Criminology Annual Survey: Student Perceptions of Law Enforcement & Victimization Models

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Introduction

The models and analysis discussed in this project focus on the data procured from the Criminology Annual Survey on Perceptions of Law Enforcement & Victimization. As the study seeks to determine the attitudes of students towards law enforcement and how such attitudes may relate to their experiences and perspectives regarding criminal justice and criminal justice careers, such topics will be analyzed in this paper to provide further understanding.

Research Questions

1. In the Just-World & Sexism Scales, there are several sets of survey questions that may potentially act as factors associated with students' attitudes towards police, with these sets of questions listed below. Which of these factors are associated with a student's attitude towards police?

    - Global Belief in a Just World Scale (GBJW 1-7)
    - Hostile Sexism Towards Women (ASI 1-6)
    - Benevolent Sexism Towards Women (ASI 7-12)
    - Hostile Sexism Towards Men (AMI 1-6)
    - Benevolent Sexism Towards Men (AMI 7-12)

2. Considering the same factors as previously mentioned, are any of these factors related to whether a student wants to pursue a criminal justice career (CJCareerInterest)?

3. Does police attitude correlate to the type of criminal justice career chosen?

4. Are the survey questions for attitude towards police (APLS) a part of the same factor (in factor analysis) as the questions in Helping Police (HelpPolice) and Helping Legal System (HelpCJS)?

5. Using exploratory factor analysis, how many factors do the appendices D,E, and F correspond to?

Methods

To address the first question asked, I explored several linear regression models to discern which sections of appendix F may be correlated with attitudes towards police (APLS). These models all have APLS as the response variable. The first model (Model 1), included only world view (GBJW) as a predictor variable. Predictor significance was then determined based on p-value, and the regression coefficient for GBJW and the model's AIC value were noted.

Similarly, the second model (Model 2) was created to include hostile sexism towards women (ASI_HostileSexism) as the lone predictor variable. The same process used for Model 1 was used to then determine predictor significance, regression coefficient, and AIC value. The same process was used again for the next model (Model 3), which now has both ASI_HostileSexism and GBJW as predictor variables. The analysis of Model 4 followed the same steps, with all items from the Just-World & Sexism Scales as predictor variables. Following the interpretation of these models, AIC value was used to determine the best fit model out of these options.

In response to question 2, logistic regression models (Models 5-9) were created to determine which potential predictors may be associated with whether a student wants to pursue a criminal justice career or not (CJCareerInterest). All models have CJCareerInterest as the binary response variable (1 = Yes, 0 = No), but have differing predictor variables. The predictor variable for Model 5 is APLS, the predictor variable for Model 6 is GBJW, the predictor variables for Model 7 are APLS and ATM_BenevolentSexism, the predictor variable for Model 8 is ATM_BenevolentSexism, and the predictors variables for Model 9 include all of the previously stated predictors for question 1.

Referring to question 3, a multinomial logistic regression model was used to determine how a student's attitude towards police may correlate to the type of criminal justice career they have chosen to pursue (CJFutureCareer). In this model (Model 10), CJFutureCareer is chosen as the response variable, and APLS as the predictor variable. This model enables us to calculate the odds that a student may choose a certain career given a certain mean APLS score.

To address question 4 and see if attitude towards police (APLS) is a part of the same factor as Helping Police (HelpPolice) and Helping Legal System (HelpCJS), exploratory factor analysis was conducted. A scree test plot was used to confirm the number of factors that should be used. For question 5, exploratory factor analysis was conducted on all APLS, Just-World & Sexism Scales, and Perceptions of Cooperation & Effectiveness items. Two separate models were initially produced, one using four factors, and the other, five factors. A scree test suggested the use of four factors, but additional

interpretation suggested that five factors may also be appropriate. After realizing the two survey questions "Acc3" and "Acc4" were reverse coded, however, two additional models using 4 and 5 factors, respectively, were created with the corrected coding.

Results

When looking at Models 1-4 in regards to question 1, it is found that when all factors of Just-World & Sexism Scales are taken into consideration together, the only significant predictor of APLS is GBJW. Since Model 1 has the lowest AIC value of 319.21, this model is considered to be the best fit. The predictor variable, world view, has a p-value of approximately 0, indicating GBJW is a significant predictor of APLS. Interpreting the regression coefficient for world view in Model 1, it can be described that each 1 point increase in a student's average response to GBJW items is associated with a 0.54 increase in their expected mean response to APLS items.

