Gender disparities in health at older ages and their consequences for well-being in Latin America and the Caribbean

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Abstract

Women live longer but can expect to spend more years in poorer health compared to men. In the context of population aging and declining gender ratios at older ages, there are increasing concerns about how this disadvantage in female health will affect well-being and sustainability, particularly in developing regions that are rapidly aging. Our study compares differences in health expectancies at older ages for men and women in order to assess gender disparities in health. We use data from the Survey on Health, Well-Being, and Aging in Latin America and the Caribbean to decompose the gender gap into total and age-specific mortality and disability effects in seven cities in the region. Our results show that at older ages, higher disability rates among women reduced the gender gap in healthy life expectancy by offsetting women's mortality advantage. In addition, we find that women's mortality advantage decreased almost systematically with age, which reduced the contribution of the mortality effect to the gender gap at older ages. Although the gender gap in health followed a similar pattern across the region, its decomposition into mortality and disability effects reveals that there was substantial variation among cities. Thus, across the region, the implications of the gender gap in health for well-being vary, and the policies aimed at reducing this gap should also differ.

Keywords: gender gap; healthy life expectancy; disability; older ages; Latin America and the Caribbean; decomposition

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1 Introduction

Promoting health and well-being at older ages is one of the three priority areas established in the 2002 Madrid International Plan of Action on Ageing (MIPAA) to ensure that population aging is sustainable and equitable (World Health Organization 2004). It is also one of the 17 Sustainable Development Goals (SDGs), which extended the target to all ages (United Nations Development Programme 2015). However, countries face a number of challenges in meeting and monitoring progress toward those goals, including unique preexisting gender- and age-specific disparities in health and mortality that directly affect well-being. Scholars have examined these gaps across several countries in different parts of the world (Jagger and Matthews 2002; Oksuzyan et al. 2008; Nusselder et al. 2010). It appears, however, that the consequences of these gaps are more dramatic in countries with rapidly aging populations where inequality levels are high and long-term care is provided informally by families, as is the case in many Latin American countries (Palloni and McEniry 2007; United Nations 2017). Moreover, due to the high levels of socioeconomic inequality in the region, early-life conditions in these countries are often poor. As these conditions are predictive of disability at older ages, they may increase the burden of health for older people, and negatively affect their well-being (Monteverde et al. 2009). Thus, in Latin America and the Caribbean, the speed of population aging has outstripped the ability of societies to solve old and new social, economic and health issues (Turra and Fernandes 2020).

Even though gender disparities in health have been extensively studied worldwide (Case and Paxson 2005; Crimmins and Kim 2010; Andrade et al. 2011; di Lego et al. 2020; Grundy 2006; Jacobsen et al. 2008; Mathers et al. 2001; Oksuzyan et al. 2014; Verbrugge 1989; Yong et al. 2010), there has been no conclusive explanation for why, despite living longer than men, women perform worse in terms of their disability, chronic morbidity and self-rated health outcomes (Crimmins et al. 2002; Luy and Minagawa 2014; Robine et al. 2001; Spiers et al. 2003). Compared to men, women have higher morbidity from acute conditions, nonfatal chronic diseases and short-term disabilities (Green and Pope 1999; Verbrugge 1985). The rate of decline in physical functioning is also higher among women, with women being outperformed by men across all ages on tests of hand grip strength (Leong et al. 2015; Sanderson and Scherbov 2014), walking speed and standing balance (Keevil et al. 2013). Moreover, compared to men, women are less likely to recover once disabled (Beckett et al. 1996), and they are more likely to use health care services (Green and Pope 1999; Redondo-Sendino et al. 2006) and prescription and nonprescription drugs (Roe et al. 2002). Studies have shown that these gender differences are consistent across countries and at older ages; with the exception of the pattern of gender differences in depressive symptoms, which appears to be more country-specific (Oksuzyan et al. 2010). Because men have higher mortality than women at all ages and for many leading causes of death, it is puzzling that the proportion of life spent in good health is higher for men than for women (Crimmins and Saito 2001; Nusselder et al. 2010; Rieker and Bird 2005; Van Oyen et al. 2013). These contradictions in the mortality-morbidity differences between the genders have led to numerous studies describing this phenomenon as the "gender and health paradox" (Rieker and Bird 2005), the "morbidity paradox" (Gorman and Read 2006), the "morbidity-mortality paradox" (Kulminski et al. 2008) or the "male–female health-survival paradox" (Oksuzyan et al. 2008).

