

The MMPI as a Predictive Tool for Missionary Candidates

ESTHER SCHUBERT

New Castle, Indiana

KEITH GANTNER

Indianapolis, Indiana

The missionary community has needed a method for inexpensive effective candidate screening. Previous experience (Schubert, 1992, 1993) has suggested certain Minnesota Multi-phasic Personality Inventory (MMPI) scales and background information of the candidate to be helpful in this regard. The MMPI has been used as a tool in selection with missionary and tentmaker candidates with varying levels of success. This double-blind study matches predictive MMPI interpretations with long-term missionary performance in 129 missionary units (one single missionary or one married couple per unit). MMPI test interpretations were 69% accurate in prediction of performance. Other effects were significant with regard to the age of the individuals. Gender and general location (home mission versus overseas mission) were not statistically significant. "Yes" predictions were accurate 77% of the time; "no" 71%; and the "maybe" prediction divided into 58% successes and 42% failures. This preliminary research indicates that the MMPI is inadequate as a sole evaluation of missionary candidates yet has a high potential for use with some other basic tools. A prospective study is in progress utilizing the MMPI, a Life History Questionnaire, and an autobiography.

The missionary community has needed an effective, inexpensive, basic tool for the pre-field psychological screening of missionary

candidates. Traditionally, psychological evaluations have ranged from expensive test batteries and interviews to no testing at all.

Part of the screening process for missionaries is the "natural selection" that occurs with a highly educated, socially competent, mono-culturally functional group of candidates. This, by itself, does not predict cross cultural success (Schubert, 1992, 1993), and there is not much empirical research in the missionary literature on this topic.

A survey of candidate selection criteria (Ferguson et al., 1983) found that no specific psychological test was used universally and that most mission agency personnel declared a desire to improve the selection process. The authors of that article found a need for a standardized approach to benefit the unique population of missionary candidates. Many of the instruments currently used do not detect unconscious issues, personality disorders, or psychological defensiveness (Schubert, 1992, 1993).

Another study by King (1975) screened missionary applicants with a structured interview to evaluate them for depression, mania, schizophrenia, organic brain syndrome, antisocial personality disorder, alcoholism, drug dependence, hysteria, anxiety neurosis, obsessive-compulsive neurosis, and phobic neurosis. Seventeen of the 130 met the criteria for having a depressive syndrome. The conclusion of this author was that the pre-field process could identify these individuals and treat them effectively prior to overseas service.

An article by Britt (1983) found a statistically significant correlation between adaptability of younger candidates to cross-cultural settings and success of these younger applicants. Candidates who came from families with father absence did less well cross-culturally.

The secular literature (Glass, Ryan, Lubin, Ramana, & Tucker, 1956; Menninger & English,

The authors thank Julia Shaffer for preparation of the manuscript. Requests for reprints may be sent to Esther Schubert, MD, FACEP, FAAFP, 2239 North Cadiz Pike, New Castle, Indiana 47362.

Table 1*MMPI Variables Predictive of Performance Difficulties Overseas*

1. High K Scale combined with a high Clinical Scale 3 (both above 65)
2. High Clinical Scale 4 (above 65)
3. Low Ego Strength Scale (below 55)
4. High Clinical Scale 2 (above 65)
5. High L Scale (above 65)
6. High Clinical Scales 1 and 3 (above 65)
7. High Clinical Scale 0 (above 65)
8. Dependency Scale (above 65 or Dependency Scale greater than Dominance Scale)
9. Any two Clinical Scales greater than 65 (excluding Scale 5)
10. High Clinical Scale 9 (above 65)
11. High Clinical Scale 8 (above 65)
12. Any two Clinical Scales (excluding Scale 5), Sub-scales, or Research Scales greater than 65 (excluding Ego Strength Scale)
13. High Clinical Scale 6 (above 65)
14. High Clinical Scale 3 (above 65)
15. Low Clinical Scale 9 (below 50)
16. High K Scale (above 65)
17. Three borderline-high Clinical Scales (60-65)
18. High Clinical Scale 7 (above 65)
19. Greater than eight Critical Items
20. Resistance (more than 12 unanswered questions)
21. High Clinical Scale 5 in women (above 55)

1965; Tucker, 1974) discusses the use of psychiatric evaluation in Peace Corps and U.S. military recruits in prediction of cross-cultural success. They found that interviews alone were inaccurate in predicting outcomes in overseas placement or other situations of dramatic transition.

