;.05]	-.44 (.15)	.004	-.15[-.26;-.03]	-.38 (.15)	.014	-.16[-.27;-.05]	-.42 (.14)	.005
Model 7	WHR[3]	.77[-1.76;3.30]	.10 (.17)	.546	.21[-2.74;3.16]	.02 (.18)	.889	-1.32[-4.09;1.46]	-.16 (.17)	.347
	EDI[1]	-.13[-.22;-.03]	-.38 (.14)	.010	-.11[-.22;.01]	-.28 (.15)	.059	-.13[-.24;-.03]	-.35 (.14)	.013
Model 8	WHtR[4]	1.13[-1.17;3.44]	.16 (.16)	.330	.76[-1.94;3.46]	.09 (.17)	.575	-1.13[-3.68;1.42]	-.14 (.16)	.380
	EDI[1]	-.14[-.24;-.04]	-.42 (.15)	.007	-.12[-.24;-.01]	-.32 (.15)	.042	-.13[-.24;-.02]	-.34 (.15)	.024
Model 9	WC[5]	.01[-.01;.02]	.20 (.17)	.248	.01[-.01;.02]	.02 (.17)	.921	-.01[-.02;.01]	-.15 (.16)	.348
	EDI[1]	-.15[-.26;-.05]	-.45 (.16)	.005	-.11[-.23;.02]	-.28 (.16)	.089	-.12[-.24;-.01]	-.32 (.15)	.037

Note: [1]Experiences of Discrimination Index; [2]BMI—Body Mass Index; [3]WHR—Waist-to-Hip Ratio; [4]WHtR—Waist-to-Height Ratio; [5]WC—waist circumference. All models controlled for age.

Table 5 shows the results of regression analysis for all three factors of the BES questionnaire, with body mass indexes and the Experiences of Discrimination Index included as predictors. When controlled for age, the experiences of weight discrimination predicted decreased scores of all three BES factors. Except of the BMI, all other anthropological indexes reached statistical significance as the predictors of self-assessed physical condition. In models 6–9, which controlled for age and weight stigma experience, and included anthropological body mass indexes, only weight stigma remained a significant predictor of the results in all three BES factors (Table 5).

DISCUSSION

Our study aimed to investigate body satisfaction as well as its relationship with body size and the exposure to weight discrimination in Polish Bears. The results obtained indicate an increased prevalence of obesity in members of this community and confirm associations of increased body mass indexes with greater exposure to weight stigma. Although in regression models that controlled for age the anthropological indexes were significantly related to the participants' physical condition self-assessment, of all included factors only weight discrimination consistently predicted self-assessed physical attractiveness, upper body strength, and physical condition in Bears.

From the public health perspective, it is important to notice the elevated levels of body mass indexes in Bears [35]. The prevalence of obesity, defined as the BMI value of more than 30 kg/m^2, was over twice as high in this group (59.4%) as in the general adult male population in Poland (24.4%) [36]. In the case of abdominal obesity, defined as waist circumference exceeding 102 cm, the ratio was also over twice as high (73.4%) as in the male population in Poland (32.2%) [36]. Considering that obesity is an important factor in the etiology of various chronic diseases, the result calls for health promotion efforts addressed to Bears. To maximize their effectiveness, these initiatives should be tailored to subcultural norms of this community and focus on promoting physical activity and a healthier lifestyle rather than weight loss. Given that members of the Bear subculture face weight stigma in many domains of life, poorly planned health promotion initiatives can additionally burden this population.

Exposure to weight discrimination was reported by every three out of four participants, and nearly half of the sample revealed having such experiences in at least three out of eight types of situations listed in the questionnaire. The stigma exposure increased with the values of the anthropological body mass indexes and was related to decreased body esteem in all Body-Esteem Scale factors, that is Physical Attractiveness, Upper Body Strength, and Physical Condition. Stigma was also the only significant predictor of lowered body assessments when controlled for

age and body mass indexes. This pattern seems to expand the list of potential negative health outcomes stemming from weight stigma exposure by such correlates of body dissatisfaction, as disordered eating, abusing slimming supplements, sexual functioning deterioration, and a decrease in self-examining frequency—a practice crucial to early cancer diagnosis [23,37].

