The Relationship between Religiosity and Health-Promoting Behaviors in Pregnant Women at Pregnancy Resource Centers

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Introduction

The health decisions made during pregnancy can have lifelong consequences for a woman and her child.
(Centers for Disease Control and Prevention [CDC], 2013a)

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Unintended Pregnancies

Women with unintended pregnancies were more likely to use alcohol

(Cheng et al., 2009; Kitsantas, Gaffney, & Wu, 2015),

illicit drugs

(Dott et al., 2010; Than et al., 2005),

or tobacco

(Chisolm et al, 2014; Dott et al., 2010; Terplan et al., 2014),

and less likely to take vitamins (Dott et al., 2010)

than women with intended pregnancies.

http://www.freetobacco.info/world-tobacco-news/smoking-during-pregnancy-ups-sids-risk/

Religiosity

Increased religiosity has been associated with decreased likelihood of smoking (Burdette, Weeks, Hill, & Eberstein, 2012) decreased alcohol use and marijuana use (Page, Ellison, & Lee, 2009), and greater likelihood of better maternal nutrition (Burdette et al., 2012) during pregnancy
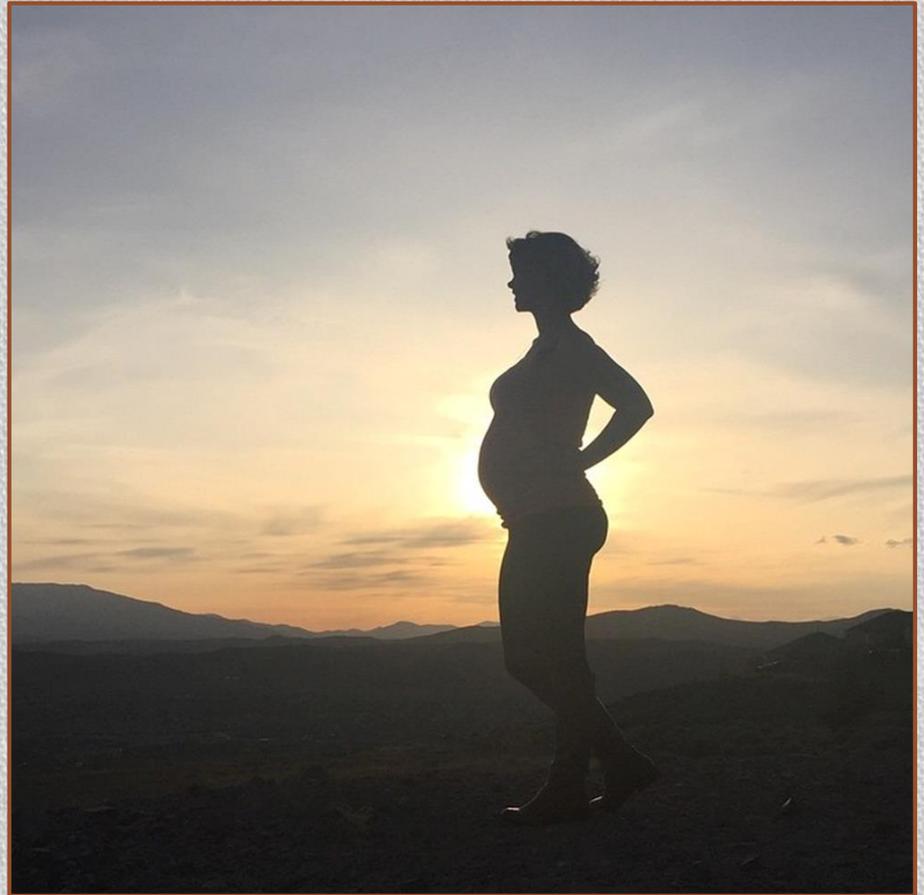
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Pregnant Women at Pregnancy Resource Centers

Picture of Care Net of Carbon County, used with permission

Fifty-one percent of all pregnancies in the United States were unintended in 2008. (Finer & Zolna, 2014)

Some women with unintended pregnancy seek services at Pregnancy Resource Centers, community centers offering Christian faith-based support to pregnant women.

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The purpose of this study was to explore the relationship between religiosity and health-promoting behaviors of pregnant women at Pregnancy Resource Centers.

Specific Aims

The aims of this descriptive correlational study were to:

1) Describe the health-promoting behaviors of pregnant women at Pregnancy Resource Centers.

2) Explore the relationship between each of the following sets of variables (religiosity, demographics, pregnancy-related, or services obtained at the Pregnancy Resource Center) and health-promoting behaviors of pregnant women at Pregnancy Resource Centers

3) Determine the percentage of variance that religiosity explains in the health-promoting behaviors, above and beyond what the other variables explain, in pregnant women at Pregnancy Resource Centers.

