

ABSTRACT

- This data set had 182 participants, including civilians and military personnel, who completed an online survey about various personal and behavioral health factors.
- A logistic regression was computed to identify any factors that may be related to an individual's likelihood of seeking an evidence-based treatment for posttraumatic stress disorder (PTSD).
- Fifteen variables were entered into the initial model and the final best model, selected by the stepwise and backward selection, included four variables.
- After this, overall treatment satisfaction was evaluated through an independent samples t-test.
- Individuals who received a non-evidence-based treatment were less satisfied with their treatment than those who received an evidence-based treatment.

INTRODUCTION

- Most individuals will experience at least one traumatic event in their lives.
- However, many individuals may develop maladaptive responses to these experiences which may contribute to the development of posttraumatic stress disorder.
- In recent years, there has been a move toward establishing evidence-based treatments for PTSD.
- The goal of this project was to examine what personal and behavioral health factors would be related to an individual's likelihood of seeking an evidence-based treatment versus a non-evidence-based treatment for PTSD.
- All of the following variables were entered to the model: gender (1), income (2), marital status(3), military vs. civilian identification (4), type of trauma (5), birth year (6), hardness (7), psychosocial functioning impairment (8), self efficacy, suicidal ideation (9), depression, anxiety and stress symptoms (10), dysfunctional cognitions (11), recovery cognitions (12), history of head injury severity (13), history of suicide (14), and intolerance of uncertainty (15).

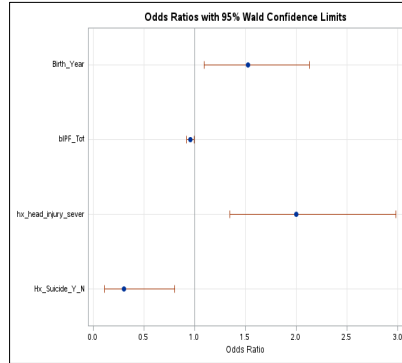
METHODS

- I ran a logistic regression with stepwise selection (entry criteria = .15 and stay criteria = .05) and then to see how other selection methods would perform, I ran a backward selection at .05
- I computed various tests in SAS to determine the goodness of fit for the overall model.
 - Deviance and Pearson Goodness-of-Fit Statistics
 - Hosmer and Lemeshow Goodness-of-Fit Test
 - Global Null Hypothesis
- I ran an independent samples t-test to examine any differences in treatment satisfaction across the two groups.

Michael Frankel, Maria Bell, Tyler L. Collette, & Brian A. Moore

Logistic Regression: Selection of Best Model and Odds Ratios

Figure 1. Odds Ratio with Confidence Intervals for Logistic Regression Table 1. Odds Ratio Estimates for Each Variable in the Logistic Regression Model



Odds Ratio Estimates		
Effect	Point Estimate	95% Wald Confidence Limits
Birth_Year	1.455	1.029 2.056
bIPF_Tot	0.961	0.924 0.998
Hx_head_injury_sever	1.916	1.309 2.804
Hx_Suicide_Y_N	0.295	0.107 0.814

After stepwise and backward selection processes, the final model included four variables: age (i.e., measured by birth year), psychosocial functioning impairment, history of symptoms of head injury, and a history of suicide attempts.

RESULTS AND DISCUSSION

Key Findings:

- Individuals who are younger are almost 45% more likely to seek an evidence-based treatment for PTSD.
- Psychosocial functioning impairment makes almost no distinction but is still a significant predictor of an individual's likelihood of seeking evidence-based treatment.
- An individual with a history of more severe head injury is approximately 91% more likely than someone who does not have this medical history to seek an evidence-based treatment.
- Individuals without a history of suicide are 70% less likely to seek evidence-based treatment for PTSD.
- The model yielded good fit statistics (i.e., significant global null hypotheses), non-significant Deviance and Pearson statistics, and Hosmer and Lemeshow statistics. The model yielded good sensitivity and specificity.
- Participants in a non-evidence-based treatment reported lower treatment satisfaction than those who received an evidence-based treatment.

Discussion:

- Understanding this may help providers identify clients who may be more inclined to seek evidence-based treatment and provide appropriate care or referrals for clients.
- Future research should include a larger sample size and assessments of variables related to accessibility and stigma to examine what may increase an individual's likelihood of seeking different forms of PTSD treatment.

