

Limited but not disabled: the objective functional limitations, subjective disability  
and mortality among elderly Mexican Americans

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## Limited but not disabled: the objective functional limitations, subjective disability and mortality among elderly Mexican Americans

**Abstract:** This study investigates the relationship between objectively assessed functional capacity measured in terms of POMAs and subjective self-reported functional capacity assessed in terms of subjective (ADLs). The analysis focuses on those respondents whose self-reported capacities (ADLs) are more positive than the objective measures, labeled as “health optimists”. We investigate the predictive capacity of health optimism on mortality for the elderly Mexican American population of the Southwest US. Using data from the H-EPESE we predict mortality among health optimists and health realists. Poisson models suggest that mortality rates are higher for “realists” than “optimists” but only significant for US Born Mexicans. US Born Male optimists’ life expectancies were 1.83 years longer, and female optimists had 3.2 year advantage. We discuss the implications of discrepancies between objectively and subjectively assessed functional capacity for understanding predictors of functional decline in the older Mexican-origin population.

## Introduction

Considerable research into the Hispanic Epidemiologic Paradox has shown consistently that Hispanics have favorable to comparable mortality rates compared to the socioeconomically advantaged native born white population (Markides and Eschbach 2011). Recent research has shown that this advantage does not extend to disability nor functional limitation with Hispanics experiencing prolonged periods of disability and functional limitations at the end of their lives compared to non Hispanic whites (Cantu et al. 2013; Hayward et al. Forthcoming). Research on the Hispanic Paradox and disability/function limitation implies a different association of physical limitation and disability with mortality compared to non Hispanic whites but little research has been done on this association specifically. Because of Hispanic's extended life expectancies with functional limitations and disability it is especially important to understand how their disablement process precedes mortality. This paper looks specifically at how differences in the disablement process have consequences for mortality for elderly Mexican Americans.

## Background

We borrow our theoretical construction of a disablement process from Verbrugge and Jette in which functional limitation as a symptom precedes the more severe and socially defined disability (1994). The disablement process implies that physical limitation is a necessary but not sufficient condition of disability and vice versa but says little about the relationship between disability and mortality.

Empirically, research on life expectancy with disability and physical limitation paint a picture of comparable life expectancy after the onset of disability compared to a longer life expectancy after the onset of functional limitations. For example Hayward et al. found using HRS data to model unhealthy life expectancy with ADL limitations at age 50 unhealthy life expectancies of 6.5 for foreign born Hispanic men, 6.3 for U.S. born Hispanic Men 11 for foreign born Hispanic Females and (8.3) for U.S. born Hispanic females (Forthcoming). Similarly Cantu et al. used similar methods and NHIS data to estimate unhealthy life expectancy with physical functional limitations (NAGI items) with foreign born Hispanic men experiencing 4.7 years U.S. born Hispanic men experiencing 5.5, foreign born women experiencing 9.3 years and U.S. born Hispanic women experiencing 11 years (2013). Taken together these studies appear to point towards functional limitation and disability having the same relationship with mortality for the Hispanic population.

In so much as the disablement process defines functional limitations as objective physical/mental symptoms and disability as a social process, disability is also a social psychological process of labeling/denial/acceptance. Research suggests psychological processes have physical consequences for aging. For example Levy et al. found that positive self-perceptions of aging were associated with an additional 7.4 years of life on average at age 50, even net of the effect of functional limitation (2002). Notably Levy et al. measured self-perception of age via survey questions regarding positive outlook on health. Likewise the work of Ilder and Benyamini on the nature of self-related health and mortality found that global self-rated health

was associated with mortality in 27 studies(1997). Though positive perceptions of health are shown to have protective effects for mortality little work has been done on specifically positive perceptions of functional ability. We hope to fill this void by using both functional limitations and disability to investigate mortality for elderly Mexican Americans. This study investigates the relationship between objectively assessed functional capacity measured in terms of POMAs and subjective self-reported functional capacity assessed in terms of subjective (ADLs). The analysis focuses on those respondents whose self-reported capacities (ADLs) and objectively assessed capacities are discrepant. In those cases where the self-assessments are more positive than the objective measures individuals are labels as “health optimists” . We investigate the predictive capacity of health optimism on mortality for the elderly Mexican American population of the Southwest United States.

### Aims

This project aims to analyze how mortality rates of elderly Mexican Americans vary for health optimists (those who report that they are able to complete various tasks but who are unable to do so on the basis of the POMAs) and health realists (those whose ADL reports and POMAs are more consistent). While previous literature has implied a similar relationship between different measures of functioning and disability with mortality we seek to model it explicitly. We stratify by sex and nativity status as previous research has shown considerable variation in both mortality and limitation/disability along these dimensions. We find that health optimism is associated with lower rates of mortality compared to health realists and that this association is only significant for US Born Mexican Americans.