Studies conducted in Latin American and the Caribbean (LAC) countries have systematically described women as suffering from excess morbidity, despite having higher longevity (Andrade et al. 2014; Camargos et al. 2007; Palloni and McEniry 2007; Zunzunegui et al. 2009). In LAC, women are more likely than men to report poor self-rated health, and the prevalence of disability is around 50% higher among women than among men (Barbosa et al. 2005; Duarte et al. 2005). In terms of the gender gap in healthy life expectancy, the pattern in LAC is similar to the pattern that has been documented in the wealthiest regions: i.e., women live longer than men, but the proportion of time they spend living with a disability is greater (Andrade et al. 2011; Camargos et al. 2008). Although these previous studies have shown that there are health disparities between men and women at older ages, the specific contributions of mortality and disability to these gender disparities in health expectancy remain unclear (Angel et al. 2017; Campos et al. 2015; Andrade et al. 2011; Wong et al. 2005).

There are several ways to measure gender disparities in health, including health expectancy. This summary measure is widely used to evaluate the average level of population health (Murray et al. 2002). In addition, it is a policy planning tool that is generally used to compare the level of health across populations (Nusselder et al. 2010; Robine et al. 2009; Van Oyen et al. 2010; Yokota et al. 2019). Decomposition analyses of the contributions of mortality and disability to the gender gap in health expectancy in high-income countries have suggested that considerable gender differences in mortality and disability can be masked when only the total gap is analyzed (Mairey et al. 2014; Nusselder et al. 2010; Nusselder and Looman 2004; Van Oyen et al. 2013). For example, decomposition analyses conducted in the Netherlands found there are substantial effects of mortality (3.1 years) and disability (−3.5 years) by gender; but also that because the two effects work in opposite directions, they result in a small net gap (−0.4 years). Therefore, when examining the gender gap in health expectancy, it is important to focus not only on the total gender gap, but also on the contributions of its components. This approach is crucial for targeting policy priorities, particularly those that seek to reduce health differentials by subgroups.

Our study aims to compare differences in the health expectancies of men and women across large cities in seven countries in Latin America and the Caribbean: Argentina, Brazil, Chile, Mexico, Uruguay, Cuba and Barbados. We use information from the Survey on Health, Well-Being, and Aging in Latin America and the Caribbean (SABE) to examine whether the gender gap in health expectancy follows a similar pattern across those countries, and to estimate the contributions of disability and mortality by age. We then discuss the consequences of these findings for monitoring overall health and well-being in the region. By 2050, 198 million people aged 60 years or older will be living in Latin America and the Caribbean, with a ratio of 84 men per 100 women (United Nations 2017). Therefore, understanding the mechanisms that contribute to morbidity and mortality differentials among older individuals in such contexts is critical for improving the health and well-being of these individuals, and for meeting the Sustainable Development Goals.

2 Gender differences in health and mortality across LAC countries

The overall pattern of gender differences in healthy life expectancy across countries in LAC is similar to the patterns observed in higher-income countries: i.e., women live longer than men, but the proportion of time they spend living with a disability is greater (Andrade et al. 2011; Camargos et al. 2008). However, the specific contributions of mortality and health to these differentials remain unclear. In addition, the LAC region, and specifically the SABE countries analyzed here, have mortality and health characteristics that make it particularly challenging to determine what drives these gender gaps, and their magnitudes (Angel et al. 2017; Campos et al. 2015; Andrade et al. 2011; Wong et al. 2005).

The health and mortality conditions that underlie these observed gender disparities vary considerably across the region. For example, it has been shown that in Chile, musculoskeletal disorders and fall-related fractures play an important role in health differences by gender, as the prevalence of osteoarthritis is twice as high among older women as among older men, independent of their socioeconomic position (Moreno et al. 2018; Murtagh and Hubert 2004). Similarly, the prevalence of osteoporosis is more than five times higher among women than among men, with women reporting more frequent falls (Albala et al. 2011). In Mexico, by contrast, obesity and diabetes appear to be the most critical factors, especially at ages 70–75, as in this age group, the share of women with diabetes is high (29%), and the percentage of women with obesity is significantly higher than that of men (26.7% vs. 22.3%) (Wong et al. 2015). Both diabetes and obesity are risk factors for a series of chronic conditions, and are associated with the incidence of multiple comorbidities, including type II diabetes, cancer, and cardiovascular diseases (Guh et al. 2009; Kearns et al. 2014). On the other hand, Cuba, despite being the country with the lowest levels of diabetes and obesity in the Latin American and Caribbean region (Palloni and McEniry 2007), has high prevalence levels of acute myocardial infarction, with men having a higher risk of dying from this cause than women of the same age (Armas et al. 2012). Moreover, the incidence of lung cancer and the mortality risk associated with it has increased among older men in LAC (Galán et al. 2009). Bridgetown (Barbados) has struggled over the past decade with a very high burden of deaths from liver cirrhosis attributed to alcohol abuse and heavy smoking among men (Moonie and Quashie 2011). In Brazil, gender differences in disability severity and in levels of life-threatening conditions seem to contribute more to the gender gap in healthy life expectancy. It has, for example, been reported that compared to their male counterparts, Brazilian women are more likely to be disabled, and to have more severe disabilities (Camargos et al. 2007; Camargos et al. 2008; Andrade et al. 2011). It has also been shown that in Brazil, unhealthy life expectancy is higher among women than among men at all ages, and that a woman at age 60 can expect to live two years longer with severe limitations than a man at the same age. These findings imply that Brazilian women live proportionally more years with severe limitations than men (Belon et al. 2014; Nepomuceno and Turra 2012; Parahyba et al. 2005). Evidence for higher-income countries indicates that for men, having severe limitations is associated with a higher mortality risk. Thus, gender differences in mortality in these countries may be explained by gender differences in the effects these conditions have on mortality (Case and Paxson 2005). This might also be the case for Brazil.

