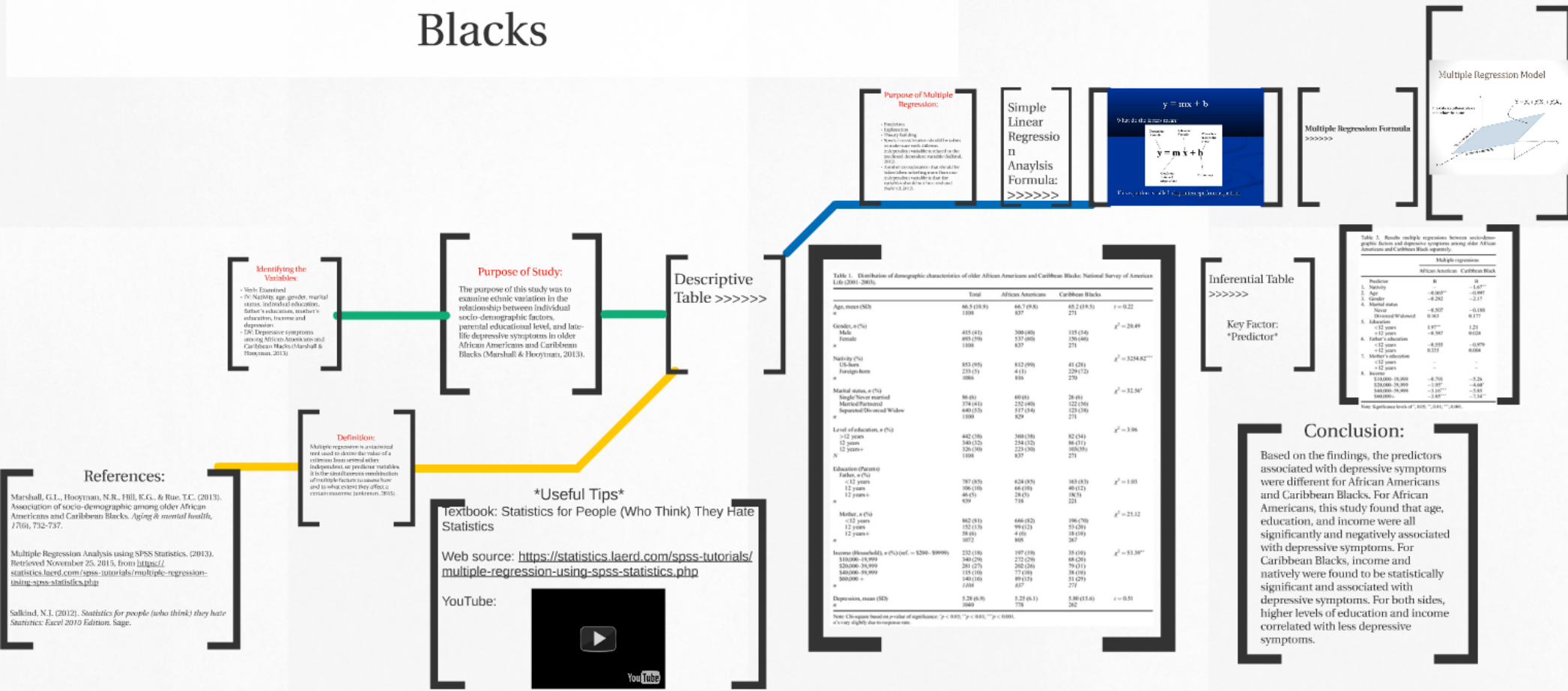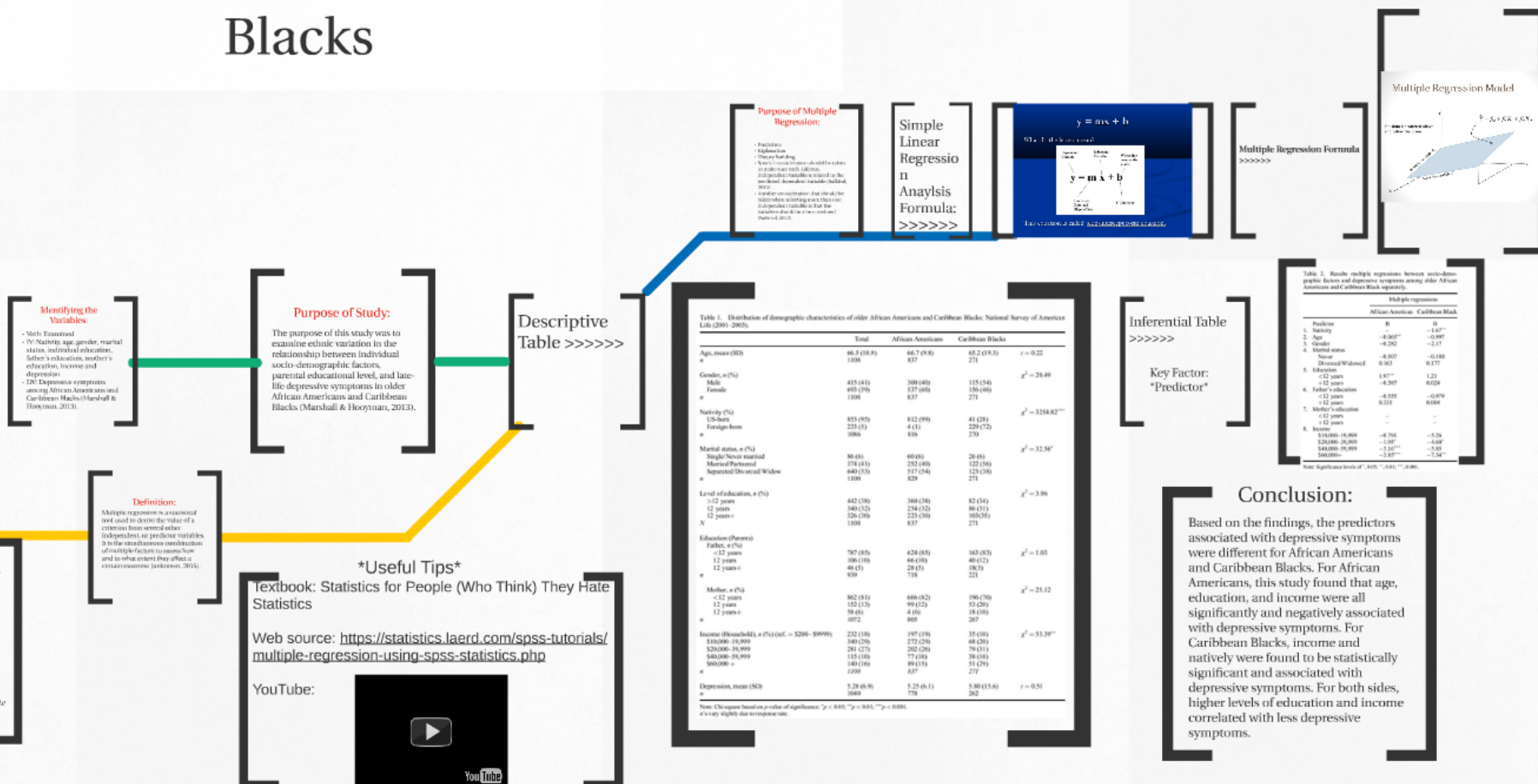# Multiple Regression Anaylsis: Association of socio-demographic factors and parental education with depressive symptoms among older African Americans and Carribean Blacks