As the pool of missionary candidates includes an increasing percentage of individuals from dysfunctional families, victims of sexual abuse, adult children of alcoholics, and other sources of psychiatric instability, the missionary community has become more concerned about selection. Drs. Ken Williams and John Powell presented in EFMA-IFMA sponsored conference in 1987 on the subject of "bruising." Bruising in this context refers to emotional scars from childhood or family issues. Other articles have addressed selection issues (Ferguson et al., 1983; Ferguson, Kliever, Lindquist, & Lindquist, 1988; Foyle, 1986, 1987; Gardner, 1987; Gardner, Barber, & Kellogg, 1993; Hunter, 1965, 1987; Lindquist, 1983; Schubert, 1993; Strauss & Narramore, 1992; Williams, 1983).

The MMPI as studied by Dillon (1983) found differences between persevering and non-persevering

missionaries to be significant in certain scales such as the L, F, Clinical Scale 7, and Cn (Lie Scale, Feeling Bad Scale, Psychasthenia Scale and Control Scale). Missionaries who did not continue in their overseas work tended to have higher L scale scores and lower F scale scores than those who persevered. Successful missionaries also were higher on the control scale than were the non-persevering missionaries. On clinical-scale 7, the mean of the perseverers was higher than the mean of the non-perseverers.

The MMPI appears to be the most valuable single instrument for use in prefield predictions (Schubert, 1993). Hunter (1993) has strongly encouraged empirical research in missions and mental health.

The purpose of this study, therefore, is to establish statistical significance in the use of the MMPI as a predictive tool for mission organizations who do psychiatric evaluations of their missionary candidates. We believe that the stresses of cross-cultural living are extreme and, therefore, require closer MMPI interpretation than evaluations done on prospective employees in the U.S. For that reason, we interpret the MMPI with these norms in mind (Table 1).

Method

Data were obtained from 193 consecutive MMPIs which had been given to individuals who had entered missionary service from six to twenty years ago. These original MMPIs had been administered by professionals other than the authors for an interdenominational evangelical mission.

The 193 people comprised 129 experimental units sampled for the study. An experimental unit was defined as a couple, if married, or an individual if single. The approach to the experiment was double-blind. The MMPIs administered to the candidates 6-20 years previously were evaluated by a cross-culturally seasoned psychiatrist (E.S.) who knew nothing of the candidates' subsequent performances. Specific MMPI scales (21 variables, Table 1) that we have found to be predictive of performance overseas were assessed and candidates were divided into categories: "yes" (will perform adequately), "no" (will not perform adequately), or "maybe" (unclear).

The Mission Assessment Scale (MAS) was then used by a mission executive who had access to candidates' records on the field. This executive assessed their performances and scored an MAS for each candidate, not knowing the MMPI results. Thus, the main goal of the experiment was to apply the predicted outcomes based on the "overseas norms" of the MMPI to the MAS results and determine the validity of using the MMPI as a predictive tool for missionary candidates.

The MAS graded each individual on one of seven functional areas (Table 2). The results were then totaled and an average was calculated for each experimental unit. The mission executives felt that an MAS of 12.5 was the dividing point between success and failure. Consequently, "success" was determined to be a combined MAS unit score of 12.5 or lower. Thus, experimental units with MAS scores greater than 12.5 were considered failures. Similarly, the MMPI, which has 566 questions was independently interpreted using 21 variables on each individual and a prediction was made based on the pooled results of each experimental unit (Table 1).

Statistical analysis involved significance testing via one-way ANOVAs (analysis of variants) and discriminant function analysis. One-way ANOVAs were run using the totaled unit average for the MAS as the dependent variable. The independent variables were age, gender, geographical location (home missions or overseas missions), and the MMPI unit prediction.