Importantly, given that most study participants identified as sexual minority men it is very likely that they were experiencing not only weight stigma but also sexual minority stigma which is still highly prevalent in Poland [38]. Being burdened with multiple disadvantaged social statuses and, as a consequence, dealing with multiple forms of discrimination has been linked in research with greater likelihood of experiencing health inequalities such as major depression, poor physical health or functional limitations [39]. Members of Bear community being disproportionately exposed to stigma, therefore, constitute a population which requires a special attention from mental and public health specialists. Mental health professionals supporting sexual minority persons should be aware of various ways in which diverse intersecting social statuses create unique contexts for health in their clients' lives. Similar considerations apply to public health professionals who, when working on health promotion initiatives targeting sexual minority populations should be mindful of the diversity within this community and tailor these initiatives to the needs of specific groups within it.

In the context of earlier studies linking weight stigma with body dissatisfaction [11] and demonstrating that persons with higher body mass tend to reveal lower assessments of their bodies [19], there is another interesting observation to be made. The assessment of one's own body, as expressed by the sten scores, proved to be significantly lower than the norms for the Polish population only in the case of Upper Body Strength and Physical Condition factors. Despite greater prevalence of obesity in the Bear community and exposure to stigma related to it, our participants did not rate their attractiveness lower than the men who comprised the normalization group [29]. Arguably this may have been caused by the protective influence of subcultural attractiveness norms shared by the group; the role of which is also highlighted by the qualitative studies on this population [1,26].

Previous research investigating body image satisfaction and body image concerns among sexual minority men suggests that the latter group is characterized by more negative body image compared to heterosexual men [40]. Moreover, sexual minority men report both more frequent episodes of weight discrimination and greater internalized weight bias as compared to heterosexual men, both of which contribute to diminished psychological quality of life in gay and bisexual men [41]. This doesn't seem to be the case in our study participants whose perception of their own attractiveness didn't significantly differ from the reference population. Additionally, although none of the body mass indexes reached the level of statistical significance in the final regression models with physical attractiveness as dependent variable, all included indexes predicted it positively. It is possible that our study sample was too small to observe these effects. Another possible explanation is that men in our sample differed in the extent to which they internalized Bears' subcultural body ideals which embrace larger bodies. Qualitative analyses conducted in this community suggest that accepting subcultural norms is more of a process than a one-time realization [26].

The only Body-Esteem Scale factor that remained linked to the body mass indexes in the regression models controlling for age was Physical Condition, capturing the assessment of one's own fortitude and agility. Given the elevated body mass indexes in the sample and the fact that muscle efficiency in persons with obesity is decreased relative to body mass [42], the results of these assessments may reflect considerable fitness shortcomings. With the benefits of physical activity in mind [43], this observation also suggests the need for health promotion interventions aimed at supporting more physically active lifestyles among Bears.

Although some characteristics of our study, including the nonprobability sampling, limited sample size and the cross-sectional study design limit both generalization of our results and inferring about causality of the observed relationships, our findings substantially contribute to the knowledge on health of sexual minori-

ty men and members of the Bear subculture in particular. Moreover, the study offers important practical implications pertaining to health promotion initiatives in Bear community. Such actions should boost the competencies useful in coping with stigma and promote a healthy lifestyle and physical activity instead of focusing on weight loss, which may strengthen the negative effect of stigma on health.

Future studies, preferably utilizing longitudinal designs and probability sampling, should explore to greater extent the relationships between weight stigma exposure and body esteem in Bears as compared to other sexual minority men and men of general population. Particularly, the influence of subcultural body ideals and more specifically how the level of their internalization shapes relationships between weight stigma and body esteem pose interesting research question. Integrating physiological biomarkers of chronic or repeated stress exposure, such as cortisol reactivity to stress [44], hair cortisol concentration [45] or C-reactive protein level [46], into research designs could provide a more comprehensive understanding of associations between weight stigma and health in Bears. Finally, there is a dearth of studies exploring needs of Bears concerning health promotion initiatives and intervention studies investigating effectiveness of such initiatives.

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