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Multiple Regression Model

Purpose of Multiple Regression:
- Prediction
- Explanation
- Theory building

$y = mx + b$

Simple Linear Regression Anaylsis Formula: >>>>>>

Multiple Regression Formula >>>>>>

Identifying the Variables:
- Verb: Examined
- IV: Nativity, age, gender, marital status, individual education, father's education, mother's education, income and depression.
- DV: Depressive symptoms among African Americans and Caribbean Blacks (Marshall & Hooyman, 2013)

Purpose of Study:
The purpose of this study was to examine ethnic variation in the relationship between individual socio-demographic factors, parental educational level, and late-life depressive symptoms in older African Americans and Caribbean Blacks (Marshall & Hooyman, 2013).

Descriptive Table >>>>>>

Inferential Table >>>>>>

Key Factor: *Predictor*

Definition:
Multiple regression is a statistical tool used to derive the value of a criterion from several other independent, or predictor variables. It is the simultaneous combination of multiple factors to assess how and to what extent they affect a certain outcome.

References:

Marshall, G.L., Hooyman, N.R., Hill, K.G., & Rue, T.C. (2013). Association of socio-demographic among older African Americans and Caribbean Blacks. *Aging & mental health,* 17(6), 732-737.

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Useful Tips

Textbook: Statistics for People (Who Think) They Hate Statistics

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YouTube:

Table 1. Distribution of demographic characteristics of older African Americans and Caribbean Blacks: National Survey of American Life (2001-2003).

	Total	African Americans	Caribbean Blacks	
Age, mean (SD)	66.5 (10.9)	66.7 (9.8)	65.2 (19.5)	$t = 0.22$
	1108	837	271	
Gender, n (%)				$\chi^2 = 20.49$
Male	415 (41)	300 (40)	115 (54)	
Female	693 (59)	537 (60)	156 (46)	
	1108	837	271	
Nativity (%)				$\chi^2 = 3254.82$***
US-born	853 (95)	812 (99)	41 (21)	
Foreign-born	255 (5)	4 (1)	229 (72)	
	1086	836	270	
Marital status, n (%)				$\chi^2 = 32.56$*
Single/Never married	86 (6)	60 (6)	26 (6)	
Married/Partnered	374 (41)	252 (40)	122 (56)	
Separated/Divorced/Widow	640 (53)	517 (54)	123 (38)	
	1100	829	271	
Level of education, n (%)				$\chi^2 = 3.96$
>12 years	442 (38)	360 (38)	82 (34)	
12 years	340 (32)	254 (32)	86 (31)	
12 years+	326 (30)	223 (30)	103 (35)	
N	1108	837	271	
Education (Parents)				
Father, n (%)				$\chi^2 = 1.03$
<12 years	787 (85)	624 (85)	163 (83)	
12 years	106 (10)	66 (10)	40 (12)	
12 years+	46 (5)	28 (5)	18 (5)	
n	939	718	221	
Mother, n (%)				$\chi^2 = 23.12$
<12 years	862 (81)	666 (82)	196 (70)	
12 years	152 (13)	99 (12)	53 (20)	
12 years+	58 (6)	4 (6)	18 (10)	
n	1072	805	267	
Income (Household), n (%) (ref. = $200-$9999)				$\chi^2 = 53.30$**
$10,000-19,999	232 (18)	197 (19)	35 (10)	
$20,000-39,999	340 (29)	272 (29)	68 (26)	
$40,000-59,999	281 (27)	202 (26)	79 (31)	
$60,000 +	115 (10)	77 (10)	38 (10)	
	140 (16)	89 (13)	51 (29)	
	1108	837	277	
Depression, mean (SD)	5.28 (6.9)	5.25 (6.1)	5.80 (13.6)	$t = 0.51$
	1040	778	262	

Note: Chi-square based on p-value of significance. *p < 0.05, **p < 0.01, ***p < 0.000.
n's vary slightly due to response rate.

Table 3. Results multiple regression between socio-demographic factors and depressive symptoms among older African Americans and Caribbean Black separately.

	Multiple regression	
	African Americans	Caribbean Black
Predictor	B	B
1. Nativity		-1.67*
2. Age	-0.305*	-0.997
3. Gender	-0.262	-2.17
4. Marital status		
Never	-0.307	-0.180
Divorced/Widowed	0.363	0.177
5. Education		
<12 years	1.97**	1.21
>12 years	-0.303	0.024
6. Father's education		
<12 years	-0.555	-0.979
>12 years	0.233	0.066
7. Mother's education		
<12 years		
>12 years		
8. Income		
$10,000-19,999	-0.701	-5.26
$20,000-39,999	-1.97	-4.68*
$40,000-59,999	-3.16**	-5.83
$60,000+	-3.87***	-7.34**

Note: Significance levels of *.005, **.001, ***.0000.

Conclusion:

Based on the findings, the predictors associated with depressive symptoms were different for African Americans and Caribbean Blacks. For African Americans, this study found that age, education, and income were all significantly and negatively associated with depressive symptoms. For Caribbean Blacks, income and nativity were found to be statistically significant and associated with depressive symptoms. For both sides, higher levels of education and income correlated with less depressive symptoms.