All independent variables were assumed to be normally distributed. Several comparisons were performed to verify the ANOVA results including: Duncan's test, Scheff's test, and Tukey's HSD (honest significant difference) test. Finally, categorized scatter plots as well as mean graphs were used to visualize the true effect of the variables in question.

Discriminant function analysis was performed to demonstrate the effect of the MMPI blind prediction on the success or failure of the missionary. Also, the same analysis was performed for the MAS and the resulting functions were applied to the data to determine the accuracy of the model. The MAS function should discriminate more than the MMPI, but both functions should be significant in their discrimination of the success or failure of missionaries. For the MAS discriminant function, the corresponding coefficients were standardized in order to determine the factors which contributed the most to discrimination.

Descriptive statistics were used to reveal trends of the means of each variable and how they vary from unit to unit.

The data set was complete and therefore there were no cases deleted for lack of data.

Results

There was a significant correlation between MMPI prediction and the unit mean of the MAS. A "yes" prediction on the MMPI correlated with a relatively low score on the MAS and a "no" prediction on the MMPI correlated with a relatively high unit mean score on the MAS. The analysis of variants yielded a *p*-value less than 0.05 (Figure 1).

There was also a significant effect with regard to age. Individuals between the ages of 19 and 29 tended to adapt much easier than older people and this was shown by a significantly lower mean score (Figure 2). Missionary candidates between 30-39 years of age had the most difficulty adapting.

Gender had no statistically significant effect on the unit mean (Figure 3).

Individuals who were placed in isolated high stress home mission situations showed no significant differences from placement in overseas settings in this study (Figure 4).

The discriminant function analysis revealed: first, all of the MAS variables had positive coefficients which implies that a higher score for a particular variable on the MAS is correlated with a prediction of "no"; second, the standardized coefficients revealed that the variables having the

Table 2*Mission Assessment Scale*

Number _____

MAS I. 1 High job satisfaction

2

3

4

5 Low job satisfaction _____

MAS II. 1 Still on field, has retired at expected age or left for reasons
unrelated to performance or adjustment