SAS CODE

```
proc logistic data=WORK.AnalyticsDay descending;
  class Gender Income Marital_Status Mil_civ ;
  model PTSD_treatmentsseeking_r = Birth_Year Hard_tot
  bIPF_Tot GSEQ_Tot DSSI_SS_tot DASS_21_TOT APFSF_R
  Hx_head_injury_severity IUS_Tot Hx_Suicide_Y_N
  /selection = stepwise slentry = .15 slstay=.05;
run;
```

```
proc logistic data = WORK.AnalyticsDay descending
  plots=(oddsratio(odsdisplay=serifarrow) roc);
  model PTSD_treatmentsseeking_r = Birth_Year bIPF_Tot
  Hx_head_injury_severity Hx_Suicide_Y_N / ctable pprob= (.3 to 4 by .05)
  lackfit aggregate scale=none;
  output out=results p=predict l=lower u=upper xbeta=logit;
run;
```

CONTACT INFORMATION



Model Statistics and Goodness-of-Fit Tests

Table 2. Model Statistics for Best Model

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	87.3	Somers' D	0.746
Percent Discordant	12.6	Gamma	0.747
Percent Tied	0.1	Tau-a	0.345
Pairs	7605	c	0.873

Table 5. Global Null Hypothesis Statistics

Testing Global Null Hypothesis: BETA=0				
Test	Chi-Square	DF	Pr > ChiSq	
Likelihood Ratio	87.8893	4	<.0001	
Score	64.7195	4	<.0001	
Wald	29.8874	4	<.0001	

Figure 2. ROC Curve for Best Selected Model

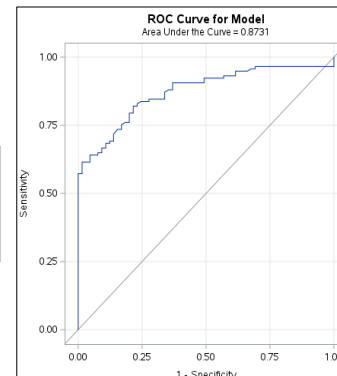


Table 3. Model Fit Statistics for Best Model

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	239.239	159.350
SC	242.443	175.370
-2 Log L	237.239	149.350

Table 6. Deviance and Pearson Goodness-of-Fit Statistics

Deviance and Pearson Goodness-of-Fit Statistics				
Criterion	Value	DF	Value/DF	Pr > ChiSq
Deviance	134.4407	153	0.8787	0.8574
Pearson	124.7489	153	0.8154	0.9543

Table 4 Hosmer and Lemeshow Goodness-of-Fit Test

Hosmer and Lemeshow Goodness-of-Fit Test		
Chi-Square	DF	Pr > ChiSq
5.7681	8	0.6732

Table 7. Classification Table for Model

Classification Table											
Prob Level	Correct				Incorrect				Percentages		
	Non-Event	Event	Non-Event	Event	Correct	Non-Correct	Speci- fity	Pos Pred	Neg Pred	Preval	
0.300	108	28	39	9	73.6	92.3	40.0	73.5	74.3		
0.400	106	31	34	11	75.3	90.6	47.7	75.7	73.8		
0.400	106	34	31	11	78.9	90.6	52.3	77.4	75.6		

PTSD Treatment Satisfaction: Comparing Scores Across Groups

Figure 3. Variation in Treatment Satisfaction between Individuals Who Sought PTSD Treatments

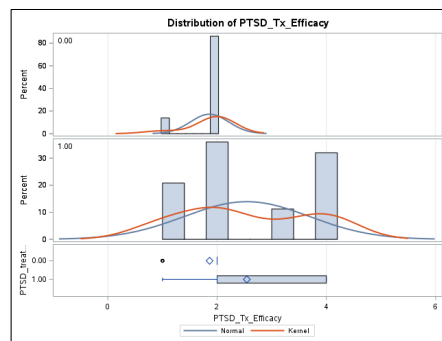


Table 8. T-Test Statistics Across Different Groups

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	188	-4.68	<.0001
Satterthwaite	Unequal	161.99	-6.13	<.0001

If it is assumed that the variance between the groups is unequal, findings still show that there is a significant difference in treatment satisfaction (i.e., 1 – treatment made me much worse, 2 – treatment made me a little worse, 3 – did not notice a difference, and 4 – treatment made me a little better) between individuals who sought evidence-based versus non-evidence-based treatments.