Multiple Regression Anaylsis: Association of socio-demographic factors and parental education with depressive symptoms among older African Americans and Carribean Blacks

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Purpose of Multiple Regression:
- Prediction
- Explanation
- Theory Building
- Specific consideration: who will be taken to understand each criterion, independent variables is related to the predicted dependent variable (Salkind, 2012).
- Another consideration that should be taken when selecting more than one independent variable is that the variables should be inter-correlated (Salkind, 2012).

Simple Linear Regression Anaylsis Formula: >>>>>>

$y = mx + b$

What it looks like:

$$y = mx + b$$

This equation is called: regression equation

Multiple Regression Formula >>>>>>

Multiple Regression Model

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- Varbs Examined
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Descriptive Table >>>>>>

Inferential Table >>>>>>

Key Factor:
Predictor

Definition:
Multiple regression is a statistical tool used to derive the value of a criterion from several other independent, or predictor variables. It is the simultaneous combination of multiple factors to assess how and to what extent they affect a certain outcome (unknown, 2015).

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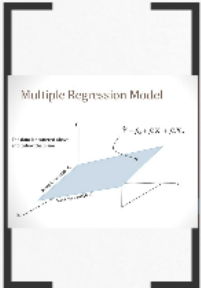
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	African American	Caribbean Black
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1. Nativity	–	-1.67*
2. Age	-0.003**	-0.997
3. Gender	-0.282	-2.17
4. Marital status		
Never	–	–
Divorced/Widowed	0.163	0.177
5. Education		
<12 years	1.97**	1.21
12 years	-0.365	0.024
6. Father's education		
<12 years	-0.555	-0.979
12 years	0.335	0.084
7. Mother's education		
<12 years	–	–
12 years	–	–
8. Income		
$10,000–19,999	-0.791	-5.26
$20,000–39,999	-1.95*	-4.68*
$40,000–59,999	-3.16***	-5.83
$60,000+	-3.87***	-7.34**

Note: Significance levels of *.935, **.001, ***.0001.

Conclusion:

Based on the findings, the predictors associated with depressive symptoms were different for African Americans and Caribbean Blacks. For African Americans, this study found that age, education, and income were all significantly and negatively associated with depressive symptoms. For Caribbean Blacks, income and natively were found to be statistically significant and associated with depressive symptoms. For both sides, higher levels of education and income correlated with less depressive symptoms.

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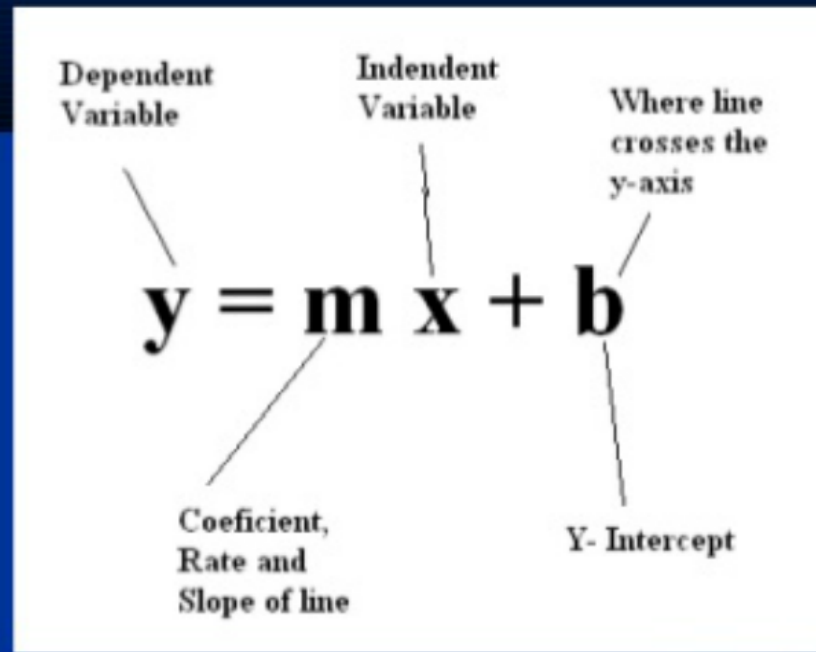
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ind,

be
e

Simple Linear Regressio n Anaylsis Formula:

>>>>>>

$$y = mx + b$$

What do the letters mean?

This equation is called: slop-intercept form equation.