There are significant differences in the socioeconomic, demographic and health conditions of the countries in which the SABE was conducted. For example, despite not being the wealthiest country in the LAC region, Cuba has been prioritizing health for almost half a century. The country has an extensive primary health care network, a long history of controlling infectious diseases, relatively low infant mortality, and below replacement level fertility since 1978. Thus, the aging process in Cuba is very advanced (Franco et al. 2007a). The trajectory of Bridgetown resembles that of Cuba in terms of the stage of the demographic transition and the efficiency of the public health care system (Hennis et al. 2005). In Bridgetown, life expectancy at birth in 2001 was 76.9 years, and was thus higher than the average of 70.3 years for the entire region (Knight et al. 2004). In addition, of the SABE cities, Bridgetown has the highest proportion of women aged 75+ (Palloni and McEniry 2007). Interestingly, Uruguay has the lowest poverty and urban economic inequality levels in Latin America (urban Gini = 0.44, 10/40 ratio = 8.8), spends the most per capita on medical care, and had the lowest rate of poverty among the elderly population in the year 2000 (Wallace and Gutiérrez 2005). Nonetheless, in the early 2000s, Uruguay had one of the lowest remaining life expectancies at age 60 for men, and one of the highest for women, in the LAC region (United Nations 2019). It has also been shown that older Mexicans account for more than 50% of families living in extreme poverty; i.e., households living on one dollar a day or less. As women live longer than men, higher proportions of women than of men are living in poverty, which may contribute to the higher levels of disability among women (Angel et al. 2017; Huenchuan 2013).

Social inequality in health care services, expected outpatient medical care, and hospital admissions also vary across SABE cities. Inequalities in health care access are less marked in Cuba, Argentina and Uruguay, but are more pronounced in Brazil and Mexico. Previous research has indicated that these inequalities have resulted in somewhat puzzling health care patterns across the region (Noronha and Viegas 2005). For instance, given the relatively high level of income inequality in Brazil and the lower level in Uruguay, equity in access to care for older people was found to be better than expected in Brazil and worse than expected in Uruguay.

Not surprisingly, inequity in access to care was attributed mainly to low levels of health insurance coverage in Mexico and to differences in socioeconomic status in Chile (Wallace and Gutiérrez 2005). Finally, excess mortality from external causes (homicide, motor vehicle accidents and suicide) among men aged 15–29 is much higher in these countries than it is in developed countries. LAC countries have the highest homicide rates for young men in the world. Thus, external causes of death have contributed to significant changes in life expectancy in the LAC region, and have hindered improvements in male longevity (Canudas-Romo and Aburto 2019; Acosta et al. 2018). All of these factors make it particularly challenging to understand how mortality and health are contributing to gender disparities in healthy life expectancy in LAC countries, and what is driving those observed differences.

3 Data and methods

The data come from the Survey on Health, Well-Being, and Aging in Latin America and the Caribbean (SABE) (Pelaez et al. 2006). The SABE interviewed non-institutionalized representative samples of individuals aged 60 and older in seven cities in Latin America and the Caribbean in 1999–2000. Table 1 presents the number of respondents by age group and city in 1999–2000. For some cities, such as São Paulo, the survey has a longitudinal design, with other data collection waves taking place in 2006 and 2010 (Lebrão et al. 2018). Unfortunately, the longitudinal study was not carried out in all cities, which prevents us from performing trend analyses. Therefore, we can only perform cross-city comparisons for the year 2000.

The SABE sample is limited to urban areas, which restricts our ability to generalize our results to the total population. However, as previous research has shown that the demographic profiles of the samples are close to the national averages, our results should not diverge too dramatically from those for the general population (Palloni and McEniry 2007; Wong et al. 2005).