Setting of the study: Eastern Pennsylvania
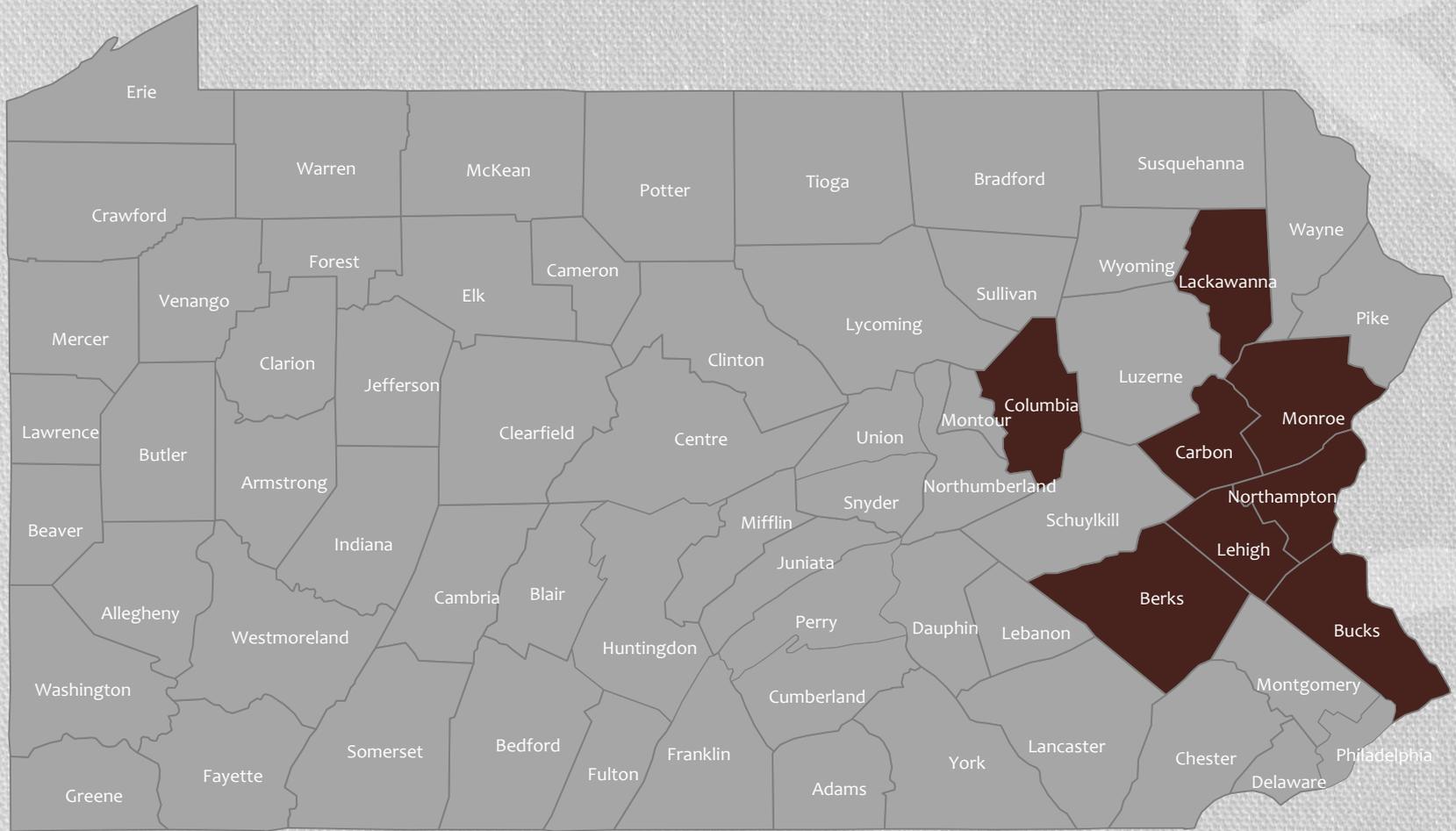
Participating Counties

Sample

- 86 Pregnant women at Pregnancy Resource Centers
  - Known pregnant at least 2 months
  - 18 years of age or over
  - Able to read and write English

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Methodology:
Pender's Revised Health-Promotion Model

Individual Characteristics and Experiences

Behavior Specific Cognitions and Affect

Behavioral Outcomes

Personal factors
Demographic data, pregnancy-related and religiosity

Interpersonal Influences
Services received at the Pregnancy Resource Center and religiosity

Health-Promoting Behavior
(Measured by Health-Promoting Lifestyle Profile II)

(Pender, Murdaugh, & Parsons, 2002)

Methodology: Instruments

Pregnancy intention - PRAMS (CDC, 2009)

"In this current pregnancy, how do you feel about being pregnant?"

The responses included:

- Intended Pregnancies
  - "I wanted to be pregnant sooner" (intended or wanted pregnancy)
  - "I wanted to be pregnant now" (intended or wanted pregnancy)
- Unintended Pregnancies
  - "I wanted to be pregnant later" (mistimed pregnancy)
  - "I did not want to be pregnant now or at any time in the future" (unwanted pregnancy)
  - "I am unsure how I feel" [unsure about intendedness]
  - "I did not want to be pregnant, but now I'm glad I am" [initially unintended]

Methodology: Instruments
Religiosity

- Duke University Religion Index (Koenig & Büssing, 2010)
  - Organized religiosity, nonorganized religiosity, intrinsic religiosity
  - Duke University Religion Index has high test-retest reliability (intra-class correlation = 0.91), high internal consistency (Cronbach's alpha's = 0.78–0.91), high convergent validity with other measures of religiosity (r's = 0.71–0.86) (Koenig & Büssing, 2010, p.78).

Methodology: Instruments

Religiosity

- Religious Surrender and Attendance Satisfaction Scale (Cyphers & Clements, 2015)

  - Religious commitment and satisfaction with religious commitment

  - Religious Commitment component of the scale – strong internal consistency (α = .85) and was strongly associated with intrinsic religiosity (r = .65, p =<.005). The Satisfaction items from the RSASS were found to be moderately internally consistent [α = .68] (Cyphers & Clements, 2015)

