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Depression-free life expectancy among 50 and older Americans by gender, race/ethnicity and education: the effect of marital disruption

Aspettativa di vita libera dalla depressione tra gli americani over 50 per genere, etnia e istruzione: l'effetto della rottura del legame matrimoniale

Alessandro Feraldi and Cristina Giudici

Abstract Depression is a common mental health disorder, positively associated with mortality and morbidity, especially in the elderly. The study examines differences in Depression-Free Life Expectancy by gender, race/ethnicity, education and marital status between 2012 and 2018, using a cohort of 50 and older Americans of the Health and Retirement Study. On average, people not in union anymore could expect to live less years in total as well as less years free of depression than people in union. Women, who were also more likely to be not in union anymore, could expect to live more years with depressive symptoms in late life than men. Estimates of depression-free life expectancies are important as they may contribute to the definition of current and future social and medical service needs and policies.

Abstract *La depressione è un disturbo mentale comune, associato positivamente a mortalità e morbilità, soprattutto negli anziani. Lo studio esamina le differenze nell'aspettativa di vita libera da depressione per genere, etnia, istruzione e stato civile tra il 2012 e il 2018, utilizzando una coorte di americani over 50 intervistati attraverso l'indagine Health and Retirement Study. In media, gli individui non più coniugati possono aspettarsi di vivere meno anni in totale e meno anni liberi dalla depressione rispetto a quelli sposati. Le donne, le quali hanno maggiore probabilità di non essere più sposate, possono aspettarsi di vivere più anni con sintomi depressivi in tarda età rispetto agli uomini. Le stime dell'aspettativa di vita libera dalla depressione sono importanti in quanto possono contribuire alla definizione delle esigenze e delle politiche dei servizi sociali e medici attuali e futuri.*

Key words: depression-free life expectancy, multistate life tables, marital disruption, ethnic groups, educational differences, gender differences

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1. Introduction

Depression is among the most common mental disorder worldwide that can adversely affect both mental and physical health [12]. In 2015, the prevalence of depression and the lifetime prevalence in the global population were 4.4% and 10.0%, respectively [12]. Additionally, it has been observed a positive associations of depression with mortality and morbidity [7, 12]. Although this increased mortality risk may be indirectly caused by chronic conditions and risky behaviours (e.g. excess in alcohol and drug abuse), depression is likely to be responsible for a proportion of the increase in mortality risk [7].

Important studies have shown a higher prevalence of depressive symptoms among women compared to men at various stages of the life-course in the U.S. In their meta-analysis of 24 studies on people aged 75 and older, Luppá and colleagues [10] found that the men-to-women depression prevalence ratio of was 1:1.4–2.2. Yet, several studies have shown that gender differences in life expectancy are partially explained by social and economic status which differ not only by gender but also by education, ethnicity and marital status [1, 10, 11]. For example, low educational attainment is associated with higher depressive symptom burden in older adults [11]. Other evidences in the U.S. suggested that Black older adults have higher depressive symptoms and psychological distress than White, whereas Hispanics have lower lifetime prevalence of major depressive episodes [2].

2. Marital disruption and depression

It is generally well recognised that marital status and transitions have important implications for health. On the one hand, marriage can be protective for health and reduce morbidity and mortality: compared to unmarried people, separated, divorced and widowed generally have greater social and financial support, overall healthier behavioural patterns. On the other hand, marital disruption, such as separation, divorce and widowhood, are stressful life events that have been associated with poor health and survival outcomes [5]. Although divorces that occur after age 50 (grey divorce) has doubled between 1990 and 2010, marital disruption in late life mostly occurs through spousal death. Recent marital disruption has been associated with increased alcohol intake and decreased body mass index in men, whereas it has been associated with higher risk of smoking initiation/relapse in women [5]. Some studies found that men are more likely to experience widowhood-related depression than women [8]. In a recent study on a sample of middle-aged and older Australian adults, after adjusting for socio-demographic characteristics, the authors found that people who recently divorced had much higher odds depression ($OR = 2.9$) and divorce had a much stronger impact on depression in men than women [5]. Finally, to date, there has been limited longitudinal research on how divorce/widowhood affects mental health expectancies

As shown, several studies have provided important estimates of the prevalence of depressive symptoms and major depressive symptoms among older adults in U.S. as well as the factors associated with this condition. However, little is known about the dynamics of length of life with and without depression among recent cohorts of U.S. older adults and the effect of marital disruption, particularly by gender, race/ethnicity, and educational attainment. Although early reports provided estimates of mental ill-health and depression-free life expectancies in the mid-to-late 1990s, studies on this field have slowdown.

