Factors Affecting Commitment to a Plan of Physical Activity Among Hispanic Mothers and their Daughters

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Presenter Disclosures

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No relationships to disclose

The Problem

- Hispanic population continues to be fastest growing minority group in the United States and is expected to comprise 18% of population by 2025
- Little research with Hispanic population and physical activity (PA)
- 74% of Hispanic women report no leisure-time PA (Crespo, Smith, Andersen, Carter-Pokras, Ainsworth, 2002).
- Hispanic girls less likely to be physically active than other racial and ethnic groups (Eaton et al, 2012).
- Physical inactivity is a major risk factor for several causes of death from non-communicable diseases (Kohl, et al., 2012).
- GOAL- To promote PA consistent with national health objectives.

The Problem (Continued)

- There are many health-related benefits to PA; research is needed to best determine how to promote an active lifestyle to decrease risks related to chronic illness and premature death.
- This study will utilize Pender's Health Promotion Model (HPM) (Pender, 2011) to investigate the factors which affect participation in physical activity among Hispanic women and their daughters
- Many of Pender's PA tools have not been used among Hispanics

Specific HPM variables related to study

- Exercise Self-Efficacy
- Activity related Affect
- Societal Norms
- Commitment to a plan of action for physical activity
- Outcome is health promoting behavior-physical activity

Statement of the Problem

- What are the relationships among societal norms, exercise self-efficacy and activity related affect, on commitment to a plan of physical activity among low-income Hispanic women and their daughters?

Hypotheses

1)Among Hispanic women and their daughters, there will be a significant relationship between ;

- societal norms and commitment to a plan of physical activity
- exercise self-efficacy and commitment to a plan of physical activity
- activity related affect and commitment to a plan of physical activity
- commitment to a plan of physical activity and participation in physical activity

2) There will be significant differences in societal norms, exercise self-efficacy, activity related affect and commitment to exercise between Hispanic women and their daughters.

3) Societal norms, self-efficacy, activity related affect and commitment to a plan of physical activity of mothers will be significant predictors of physical activity levels of the daughters.

Methods

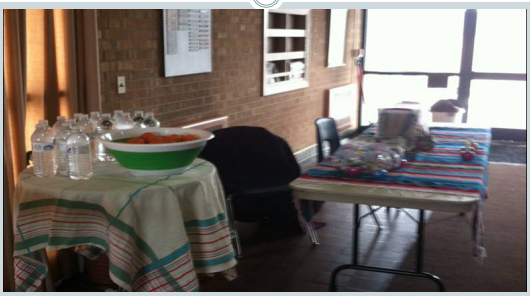
Research Setting:

- Three Hispanic Catholic Churches and a Hispanic grade school in Western Michigan
- Located in low-income Hispanic neighborhoods
- Two in same city:
  - 19.4% Hispanic population compared to 4.4% in state of Michigan (U.S. Census, 2012)
  - Poverty rate 16.3% compared to state of Michigan at 14.8% (U.S. Census, 2012)
- The third church:
  - City with a Hispanic population rate of 22.7% (4.4% in Michigan) and
  - Poverty rate of 15.4% compared to 14.8% in Michigan (U.S. Census, 2012)

Setting (continued)

- Data collection took place in Hispanic churches in locations designated by the church personnel
- Registration is not required at the church, however it is estimated that over 800 Hispanic people attend church on Saturday and Sundays
- Translators were available at all data collection sites
- A light breakfast was served of muffins, Clementines, and water
- Solar powered flowers were given to the daughters and other children of family members

Church



Solar Activity Flowers

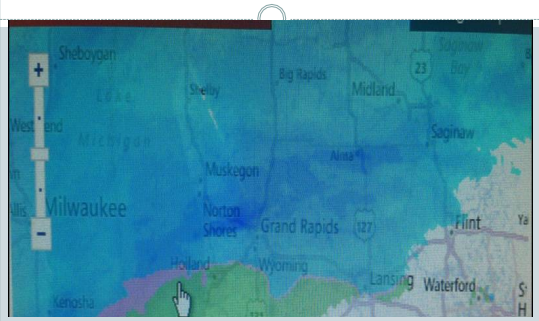
Data Collection

- After mass, mothers and daughters were invited to participate in study
- Study was explained, consents signed, mother and daughters sat at separate tables to complete surveys- available in English and Spanish, pencil and paper format
- Honor Society students from local Catholic High School volunteered to help with study
- After surveys were completed, heights and weights were obtained
- Fitted for accelerometer and given instructions in Spanish and English with a designated time and place to pick up monitors and to each receive a $20.00 gift card