- Religious Affiliation

Methodology:
Pender's Revised Health-Promotion Model

Individual Characteristics and Experiences

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Health-Promoting Behavior
(Measured by Health-Promoting Lifestyle Profile II)
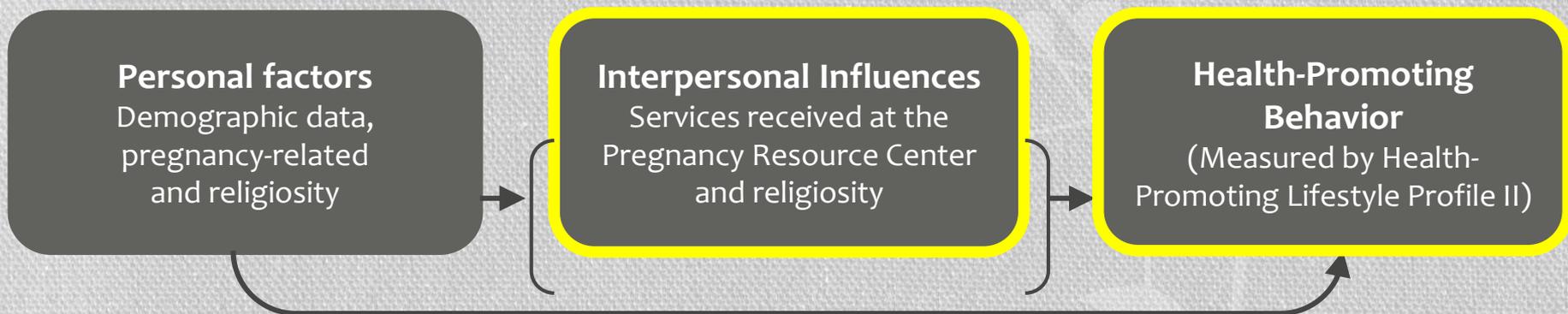
(Pender, Murdaugh, & Parsons, 2002)

Methodology: Instruments

Health-Promoting Behaviors

- Health-Promoting Lifestyle Profile II (Walker & Hill-Polerecky, 1996)

  - Health responsibility

  - Interpersonal relations

  - Spiritual growth

  - Physical activity

  - Nutrition

  - Stress management

Health Promoting Lifestyle Profile II - Reliability of the total scale's internal consistency- alpha coefficient of .94; alpha coefficients for the subscales ranged from .79 to .87, and the 3-week test-retest stability coefficient for the total scale was .89. (Walker, & Hill-Polerecky, 1996)

Data Collection

- Participants completed survey at the Pregnancy Resource Centers

- Pilot Study

  – 10 participants

  – Determined paper surveys would be used by volunteers at the centers

- Consecutive sampling over 10 months

- Data were analyzed using descriptive statistics, univariate analyses, and multiple linear regressions.

Results: Description of the Sample

83% (n= 71) White

17% (n= 15) Hispanic

65% (n= 56) Not married

73% (n = 63) Income < $14,999

81% (n =70) 12th grade/GED or higher

Results: Description of the Sample

Pregnancy Intention

Pie chart of Pregnancy Intention:
- Intended 38% n = 33
- Mistimed 20% n =17
- Unwanted but then glad pregnant 30% n = 26
- Unwanted 5% n = 4
- Unsure 7% n = 6
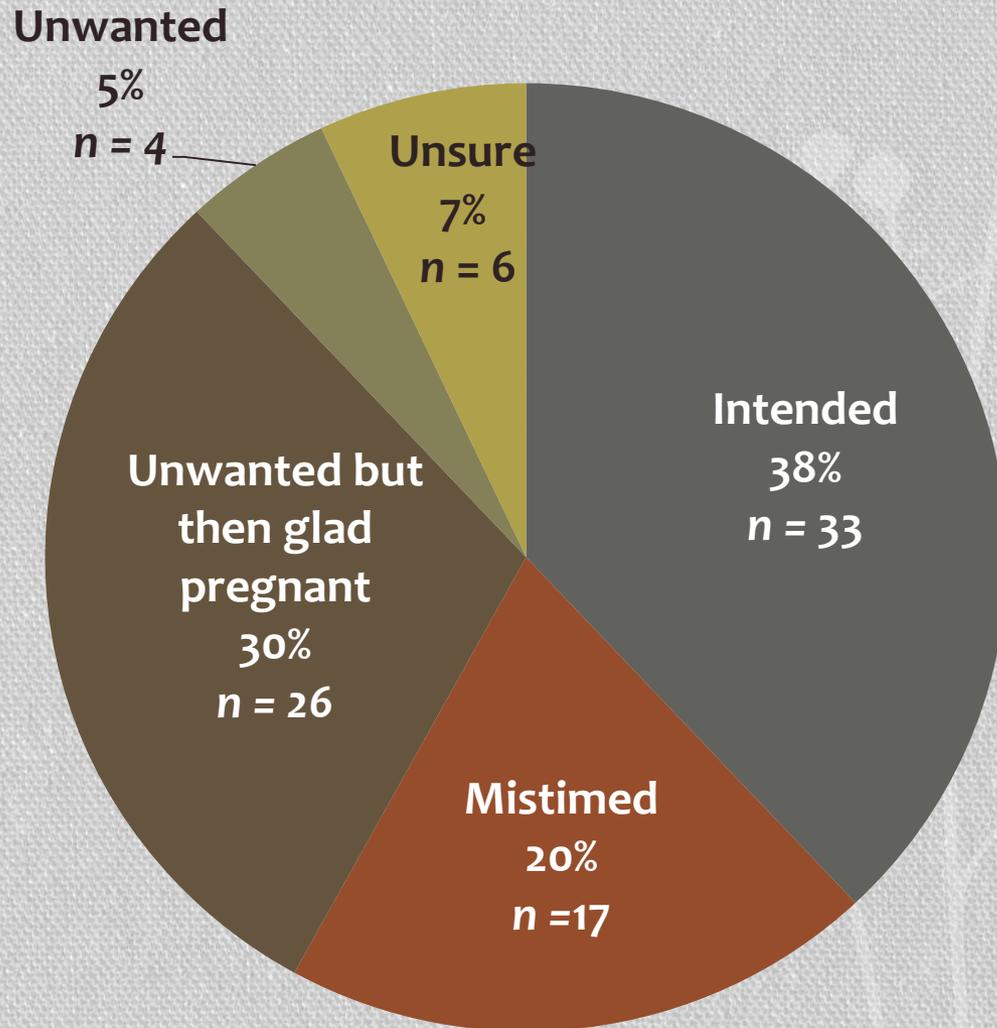
Results: Description of the Sample