2

3 Left during second term or later

4 Left after completing first term

5 Left during first term _____

MAS III. 1 Met assignments

2

3

4 Moved often; could not find niche

5 Did not meet assignments _____

MAS IV. 1 Good team member

2

3

4

5 Caused team dissension _____

MAS V. 1 Worked well under authority

2

3

4

5 Resisted established authority _____

MAS VI. 1 Did work without need for supervision

2

3 Moderately productive

4

5 Was not accountable (did not do what was expected) _____

MAS VII. 1 Morally upright

2

3 Used poor judgment, boundary issues

4

5 Moral lapse _____

TOTAL _____

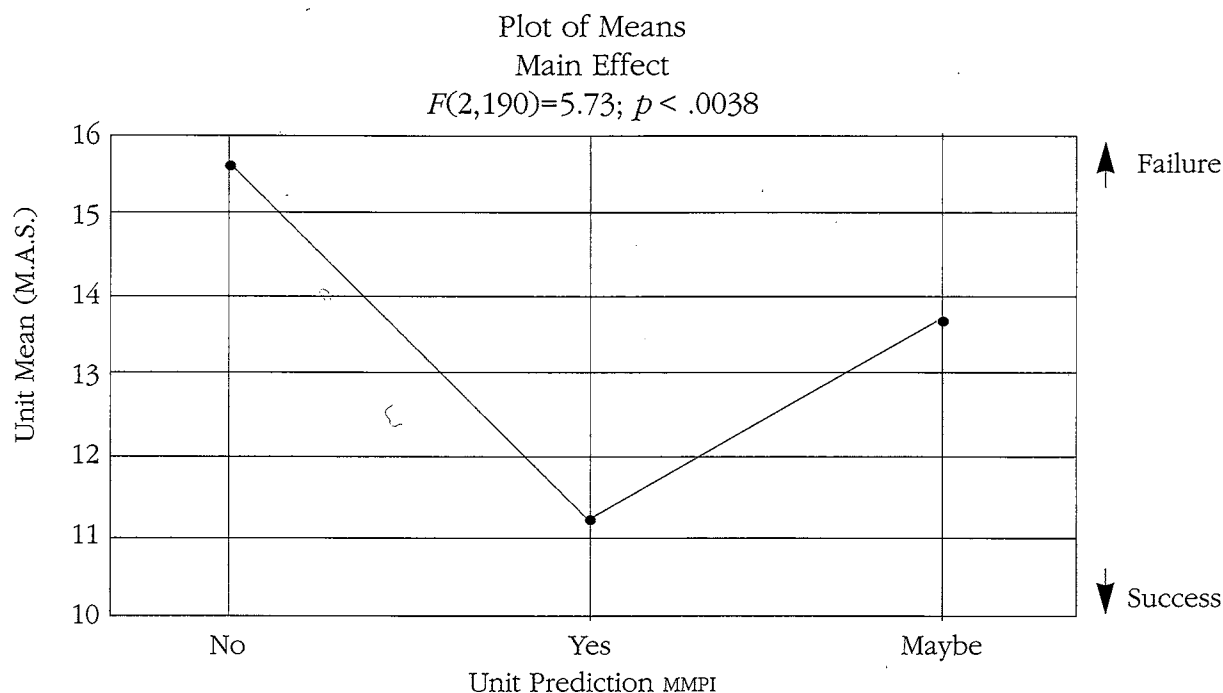


Figure 1. Yes/No Prediction Compared to M.A.S. Outcome

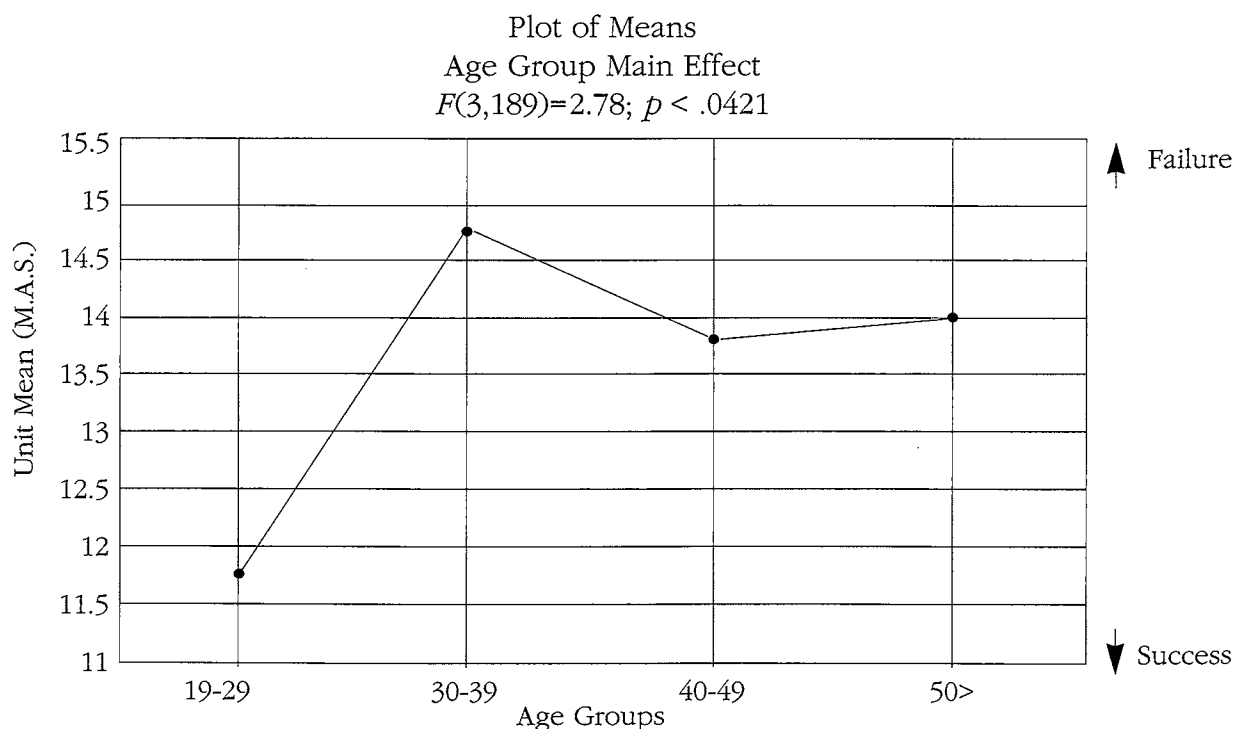


Figure 2. Success/Failure Rates in Age Groups

greatest correlation with MMPI prediction are in order: (a) MAS-1 (job satisfaction), (b) MAS-6 (the ability to work well without supervision), (c) MAS-2 (perseverance as evidenced by continuing work in the cross-cultural setting), (d) MAS-4 (the capacity for teamwork), (e) MAS-5 (ability to submit to authority), (f) MAS-3 (ability to do assignments), and (g) MAS-7 (capacity to meet expectations on moral, ethical, and boundary issues).

Further analysis of the data indicated that predictions based on blind interpretations of MMPIs in these missionary candidate units were accurate in 69% of these cases in terms of missionary perseverance and performance over a time span ranging from 6 to 20 years.

Finally, "yes" MMPI predictions on the 193 individuals were accurate 77.3% of the time; "no" predictions were accurate 71% of the time; and

