Correlations Among Self-Rated Health, Chronic Disease, and Healthcare Utilization in Widowed Older Adults in Taiwan : Journal of Nursing R

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Correlations A   sease, and Healthcare U   Taiwan

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Metrics

Abstract

Background:

Taiwan has a rapidly aging population. It is well known that older adults usually have worse health than younger adults, with widowed older adults at a particularly high risk of poor health. Widowed older adults experience the effects of bereavement, which affects their health. Therefore, health topics related to widowed older adults deserve special attention.

Purpose:

The aim of this study was to discuss self-rated health for chronic diseases and healthcare utilization among widowed older adults.

Methods:

A cross-section of data was used to analyze self-rated health-related issues. Data were adopted from the National Health Interview Survey in Taiwan, with the data on adults aged 65 years and over extracted and included in the assessment. Multinomial logistic regression models were used to investigate the relationships between healthcare utilization and self-rated health and chronic disease variables.

Results:

The main empirical resu[...]ults in comparison with their nonwidowed [...]ge was negatively correlated with health r[...]ucation. In addition, chronic diseases, partic[...]ed to poor health status. Similar results w[...]nese medicine. Older adults who habitually p[...]njoy relatively better health statuses.

Conclusions/Imp[...]

These findings identifie[...]gly with self-rated health for widowed olde[...]ool by the National Health Insurance Syste[...]fficials who are responsible for developi[...]ed in Taiwan.

Introduction

Taiwan is a rapidly agin[...]ver is projected to increase to 20% of the t[...]has also been increasing in Taiwan. N[...]t from [The Directorate General of Budget, Accounting] and Statistics of the Executive Yuan, Taiwan, ROC (2016) noted that the average life expectancy was 79.8 in 2014 and that the average healthy life expectancy is 71.0. This indicates that many older adults are not healthy during their last decade of life.

Older adults, particularly those who are widowed, experience worse health than those whose spouses are still alive. Widowed older adults experience the effects of bereavement, which has a negative impact on their health and survival rate ([Espinosa & Evans, 2008; Perrig-Chiello, Spahni, Höpflinger, & Carr, 2016; Moon, Glymour, Vable, Liu, & Subramanian, 2013; Shah et al., 2012]). In general, widowed older adults have been regarded as one homogenous group, although some variability has been shown based on socioeconomic status. Studies on whether being widowed affected adults in their later lives have produced mixed results. Moreover, studies have obtained few definitive results regarding the relationship between a widowed adult and health status. Some studies empirically examined the marriage protection hypothesis, which posits that widowed people are less likely to show good health and face a higher risk of death ([Espinosa & Evans, 2008; Moon et al., 2013]). Nevertheless, [Bennett, Chen, Soroui, and White (2009)] showed that health status depends on health literacy. In addition, [Sarah and Richard (2014)] found gender differences in health status change tendencies. These disparate results indicate that further studies are needed to clarify the age-related health issues faced by widowed persons.

In assessing the health of older adults, an abundance of studies ([Bennett et al., 2009; Campos et al., 2015; French et al., 2012; Ho, Li, & Liu, 2009; Li, Chi, Krochalk, & Xu, 2011; Moriconi & Nadeau, 2015]) have used self-rated health (SRH) as a screening tool. However, [Clarke and Ryan (2006)] and [Crossley and Kennedy (2002)] questioned the reliability of SRH. Thus, SF-36 (short form-36) and SF-12 have been applied in several research studies ([Ngo-Metzger, Sorkin, Mangione, Grandek, & Hays, 2008; Wee, Davis, & Hamel, 2008; Younsi, 2015]). Nevertheless, [Chamberlain et al. (2014)] and [Wolinsky et al. (2008)] found no significant difference between the results obtained by SRH and other measures. Moreover, SRH utilizes a single-item health measurement. In addition, the World Health Organization also recommended this indicator to verify health in population-based studies. Therefore, the present article uses SRH as a dependent variable in an investigation of health-related issues.