Religious Affiliation

Other Religion
8%
n = 7

No Religion
16%
n = 14

Christian
76%
n = 65
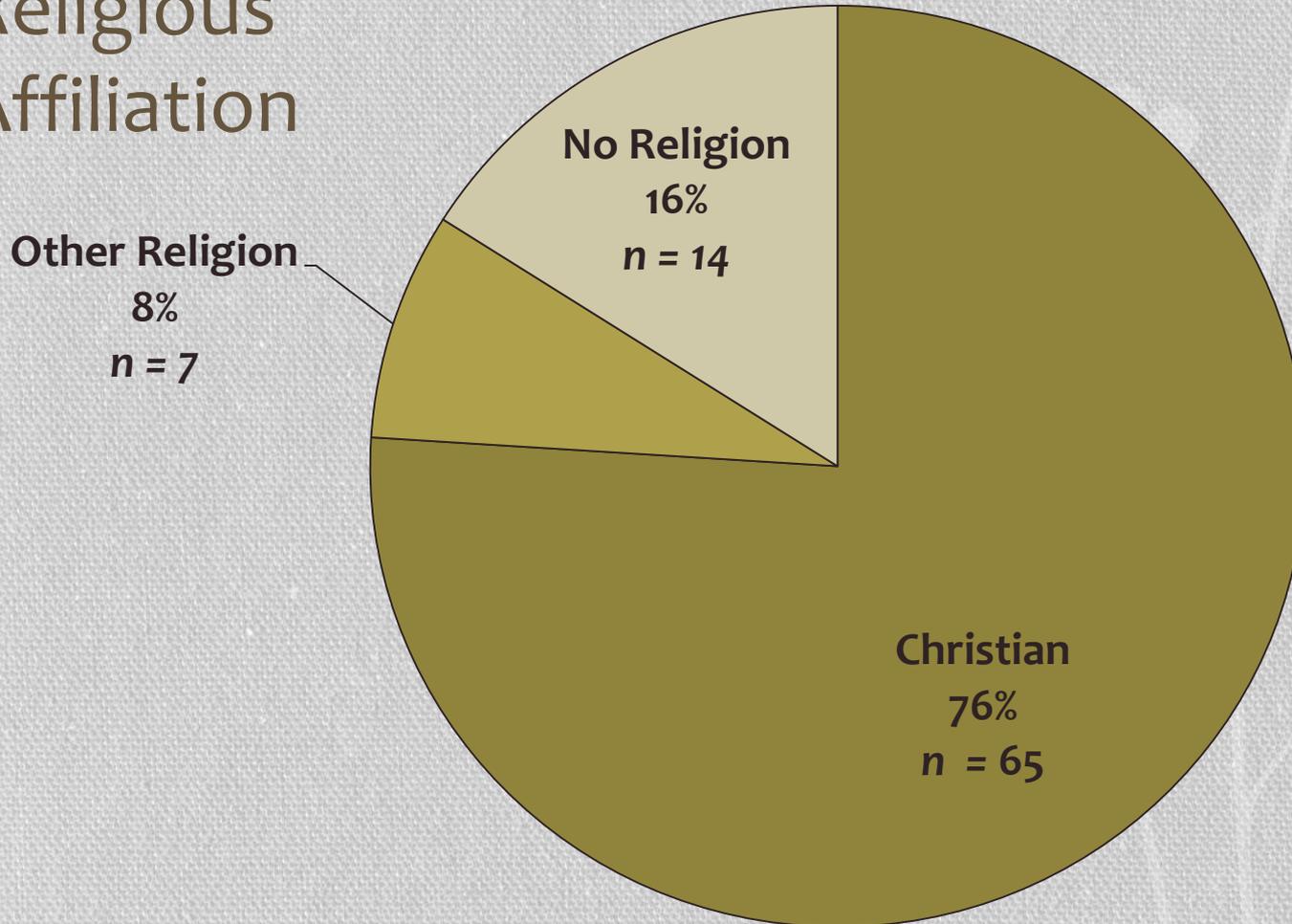
Results: Description of the Sample

Descriptive Statistics for Religiosity Variables

Characteristic	*n*	%
Duke University Religion Index		
DUREL Subscale 1 – Organized Religiosity		
How often do you attend church or other religious meetings?		
Less than 1 time per week	63	73
Once a week or more	23	27
DUREL Subscale 2 – Non-organized Religiosity		
How often do you spend time in private religious activities?		
Less than daily	62	72
Daily or more than once a day	24	28
DUREL Subscale 3 - Intrinsic Religiosity		
Definitely or tends *not* true of me, unsure	39	45
Definitely or tends to be true	47	55

