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**BODY SIZE,  
SELF EVALUATION, AND  
MILITARY EFFECTIVENESS**

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Body Size, Self Evaluation, and Military Effectiveness

by

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construed as necessarily reflecting the views or endorsement of the Navy Department.

In a population of young, healthy Navy men dissatisfaction with height and weight varied directly with deviation from preferred ("ideal") height and weight. Satisfaction with intellectual level generally varied inversely with intelligence, although within a wide range of GCT scores no relationship was present.

Height appeared to have a pervasive effect upon self evaluations generally. Short-Underweight and Short-Overweight groups had the most unfavorable self-images. Neither height nor weight seemed to have an effect upon military performance except at the extremes. Very short and overweight individuals tended to be both unhappy with themselves and ineffective in performance.

### Introduction

Personality theorists have postulated an intimate connection between body image and self image. Freud (1961, p. 26) commented that "the ego is first and foremost a bodily ego." Alfred Adler formulated the concept of "inferiority complex" and popularized the notions of inferiority feelings arising from perceptions of physical deviation or weakness and of attempts to compensate for such handicaps through exceptional mental or physical efforts. In view of the importance and widespread acceptance of the idea that an unfavorable body image undermines positive feelings toward self, Wylie (1961), in reviewing research on body characteristics and self concept, noted with surprise that no controlled studies have been attempted to test this proposition directly.

Jourard and Secord (1955) in a series of studies demonstrated a connection between feelings toward body and feelings toward self, and also offered evidence that attitudes toward the body may be a significant personality variable with implications for mental health. They found, for example, that college students who had positive feelings toward the body also felt more secure, self confident, and free of inferiority feelings than those who had negative body feelings (Secord and Jourard, 1953). Johnson (1956) tended to support this hypothesis in finding negative attitudes toward body to be related to somatic symptoms on the Cornell Medical Index Health Questionnaire.

In an earlier paper (Gunderson and Johnson, in press) unfavorable personal experiences including family instability and conflict, inconsistent or extreme disciplinary practices by parents, and persistent difficulties in school were shown to correlate negatively with self-satisfaction in young Navy men. It seems highly plausible that self evaluations also are influenced by "real" characteristics of the person, such as body size and intelligence. The present study is concerned with relationships between the attributes of height, weight, and intelligence and positive or negative feelings toward those specific aspects of self. In addition, the proposition is tested that the body characteristics of height and weight have a pervasive effect upon self-regard generally. Finally, the possible influence of height and weight upon military adjustment is examined.

Jourard and Secord (1954) investigated relationships of height and weight to satisfaction with height and weight in college males. However, their report was uncertain and perhaps misleading with respect to the nature of these relationships. The present study attempts to establish clearly the form of the relationships between these body characteristics and satisfaction.

### Methods

Subjects. Subjects were 670 Navy enlisted men assigned to a medium-sized aircraft carrier. A personal data questionnaire and a test inventory were administered to these men by medical personnel while the carrier was at sea. The age range of the sample tested was 17 to 21, with a mean of 18.9 years. Mean intelligence score (Navy GCT) was 52.2, and mean education was 11.1 years.

Personal Data and Performance Variables. The personal data questionnaire provided a number

of items of biographical and personal information from the subject, including height and weight, as well as age, education, and so on. Navy GCT (intelligence) scores and performance data, consisting of semi-annual Professional Performance and Military Behavior ratings, disciplinary offense records, and medical records were obtained from individual service records, and ship's records. Performance data were not available on the entire sample tested due to transfers, releases from service, or insufficient time in the service to receive performance evaluations.

Five items of criterion information, Professional Performance rating, Military Behavior ratings, number of disciplinary offenses, number of sick calls, and pay grade attained, were given coded values determined by their distributions (approximately upper 25%, middle 50%, and lower 25%). The five values were combined into a composite score which represented an overall estimate of relative effectiveness of performance in the Navy. Performance scores ranged from 0 to 10 with a mean of 5.7 and a standard deviation of 1.8.