In this study, we compare estimates for the seven cities included in the 2000 survey: Buenos Aires (Argentina), São Paulo (Brazil), Santiago (Chile), Mexico City (Mexico), Montevideo (Uruguay), Havana (Cuba) and Bridgetown (Barbados). The most significant advantages of the SABE are the consistency and the comparability of the data across countries, with the surveys being translated into three different languages (Spanish, Portuguese and English); and the high rates of response. Havana had the highest response rate (95%), followed by Bridgetown (85%), São Paulo (85%), Mexico City (85%) and Chile (84%). The response rates in Montevideo and Buenos Aires were somewhat lower, at 66% and 60%, respectively (Palloni and McEniry 2007).

To measure health status, we use the question that evaluates functional limitations based on the Katz Index of Independence in Activities of Daily Living: i.e., limitations in bathing, dressing, toileting, walking across a room, eating and getting in and out of bed. Thus, the question covers the fundamental skills typically required to manage an individual's basic physical needs, and is comparable to the questions

Table 1:
SABE sample size by age and city, 2000

Age Group	Sample size Bridgetown (Barbados)	Buenos Aires (Argentina)	Havana (Cuba)	Mexico City (Mexico)	Montevideo (Uruguay)	Santiago (Chile)	São Paulo (Brazil)
60–64	283	241	483	383	317	291	426
65–69	340	252	402	310	366	327	379
70–74	300	252	349	230	330	240	336
75–79	264	160	257	156	242	209	472
80–84	177	84	207	98	124	128	307
85+	144	54	207	70	71	106	223
Total	1,508	1,043	1,905	1,247	1,450	1,301	2,143

Source: SABE.

used in other surveys of older people, particularly the Health and Retirement Survey (HRS) (2002). We define as disabled those individuals who answered “yes” to at least one of the following questions: “Do you have difficulty bathing?”; “Do you have difficulty dressing?”; “Do you have difficulty using the toilet?”; “Do you have difficulty walking across a room?; “Do you have difficulty eating?”; and “Do you have difficulty getting in and out of a bed?” This definition is in line with the recommendations in previous studies that used ADLs from the SABE (Albala et al. 2005; Palloni et al. 2002; Palloni and McEniry 2007).

Information on the prevalence of disability for each city drawn from the SABE is combined with city-specific life tables by sex in 2000. The exception is Bridgetown, for which we use a national life table. All of the mortality data were generously provided by Flavia Andrade, who estimated them for an earlier article (Andrade 2009). Since SABE is a sample survey, we calculate the proportion of disabled individuals in the sample, and compute a 95% binomial confidence interval for the disabled proportion. The confidence intervals rely on approximating the binomial distribution with a normal distribution. This approximation is based on the central limit theorem, and, since our samples are large, it is reliable. Using this approach, we are able to present a range of values for measures derived from the SABE data.

To examine gender disparities in health expectancy, we estimate the disability-free life expectancy (*DFLE*) using the Sullivan Method (Sullivan 1971), a methodological approach that has been used before in similar analyses (e.g., Crimmins et al. 2016). For each age group, we estimate the prevalence of disability from SABE data and combine it with the total number of person-years lived obtained from life tables, in order to disentangle the number of years lived with and without disability. The number of person-years lived free of disability is calculated as,

$$ {}_nL_x^i = {}_nL_x(1 - {}_n\pi_x), \tag{1} $$

where ${}_nL^i_x$ is the number of person-years lived without disability between ages x and $x + n$, ${}_nL_x$ is the total number of person-years lived in the age group x and $x + n$, and ${}_n\pi_x$ is the proportion of disabled individuals in the age group x and $x + n$.

Then, life expectancy free of disability (*DFLE*) is calculated as,

$$DFLE_x = \frac{\sum_{k=x}^{w}({}_nL^i_k)}{\ell_x} \tag{2}$$

where $DFLE_x$ is the number of years lived without disability at age x, w is the starting age of the open age interval, and ℓ_x is the number of survivors at age x.