Results: Description of the Sample
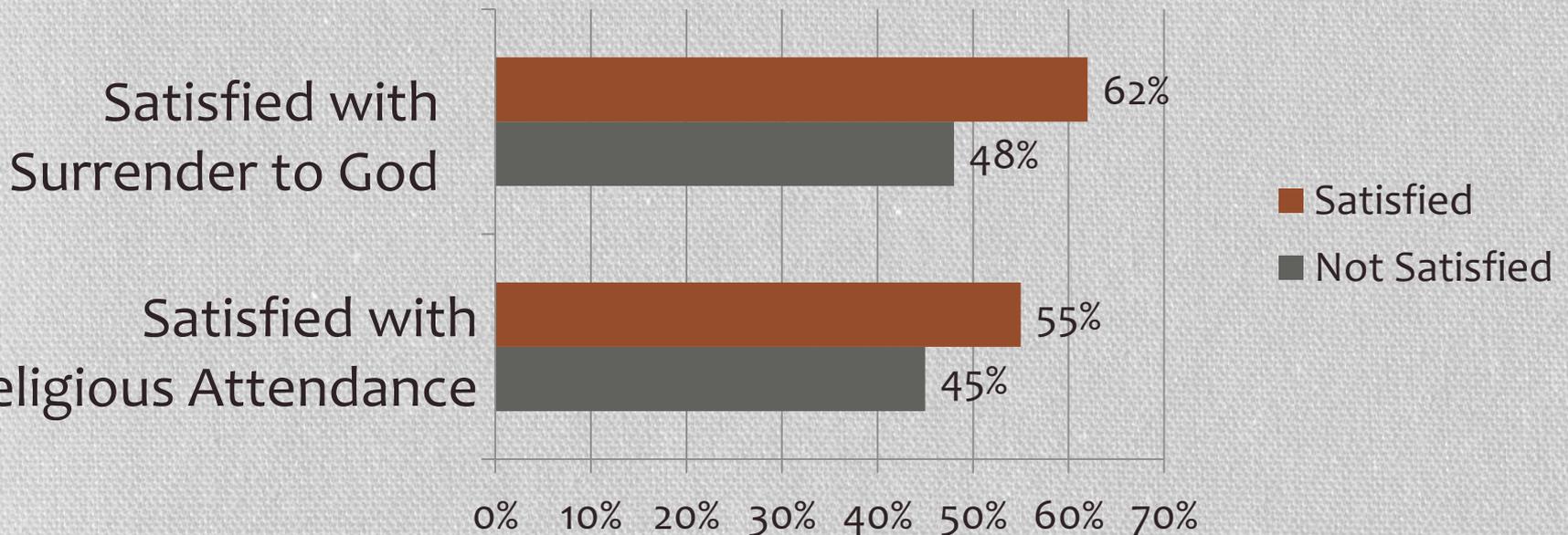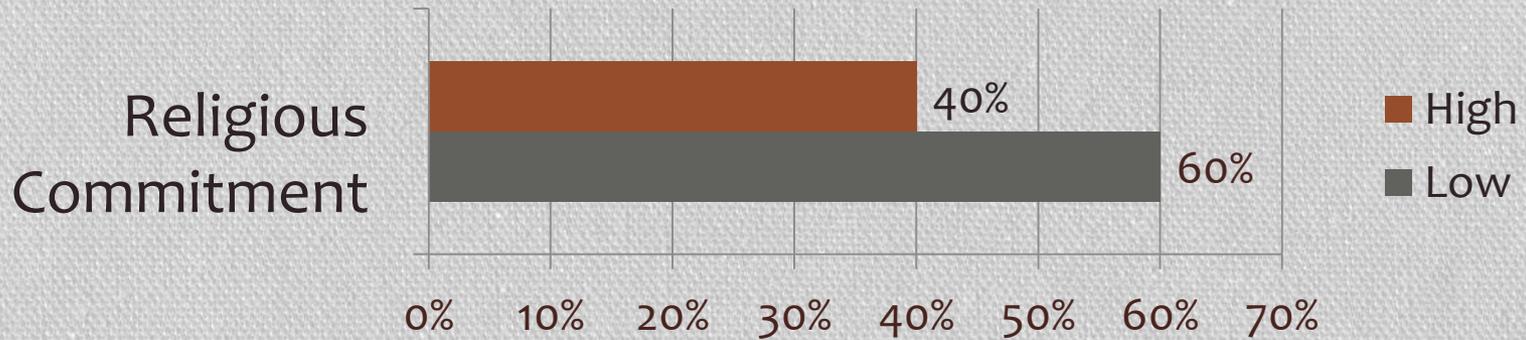
Results: Description of the Sample

Services Received at the Pregnancy Resource Centers

No services – 10% ($n = 9$)

Attended classes – 65% ($n = 56$)

Support services – 57% ($n = 49$)

Medical Services – 30% ($n = 34$)

Bible study – 10% ($n = 9$)

Results Specific Aim # 1

Mean Scores of Health-Promoting Behaviors

- Overall HPLP II — 2.73
- Stress Management — 2.63
- Interpersonal Relationship — 2.98
- Spiritual Growth — 3.1
- Nutrition — 2.64
- Physical Activity — 2.18
- Health Responsibility — 2.78
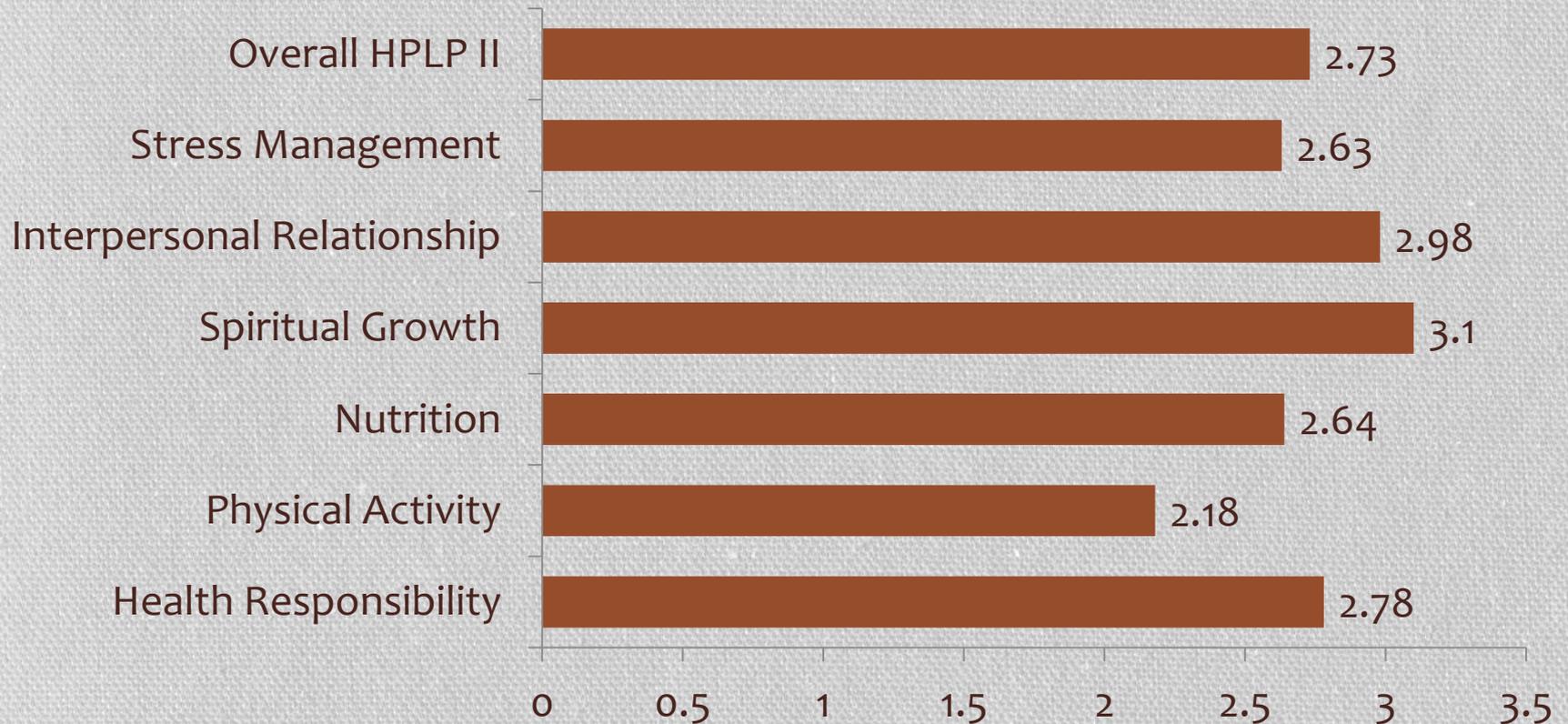
Results Specific Aim # 2