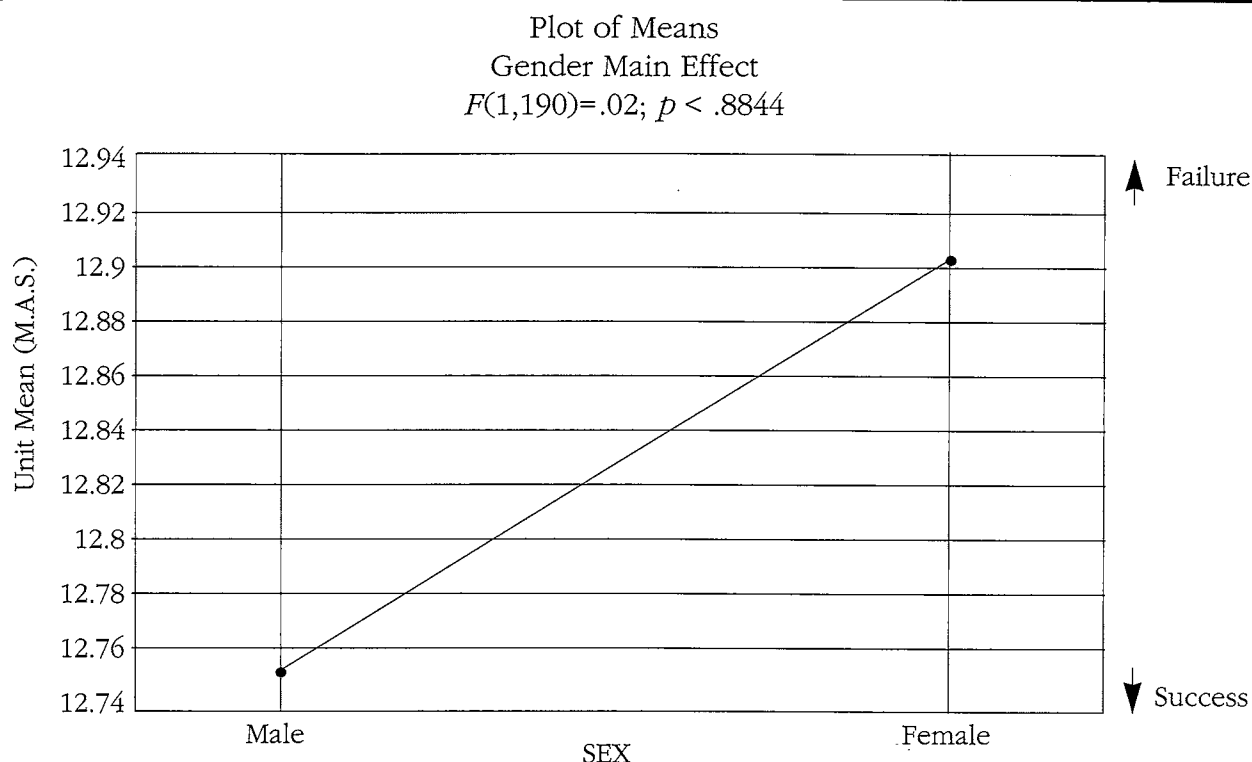


Figure 3. Success/Failure Rates in Gender Groups

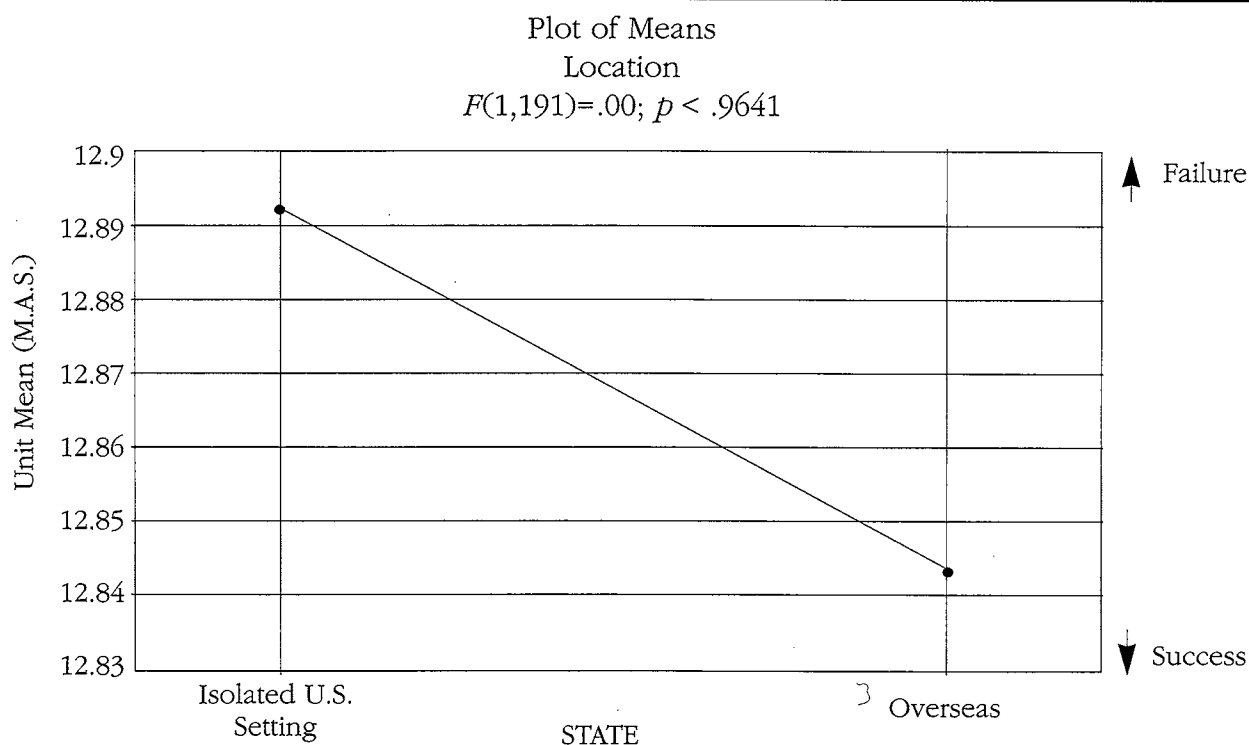


Figure 4. Success/Failure Rates Based on Location

"maybe" predictions produced 57.7% successes and 42.3% failures. (Tables 3 & 4).