Test Variables. Attitudes toward body and self were obtained from a 52-item multiple choice inventory, the Self Evaluation Index, developed by Secord and Jourard (1953) and modified by Johnson (1956). For each body or self characteristic the subject rated his satisfaction or dissatisfaction with that particular aspect of himself on a 5-point scale. Two items, height and weight, were selected for study from among the body characteristics included in the Index and one item, intellectual level, from among the self characteristics. In addition, a Self Evaluation (SE) score, called "Self-Cathexis" by Jourard and Secord, was obtained by summing ratings over the 30 items referring to various aspects of self.

Statistical Analyses. Heights, weights, and intelligence scores were grouped, and each variable was plotted against percentages expressing dissatisfaction with that attribute. The criterion for being classed "dissatisfied" was an extreme response on the satisfaction scale (strongly dislike or don't like). Secondly, a joint distribution for the entire sample was plotted using six categories of height and eight categories of weight. The distributions for each of the six height categories were further partitioned into three sub-categories by weight, underweight, medium-weight, and overweight, with approximately 25%, 50%, and 25% falling in these sub-groups, respectively. In each of the resulting eighteen height-weight categories, percentages were computed of men falling below the mean scores on the Self Evaluation and Performance Scales. Various combinations of the eighteen height-weight categories were compared in terms of proportions low in self-regard and military effectiveness.

## Results

The relationship between height and expressed dissatisfaction with height is shown in Figure 1. The optimal height in terms of satisfaction appears to be 6'. Subjects ranging in height from 5'10" to 6'1" rarely expressed dissatisfaction with their heights, but outside these limits the proportion expressing dissatisfaction rises sharply with over half of those under 5'7" expressing dissatisfaction.

The relationship of weight to dissatisfaction with weight is shown in Figure 2. Least dissatisfaction with weight was expressed in the range from 151-180 pounds. Sharp increases in dissatisfaction occurred outside these limits, reaching a maximum (71%) in those weighing less than 131 pounds. Over half of the subjects weighing over 180 pounds expressed dissatisfaction with their weights.

The relationship of intelligence to expressed dissatisfaction with intellectual level, shown in Figure 3, is generally linear but discontinuous. Within a wide range of GCT scores, 35 to 54, no relationship appears with satisfaction, but outside these limits the relationship is inverse and linear. Percentages of expressed dissatisfaction ranged from 9% in the 65 to 69 GCT interval to 82% in the 32 to 34 interval.

The "ideal" height for this population (6') was about 2 inches taller than the actual mean height (approximately 5'10"). Similarly the optimum weight range in terms of satisfaction (171-180 pounds) was several pounds heavier than the mean weight for this population (approximately 159 pounds). Overall dissatisfaction with weight was much more prevalent than dissatisfaction with height (46% for weight versus 27% for height).

The separate and combined effects of height and weight upon self evaluation generally and upon effectiveness of military performance are summarized in Table 1. Percentages falling below the mean on the Self Evaluation and Performance Scales are shown in the Table for each of the major height-weight combinations. In addition to the height-weight combinations shown, the  $X^2$  statistic was utilized to test differences in frequencies falling below the means for a number of other sub-groups which are discussed below without reference to Table 1.

Differences in frequencies of SE scores below the mean over six categories of height (less than 67", 67"-68", 69", 70"-71", 72"-73", and more than 73") were highly significant ( $X^2 = 18.31$ ,  $p < .01$ ), indicating that self evaluation was significantly related to height. Very short individuals (less than 5'7") were most dissatisfied with themselves, 69% falling below the mean