Category	Significant Variable	Overall HPLP II
Demographic	Hispanic/Not Hispanic (t (84) = 2.13*)	Hispanic = lower HPLP II
Pregnancy Intention	Unsure/Other Intentions (t (84) = 2.32*)	Unsure = lower HPLP II
Services Obtained	Attended classes (t (84) = -2.14*)	Yes = higher HPLP II
Religiosity	Intrinsic Religiosity (IR) (t (84) = 1.49*)	High IR = higher HPLP II
	Religious Commitment(RC) (t (84) = 2.10*)	High RC = higher HPLP II
* $p < .05$	Satisfaction with Surrender to God (t (84) = 2.51*)	Satisfied = higher HPLP II

Results Specific Aim # 3

Percentage of Variance in Health-Promoting Accounted for in Multiple Linear Regression Model with all Religiosity Variables Entered

Legend:
- Non-organized religiosity
- Satisfaction with surrender to God
- Hispanic Ethnicity
- Attended Classes

Bar values (bottom to top): 5%, 5%, 5%, 6%
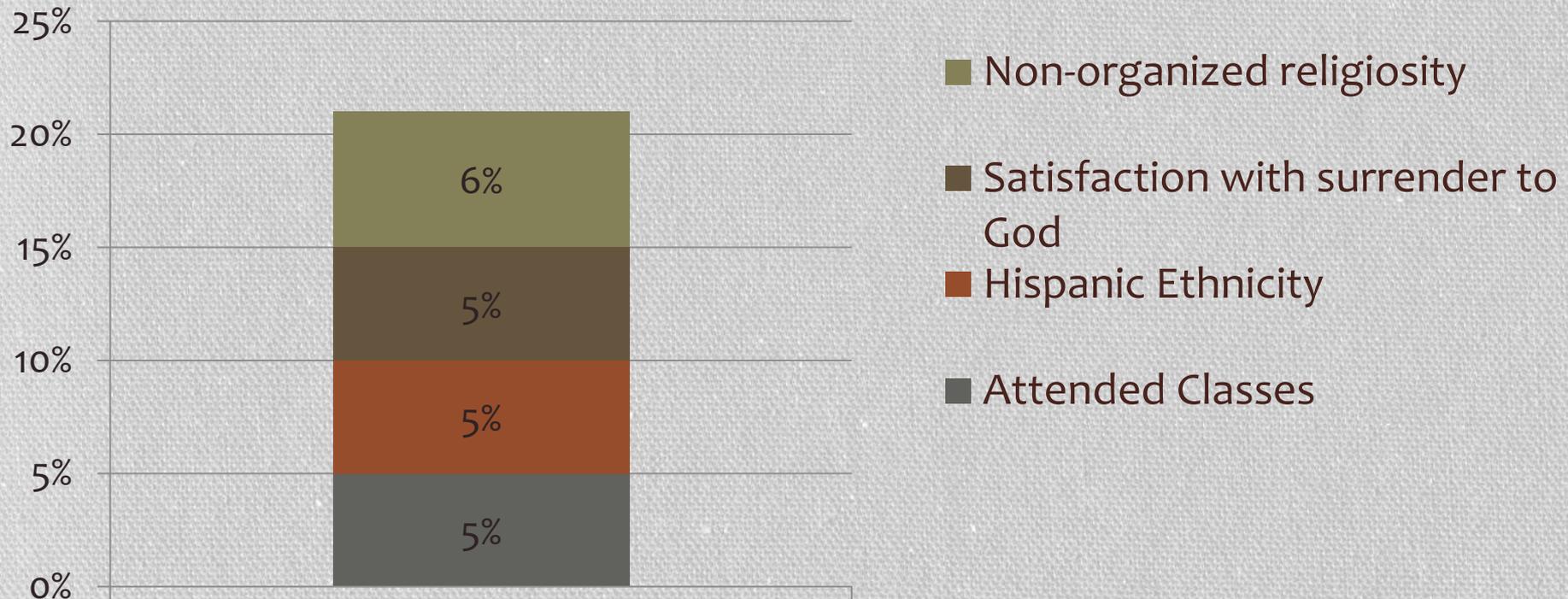
Step 1: R^2 = .05; R^2 change= .05; ($F(1, 84)$ = 4.58, p = .035

