

Cadet Body Image as it Relates to Branch Preference

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Abstract: This study focused on cadets at the United States Military Academy and explored both body image and potential body image discrepancies with respect to cadets' future job in the Army. This study administered a survey which asked for participants' top branch preferences, then asked them to look at a menu of body avatars with varying levels of muscularity and thinness. Participants identified the avatar that represented their current body size, their ideal body size, and the ideal body for an Army officer in their top branch. Branches were grouped into three physical demand categories: Heavy, Significant, and Moderate. Kruskal-Wallis testing showed that thinness metrics were not correlated with branch preferences. However, there were significant differences in all muscularity metrics based on branching preferences. There were statistically significant differences between current thinness and muscularity and ideal thinness and muscularity in both males and females.

Keywords: Body Image, Ideal Body Image, Body Image Discrepancy, Physical Demand Category

1. Introduction and Background

Body image is a salient subject for many and is affected by the standards and culture of organizations to which people belong (Cash, 2012). The United States Army has universal standards for body composition and physical fitness that members must meet to remain in the organization, regardless of occupation within the Army. This leaves members susceptible to discrepancies between current and ideal body image, which leads to body dissatisfaction. Body dissatisfaction is associated with detrimental effects to individual health, and detrimental effects to individuals within their occupation (Glashouwer et. al., 2018). To better understand body size and shape preferences and how they relate to the Army branches and their respective physical demand, this study focused on cadets at the United States Military Academy and explored both body image and potential body image discrepancies with respect to cadets' future jobs in the Army.

2. Methods

This study consisted of an electronic survey administered via Qualtrics to cadets at the United States Military Academy. Demographically, cadets typically range in age from 18 to 24 years, are physically fit, and are predominantly white (63%) (Integrated Postsecondary Education Data System, 2019). The survey included three demographic questions, three questions relating to height, weight, and Army Combat Fitness Test (ACFT) score, and a question asking participants to select their top 3 branch (military specialty) preferences. Then, participants were shown a Body Image Matrix of Thinness and Muscularity (BIMTM) based on their sex (Arkenau et. al., 2020; Steinfeld et. al., 2020). The BIMTM consists of 64 body avatars, arranged in an 8 by 8 matrix. The image thinness increases along the x-axis, and the image muscularity increases along the y-axis. The top left image is the thinnest and least muscular; the bottom right image is the largest and most muscular. Participants viewed the matrix, and selected images that best matched their current body, their ideal body, and the ideal body

for a military officer in their preferred military specialty. A total of 385 responses were collected. Since males (N = 203) and females (N = 182) selected from sex-specific matrices, they were considered separately in the analysis.

Data was analyzed using the R statistical package (R core team, 2022). Respondents' branch preferences were categorized as Heavy (H), Significant (S), or Moderate (M) in accordance with the physical demand categories Army's Occupational Physical Assessment Test (Department of the Army, 2020). The H, S, and M categories are ordered from most physically demanding to least physically demanding. Male respondents had a fairly even distribution of responses in these categories (N = 77, N = 58, and N = 68 for H, S, and M, respectively). Female respondents preferred branches that fell into the moderate category (N = 40, N = 56, and N = 86, respectively).

Each of the three body avatar selections were transformed from a single numeric value to a two-dimensional thinness (x) and muscularity (y) component. Thinness discrepancy and muscularity discrepancy were calculated by subtracting the ideal value from the current value. Kruskal-Wallis testing was used to determine whether statistically significant differences existed between cadets based on branch selection. A Dunn test with a Bonferroni correction was used as a post-hoc test. The significance of the thinness discrepancy and the muscularity discrepancy was tested using a Chi-Square test. The Chi-Square tested for a significant difference between the current thinness versus the ideal thinness, and current muscularity versus ideal muscularity.

3. Results

No statistically significant results were found for any comparison of thinness. Current thinness, ideal thinness, ideal officer thinness, and thinness discrepancy was consistent regardless of branch preference. For females, the mean current thinness was 3.57 (SD = 0.80), and the ideal thinness value was 2.98 (SD = 0.55), and ideal officer thinness was 3.42 (SD = 0.60). For males, the mean current thinness was 3.20 (SD = 1.48), the ideal thinness value was 2.29 (SD = 1.3), and the ideal officer thinness value was 2.63 (SD = 1.33).

When considering muscularity, there were several statistically significant results. Results are displayed below in Table 1, and significant results are annotated with an asterisk (*).

Table 1. Kruskal-Wallis and Dunn test results and statistical properties for muscularity measurements

Sex	Measurement	Kruskal-Wallis Results			Dunn Test Results (<i>p</i> value)			Mean and SD by branch		
		χ^2	<i>df</i>	<i>p</i>	H – S	H – M	M – S	H	S	M
F	Current Muscularity*	7.176	2	0.027*	0.035*	0.064	1.00	4.12 ± 1.77	3.35 ± 1.69	3.19 ± 1.73
F	Ideal Muscularity*	10.29	2	0.005*	0.005*	0.028*	1.00	6.03 ± 1.36	5.01 ± 1.66	5.21 ± 1.73
F	Ideal Officer Muscularity*	7.81	2	0.020*	0.12	0.017*	1.00	5.65 ± 1.51	4.92 ± 1.76	4.69 ± 1.85
F	Muscularity Discrepancy	0.056	2	0.97	1.00	1.00	1.00	-1.09 ± 1.42	-1.82 ± 1.38	-1.86 ± 1.70
M	Current Muscularity*	6.80	2	0.033*	0.31	0.032*	1.00	4.12 ± 1.50	3.68 ± 1.40	3.45 ± 1.48
M	Ideal Muscularity*	9.09	2	0.011*	0.043*	0.023*	1.00	6.19 ± 1.29	5.53 ± 1.55	5.57 ± 1.30
M	Ideal Officer Muscularity*	14.875	2	< 0.001*	0.018*	< 0.001*	1.00	5.90 ± 1.20	5.20 ± 1.70	5.00 ± 1.47
M	Muscularity Discrepancy	1.12	2	0.57	1.00	1.00	0.92	-2.06 ± 1.37	-1.84 ± 1.28	-2.11 ± 1.36

While neither thinness nor muscularity discrepancy were significantly different *between groups*, the discrepancy itself represents a statistically significant value. The Chi-Square test found a significant difference between the current and ideal measure for male thinness ($\chi^2 = 98.98$, *df* = 25, *p* < 0.001) and muscularity ($\chi^2 = 152.19$, *df* = 42, *p* < 0.001), as well as female thinness ($\chi^2 = 147.74$, *df* = 18, *p* < 0.001) and muscularity ($\chi^2 = 168.76$, *df* = 42, *p* < 0.001).

4. Conclusions and Recommendations

This study highlights the need for a multi-dimension measurement for body preference and body image discrepancy. All participants, regardless of branch preference, identified the same levels of current, preferred, and ideal officer thinness. However, there were clear differences in current, ideal, and ideal officer muscularity based on branch preference. Most literature surrounding body image and size focuses on body size as a one-dimensional component, measured only by mass. It could be argued that in one-dimensional studies, respondents' preferences were tied directly to thinness, as opposed to body composition. Body composition is significantly affected by individual physical fitness, a value of the Army profession, and one that is changing with new fitness standards. Future studies on body image are recommended to use this type of measure.

5. References

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