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Repository citation: Paquette, Kimberly, "Disability, Religiousness, & Spirituality" (2020). *19th Annual Celebration of Undergraduate Research and Creative Activity (2020)*. Paper 12.

https://digitalcommons.hope.edu/curca_19/12

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The Role of Religiousness and Spirituality in Post-Polio Related Health Outcomes

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Introduction

- Religiousness and spirituality are associated with better physical and mental health in the general population^[1]
 - There may be social, behavioral and psychological factors that contribute to this association^[1]
- We are interested in determining whether these associations also apply to people who experience unique health circumstances, especially people with disabilities
- Previous research has shown that aspects of religiousness and spirituality can protect people from disability severity and depressive symptoms^[2]
- People who experienced polio experience unique health challenges
- Post-Polio Syndrome (PPS): Individuals who had polio in the past can experience PPS
 - Post-Polio Syndrome symptoms include: weakness in muscles previously affected by polio, gradual muscle atrophy, pain from joint degeneration, fatigue, bulbar complications like trouble breathing and swallowing, and skeletal deformities^[3]
- Worsening of physical symptoms has been associated with higher levels of depression and more pain^[4] in people with Post-Polio Syndrome
- Positive self-rated health can also be present despite depression suggesting psychological resilience, which could be attributed to spiritual growth^[5]

Our research question was: Would polio survivors and/or people with Post-Polio Syndrome who are religious/spiritual have better physical and mental health outcomes than non-religious/spiritual people with PPS?

Methods

- Data were collected via cross sectional interview and questionnaire
 - 189 people with Post-Polio Syndrome; 142 women and 47 men
 - Age range from 42-91 years old (average 64 years old)
 - Age of polio onset range from 0-34 years old (on average at 8 years old)
- We conducted secondary data analyses. We used regression analyses to test whether aspects of religiousness and spirituality predict post-polio related physical health and/or mental health outcomes:
 - pain severity and problems due to pain, bulbar severity and problems due to bulbar complications^[6], physical functioning, chronic physical health conditions, and depressive symptoms



Figure 1. A polio vaccine is dropped onto a sugar lump for child patient. Image source: Wellcome Images via Wikimedia Commons.

Results

Several aspects of religiousness and spirituality were associated with physical post-polio symptoms (See Table 1.) Factors that remained predictors after controlling for age, gender, marital status, educational achievement, and work status are indicated in **bold** in the summary below.

Higher pain severity was associated with daily spiritual experiences (DSE) and **global religious coping**. Higher pain problems were associated with self-rated spirituality. After controlling for demographics, **organizational religiousness** emerged as a predictor of fewer pain problems.

Higher atrophy severity was associated with self-rated spirituality, global religious coping, and **religious commitment**. After controlling for demographic characteristics, **religious demands** emerged as a predictor of higher atrophy severity.

Higher bulbar severity was associated with **DSE, private religious practices, and positive religious coping**. No measured aspects of religiousness and spirituality were associated with reporting problems related to atrophy severity or bulbar severity. Better physical functioning was associated with lower private religious practices and **positive religious coping**. **Positive religious coping** was associated with experiencing more chronic health conditions.

The majority of measured aspects religiousness and spirituality were associated with depression, though in the opposite direction of observed associations with measures of physical health. Higher **daily spiritual experiences, religious support, religious commitment, and organizational religiousness** were associated with lower depression; **negative religious coping** was positively associated with depression.

Table 1. Regression analyses for religiousness and spirituality predictors and health outcomes.

Predictor: Aspect of Religiousness/Spirituality	Pain Severity		Pain problems		Atrophy severity		Bulbar Severity		Bulbar problems		Physical functioning		Chronic Health Problems		Depression	
	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.	β - Unadj.	β - Adj.
Self-rated Religiousness	0.127*	0.090	--	--	0.123*	0.087	--	--	--	--	-0.131*	-0.088	--	--	--	--
Self-rated Spirituality	--	--	0.149*	0.099	0.157*	0.120	--	--	--	--	--	--	--	--	--	--
Daily Spiritual Experiences	0.150*	0.102	0.125*	0.069	0.131*	0.084	0.235**	0.248**	--	--	-0.142*	-0.081	--	--	-0.155*	-0.185*
Private Religious Practices	0.140*	0.097	0.128*	0.067	--	--	0.173*	0.188*	--	--	-0.155*	-0.099	--	--	--	--
Organizational Religiousness	--	--	-0.114	-0.155*	--	--	--	--	-0.088	-0.138*	--	--	--	--	-0.154*	-0.176*
Global Religious Coping	0.168*	0.150*	--	--	0.151*	0.118	--	--	--	--	-0.140*	-0.088	--	--	--	--
Positive Religious Coping	0.139*	0.089	--	--	0.144*	0.095	0.248**	0.259**	--	--	-0.198**	-0.151*	0.180*	0.160*	--	--
Negative Religious Coping	0.123*	0.147*	--	--	--	--	--	--	--	--	0.121	0.094	--	--	0.202**	0.216**
Religious Support	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0.187*	-0.211**
Religious Commitment	--	--	--	--	0.192*	0.163*	--	--	--	--	--	--	--	--	-0.132*	-0.144*
Religious Demands	0.150*	0.159*	--	--	0.121	0.134*	--	--	-0.139*	-0.130*	--	--	--	--	--	--

Note. --, not significant; * p < .10; ** p < .05; *** p < .01; **** p < .001.

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Discussion

- Unexpectedly, worse physical health outcomes were related to higher levels of religiousness and spirituality
 - Individuals with Post-Polio Syndrome could turn to religiousness and spirituality to deal with worsening health
- As observed in the general population^[1], higher religiousness and spirituality were associated with lower levels of depressive symptoms in people with Post-Polio Syndrome
- Future directions:
 - Perform a longitudinal study to examine the directionality of associations of worse physical health outcomes and higher levels of religiousness and spirituality in individuals with Post-Polio Syndrome or locate a longitudinal dataset of people with Post-Polio Syndrome in which to examine these associations
 - Compare associations of physical and mental health outcomes with religiousness and spirituality in another sample of disabled people or a sample of people with chronic health conditions

Acknowledgments

Special thank you to:

The Hope College Grand Challenges Initiative
The Mellon Foundation
Luther College LIMBS and Dr. Loren Toussaint