The aim of this study is to estimate the life expectancy with depression (DepLE), the depression-free life expectancy (Dep-FLE) as well as the total life expectancy (TLE) by

Depression-free life expectancy among 50 and older Americans: the effect of marital disruption gender in U.S. adults and examine differences in race/ethnicity and education over a 7-year period (2012–2018). Additionally, we investigate differences in Dep-FLE due to distinctive marital status: in union and not in union.

3. Data and methods

3.1 Sample

The study uses data from the RAND version of the Health and Retirement Study (HRS), an ongoing nationally representative longitudinal survey of health characteristics of U.S. men and women aged 50 and older, with oversampling of minority ethnic groups [4]. Participants have been interviewed approximately every two years from 1992 to 2018 and several other cohorts have been added at each wave. Data on vital status and month and year of death are obtained through the mortality register and exit interviews. RAND HRS version is a user-friendly longitudinal data file, which is cleaned and compiled by the RAND Corporation [4]. After excluding 533 HRS respondents aged 50 years or older in 2012 who were never married (2.7%), the analytic sample consisted of 19,315 individuals.

3.2 Measurements

Depressive symptoms were measured using the eight-item Center for Epidemiologic Studies Depression scale (CESD-8). The eight-item CESD is a commonly-used and validated depressive symptom measure in older adults and it is computed as the sum of eight indicators: depression, everything is an effort, sleep is restless, felt alone, felt sad, could not get going (negative indicators) and felt happy and enjoyed life (positive indicators). A cut-off score of three was used as suggested by previous validation studies to indicate clinically relevant depressive symptoms: in each survey wave, a participant was classified as having a depression if one scored three or above on the CESD-8 in that wave. Information on marital status and race/ethnicity and educational attainment were included in the analysis: marital status was categorized as currently in union (i.e. married/partnered), hereafter “in union”, and not in union anymore (i.e. divorced, separated and widowed), hereafter “not in union”; ethnicity was categorized as “White” and “non-White” (Black, Hispanic and others); education was categorized as “lower educated” (less than high school degree, high school degree or General Education Development, GED) and “higher educated” (some college, and college or more).

3.3 Statistical analysis

In order to estimate the age-specific hazard rates of transitions to depression, recovery and death, multistate life tables approach (MSLTs) were used. MSLTs is a Markov modelling of stochastic processes that involves individuals moving between a finite number of states over time, including exit and re-entry into the same state [6]. It allows to incorporate covariates into the models to relate individual characteristics to intensity rates and probabilities to better

explain the heterogeneity in the changes of depression status over time. Additionally, MSLTs applies the estimated rates to a synthetic cohort and summarizes the age-specific transition rates into durations [6], in our case DepLE and Dep-FLE. To assess the effect of marital disruption on the Dep-FLE, we used the Interpolated Markov Chain (IMaCh) software [3, 9] version 0.99r19. This method partitions the time intervals between successive interviews into shorter steps and then models the resulting transition probabilities by multinomial logistic regression on age and covariates (in our case race/ethnicity and education). Afterwards, estimated transition probabilities are used as inputs in the multistate life table. Ethnicity and education were modelled as two dummy variables enabling calculation of Dep-FLE for four groups: White, higher educated; White, lower educated; Non-White, higher educated; Non-White, lower educated. To study the effect of marital disruption to the transition rates and length of life with and without depression, marital status was included and it was measured as a time-varying covariate reflecting the current marital status at the time of the survey. Finally, the analyses were performed separated for men and women.

4. Preliminary results

Total sample comprised 11,123 women (42.4%) with mean age of 67.8 years (SD = 11.2 years) and 8,192 men (57.6%) with mean age of 67.4 years (SD = 10.6 years). Between 2012 and 2018, more women than men were not in union: 51.4% and 26.4%, respectively ($p < .05$). Total years of life, years without depressive symptoms, and years with depressive symptoms at age 65 for people in union and not in union are shown in Table 1. Estimates are presented by gender, ethnicity and education. On average, women could expect to live more years with depressive symptoms in late life than men. White women aged 65, who were higher educated could expect to live around 3.7 years more than their men counterpart, 2.3 years were free of depression and around 1.4 with depression ($p < .05$). Non-White women and men, who were lower educated and not in union, showed the largest gender difference in Dep-FLE. In this group, women aged 65 could expect to live around 4.1 years more than men. Nevertheless, 36.9% of women's remaining life expectancy was with depression whereas in men it was only 24.8% ($p < .05$). Concerning education attainment, higher educated women and men could expect to live more years than lower educated (i.e. total life years). Additionally, compared to higher educated people aged 65 who were in union, their lowed educated counterpart could expect to live around 4.2 fewer years free of depression ($p < .05$) and almost one year more with depression (men: 0.6 years; women: 1.0 year).

Depression-free life expectancy among 50 and older Americans: the effect of marital disruption

Table 1. Total life expectancy (TLE), years free of depression (Dep-FLE), and years with depression (DepLE) at age 65, by gender, ethnicity, education and marital status (SEs in parentheses).