ShorrBoard® and Scale

Accelerometers

Radar: 2/7/13 Today's forecast: The Weather Channel



Sample Size

- To achieve a power = 0.85, 78 mothers + 78 daughters were recruited for this study (R software package)
- 79 Hispanic mothers and 79 Hispanic daughters participated in the study

Instruments for Mothers

Tool	Validity/Reliability	Type of Scale	# of Items	Author
Demographics				
The Short Acculturation Scale for Hispanics (SASH)	Chronbach's alpha= .92	5- point Likert	12	(Marin & Sabogal, 1987)
Anthropometric measures	Scale is calibrated	Shorr Board Soehnle Scale Body Mass Index (BMI)	3	N/A
Accelerometer, Actigraph™	Cicchetti's differentiation for interjudge reliability coefficients .6 (.6 to <.74 good reliability)	Accelera tion Counts,	N/A	(Wood, Kuntsi, Asherson, 2008)
Physical Activity Recall	Validity coefficient *r* =.79	Likert	3	(Jackson et al., 1990)
Lifestyle Profile II, Adult	.94	4- point Likert	8	(Walker et al., 1995), (Hendricks et al., 2006)

Instruments for Mothers (continued)

Tool	Validity/ Reliability	Type of Scale	# Items	Author
Exercise Norms Scale	Test-retest reliability coefficient = .76 Cronbach's alpha not calculated (Pender)	3-point Likert	5	(Pender, 2011)
Exercise Confidence Survey (ESE)	Cronbach's alpha=.85	4- point Likert(mom)	11(mom)	(Sallis et al., 1988)
The Physical Activity Enjoyment Scale	Cronbach's alpha = .92	5- point Likert for both	18 (mom)	Kendzierski & DeCArlo, 1991)
Planning Commitment for Exercise	Cronbach's alpha = .82	3-point Likert	11	(Pender et al., 2011)

Instruments for Daughters

Tool	Validity/Reliability	Type of Scale	# of Items	Author
Demographics				
Anthropometric measures	Scale is calibrated	Shorr Board Soehnle Scale Body Mass Index (BMI)	3	N/A
Accelerometer, Actigraph™	Cicchetti's differentiation for interjudge reliability coefficients .6 (.6 to <. 74 good reliability)	Acceleration Counts,	N/A	(Wood, Kuntsi, Asherson, 2008)
Physical Activity Recall	Validity coefficient *r* =.79	Likert	3	(Jackson et al., 1990)
Adolescent Profile Questionnaire	Cronbach alpha= .89	4- point Likert	8	(Hendricks, Murdaugh, Pender, 2006)

Instruments Daughters

Tool	Validity/ Reliability	Type of Scale	# Items	Author
Exercise Norms Scale	Test-retest reliability coefficient = .76 Cronbach's alpha not calculated (Pender)	3-point Likert	5	(Pender, 2011)
Exercise Confidence Survey (ESE)	Cronbach's alpha =. 77 for child	5-point Likert (daughter)	8(child)	(Garcia et al., 1995)
The Physical Activity Enjoyment Scale	Cronbach's alpha = .92	5- point Likert for both	14 (child)	Kendzierski & DeCArlo, 1991)
Planning Commitment for Exercise	Cronbach's alpha = .82	3-point Likert	11	(Pender et al., 2011)

Data Analysis

- Correlational analysis was conducted to determine if the independent variables are related to the dependent variable of commitment on physical activity
- Paired *t*-tests were conducted to determine if there were significant differences between the means of mothers and daughters
- Regression analysis was conducted to determine which behaviors independently predict physical activity outcomes

Demographic Variables- Mother Characteristics

Variable	Mother (n=79) n Percentage
Race	
Hispanic	79 (100)
Employment	
Employed by someone or a company	44 (55.7)
Self-employed	3 (3.8)
Out of work and looking for work	10 (12.7)
Out of work but not currently looking for work	2 (2.5)
Homemaker	16(20.3)
Student	1 (1.3)
Retired	1 (1.3)
Unable to work	2 (2.5)
Income	
less than 10,000	9 (11.4)
11,000-20,000	21 (26.6)
21,000-30,000	25 (31.6)
31, 000-51,000	11 (13.9)
51,000 +	11 (13.9)
Unknown	1 (1.3)
Number of Children	
One	5 (6.3)
Two	18 (22.8)
Three	26 (32.9)
Four	18 (22.8)
Five	5 (6.3)
Six or more	7 (8.9)