We then calculate gender gap in *DFLE* as,

$$\Delta_x = DFLE^{Women}_x - DFLE^{Men}_x, \tag{3}$$

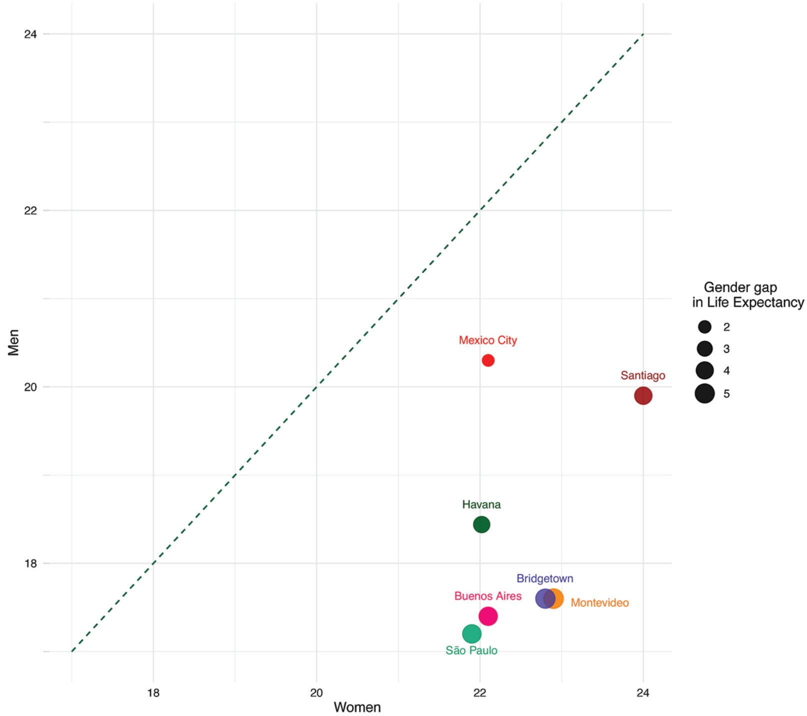
and split the gender differences in *DFLE* at age x into mortality and disability effects by five-year age groups. To decompose the gap, we apply the continuous change decomposition method that was developed by Horiuchi et al. (2008) and implemented in R by Riffe (2018). The continuous change decomposition method assumes that covariates (e.g., age-specific mortality rates and age-specific prevalence of disability) change continuously along an actual or hypothetical dimension, such as between two periods or between two populations, thereby modifying aggregate measures such as life expectancy and healthy life expectancy. Each of these tiny changes in the aggregate indices can be approximated by a linear combination of n partial derivatives of the function with respect to the covariates (Horiuchi et al. 2008). Then, numerical integration is used to obtain the total contribution of the covariates for the variation of the aggregate measure. This method is very flexible, and can be used for decomposing gaps in different aggregate measures, including healthy life expectancy, as presented by van Raalte and Nepomuceno (2020).

4 Results

Figure 1 compares life expectancy at age 60 for women and men. Not surprisingly, the results indicate that women were living longer than men in all cities. Among women, life expectancy at age 60 varied from 21.9 in São Paulo (Brazil) to 24 years in Santiago (Chile). Among men, the estimates show more variation across cities, ranging from 17.2 years (São Paulo) to 20.3 years (Mexico City). The gender gap (women-men) in life expectancy was larger for the four cities (São Paulo, Buenos Aires, Bridgetown and Montevideo) where male life expectancy at age 60 was below 18 years.

Among women, the mortality advantage contrasted with a disability disadvantage. Figure 2 shows the differences in the prevalence of disability between women and men aged 60 and older in each city. In all cities, the prevalence rates were higher for women than for men. Buenos Aires and Santiago were the cities with the largest

Figure 1:
Total life expectancy (LE) at age 60 and the size of the gender gap in life expectancy (women–men), by city, 2000

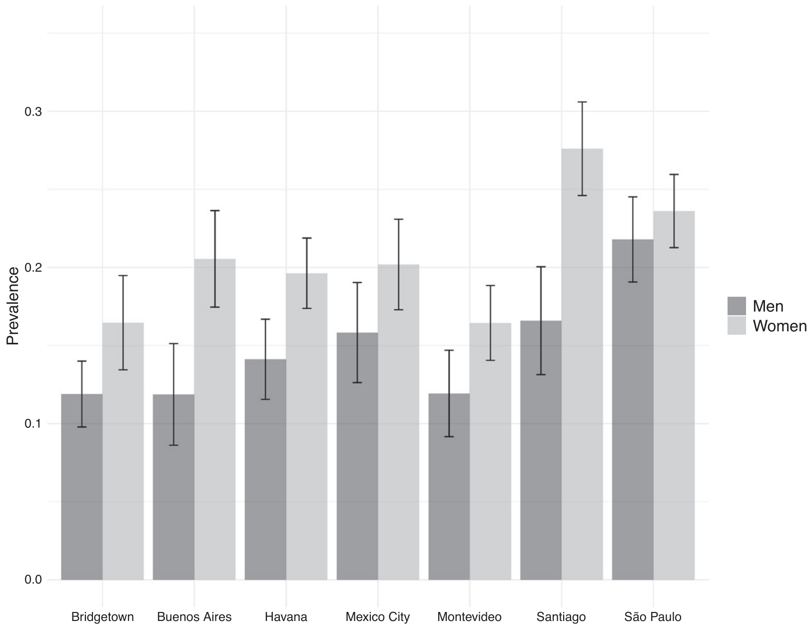


Note: The dashed line corresponds to equal life expectancies at age 60 for men and women.
Source: Own elaboration using data from Andrade (2009).

differences by gender. Meanwhile, São Paulo had the lowest variation in disability by gender.