Model 1 Equation: $APLS = 2.32 + 0.54\ (GBJW)$

Model	Predictors Variables of Attitudes Towards Police (APLS)	AIC Value
Model 1	World Views (GBJW)	319.21
Model 2	Hostile Sexism Towards Women (ASI_HostileSexism)	346.57
Model 3	Hostile Sexism Towards Women (ASI_HostileSexism) and World Views (GBJW)	320.34
Model 4	All sections of appendix F (World Views, Hostile Sexism toward Women, Benevolent Sexism toward Women, Hostile Sexism toward Men, and Benevolent Sexism toward Men)	320.25

For Models 5-9 shown in the chart below, it is found that APLS, GBJW, and ATM_BenevolentSexism are not significant predictors of CJCareerInterest on their own. Model 7 shows that APLS and ATM_BenevolentSexism are significant predictors together, however, indicating a possible Simpson's Paradox correlation between the two predictors. When taking APLS into account, ATM_BenevolentSexism has a negative relationship with CJCareerInterest with a p-value of 0.085 at the 0.1 significance level. This means that when a student's attitude towards police is taken into account, a decrease in their score for benevolent sexism towards men is associated with an increase in criminal justice career interest. Similarly, when taking ATM_BenevolentSexism into account, APLS has a positive relationship with CJCareerInterest with a p-value of 0.053 at the 0.1 significance level. This means that when a student's score for benevolent

sexism towards men is taken into account, an increase in their attitude towards police score is associated with an increase in criminal justice career interest.

Model 7 Equation:

$$\text{logit}(p) = 0.34 + 0.43 \times \text{APLS} - 0.37 \times \text{ATM\_BenevSexism}$$

where *p* is equal to the probability that a student answers "yes" to CJCareerInterest, i.e., a student intends to pursue a career related to criminal justice.

Model	Predictor Variables of CJCareerInterest	Significance
Model 5	APLS	APLS not significant predictor alone
Model 6	GBJW	GBJW not significant predictor alone
Model 7	APLS + ATM_BenevolentSexism	APLS and ATM_BenevolentsSexism are significant predictors together
Model 8	ATM_BenevolentSexism	ATM_BenevolentSexism not significant predictor alone
Model 9	GBJW + APLS + ASI_HostileSexism + ASI_BenevolentSexism + ASI_HostileSexism + ATM_HostileSexism + ATM_BenevolentSexism	Only ATM_BenevolentSexism is significant when taking all potential predictors into account

The multinomial logistic regression model used for question 3 makes it possible to calculate how likely a student is to choose a certain criminal justice career, given their average response to the attitude towards police survey questions. For example, if a student has an average response of 1 in APLS, there is a 72% chance they want to go into career 2. This same technique can be applied to each career choice option included in the survey, with any given average APLS response of 1-6.

In response to question 4, it was found that APLS is correlated with a distinctly different factor as compared to HelpPolice and HelpCJS, APLS being correlated with factor 1 and the others with factor 2. The use of 2 factors is supported by a scree test which also shows that 2 factors is ideal. These results follow the precedent established by Tyler & Jackson (2014), indicating that all of the questions regarding students' attitudes

towards police are not correlated with the same factor as the helping police and helping legal systems survey questions.

For the results regarding question 5, the two factor analysis models including the reverse scored items will first be discussed, then the two models with the corrected scoring will be discussed. When comparing the reverse scored model using 4 factors as compared with 5, the GBJW items are split among factors 1 and 2, but they come together into their own factor with a 5 factor model. In both models, APLS, Acc1 & Acc2, Eff_1 & Eff_2 are correlated with the same factor. Additionally, ASI and AMI are correlated with their own factor, HelpPolice and HelpCJS with their own factor, and Eff3 & Eff4 with their own as well.

Similar to the reverse scored model with 4 factors, the corrected model with 4 factors indicates that the GBJW items are split among factors 1 and 2. When the corrected model uses 5 factors, however, GBJW once again becomes part of its own factor, except for GBJW_4 which is correlated with factor 2. In both models with the corrected scoring, APLS, Acc, and Eff 1-2 are correlated with the same factor, ASI, AMI, and GBJW_4 are correlated with the same factor, HelpPolice, HelpCJS, and AMI_3 with the same factor, and Acc_3, Eff 3-4 with the same factor.

Summary of Factor Analysis Model (With Reverse Scoring for Acc3-4) (With 4 Factors)

Factor 1	Factor 2	Factor 3	Factor 4
APLS	ASI	HelpPolice	Acc3
Acc	AMI	HelpCJS	Eff3 & Eff4
GBJW 1-3, and 6-7	GBJW 4-5	AMI_3	
Eff 1-2			

Summary of Factor Analysis Model (With Reverse Scoring for Acc3-4) (With 5 Factors)

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
APLS	ASI	HelpPolice	GBJW	Eff3 & Eff4
Acc	AMI	HelpCJS		Acc_3
Eff1 & Eff2	GBJW_4	AMI_3		

Conclusion

In regards to obtaining meaningful insights from the survey, it has been found that the world views of students (GBJW) is the only predictor that is significantly correlated with their attitude towards police (APLS). It has also been found that when a student's attitude towards police is taken into account, a decrease in their score for benevolent sexism towards men is associated with an increase in criminal justice career interest, and conversely, when a student's score for benevolent sexism towards men is taken into account, an increase in their attitude towards police score is associated with an increase in criminal justice career interest. When focusing on exploratory factor analysis, it was shown that the survey questions for attitude towards police are correlated with a different factor as compared to the questions for helping police and helping the legal system. Additional factor analysis was then used to see what factors each set of questions from APLS, Just-World & Sexism Scales, and Perceptions of Cooperation & Effectiveness items are associated with. Finally, a multinomial logistic regression model was used to give insight into how a student's attitude towards police may correlate to the type of criminal justice career they have chosen to pursue.