Step 2: R^2 = .10; R^2 change= .05; ($F(1, 83)$ = 4.14, p = .045

Step 3: R^2 = .15; R^2 change= .05; ($F(1, 82)$ = 4.93, p = .029

Step 4: R^2 = .21; R^2 change= .06; ($F(1, 81)$ = 5.89, p = .017

Results Specific Aim # 3: Individual Religiosity Models

Additional Variance in Health-Promoting Behaviors – Religiosity Variables

- Organized religiosity – (R^2 = .14; R^2 change = .04 (F (1, 82) = 4.186, p = .044)
- Non-organized religiosity – (R^2 = .15; R^2 change = .05 (F (1, 82) = 4.85, p = .030)
- Intrinsic religiosity – (R^2 = .14; R^2 change = .04 (F (1, 82) = 4.14, p = .045)
- Satisfaction with surrender to God (R^2 = .15; R^2 change = .05 (F (1, 82) = 4.93, p = .029)

Discussion

Hispanic ethnicity
= less frequent health-promoting behaviors

Attended classes at the Pregnancy Resource Centers
= more frequent health-promoting behaviors

Discussion

Higher levels of religiosity – explained additional variance in health-promoting behaviors

Recommendations

- Public and private organizations, including Pregnancy Resource Centers, should consider ethnicity, programming, and religious characteristics of their clients as they provide care for a diverse population of pregnant women.

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Limitations

- Selection bias
  - Recruitment
  - Refusal Rate

- Social desirability responding

- Homogeneous population

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  - Dr. Jody Ralph

  - Dr. Andrea Clements

  - Dr. Jan Goodwin

Any Questions?
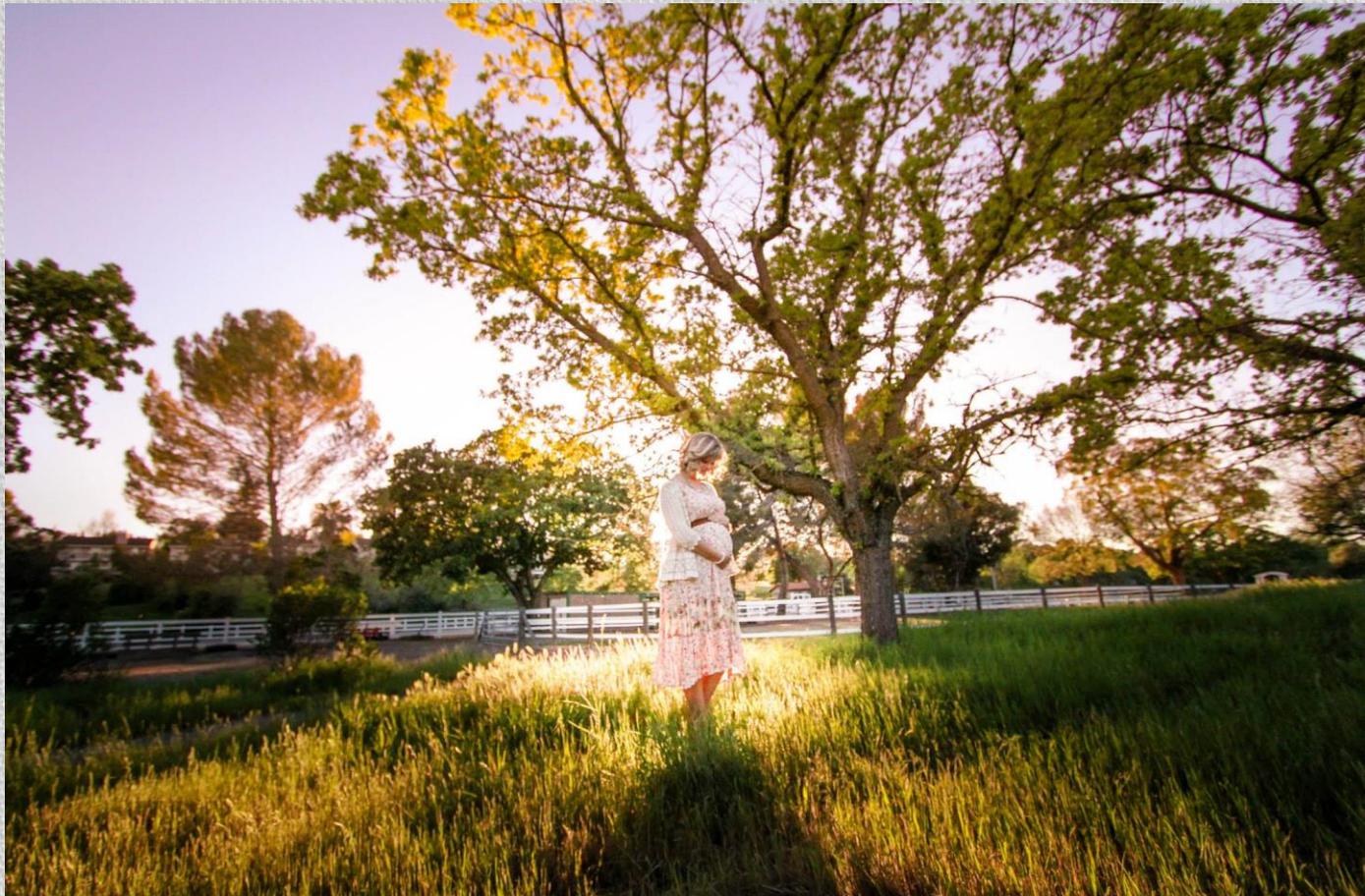
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All Religiosity