The gender differences in mortality and disability can be examined simultaneously by estimating and decomposing the gender gap in life expectancy. Table 2 shows total life expectancy (LE), disability-free life expectancy (DFLE), and life expectancy with disability (LEWD) at age 60 for the seven LAC cities in the year 2000. As expected, we can see that in all cities, the gender differences in LE favored women. The largest gap in LE at age 60 was in Montevideo (5.30 years), followed by in Bridgetown (5.10 years), São Paulo (4.70 years), Buenos Aires (4.60 years), Santiago (4.10 years), Havana (3.58 years) and Mexico City (1.80 years). Women were living longer than men in all cities, but in Buenos Aires, Mexico City and Santiago, most of the women's additional years of life were lived with disabilities. For example, in Mexico City, a full 90% of the life expectancy

Figure 2:
Prevalence of disability at ages 60 and older, by gender and city, 2000



Note: Black segments correspond to a 95% confidence interval.
Source: Own elaboration using data from the SABE.

advantage of women was lived with disabilities. A similar pattern is observed in Santiago, although the number of years women were living with disabilities was much higher in Santiago (3.71) than in Mexico City (1.62). The comparison of the results in the two cities shows why focusing on only one gender gap health indicator can mask significant differences between cities. In Montevideo, Bridgetown and Havana, about 39% of women's additional years of life were spent with disabilities. In comparison, in São Paulo, 45% of women's remaining years of life were spent with disabilities.

In all cities, both the disability and the mortality effects increased the gender gap in LEWD. In other words, women were living more years with disabilities because they were living longer and had higher rates of disability. The disability effects were larger than the mortality effects in Buenos Aires, Mexico City and Santiago; whereas the mortality effects were larger than the disability effects in Bridgetown, Havana, Montevideo and São Paulo.

The gender gap in disability-free life expectancy (DFLE) indicates that in absolute terms, women also enjoyed more healthy years of life than men in all cities. However, for Buenos Aires, Mexico City and Santiago, DFLE represented a smaller

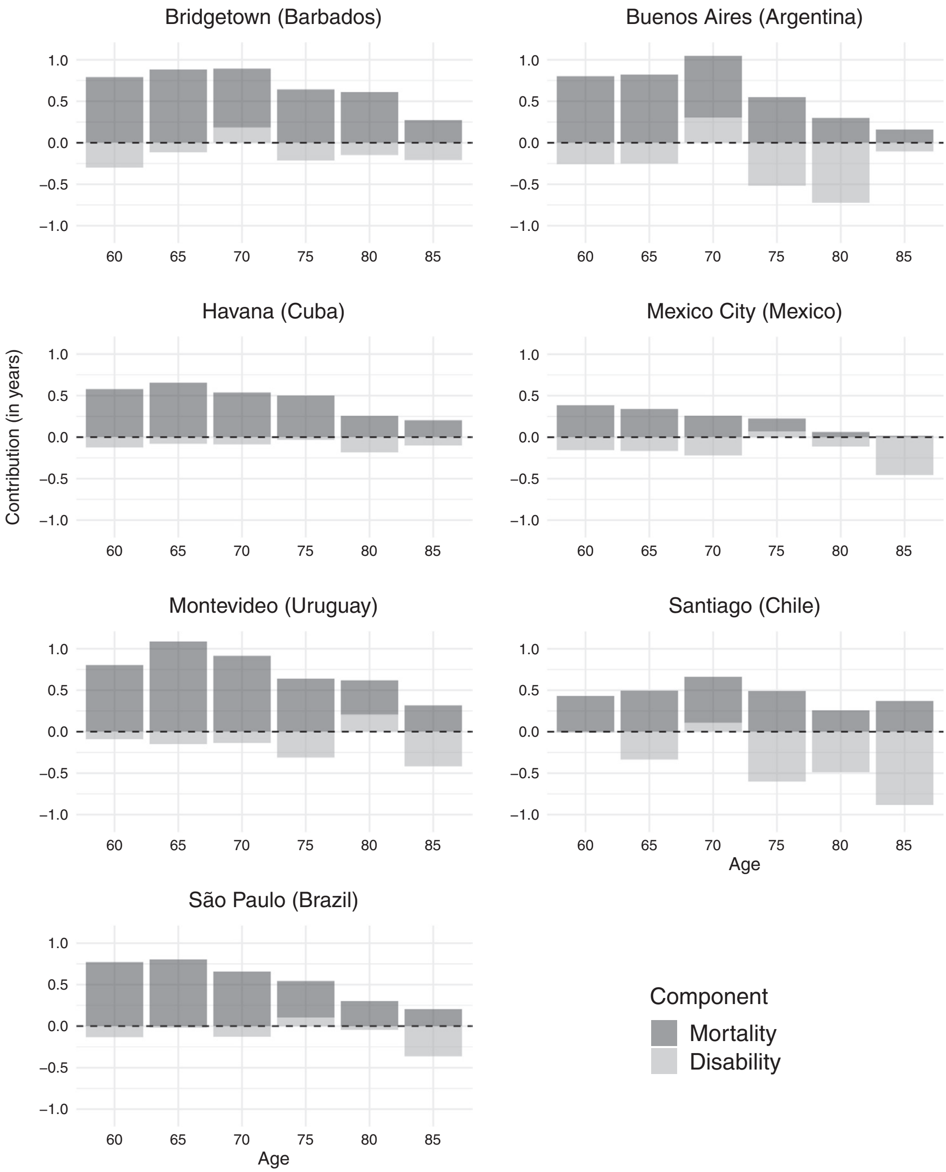
Table 2:
Decomposition of the gender gap (women-men) in total life expectancy (LE), disability-free life expectancy (DFLE) and life expectancy with disability (LEWD) into mortality and disability effects at age 60 (confidence intervals in brackets), by city, 2000