Variable Means

	Mom (n=79) M (SD)	Likert Scale	Daughters (n=79) M (SD)	Likert Scale
Social Norms	1.8 (.78)	3	2.1 (.71)	3
Exercise Self-Efficacy	2.3 (.62)	4	3.2 (.91)	4
Physical activity related affect	3.2 (3.2)	5	3.1 (.54)	5
Commitment	1.7 (.49)	3	1.8 (.48)	3
Physical Activity Recall	1.73 (1.8)	7	2.39 (1.61)	7
Lifestyle Profile	1.68 (.47)	4	N/A	N/A
Adolescent Lifestyle Questionnare	N/A	N/A	3.09 (.96)	5
SASH	1.96 (.739)	5 point	N/A	N/A

Paired *t*-tests

	M (SD)	*t*	*P*	95% CI
CommitMeansM	1.7 (.50)	-1.67	.098	[-.27, .024]
CommitMeansD	1.8 (.48)			
NORMSM	1.8 (.61)	-3.78	.000 *	[-.48, -.15]
NORMSD	2.1 (.50)			
ESE-M	2.3 (.62)	6.63	.000*	[-1.13, -.60]
ESE -DMeans	3.2 (.91)			
PACESMeansM	3.2 (.61)	1.6	.100	[-.02, .28]
PACESMeansD	.13 (.70)			
Mod PA-M	82.16 (52)	-1.08	.285	[-1095 to 329]
Mod PA-D	465 (2500)			

Body Mass Index

	Mother (n = 79) n = Percentage	Daughter (n = 79) n = Percentage
Weight <18.5 Underweight Child/teen < 5th percentile	1 (1.13)	0 (0)
18.5-24.9 Normal weight: Adults Healthy: child/teen- 5-85th percentile	12 (15.2)	36 (45.6)
25.0 – 29.9 Overweight Child/teen: 85 to less than 95 Percentile	33 (41.)	20 (25.3)
>30.0 Obese Child/teen: >95th percentile	33 (41.)	23 (29.1)

Physical Activity Children

- Children should have 1 hour or more of physical activity each day:
- 1. Aerobic Activity: moderate-intensity such as brisk walking, or vigorous-intensity such as running. Vigorous intensity aerobic activity on at least 3 days per week
- 2. Muscle Strengthening: gymnastics or push up at least 3 days per week as part of 60 or more mins/day
- 3. Bone Strengthening: jumping rope or running, at least 3 days per week as part of 60 or more mins/day

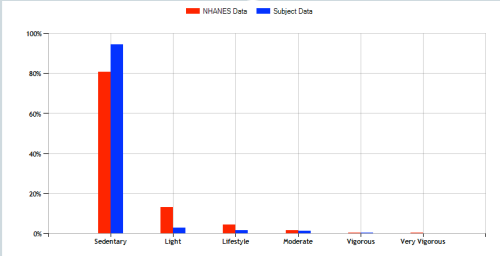
Physical Activity - Adults

- 2 hours and 30 mins (150 minutes) of moderate-intensity aerobic activity such as walking every week and muscle strengthening activities on 2 or more days a week, that work all major muscle groups or
- 1 hour and 15 minutes (75 minutes of vigorous-intensity aerobic activity (jogging or running) every week, and muscle-strengthening activities on 2 or more days a week, that work all major muscle groups or
- An equivalent mix of moderate- and vigorous-intensity aerobic activity and muscle-strengthening activities on 2 or more days a week that work all major muscle groups (www.cdc.gov)

Actigraph® measures

	Mothers (n= 64) Percentage	Daughters (n= 64) Percentage
Light active	17%	15%
Lifestyle: walking, yard work, recreational such as golf, bowling or bicycling, housework	7%	7%
Moderate activity	4%	5%
Vigorous activity	.33%	.56%
Very vigorous activity	.04%	.09%
Sedentary	71%	71%

NHANES Comparison
National Health and Nutrition Examination Survey 2012



Psychometrics of Instruments Used in Study

Instrument	Cronbach alpha, moms	Cronbach alpha, daughters
SASH- Acculturation	α = .94	N/A
Social Norms	α = .79	α = .71
Exercise Self- Efficacy	α = .94	α = .81
Physical activity enjoyment scale	α = .79	α = .56
Commitment Scale	α = .92	α = .85
Health Promotion Lifestyle Profile	α = .83	N/A
Adolescent Lifestyle Questionnaire	N/A	α = .68

Discussion of the Findings

- Hypothesis 1, There will be a significant relationship between societal norms and commitment to a plan of physical activity among Hispanic women and their daughters was partially supported:
- Kendall tau_b was computed comparing mother and daughter scores separately.
- Kendall tau_b did not reveal a significant relationship between social norms and commitment of mothers, τ_b = .08, p = .29
- Kendall tau_b did reveal a significant relationship between societal norms and commitment of daughters, τ_b = .27, p = .001.