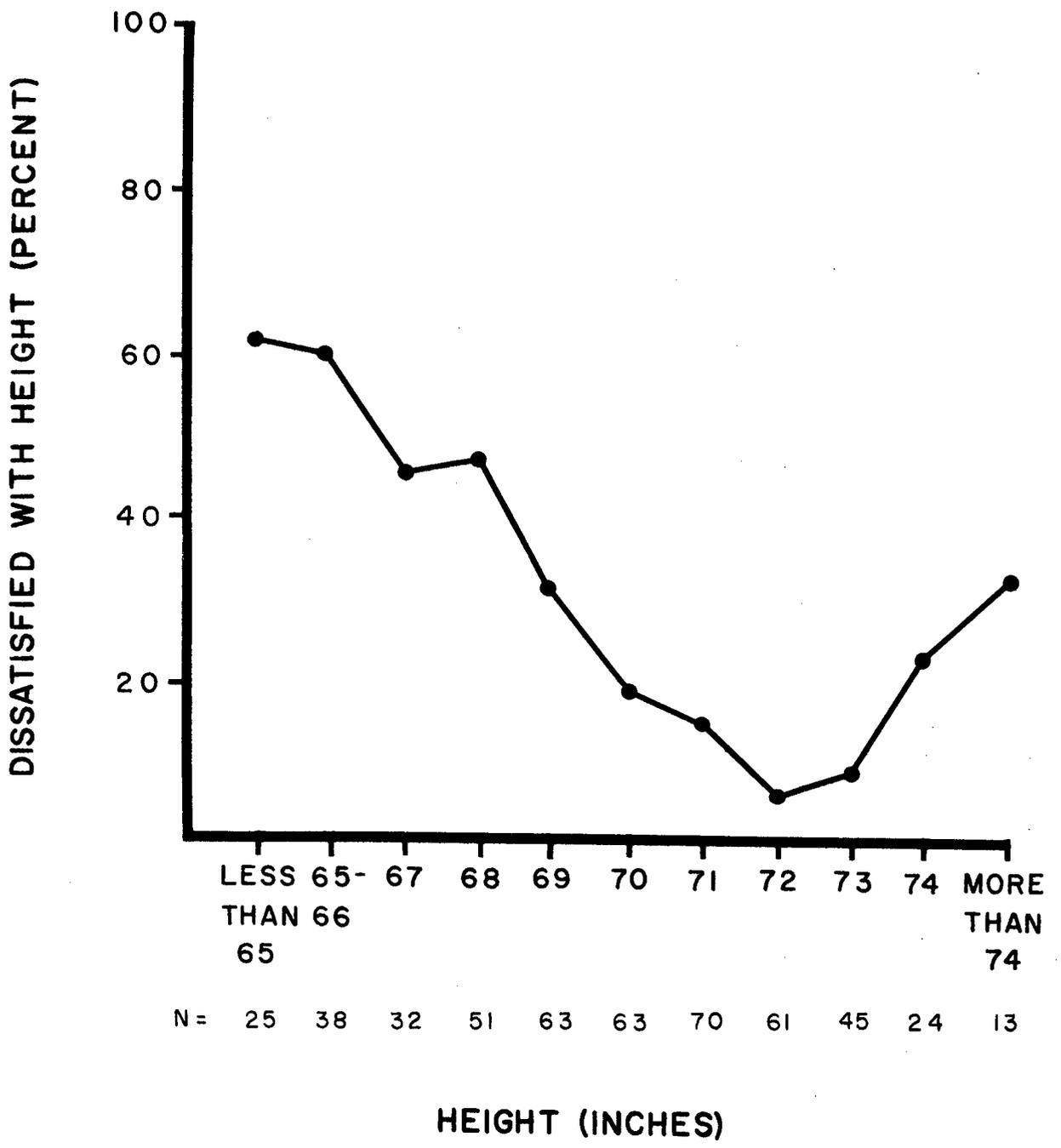


Figure 1. The relationship between height and dissatisfaction with height.