	LE	DFLE	LEWD
Bridgetown (Barbados)			
Gender gap	5.10	3.11 (2.84; 3.37)	1.99 (1.73; 2.26)
Mortality effect	5.10	3.91 (3.46; 4.34)	1.20 (0.76; 1.64)
Disability effect		−0.80 (−0.97; −0.62)	0.80 (0.62; 0.97)
Buenos Aires (Argentina)			
Gender gap	4.60	1.82 (1.57; 2.07)	2.78 (2.53; 3.03)
Mortality effect	4.60	3.38 (2.81; 3.94)	1.23 (0.66; 1.79)
Disability effect		−1.55 (−1.87; −1.24)	1.55 (1.24; 1.87)
Havana (Cuba)			
Gender gap	3.58	2.11 (2.10; 2.13)	1.47 (1.45; 1.48)
Mortality effect	3.58	2.73 (2.42; 3.04)	0.85 (0.54; 1.16)
Disability effect		−0.61 (−0.91; −0.32)	0.61 (0.32; 0.91)
Mexico City (Mexico)			
Gender gap	1.80	0.18 (0.09; 0.26)	1.62 (1.54; 1.71)
Mortality effect	1.80	1.22 (1.02; 1.43)	0.58 (0.37; 0.78)
Disability effect		−1.04 (−1.32; −0.76)	1.04 (0.76; 1.32)
Montevideo (Uruguay)			
Gender gap	5.30	3.28 (3.05; 3.50)	2.02 (1.80; 2.25)
Mortality effect	5.30	4.17 (3.64; 4.71)	1.13 (0.59; 1.66)
Disability effect		−0.90 (−1.21; −0.59)	0.90 (0.59; 1.21)
Santiago (Chile)			
Gender gap	4.10	0.39 (0.32; 0.46)	3.71 (3.64; 3.78)
Mortality effect	4.10	2.61 (2.15; 3.06)	1.50 (1.04; 1.95)
Disability effect		−2.21 (−1.69; −2.74)	2.21 (2.74; 1.69)
São Paulo (Brazil)			
Gender gap	4.70	2.59 (2.34; 2.75)	2.11 (1.95; 2.36)
Mortality effect	4.70	3.18 (2.85; 3.50)	1.53 (1.20; 1.85)
Disability effect		−0.58 (−0.75; −0.41)	0.58 (0.41; 0.75)

Source: Own elaboration using data from the SABE and Andrade (2009).

fraction of the gender gap in LE than LEWD. The largest gender gaps in DFLE occurred in cities where women's mortality advantage was substantial and surpassed women's disability disadvantage, which was the case in Bridgetown, Buenos Aires, Havana, Montevideo and São Paulo. In Mexico City, the combination of a high prevalence of disability among women (−1.04 years) and a small women's mortality

Figure 3:
Decomposition of the gender gap in disability-free life expectancy (DFLE) into mortality and disability effects by five-year age groups and city, 2000



Source: Own elaboration using data from the SABE and Andrade (2009).

advantage (1.22 years) resulted in men and women having nearly the same number of healthy years of life after age 60. In Santiago, the gender gap in DFLE was also close to zero (0.39 years). Figure 3 details the age decomposition of the gap in DFLE. As expected, the mortality effects – meaning more years of life – were higher among women in all age groups and across all cities. However, the mortality effects decreased almost systematically with age, which suggests that the contribution of gender differences in mortality to the gap in DFLE was lower at older ages. For instance, the mortality effects were more than 70% lower between ages 60 and 85+ in Buenos Aires, Mexico City and São Paulo. In contrast, Figure 3 does not show a clear age pattern for the disability effects across the seven cities, although they tended to affect women's health measures negatively at most ages. There were, however, exceptions: in Buenos Aires and Santiago, the disability effects were positive in the 70–74 age group, which means that the prevalence rates of ADLs were higher among men than women. Still, the effects were negative at all other ages. Havana was the only city where women experienced higher levels of disability at all ages, but they were lower in magnitude than in the other LAC cities.