Independent Variables	*B*	SE	β	*t*	*p*
Block 1					
<u>Step 1</u>					
Constant	2.59	.08		32.08	.000
Attending Classes	.21	.10	.23	2.14	.035*
<u>Step 2</u>					
Constant	2.65	.08		31.54	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	- .21	-2.04	.045*
Block 2					
<u>Step 3</u>					
Constant	2.55	.10		27.51	.000
Attending Classes	.19	.10	.20	1.96	.053
Hispanic Ethnicity	- .21	.12	- .19	- 1.80	.075
RSASS					
Satisfaction with Surrender to God	.21	.10	.23	2.22	.029*
<u>Step 4</u>					
Constant	2.49	.10		26.40	.000
Attending Classes	.18	.10	.19	1.95	.055
Hispanic Ethnicity	- .23	.11	- .20	- 2.03	.045*
RSASS					
Satisfaction with Surrender to God	.22	.09	.25	2.44	.017*
DUREL Subscale 2	.24	.10	.24	2.43	.017*

Multiple Linear Regression with Organized Religiosity Variable.

Independent Variables	B	SE	β	t	p
Block 1					
Step 1					
Constant	2.59	.08		32.08	.000
Attending Classes	.21	.10	.23	2.14	.035*
Step 2					
Constant	2.65	.08		31.54	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	.21	- 2.04	.045*
Block 2					
Step 3					
Constant	2.59	.09		29.87	.000
Attending Classes	.21	.10	.22	2.17	.033*
Hispanic Ethnicity	- .28	.12	.25	- 2.87	.020*
DUREL Subscale 1	.22	.11	.21	2.05	.044*

Note: Organized religiosity is measured by DUREL subscale 1
Step 1: $R^2 = .05$; Adjusted $R^2 = .04$; R^2 change $= .05$ ($F (1, 84) = 4.58$, $p = .035$
Step 2: $R^2 = .10$; Adjusted $R^2 = .08$; R^2 change $= .05$ ($F (1, 83) = 4.14$, $p = .045$
Step 3: $R^2 = .14$; Adjusted $R^2 = .11$; R^2 change $= .04$ ($F (1, 82) = 4.186$, $p = .044$
*$p < .05$

Multiple Linear Regression with Non-Organized Religiosity Variable

Independent Variables	*B*	SE	β	*t*	*P*
Block 1					
<u>Step 1</u>					
Constant	2.59	.08		32.08	.000
Attending Classes	.21	.10	.23	2.14	.035*
<u>Step 2</u>					
Constant	2.65	.08		31.54	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	- .21	- 2.04	.045*
Block 2					
<u>Step 3</u>					
Constant	2.59	.09		30.21	.000
Attending Classes	.20	.10	.21	2.03	.045*
Hispanic Ethnicity	- .26	.12	-.23	- 2.26	.027*
DUREL Subscale 2	.23	.10	.23	2.20	.030*

Note: Non-organized religiosity is measured by DUREL subscale 2
Step 1: $R^2 = .05$; Adjusted $R^2 = .04$; R^2 change = .05 (F (1, 84) = 4.58, $p = .035$
Step 2: $R^2 = .10$; Adjusted $R^2 = .08$; R^2 change = .05 (F (1, 83) = 4.14, $p = .045$
Step 3: $R^2 = .15$; Adjusted $R^2 = .12$; R^2 change = .05 (F (1, 82) = 4.85, $p = .030$
*$p < .05$

Multiple Linear Regression with Intrinsic Religiosity Variable.

Independent Variables	B	SE	β	t	p
Block 1					
Step 1					
Constant	2.59	.08		32.08	.000
Attending Classes	.21	.10	.23	2.14	.035*
Step 2					
Constant	2.65	.08		31.54	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	- .21	- 2.04	.045*
Block 2					
Step 3					
Constant	2.55	.10		26.46	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	- .21	- 2.04	.044*
DUREL Subscale 3	.19	.10	.21	2.04	.045*

Note: Intrinsic religiosity is measured by DUREL subscale 3
Step 1: $R^2 = .05$; Adjusted $R^2 = .04$; R^2 change = .05 (F (1, 84) = 4.58, $p = .035$
Step 2: $R^2 = .10$; Adjusted $R^2 = .08$; R^2 change = .05 (F (1, 83) = 4.14, $p = .045$
Step 3: $R^2 = .14$; Adjusted $R^2 = .11$; R^2 change = .04 (F (1, 82) = 4.14, $p = .045$
*$p < .05$

Multiple Linear Regression Satisfaction With Surrender to God.

Independent Variables	B	SE	β	t	p
Block 1					
<u>Step 1</u>					
Constant	2.59	.08		32.08	.000
Attending Classes	.21	.10	.23	2.14	.035*
<u>Step 2</u>					
Constant	2.65	.08		31.54	.000
Attending Classes	.20	.10	.21	2.04	.044*
Hispanic Ethnicity	- .24	.12	- .21	- 2.04	.045*
Block 2					
<u>Step 3</u>					
Constant	2.55	.09		27.51	.000
Attending Classes	.19	.10	.20	1.96	.053
Hispanic Ethnicity	- .21	.12	- .19	- 1.80	.075
RSASS					
Satisfaction with Surrender to God	.21	.09	.23	2.22	.029*

Note: Satisfaction with Religious Commitment is measured in RSASS
Step 1: $R^2 = .05$; Adjusted $R^2 = .04$; R^2 change $= .05$ ($F (1, 84) = 4.58, p = .035$
Step 2: $R^2 = .10$; Adjusted $R^2 = .08$; R^2 change $= .05$ ($F (1, 83) = 4.14, p = .045$
Step 3: $R^2 = .15$; Adjusted $R^2 = .12$; R^2 change $= .05$ ($F (1, 82) = 4.93, p = .029$
*$p < .05$