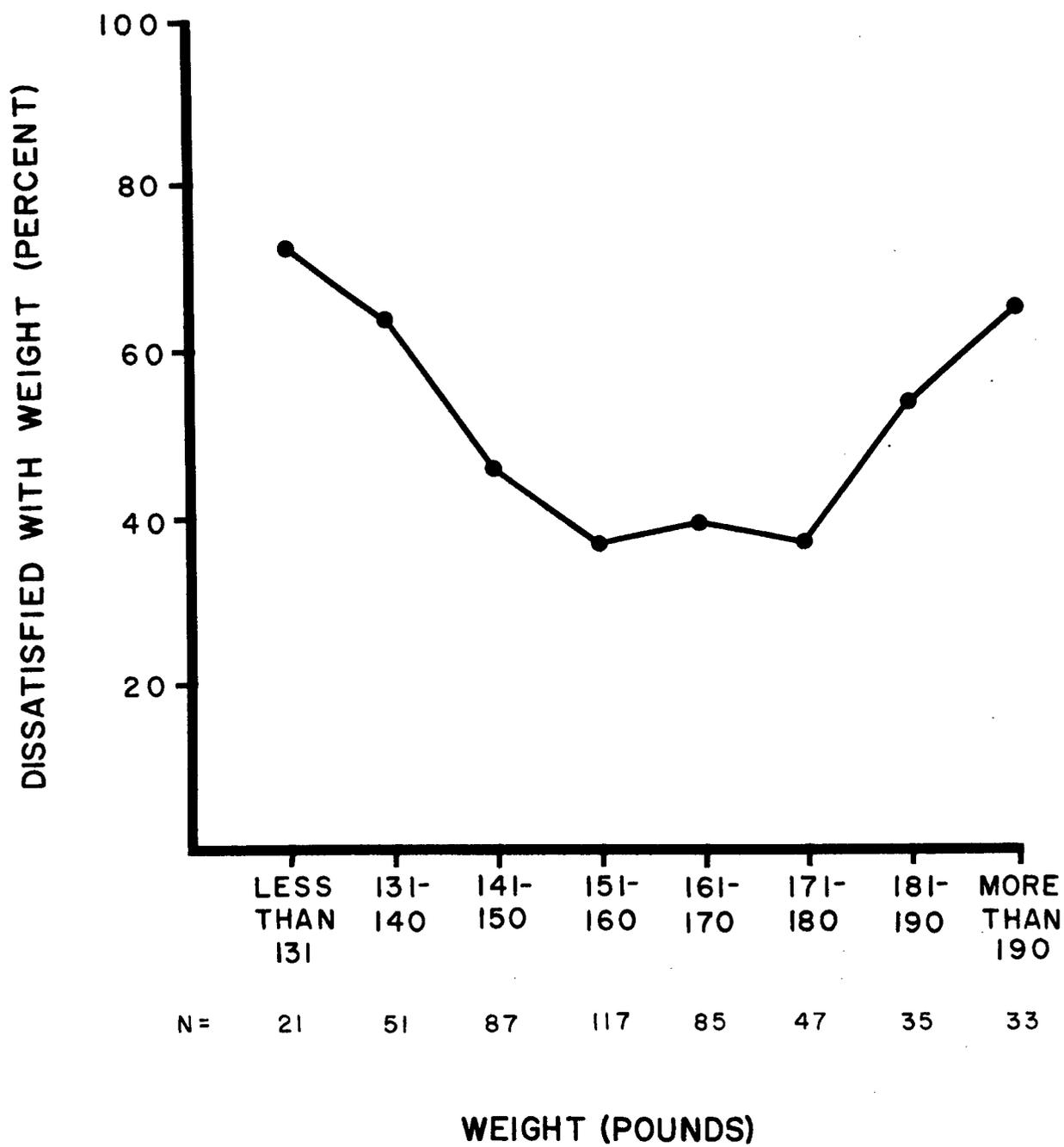


Figure 2. The relationship between weight and dissatisfaction with weight.