The SRH has been widely discussed to explain social demographic factors ([Campos et al., 2015], [French et al., 2012], [Ho et al., 2009], [Li et al., 2011]), chronic diseases ([Ho et al., 2009], [Wolinsky et al., 2008], [Wu et al., 2013]), and healthcare utilization in health ([Chamberlain et al. 2014], [Ho, 2016], [Ho & Hung, 2013], [Ho et al., 2009]). In addition, some articles have indicated that chronic disease has a negative effect on SRH. Similar results were found for older adults who had healthcare utilization experience. Most of these older adults reported poorer health than those without healthcare utiliz_____ However, the level of SRH, as rated by healthcare utilization, varied based on disease type and severit_____troke usually showed worse health and were _____2009], [Larsen, Biering, Johnsen, Andersen, & Hjollu_____ah and Richard (2014) found gender difference_____e United States, respectively. [Li et al. (201_____ily and children in China, filial piety may h_____Asian cultural encouragement of child_____ter years of life ([Ho & Hung, 2013]).

As mentioned, previous _____ facet such as demographic factors, ch_____n investigated across these factors, particular_____o fill this gap, this study aimed to examine _____s in Taiwan.

Methods

Design

The data used in this re_____(NHIS) in Taiwan. The NHIS adopted a mu_____g to geographic location and urbanizatio_____d of probability proportional to size was used to select samples in each level. Then, in each selected district, the second-stage sampling regions, *lins*, were selected using the same method noted above. Afterward, households were selected randomly from each of the selected *lins*. Finally, these households were interviewed and investigated by trained interviewers between June 2009 and February 2010.

Sample

The original NHIS sample population was 22,942,706. In accordance with the sampling program, 25,632 participants completed the survey. Among these, 21,531 participants submitted complete and valid survey responses (valid response rate = ~84.0%). For the purposes of the current study, qualified participants were restricted to those aged 65 years or over. Consequently, the data on 2,904 participants were reviewed for this study. Omitting the subjects who reported having never been married or having been divorced or separated left 1,801 sets of data for married older adults with a currently living spouse and 998 sets of data for widowed older adults available for analysis. This study included the data of 2,799 participants and analyzed their SRH status.

Measures

Dependent variables

The health status of the subject was self-rated, with possible responses including "excellent," "good," "average," "not so good," and "poor." For the purpose of this study, health responses were combined into a multinomial form—"healthy," "average," and "unhealthy"—which has been reported elsewhere ([Wu et al., 2013]). "Healthy" was defined to include reported health statuses of "excellent" and "good," "average" correlated with the "average" health status, and "unhealthy" includes reported health statuses of "not so good" and "poor." The relative risk ratios (RRRs) for healthy and unhealthy peers were calculated based on the average peers, using multinomial logistic regression and controlling for sociodemographic factors, chronic diseases, and healthcare utilization status.

Independent variables

The purpose of this study was to test the relationships between SRH status and chronic diseases and healthcare utilization status among widowed older adults. Thus, variables included widowed people, chronic diseases, and healthcare utilization. First, the marital types as defined in the NHIS were divided into six groups: never married; married, with spouse currently alive; separated; divorced; married, with spouse deceased; and "other." [text obscured] to assess the health status of older widowed [text obscured]

To examine SRH among [text obscured] owed ([Ho et al., 2009]; [Schnittker & Bacak, 2014]; W [text obscured] were discussed.

First, in terms of chroni [text obscured] en diagnosed with chronic diseases such as [text obscured] a, kidney disease, osteoporosis, or arthriti [text obscured] hesized that widowed older adults with chroni [text obscured] er RRRs for healthy status than those withou [text obscured]

In terms of healthcare u [text obscured] hah et al., 2012, Weiss et al., 2011]), Western medic [text obscured] lentistry were considered as healthcar [text obscured] of 1 if the participant took Wester [text obscured] ceived emergency medical treatment, inpa [text obscured] participant did not. In line with prior resear [text obscured] sed healthcare resources might have w [text obscured]

Control variables

To control the variables that might confound the relationship between SRH and widowers, widows, chronic diseases, and healthcare utilization, this study conformed to previous studies ([Campos et al., 2015]; [French et al., 2012]; [Li et al., 2011]) and controlled for sociodemographic factors, including age (older or younger than 75 years), educational level (less or more than primary school), residence (rural or urban), living arrangements (living alone or with others), life satisfaction (dissatisfied or satisfied), and economic status (deficit or surplus). On the basis of the findings of previous studies ([Campos et al., 2015]; [French et al., 2012]; [Ho et al., 2009]), it was hypothesized that older age and lower educational level would be associated with poorer SRH status and that those who lived alone would report a poorer SRH status than those who lived with family members.

