

Age Effects On Active Duty Army
MMPI Profiles

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Abstract

Age effects on response patterns to the Minnesota Multiphasic Personality Inventory have been recognized by the creation of separate norms for adolescent, adults and aged adults. This study examined the effects of age within a normal Army adult male population on MMPI response pattern. Of the validity and clinical scales only scales L, 3 (Hysteria) and 5 (Masculinity-Femininity) showed no significant age effects. Scale means and percentage of respondents scoring above 70T (non-K-corrected Minnesota Adult Norms) across age groups both showed scale age clusters which substantiate the need for age appropriate norms within the adult Army male population.

Introduction

MMPI literature suggests that age is an important influencing variable on MMPI response patterns. This study was designed to examine if age effects within the 18 to 33 year range are sufficiently variable to warrant construction of normative tables which take the age effect into consideration.

Gynther (1979) provides an excellent review of the literature examining age effects on the MMPI. Two studies, Swenson (1961) and Hathaway and Monachesi (1963) compared special age groups of normal subjects, aged and adolescent respectively, with the Minnesota adult normal group. Statistically significant findings of differences between several scale means of the special age groups as compared to the Minnesota adult normal group have led to the development of separate normative tables for adolescents and aged populations. Other studies using normal groups which were reviewed by Gynther examined differences between older and younger subjects and identified characteristics of older subjects. Gynther pointed out that although statistically significant differences were often found, the mean scale scores were not clinically significantly deviant from the Minnesota adult normal mean. Gynther did not define what he meant by clinical significance. Thus, Gynther appears to question if small statistically significant mean scale differences are meaningful in terms of clinical significance.

Within military populations evaluated in mental health clinics and hospitals it has been common to find elevated, 70 to 80T, MMPI profiles given by soldiers who have demonstrated reasonably adequate adjustment. Bloom (1977), using Air Force basic trainees, found a large number of airmen who produced highly elevated, up to 90T, MMPI profiles who, when given a mental status exam by a psychologist or psychiatrist, were judged

to have no pathologically deviant personality characteristics. Bloom administered the MMPI to a large sample of male and female airman trainees and found statistically significant differences between the mean scores of the trainees and the Minnesota adult normals. Using scale means provided in Bloom's (1977) study and the non-K-corrected Minnesota adult conversion table (Dahlstrom, Welsh, and Dahlstrom, 1975) only one scale for males, Ma, and no scale for females reached a T-score of 60 or higher.

Greene (1980) reviewed the studies related to age norms and reported that ninth graders (Hathaway and Monachesi, 1963) had mean K-corrected scores on scales 4, 8, and 9 which were approximately 10-T score points higher than Minnesota adult normals. Swenson's (1961) aged group had no mean K-corrected scores on any scale which deviated as much as 10-T score points above the Minnesota adult normals. Despite Gynther's implication that a statistically significant mean difference may not, in fact, result in clinically significantly deviant profiles, separate normative tables have been developed and published for adolescent and aged populations.

This study examines the relation between age and MMPI scale scores of normal Army soldiers who have made a successful adjustment to the military environment.

Method

Subjects

Subjects were 1930 male active duty U.S. Army soldiers stationed at various locations throughout the United States and Europe. All subjects were at least 18 years old, had one year or more of active duty service and had volunteered to participate in the study. Ninety percent of the subjects were enlisted and 10 percent were officers. Ages ranged from 18 to 33 with a mean age of 25 years and a mean education of 12 years. Job description was representative of the Army as a whole with 60 percent of the subjects being in support branches and 40 percent being in combat arms branches.

Procedures

Along with completing the MMPI subjects were administered the Shipley Institute of Living Scale Vocabulary and Abstraction Test. Subjects also completed a 43 item background information form. While the background information questionnaire provided demographic data on the subjects, the Vocabulary and Abstraction Test yielded an IQ score (Boyle, 1967). Standard MMPI group form booklets were used and the answer sheets machine scored using an optical scanner. Only fully completed forms were utilized in the analysis and any partially completed forms were discarded along with the rest of the subject's materials.