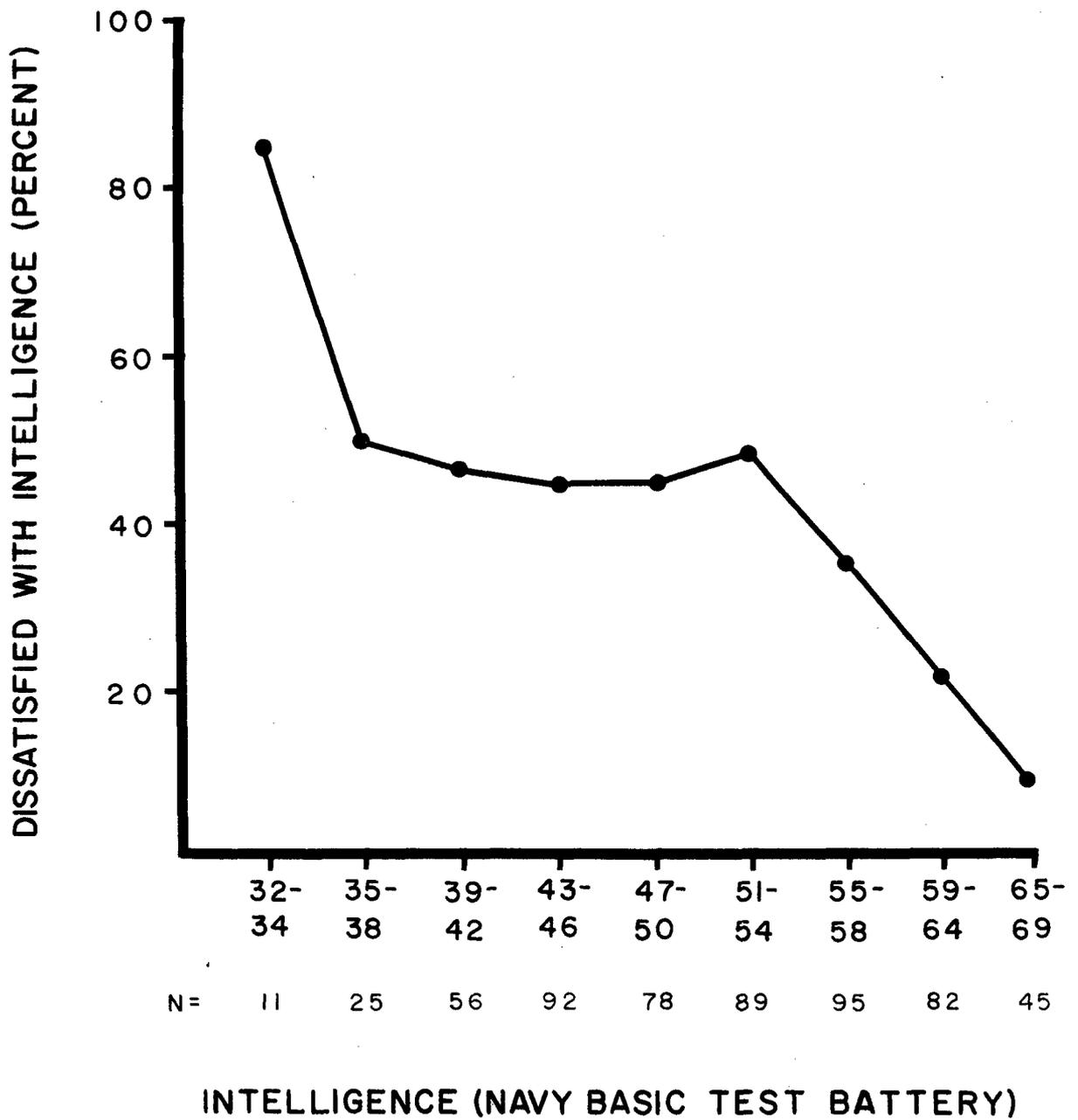


Figure 3. The relationship between intelligence and dissatisfaction with intellectual level.

Table 1

## Relationships of Body Size to Self Evaluation and Performance

	<u>Percent Below Mean</u>			
	<u>Self Evaluation</u>		<u>Performance</u>	
<u>Height Only</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>
Short (<69")	57	141	44	110
Average (69"-71")	42	193	45	154
Tall (>71")	48	141	44	118
<u>Weight Only</u>				
Light (<141 pounds)	61	72	47	53
Medium (141-180 pounds)	46	333	43	278
Heavy (>180 pounds)	48	70	51	51
<u>Combinations of Height and Weight</u>				
Short-Underweight <sup>a</sup>	64	28	44	25
Average-Underweight	37	54	53	38
Tall-Underweight	53	38	38	34
Short-Medium Weight	52	89	40	67
AVERAGE-MEDIUM WEIGHT	49	103	42	88
Tall-Medium Weight	47	64	46	57
Short-Overweight	71	24	61	18
Average-Overweight	30	36	43	28
Tall-Overweight	36	39	48	27
<u>Extreme Deviations of Height and Weight</u>				
Very Short (less than 67")-Underweight	67	12	30	10
Very Tall (more than 73")-Underweight	67	6	20	5
Very Tall-Overweight	60	10	33	9
Very Short-Overweight	80	15	70	10