Ethics

The National Health Research Institutes approved the use of NHIS data for analysis. Furthermore, this study was approved by the research ethics committee (NCUEREC SOP/05/01.5) of National Changhua University of Education, Changhua, Taiwan.

Modeling Self-Rated Health

This study used chi-square to test the difference in SRH status between older adults with a spouse and those without. Next, multinomial logistic regression models were used simultaneously to examine SRH status among widowed older adults. Following the methods of [Greene (2012)], the general equation used for the conditional probability model is

where j is the $j + 1$ possible choices, y_i denotes the dependent variable of SRH, y_0 is average groups, y_1 is healthy groups, and y_2 is unhealthy groups. x_i is the vector of the independent variables, including sociodemographic factors, chronic diseases, and healthcare utilization. β_i is the corresponding coefficient vector.

In addition, this study compared the SRH between widowers and widows, with the estimation function formulated as

where p_j is the probability of SRH j (SRH of a widower) and p_0 is the probability of the reference (the SRH of a widow).

Results

Table 1 shows the data f   nd the 998 widowed older adults. Of these, n   eir current health as unhealthy, whereas 23.   similar proportion (24.1%) was found to be   roportions are larger than older adults whose   the SRH difference between widowed and r   howed a statistically significant difference be   before, and SRH compared with others.

TABLE 1.:
Self-Rated Health

This study also tested th   nic disease, and healthcare utilization. F   risks are shown in Table 2. In terms of age   rent life status, and relatively poor economi   y peers than the average peers. The RRR   ary school education, lived alone, were dissatisfied with life, and had a relatively poor economic status were significantly higher among the unhealthy peers than the average peers. Of these, age had the largest RRRs (2.12, 95% CI [1.77, 2.54]). In addition, the RRRs of the residence factor did not have statistically significant effects on healthy and unhealthy peers in comparison with average peers. The log likelihood (−3045.710, $\chi^2(12)$ = 254.81) and p value illustrated significance ($p < .001$) when multinomial logistic regression analysis was used.

TABLE 2.:
Sociodemographic Factors of Elderly Widowed Participants, by Self-Rated Health

Table 3 shows the prevalence of various chronic diseases among widowed older adults by SRH, including hypertension, diabetes, heart disease, cholesterol, stroke, asthma, kidney disease, osteoporosis, and arthritis. Multinomial logistic regression results found that significant increases in the prevalence of all diseases were associated with the unhealthy groups, with the log likelihood (−2980.810, $\chi^2(18)$ = 384.61) and p value showing significance ($p < .001$) in this model. The RRRs were greater than 1 in the unhealthy groups when compared with the average groups, apart from high blood cholesterol (RRR = 0.80, 95% CI [0.65, 0.98]). Notably, the largest RRRs were for stroke, which had an RRR of 3.56 (95% CI [2.58, 4.90]).

TABLE 3.:
Disease Prevalence Among Elderly Widowed Participants, by Self-Rated Health

In contrast, the empirical results indicated that a significantly lower prevalence of all chronic diseases was associated with the healthy groups, which had RRRs between 0.50 and 0.75. Among these, diabetes and stroke only showed half of RRRs (0.50, 95% CI [0.39, 0.65], and 0.50, 95% CI [0.31, 0.80], respectively).

Healthcare utilization by SRH status is shown in Table 4, indicating significantly higher RRRs for emergency treatment (2.85, 95% CI [2.28, 3.54]) and inpatient care (2.71, 95% CI [2.15, 3.42]) in unhealthy groups than in the average groups. However, a lower RRR for Chinese medicine (0.60, 95% CI [0.42, 0.86]) was found in the same comparison groups. In addition, all of these healthcare utilizations were significantly less than one in the healthy groups when compared with the average groups, but dentistry did not show significance. The

log likelihood (−3015.844, $\chi^2(10) = 314.54$) and p value illustrated significance ($p < .001$) when multinomial logistic regression analysis was used.