Of the 74 failures ($MAS > 12.5$), 62 (83.78%) showed at least one of the 21 MMPI variables (over the cutoff points, Table 1). From most frequent to least these were variable 12 (39% of the failures had this variable), variable 3 (31%), variable 16

(26%), variable 2 (24%), variable 19 (23%), variable 10 (20%), variable 14 (14%), and variable 9 (14%) (Table 5). In other words, for the failed missionaries, the most common variables were: two clinical, research, or sub-scales above 65; next, ego strength below 55, followed by a K scale above 65, 4 scale above 65, greater than 8

Table 3
Prediction of Performance for Individuals
N = 193

MMPI Prediction	No	Maybe	Yes	Row Totals
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
MAS > 12.5 (Failure)	24 (71%)	30 (42%)	20 (23%)	74 (38%)
MAS = OR < 12.5 (Success)	10 (29%)	41 (58%)	68 (77%)	119 (62%)
Total <i>N</i>	34	71	88	193

Table 4
Frequencies & Percentages
MMPI Prediction/Result (MAS 12.5 Cutoff)

Correct:	Yes/Yes	————— >	68/88 = 77.3%
Incorrect:	Yes/No	————— >	20/88 = 22.7%
Correct:	No/No	————— >	24/34 = 71.0%
Incorrect:	No/Yes	————— >	10/34 = 29.0%
	Maybe/Yes	————— >	41/71 = 57.7%
	Maybe/No	————— >	30/71 = 42.3%

Table 5
MMPI Variables seen in 74 Missionaries with MAS > 12.5

Table 1 Variables	Frequency	Percentage
8 (High dependency scale or > dominance scale)	1	1 + %
20 (Resistance)	1	1 + %
21 (High Scale 5 in women)	1	1 + %
17 (3 borderline high clinical scales)	2	3
1 (High K Scale combined with high 3 Scale)	3	4
6 (High Clinical Scales 1 & 3)	3	4
13 (High Clinical Scale 6)	3	4
15 (Low Clinical Scale 9)	3	4
4 (High Clinical Scale 2)	6	8
5 (High L Scale)	7	9
7 (High Clinical Scale 0)	7	9
11 (High Clinical Scale 8)	8	11
18 (High Clinical Scale 7)	9	12
9 (Two Clinical Scales > 65)	10	14
14 (High Clinical Scale 3)	10	14
10 (High Clinical Scale 9)	15	20
19 (More than 8 Critical Items)	17	23
2 (High Clinical Scale 4)	18	24
16 (High K Scale)	19	26
3 (Low Ego Strength Scale)	23	31
12 (Any 2 Clinical scales, sub-scales [except Scale 5] > 65)	29	39

critical items, 9 scale above 65, 3 scale above 65 and any two clinical scales above 65.

Discussion

We hypothesized prior to doing this study that blind MMPI interpretation could be helpful in predicting missionary performance. This was borne out by a 69% accuracy of prediction for 129 missionary candidate units using the MMPI alone (without benefit of the Life History Questionnaire, autobiography, interview, and letters of recommendation). In tallying the results for the 193 individuals, the "yes" predictions were most accurate (77.3%); the "no" predictions were 71% accurate; the "maybe" predictions showed 57.7% successes and 42.3% failures. The MMPI variables most frequently seen in the failed missionaries (by MAS) were #12 (any 2 clinical scales [except 5] > 65, 2 subscales, or 2 research scales [except ego strength] > 65); #3 (ego strength below 55); #16 (K scale > 65); #2 (clinical scale 4 > 65); #19 (more than 8 critical items); #10 (clinical scale 9 > 65); #14 (clinical scale 3 > 65); #9 (any 2 clinical scales > 65). The predictive values of these MMPI variables will be assessed in more detail in the prospective study to follow.

It is of note that gender had no statistically significant effect and that there were no significant differences between home mission placement in difficult isolated circumstances as compared with overseas missionary placement. (The number of home missionary placements were 45).