Hypothesis 2

- Hypothesis 2 There will be a significant relationship between exercise self-efficacy and a commitment to a plan of physical activity among Hispanic mothers and daughters was partially supported:
- Kendall tau_b was computed comparing mother and daughter scores separately.
- Kendall tau_b did not reveal a significant relationship between exercise self-efficacy and commitment of mothers, τ_b = .08, p = .28
- Kendall tau_b did reveal a significant relationship between exercise self-efficacy and commitment of daughters, τ_b = .27, p = .001 .

Hypothesis 3

- Hypothesis 3, There will be a significant relationship between activity related affect and commitment to a plan of physical activity.
- was not supported:
- Kendall tau_b was computed comparing mother and daughter scores separately.
- Kendall tau_b did not reveal a significant relationship between activity related affect and commitment of mothers, τ_b = .12, p = .11
- Kendall tau_b did not reveal a significant relationship between activity related affect and commitment of daughters, τ_b= .09, p = .21

Hypothesis 4

- Hypothesis 4, There will be a significant relationship between commitment to a plan of physical activity and participation in physical activity
- was supported:
- Kendall tau_b was computed comparing mother and daughter scores separately.
- Kendall tau_b did reveal a significant relationship between commitment and participation of activity in mothers, τ_b = .33, p = .001.
- Kendall tau_b did reveal a significant relationship between commitment and participation in activity of daughters, τ_b = .26, p = .002

Hypothesis 5

- Hypothesis 5, There will be significant differences in societal norms, exercise self-efficacy, activity related affect and commitment to physical activity among Hispanic mothers and their daughters was partially supported:
- Paired t-test revealed significant differences between mothers and daughters in means scores of
- social norm t = -3.78, p < .000, 95% CI [-.48, -.15]; and
- Means scores of exercise self-efficacy, t = 6.63, p = .000, 95% CI [-1.1 and -.60];
- Daughters had higher means scores in societal norms and exercise self-efficacy

Summary, Conclusions, Implications, And Recommendations

- In summary, theoretical propositions were tested to explain the relationships among Hispanic mothers and daughters societal norms, exercise self-efficacy, activity related affect and commitment to physical activity.
- Mothers and daughters felt others think they should exercise
- Exercise self-efficacy in daughters had a significant positive correlation with commitment to physical activity, but not the mothers
- When mothers and daughters exercised, they enjoyed it

Summary, Conclusions continued

- Self-report and commitment positive relationship
- Not physically active by Actigraph® standards- of the time both moms and daughters wore Actigraph® , 71% of time they were sedentary
- Multiple regression exercise self-efficacy, societal norms and physical activity not a strong predictor for physical activity

Limitations

- Limitations of this study included:
- language barrier
- Actigraph
- Winter months
- Location of study
- Limited to mothers only

Implications for Nursing

- Education on physical activity on its importance and the type and frequency of physical activity that is needed to promote overall health.
- The use of parish nurses who are fluent in Spanish would provide an excellent way to reach the Hispanic population and to educate these mothers and daughters regarding health-promoting behaviors such as physical activity.
- Opportunities exist for mothers to be physically active while their daughters are attending religious education classes. Nurses can determine the types of physical activity that Hispanic moms and daughters would enjoy, then partner with various organizations to provide the various activities.

Future Studies

- Specific areas for future research may address the following research questions:
- How can the nurse's role have a positive impact on exercise self-efficacy and physical activity?
- What societal norms concepts are specifically related to the Hispanic culture, and how do these norms affect physical activity outcomes?
- Does a tailored physical activity intervention have an effect on exercise self-efficacy and physical activity related affect?

Future Studies

- What are health conditions are commonly seen in the Hispanic population, and does a physical activity intervention specifically tailored to prevent and/or manage a particular health condition have an effect on physical activity outcomes?
- What are the physical activity outcomes for seven days of Actigraph® use in various seasons among Hispanic mothers and daughters?
- What are culturally appropriate ways for the women and their daughters to participate in various types of physical activity?

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