TABLE 4.:
Healthcare Utilization of Elderly Widowed Participants, by Self-Rated Health

To compare the differen[...]ciodemographic factors, healthcare utiliz[...] to describe the relative risk of widowho[...] Models 2 and 3 described the impact of [...]sk of SRH. Model 4 considered the combine[...]onic diseases on relative risk of SRH. Th[...]

TABLE 5.:
Self-Rated Health [...]

For the widowhood grou[...] 1 in the healthy group when compared [...]ss, the RRRs lost significance in Model 4, [...] that chronic diseases are most important for [...]lization variables.

Discussion

This study focused on d[...] factors, healthcare utilization status, and cl[...]dicate that age, educational level, living [...]RH significantly. The RRRs of unhealthy status significantly increased with the prevalence of all the chronic diseases. Similar results were found for healthcare utilization. These findings echo the finding of previous research (Ho, 2016; Moon et al., 2013; Wu et al., 2013) that widowed older adults may adopt these indicators to assess their health status.

Notably, most widowed older adults reported their health negatively; 35.9% (36.77% for widows and 25.62% for widowers) of the subjects self-assessed as being in "not so good" or "poor" health. This unhealthy proportion was slightly higher than the 32.1% that was reported in China (Li et al., 2011). Meanwhile, only 26.4% (28.7% for widows and 25.8% for widowers) reported their health as "excellent" or "good," a proportion similar to the 24.1% that was reported in China (Li et al., 2011). Thus, the influence of bereavement on health appears to be similar between Chinese and Taiwanese older adults. The reasons may be that China and Taiwan share similar values and ethnic, cultural, moral, and linguistic backgrounds.

Significantly older age (over 75 years) was associated with significantly higher unhealthy status (RRR = 2.12). This phenomenon reflects that the health status of older adults decreases significantly with age. Similar results have been found in most previous studies (Bennett, Ehrenfeld, Markham, & Eagle, 2014; Ho, 2016; Li et al., 2011; Wu et al., 2013). Nevertheless, for the "healthy" groups, age lost significance. This finding differed from the results of Wu et al. (2013) and Ho (2016). Moreover, there was a significant education gradient in SRH. The RRR for unhealthy status in the below primary school education group was significantly higher (1.60) than that in subjects with more than a primary school education. One reason for this may be that subjects with less education were more likely to be in lower income categories (Li, Chen, & Kuo, 2005), facing more difficulties covering living and household expenditures and less likely to be satisfied with their current lifestyle (Dinh, Hébert, Mill, Prentice, & Ward, 2012). Thus, widowed older adults who had less education were less likely to report healthy status. Moreover, regarding living arrangements, this study found that older adults who lived alone had a higher RRR in the unhealthy groups and a lower RRR in the healthy groups in comparison with their average group peers. This finding supports the findings of previous studies (Ho, 2008; Li et al., 2011), which indicate that older adults who live alone show weak social function and networks and are thus at a higher risk of showing poor health. In general, older adults living alone, particularly those who are widowed, typically lack assistance and care from family and thus face a higher relative health risk ratio. This result is consistent

with traditional Asian cultural mores that encourage two or three generations to live together and take care of each other ([Ho, 2008]). In fact, children are more important social and emotional sources. Family function has always been the primary societal institution for providing social support, particularly for widowed older adults ([Ho, 2008]; Li et al., 2011).

The empirical results indicate that chronic diseases are an important health indicator, as reflected in the poor SRH for older widows. [obscured] the largest RRR was present for stroke in the [obscured] healthy groups when compared with the aver[obscured] [Larsen et al. (2016)] that individual reports [obscured] with other related chronic diseases. The in[obscured] ties of daily living and more likely to rely [obscured] expenditure for themselves and their fa[obscured] status than those without. In addition, hy[obscured] steoporosis, and arthritis also showed sig[obscured] findings were consistent with most pr[obscured] [2; Wu et al., 2013]) and were further strengthen[obscured] with health status, even in widowed older a[obscured]