### Methods

The data we use are from the Hispanic Established Populations for Epidemiologic Studies of the Elderly (H-EPESE). The H-EPESE is a prospective cohort household based sample that at baseline is representative of five South-Western states of Arizona, California, Colorado, New Mexico, and Texas’ Mexican American population. The original baseline sample of 3050 was interviewed between September 1993 and June 1994 and a secondary refreshing sample of 902 was interviewed at during the fifth follow up between September 2004 and June 2005. Interviews took place both in person and via proxy adults living in the same house and the respondent of interest. Currently mortality links are available up through wave 7, or June 2011. We limit our analytical sample to only individuals who have at least one POMAs limitation (scored zero on at least one of the three POMAs items) yielding 821 individuals. ). The three POMAS items we include in our analysis are the ability to do chair sits and stand with the crossing arms, the speed to walk across a room, and the ability to balance while standing. Each of these three POMAs items are then scored from 0 to 4, 4 representing full functionality and 0 representing complete inability to complete the task. Optimism was determined by self-reports of difficulties with activities of daily living (ADLs). ADL’s are based on a series of 7 questions: At the present time do you need help from another person or special equipment or a device for walking across a small room; bathing; personal grooming; dressing; eating; getting from a bed to a chair; using a toilet. Respondents answered

the ADL questions as need help, don't need help, or unable to do. Anyone who responded unable to do or needs help was considered to have an ADL disability. Anyone who did not report any ADL's was considered optimists (264) and those reporting one or more ADL were considered health realists (557). We then expand our sample into person years observed, either years to death in case of death or years to loss to follow up or final interview otherwise. We modeled rates of mortality using Poisson regression with age and optimists status as covariates.

## Results

We found that controlling for optimist status had a consistent negative effect on rates of mortality across gender and nativity lines but the effect was only significant for U.S. born males and females. For U.S. born males being an optimists as associated with a .327 decrease in the rate of mortality, for U.S. born women there was a .308 decrease. More intuitively, transforming these rates of mortality into life expectancies showed that U.S. born men who had physical limitations but no disabilities had longer life expectancies by 2.83 years compared to their disabled counterparts and U.S. born women who had physical limitations but no disabilities had longer life expectancies by 3 years.

## Discussion

Contrary to what we had expected given previous research mortality appears to be differentially associated with disability and physical limitations. Although the effect of optimism was not statistically significant across all gender and nativity groups it was consistently associated with lower rates of mortality. These findings resonate with other research on the role of positive self-perception of aging having a protective effect on mortality. While other research has operationalized self-perception of aging via survey questions specifically we have focused more on a less apparent form of health optimism; denial of functional problems. While all individuals in our sample had objectively poor functioning, those who did not self-report difficulties with activities of daily living had longer lower mortality rates.

Also important to note is that the association of disability and mortality appear to vary by nativity status, with the negative effects on rates of mortality only being significant for US born Mexicans. The lack of significance may be as a result of small cell sizes, with foreign born men being particularly lacking in numbers.

Nevertheless the differential association between disability and mortality for foreign born Mexicans and U.S. born Mexicans may offer a new dimension for understanding the longer lives of foreign born Mexicans. It appears that functioning and disability status may operate differently with regards to mortality for US born Mexicans and foreign born Mexicans. It could be that ADL is more strongly associated with greater rates of mortality for US born Mexicans or that functional limitation is more strongly associated with mortality for foreign born Mexicans. Currently analysis does not allow us to explore this relationship fully and future research will need to confirm the different relationship with functional limitation, disability and mortality for US and foreign born Mexicans as well as if the

differences are caused by increased mortality with ADLs or increased survival functional limitations.

Table 1: Sample Characteristics of Hispanic Adults with at least one POMA Disability at baseline (Wave 1 or Wave 5)

	Optimist n=264	Non Optimist n=557	Total n=821
Age(at baseline)	75.49 (7.37)	80.39 (7.61)	78.82 (7.87)
Male	99 38%	188 34%	287
Female	165 63%	369 66%	534
USBorn	142 54%	252 45%	204
Foreign Born	122 46%	305 55%	166
Deaths	193 73%	418 75%	611

Source: Hispanic Established Populations for Epidemiologic Study of the Elderly(HEPESE) Waves 1 & 5

Table 2: Poisson Regression Results (IRR) for Mortality Rates based on optimism stratified by gender and nativity

	Male USB	Male Foreign Born	Female USB	Female Foreign Born
Optimism	0.673 **	0.793	0.692 **	0.779
Age	1.06 ***	1.041 ***	1.058 ***	1.065 ***
Constant	0.001 ***	0.006 ***	0.001 ***	0.001 ***
n	1062	672	1867	1684
log likelihood	-485.14	-337.55	-719.59	-684.7

\*\*=p<.05 \*\*\*=p<.01

Source: Hispanic Established Populations for Epidemiologic Study of the Elderly(HEPESE) Waves 1-7



References:

Cantu, P.A., M.D. Hayward, R.A. Hummer, and C.-T. Chiu. 2013. "New Estimates of Racial/Ethnic Differences in Life Expectancy with Chronic Morbidity and Functional Loss: Evidence from the National Health Interview Survey." *Journal of cross-cultural gerontology*:1-15.

Hayward, M.D., R.A. Hummer, C.-T. Chiu, C. Gonzales, and R. Wong. Forthcoming. "Does the Hispanic Paradox in U.S. Adult Mortality Extend to Disability?".

Idler, E.L. and Y. Benyamini. 1997. "Self-rated health and mortality: a review of twenty-seven community studies." *Journal of health and social behavior*:21-37.

Levy, B.R., M.D. Slade, S.R. Kunkel, and S.V. Kasl. 2002. "Longevity increased by positive self-perceptions of aging." *Journal of personality and social psychology* 83(2):261.

Markides, K.S. and K. Eschbach. 2011. "Hispanic paradox in adult mortality in the United States." Pp. 227-240 in *International handbook of adult mortality*: Springer.

Verbrugge, L.M. and A.M. Jette. 1994. "The disablement process." *Social science & medicine* 38(1):1-14.