<sup>a</sup>Underweight and overweight refer to approximately the lower and upper 25% of the weight distribution, respectively, for each height category.

for SE scores. The individuals in the 5'10" to 5'11" category were most satisfied with themselves, as a group, only 38% falling below the SE mean. Very tall individuals (over 6'1") tended to be dissatisfied with themselves, 59% falling below the SE mean, but this trend did not differ significantly from chance probability. Variations over three combined height

categories are shown in Table 1.

The  $X^2$  for differences in SE score over the eight categories of weight, indicated in Figure 1, was not significant. In Table 1 it can be seen that individuals classified as "light" tended to regard themselves unfavorably, 61% falling below the SE mean, but this trend did not approach significance over all weight categories.

The  $X^2$  values for frequencies falling below the mean on the Performance Scale were not significant for either the height or weight categories. Except for one weight category, there was a general trend for performance to vary inversely with weight, but this trend did not reach significance.

In the last section of Table 1 results for the four most deviant height-weight combinations are shown. While the numbers are too few for statistical significance, the trends are interesting and suggestive taken together. Among very deviant individuals, self evaluations tend to be predominantly negative; however, in three of these deviant subgroups, performance tends to be superior. The Very Short-Overweight category is an exception in that members of this group not only tend to be unhappy with themselves, but ineffective in military performance as well.

### Discussion

The form of the relationships of height and weight with satisfaction about height and weight was found to be curvilinear in contrast to the implication by Jourard and Secord (1954) that the relationship for height was linear while no relationship existed for weight. The influence of social norms upon self evaluation was evident in the present results in that deviations from the generally preferred height (6') or weight (151-180 pounds) in either direction resulted in increased dissatisfaction with those attributes. The cultural ideal for body size appears to be slightly larger than actual body size for this population. It is apparent that many young adult males find small body size a threat to self-esteem and tend to depreciate their own personal worth based upon this perception. The common observation that there are wide individual differences in reactions to such perceived inadequacies appears to be borne out in that low self evaluation seems to have no consistent relation to military performance in this study ( $r = .07$ ). There is a suggestion that many of those who fall at the extremes of height and weight, though unhappy, strive to perform well. The Very Short-Overweight group appeared to be an exception. The difficulties of this group, however, could be entirely those of poor physical mobility in situations where physical quickness, agility, and stamina are often required.

The relationship between intelligence and satisfaction with intellectual level was sharply linear in the upper portion of the distribution (GCT over 50) but flat in the range from 35-50. Below 35 a high proportion expressed dissatisfaction with their intellectual level. The absence of an increase of expressed dissatisfaction in the 35-46 range suggests the possibility of non-awareness or denial of intellectual difficulties. It seems plausible that repression and perceptual defenses might eliminate the unpleasantness or discomfort attendant upon recognizing such deficiencies.

It seems clear from the present study that physical characteristics play a significant part in self evaluation and that research in the area of self-concept or self-regard should take the "real" characteristics of persons into account. An obvious extension of the present research would be to test the same relationships between "real" characteristics and self-regard in a maladjusted or abnormal population. Friedman (1955) reported no more discrepancy between self-image and ideal-image in schizophrenics than in normals and interpreted this result as a tendency for severely disturbed individuals to report self characteristics inaccurately. While there is considerable support for this view in clinical experience, precise documentation is lacking.

One limitation of the present study that should be kept in mind is the use of self reported rather than actual height and weight measures. Jourard and Secord (1955) found virtually identical relationships of actual measurements of height and weight to satisfaction and self-reported height and weight to satisfaction. It seems highly probable that individuals in the present sample also knew their heights and weights and reported them accurately.

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