		Life expectancies (years)			Proportion (%)	
		TLE (SE)	Dep-FLE (SE)	DepLE (SE)	DepLE	Dep-FLE
Women						
White, higher educated	In union	26.0 (0.7)	22.1 (0.6)	3.9 (0.2)	15.1	84.9
	Not in union	24.3 (0.6)	20.0 (0.5)	4.3 (0.2)	17.6	82.4
White, lower educated	In union	23.0 (0.5)	18.1 (0.5)	4.9 (0.2)	21.3	78.7
	Not in union	21.5 (0.4)	16.1 (0.4)	5.4 (0.2)	25.0	75.0
Non-White, higher educated	In union	24.9 (1.1)	19.3 (0.9)	5.6 (0.4)	22.6	77.4
	Not in union	23.4 (1.0)	17.2 (0.8)	6.2 (0.5)	26.4	73.6
Non-White, lower educated	In union	22.5 (0.9)	15.3 (0.7)	7.2 (0.5)	31.8	68.2
	Not in union	21.3 (0.8)	13.4 (0.7)	7.9 (0.5)	36.9	63.1
Men						
White, higher educated	In union	22.3 (0.5)	19.8 (0.5)	2.5 (0.2)	11.4	88.6
	Not in union	20.7 (0.7)	18.0 (0.6)	2.7 (0.2)	13.0	87.0
White, lower educated	In union	18.5 (0.4)	15.4 (0.4)	3.1 (0.2)	17.0	83.0
	Not in union	17.2 (0.6)	13.9 (0.5)	3.3 (0.2)	19.1	80.9
Non-White, higher educated	In union	21.9 (1.0)	18.5 (1.0)	3.4 (0.3)	15.6	84.4
	Not in union	20.5 (1.1)	16.9 (1.0)	3.6 (0.4)	17.5	82.5
Non-White, lower educated	In union	18.2 (0.9)	14.1 (0.8)	4.1 (0.4)	22.4	77.6
	Not in union	17.2 (0.9)	12.9 (0.8)	4.3 (0.4)	24.8	75.2

In contrast to education, the stronger effect of marital disruption was reflected in years with no depressive symptoms than for total life years. This resulted in large differences in the proportion of remaining life in depression between people who were in union and who were not in union. The study revealed the double burden of lower life expectancy and higher proportion of time spent with depression for people who had a marital disruption than people who were still in union, especially in non-White women who were lower educated.

Comparisons of differences in Dep-FLE, DepLE and total life expectancy over ages are shown in Figure 1. For the sake of brevity, results are presented only for lower educated White Americans, however estimates for both White and non-White differences were very similar by marital status. Differences in the length of life with depressive symptoms between people in union and not in union were not statistically significant. Yet the latter could expect to have less total years of life expectancy as well as lower life expectancy free of depression than people in union.

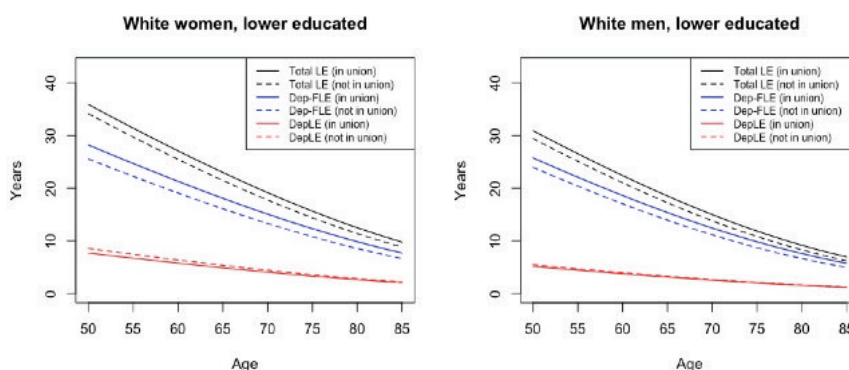


Figure 1. Total life expectancy (Total LE), years free of depression (Dep-FLE), and years with depression (DepLE) over ages, by gender and marital status.

5. Conclusion

This work gives a deeper insight of the Depression-Free Life Expectancy among older Americans, examining differences by gender, ethnicity and education. The study also aims at illustrating differences in Depression-Free Life Expectancy due to distinctive marital status (in union and not in union, i.e. marital disruption). The analysis revealed that, on average, people not in union could expect to live less years in total as well as less years free of depression. Additionally, women, who were less likely to be in union, could expect to live more years with depressive symptoms in late life than men. Our findings emphasize how estimates of depression-free life expectancies are helpful for researchers and policy makers as they may contribute to the definition of current and future social and medical service needs and policies. Furthermore, understanding the implications of marital disruption on health is relevant to the life of many around the world [5].

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