The relationship betwee[obscured] bly, larger RRRs were found for emergen[obscured] pared with the average groups. It is wi[obscured], including hospital stays and emergency tre[obscured]t ([Ho, 2008]). Therefore, widowed old[obscured] concern about their future, which is reflecte[obscured]roups. Another area worthy of attention is th[obscured]y groups when compared with the aver[obscured]e (e.g., huang lian, jue ming zi, and mai me[obscured]se people purchase and use traditional Chinese medicine to maintain and enhance health. It is a common understanding of health that prevention is better than cure, particularly for widowed older adults. Thus, older adults who habitually purchased and used traditional Chinese medicine enjoyed better health and a higher survival rate than those who did not ([Molarius & Janson, 2002]). This finding supports the opinions of [Chamberlain et al. (2014)]; Kudenchuk, Stuart, Husain, Fahrenbruch, and Eisenberg (2015); and [Vaupel, Carey, and Christensen (2003)] and argues that outpatient healthcare has the potential to significantly increase survival rates and decrease mortality risk.

Despite what were mentioned above, Table 5 further indicates that lower RRRs were observed for widowers in the healthy groups, indicating that widowers were less likely to rate better health than widows. In general, many older men rely heavily on their partners for activities to maintain health such as reminding to take medication, visiting doctors, and exercising regularly ([Rendall, Weden, Favreault, & Waldron, 2011]). Under this situation, older men typically suffer more from the loss of a partner than older women. In general, women have broader social networks than men, which may help alleviate the physical and mental stresses after the death of a spouse ([Espinosa & Evans, 2008]). [Andrew, Tiedt, and Eileen (2016)] also indicated that the influence of widowhood on negative emotions was larger for husbands than for wives. Therefore, widowers usually make certain adjustments (e.g., repartnering) to resolve the stress that follows spousal death ([Wu, Schimmele, & Ouellet, 2014]).

Conclusions and Limitations

This analysis of the health of widowed older adults provides evidence of a significant association between SRH and chronic diseases and healthcare utilization. We found a worse health status among widowed older adults compared with nonwidowed groups as well as a worse health status for widowers than widows. This facilitated the finding of a better health status among widows than widowers. Age was negatively correlated with health rating, whereas a positive correlation with health was found for education. Chronic diseases, particularly stroke, were found to be a significant predictive factor related to unhealthy status. Similar results were observed for healthcare utilization, apart from traditional Chinese medicine.

On the basis of the results of this study, the social health insurance system should pay more attention to widowed older adults, especially older widowers. The first priority for an improved welfare program for the target group should be improving healthcare services. Convenient and accessible healthcare services help increase healthcare utilization and relieve the symptoms of chronic diseases. Therefore, the national health insurance system should support the provision of adequate healthcare services for widowed older adults. Finally, the conclusions of this study may be used as a screening tool for older adults by the national health insurance system in Tai_____ g welfare strategies for the target group.

The current study is aff_____ere used did not address factors that hav_____al measurement, and laboratory parameters. _____litative in-depth interviews with widowe_____s. This is an important direction for _____onstrated link between SRH and chron_____o the country of Taiwan. To show that th_____sults in other countries. The extension_____

Acknowledgm

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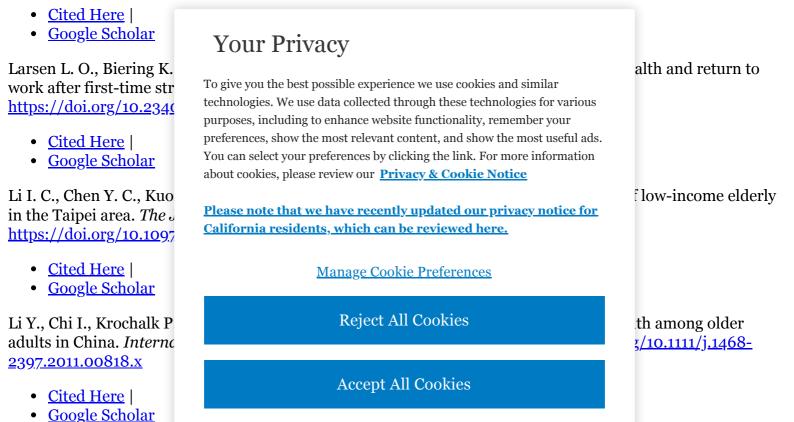
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