Two-way analyses of variance were utilized to examine main and interaction effects of age and intelligence on the validity and clinical scales. In order to identify the number of respondents above 70-T (non K-corrected) using Minnesota adult norms, histograms showing the

distribution of scores on each scale by one year age intervals, 18 to 33, were generated. Scale means by one year age intervals, 18 to 33, were computed and converted to non K-corrected T scores for comparison across ages.

Results

The data were screened for validity using criteria suggested by Greene (1980) and Dahlstrom et al. (1972). An MMPI profile was considered invalid and the subject eliminated from the sample if: (a) 30 or more questions were left blank, (b) scale F had 25 or more questions answered in a critical direction, (c) the Carelessness Scale (Greene, 1980) was 6 or higher. Furthermore, subjects with an IQ score below 75 were not included because of questions as to their ability to fully understand the questions and possible low reading levels. Several other criteria were also considered important in producing a normative population. Soldiers who reported a felony conviction or court marital were included in the sample. Subjects endorsing a psychiatric hospitalization, suicide attempt, psychiatric treatment of any nature or treatment for drug or alcohol problem were also excluded from the sample. While no amount of screening can completely produce a "normal" sample the above criteria were considered strenuous enough to produce a sample of relatively healthy, well functioning active duty soldiers. A total of 898 subjects were eliminated from the study based on one or more of the screening criteria. This left 1032 subjects in the data base for this study.

TABLE 1

Two-way Analysis of Variance: Significant
F-Ratios for Age, IQ and Age x IQ Interaction

| Scale | Age | IQ | Age x IQ |
|-------|----------|----------|----------|
| L | 0.11 | 23.37*** | 1.09 |
| F | 25.51*** | 52.48*** | 0.43 |
| K | 4.67** | 6.57** | 1.66 |
| 1(Hs) | 5.20*** | 33.86*** | 0.95 |
| 2(D) | 2.94* | 16.87*** | 1.71 |
| 3(Hy) | 1.63 | 2.57 | 1.16 |
| 4(Pd) | 12.69*** | 17.44 | 1.09 |
| 5(Mn) | 0.83 | 17.84*** | 1.16 |
| 6(Pa) | 11.91*** | 27.84*** | 0.42 |
| 7(Pt) | 22.20*** | 31.11*** | 0.76 |
| 8(Sc) | 35.10*** | 54.02*** | 0.42 |
| 9(Ma) | 24.26*** | 20.05*** | 2.93** |
| 0(S1) | 4.13** | 16.36*** | 1.03 |

* $p < .05$

** $p < .01$

*** $p < .001$

Table I shows results of the two-way analysis of variance for age and intelligence. Interaction effects of age and intelligence were only significant on scale 9(Ma). Except on Scale 3, all main effects of

IQ were significant. This finding will be addressed in future studies. Main age effects which are significant were found on all scales except L, 3, and 5.

Table II

T Scores for Scale Means (Minnesota Adult Norms)
Non K-Corrected in the Army Sample

| | 18 (N=39) | 21 (N=127) | 24 (N=86) | 27 (N=37) | 30 (N=38) | 33 (N=28) |
|-------|--------------|---------------|--------------|--------------|--------------|--------------|
| L | 50 | 50 | 53 | 50 | 50 | 50 |
| F | 70 | 66 | 64 | 60 | 60 | 60 |
| K | 48 | 49 | 49 | 52 | 53 | 53 |
| 1(Hs) | 60 | 58 | 56 | 51 | 53 | 51 |
| 2(D) | 60 | 58 | 56 | 58 | 58 | 58 |
| 3(Hy) | 58 | 56 | 55 | 56 | 55 | 56 |
| 4(Pd) | 68 | 65 | 63 | 58 | 58 | 58 |
| 5(Mn) | 59 | 57 | 57 | 57 | 59 | 61 |
| 6(Pa) | 65 | 62 | 62 | 56 | 56 | 56 |
| 7(Pt) | 66 | 60 | 59 | 54 | 53 | 52 |
| 8(Sc) | 78 | 67 | 63 | 57 | 55 | 55 |
| 9(Ma) | 70 | 68 | 68 | 61 | 61 | 59 |
| 0(Si) | 56 | 54 | 54 | 53 | 54 | 52 |