Missionary candidates aged 19-29 had the highest success rate in our study. These results are similar to those found by Britt (1983) and Williams (1973). Britt has commented that the younger missionaries were more likely to be single and unencumbered by family worries whereas older subjects have a more patterned lifestyle which might be disrupted by entering a new culture, especially with the added responsibility of a family. His study suggests that age 22-30 is the optimal age to begin overseas service. Our findings showed success rates (from best to worst) as 19-29 years old, 40-49, 50 and up, and 30-39. This seems to bear out Britt's comments about on-field family responsibilities which are likely to be most intense in early mid-life.

We were surprised that a blind MMPI, without interview, Life History Questionnaire, or other information yielded as high predictability as it did

(69% accuracy). In order to improve upon the 69% accuracy of prediction with MMPI alone, we are starting a 10 year prospective study. Based upon our impressions from previous evaluation of candidates a Life History Questionnaire (LHQ) and autobiography will be used in the initial evaluation along with the MMPI. The LHQ will include family history of mental illness and chemical dependency, dysfunction in the family of origin, background of abuse, neglect, divorce, and adoption. Previous personal psychiatric history of the candidate will be included, as well as physical symptoms that suggest a tendency to somaticize emotional stress. Issues of anger, authority, previous substance abuse, sexual behavior (including previous abortions), and interpersonal relationships will also be evaluated. We hypothesize that the inclusion of the detailed life history and family history questionnaire as well as the autobiography will significantly increase the accuracy of our predictions with this next group of missionary candidates. If this combination of MMPI, LHQ, and autobiography increases the predictability to greater than 90%, we believe it could be used as an early inexpensive tool to divide missionary candidates into "yes," "no," and "maybe" categories. Interviews and more expensive modalities could then be used later in the selection process for tentatively selected candidates thus decreasing overall cost and time involved in assessment. Mission boards could choose the candidates on whom they wished to expend more resources.

Identification of candidates with treatable conditions who respond to medication and/or psychotherapy would allow assignment to areas where resources are available for follow-up. This would further conserve finances and personnel for the organization as well as decrease attrition for specific missionaries.

These data might also be useful for secular cross-cultural predictions thereby providing cost effective utilization of resources.

Use of the MMPI Versus MMPI-2

In order to track the long-term perseverance or non-perseverance of missionaries, this study used the MMPI which was the only one available at the time that these missionaries were candidates.

The advantages of the continued use of the MMPI are several. First, it has stood the test of time, been translated into most major languages of the world,

been well-adapted and normed for the missionary population, and can be used exceptionally effectively for North Americans, Canadians, Britishers, and (some psychometrists believe) Northern Europeans.

Second, the MMPI has six scales important for missionaries that have been deleted on the MMPI-2. Five of these are research scales, specifically Dy (Dependency) indicative of marital interaction and health, and also valuable in helping to determine the type of field location; Pr (Prejudice) which shows rigidity in thinking; St (Status) the need for recognition, opportunities to better oneself, and a desire for nice things, esthetics, etc.; Lb (Low back) may reveal a friendly facade with underlying conflict or irritability; and Cn (Control) which may help predict the individual's capacity for controlling negative impulses. In addition, Wiggins' content scale REL (religious fundamentalism) has been deleted in the MMPI-2. We have found the REL valuable in alerting evangelical organizations to candidates whose religious beliefs might not be compatible with mission doctrine (Schubert, 1993).

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Authors

SCHUBERT, ESTHER, Address: 2239 North Cadiz Pike, New Castle, Indiana 47362. Title: Psychiatrist. Degrees: A.B., Asbury College; M.D., Indiana University School of Medicine; Postgraduate training, Methodist Hospital of Indiana and Indiana University Department of Psychiatry. Specialization: Missionary psychiatry.

GANTNER, KEITH, Address: 2611 Loretta Drive, Indianapolis, Indiana 46227. Title: Statistician. Degrees: Training in statistics at University of Aberdeen, Scotland; B.A. in Mathematics and Psychology, Wabash College; M.S. in Applied Probability and Statistics, Purdue University-Indianapolis. Specialization: Applied statistics.