Mean scale score conversions to T-scores (non K-corrected) were computed for each scale by year group to determine the relative deviation of the soldier means from the Minnesota Adult norms. Table III shows the means for the year group at three year intervals between ages 18 and 33 (because of space limitations full data for tables II and III are not provided but can be obtained from the senior author). Scales 7, 1, 4, 6, 7, 8 and 9 all show a trend of higher to lower scale mean T scores from younger to older year groups. On several scales shifts in mean scale scores show relatively smooth linear changes across year groups, e.g. scale 7, and on others a somewhat sawtooth pattern with several year group means remaining the same or nearly the same before a drop in the mean occurs. e.g. scale 6.

Because the underlying distribution of scores in the Minnesota Adult normative table are not normally distributed, the distributions are skewed generally to the right (Colligan, et. al., 1983), is also important to review age effects on the number of respondents by year groups who fall beyond 70T on the Minnesota Norms. Table III shows the percentage of subjects by scale that fall beyond 70T on the scale in the Army sample for each third year group. As would be expected from Table II data, the percentages decline from younger to older year groups on scales F, 1, 2, 4, 6, 7, 8, and 9.

Discussion

The data in this study show a significant effect of age on MMPI response patterns within a normal group of Army males. The scale means and percentage of subjects who score above 70T when raw scores are corrected to T scores using non K-corrected Minnesota Adult norm tables

Table III

Percentage of Subjects in the Army
Sample with Non K-Corrected T Scores
(Minnesota Adult Norms) Over 70 T

| | 18 (N=39) | 21 (N=127) | 24 (N=86) | 27 (N=37) | 30 (N=38) | 33 (N=28) |
|-------|--------------|---------------|--------------|--------------|--------------|--------------|
| L | 0.0 | 0.0 | 1.2 | 2.7 | 2.6 | 0.0 |
| F | 38.5 | 29.1 | 20.9 | 16.2 | 13.2 | 14.3 |
| K | 2.6 | 0.0 | 3.5 | 0.0 | 2.6 | 0.0 |
| 1(Hs) | 12.8 | 11.8 | 11.6 | 5.4 | 7.9 | 3.6 |
| 2(D) | 25.6 | 18.9 | 11.6 | 13.5 | 13.2 | 17.9 |
| 3(Hy) | 7.7 | 7.1 | 5.8 | 10.8 | 7.9 | 3.6 |
| 4(Pd) | 33.3 | 33.9 | 22.1 | 5.4 | 15.8 | 17.9 |
| 5(Mn) | 10.3 | 11.8 | 4.7 | 10.8 | 5.3 | 7.1 |
| 6(Pa) | 20.5 | 23.6 | 16.3 | 13.5 | 5.3 | 0.0 |
| 7(Pt) | 33.3 | 19.7 | 17.4 | 18.9 | 0.0 | 7.1 |
| 8(So) | 61.5 | 36.2 | 24.4 | 18.9 | 10.5 | 17.9 |
| 9(Ma) | 61.5 | 39.4 | 34.9 | 13.5 | 15.8 | 7.1 |
| 0(Si) | 5.1 | 3.9 | 2.3 | 8.1 | 7.9 | 10.7 |

show patterns of differences across the year groups where younger year groups have clinically significantly more deviation than older year groups. A single combined normative table for this population would tend to over-classify in the younger year groups and underclassify in the older year groups.

The underlying distribution needs to be transformed to normal distributions and then clinically significant differences between year groups can be identified to arrive at the best year groups combinations for establishing Army normal tables (See Parkison and Fishburne, 1983).

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