5 Discussion

Our results have confirmed that in Latin American and Caribbean cities in 2000, women were living longer than men, but were spending more years in poor health. These results are consistent with those of other studies that focused on gender differences in mortality and morbidity, not only in the LAC region, but worldwide (Camargos et al. 2007; Camargos et al. 2008; Andrade et al. 2011; Jagger and Matthews 2002; Oksuzyan et al. 2008; Palloni and McEniry 2007; Van Oyen et al. 2010; Wong et al. 2005; Yokota et al. 2019; Zunzunegui et al. 2009).

Although our findings indicate that the gender gap in health in terms of both disability-free life expectancy (DFLE) and life expectancy with disability (LEWD) followed a similar pattern within the region, its decomposition into the contribution of mortality and disability effects showed that there was substantial variation across cities, which suggests that the underlying mechanisms of the gender gap differed considerably. Our results highlight the importance of investigating not only the contributions of disability and mortality to the gender gap in DFLE, but also the years lived with disability. DFLE was higher for women than for men because women were living longer despite having a higher prevalence of disabilities. The women's disability disadvantage was not able to cancel out the women's mortality advantage in any of the cities in our sample, although it came close in Mexico City (Mexico) and Santiago (Chile). On the other hand, women were living more years with disability (LEWD) than men because of the combination of two effects: women were living longer and had higher rates of disability. In three of the cities – Buenos Aires (Argentina), Mexico City (Mexico) and Santiago (Chile) – the gender gap in LEWD represented a larger fraction of the total gender gap in life expectancy than DFLE. In São Paulo, DFLE and LEWD were comparable in size. In Bridgetown, Havana and Montevideo, the gender gap in DFLE represented a larger fraction of the gender gap in LE than LEWD.

There are many potential explanations for the patterns we observed across LAC countries. As was previously mentioned, the differences in Chile could be attributed to evidence suggesting that the prevalence of osteoporosis is five times higher among older women than men (Albala et al. 2011). In Mexico, the combination of a high prevalence of disability and lower mortality among women may be connected at least in part to the high shares of women who have diabetes, especially at ages 70–75 (29%). Similarly, previous studies have shown that the mean BMI was higher for women than for men, and that the percentage of women with obesity was significantly higher than that of men (26.7% vs. 22.3%) (Wong et al. 2015). Taken together, these factors could explain why in these cities, the gender gap in LEWD contributed more than DFLE to the total gender gap in life expectancy.

On the other hand, Brazil, Cuba, Uruguay and Barbados were found to be the countries where the women's mortality advantage contributed the most to the gender gap in the years lived with disabilities. As we previously noted, in Brazil, this may be related to the gender gap in mortality by disability severity, or to the levels of life-threatening gender-specific conditions. Compared to their male peers, Brazilian women live longer lives, but are more likely to be disabled, and to have severe disabilities (Camargos et al. 2008; Andrade et al. 2011). Thus, in Brazil, women at age 60 can expect to live two years longer with severe limitations than men at the same age (Belon et al. 2014; Nepomuceno and Turra 2012; Parahyba et al. 2005). Similarly, the gender gap in unhealthy life-years in Cuba may be due to the high prevalence levels of acute myocardial infarction among men, and to men's increased risk of dying from this cause relative to that of women of the same age (Armas et al. 2012), together with the higher lung cancer incidence and associated mortality risk among older men (Galán et al. 2009). Surprisingly, the finding that in Uruguay the women's mortality advantage contributed to the gender gap in life years lived with disability may be due to a stronger disadvantage in mortality among men than to a mortality advantage among women. As estimates in Figure 1 showed, the remaining life expectancy at age 60 for women in Montevideo (Uruguay) was the second-highest among all of the cities in the sample (approximately 23 years), but the remaining life expectancy at age 60 for men was the third-lowest for all of the cities (approximately 18 years). Thus, further investigation is needed to understand the low remaining LE at age 60 among men, given the high remaining LE among women of the same age. It is also noteworthy that Uruguay had one of the lowest rates of response in the SABE (66%), while the rates for the other countries varied between 85% and 95%. It is unclear whether this lower response rate could have biased some of the results. However, the fact that the socioeconomic indicators were better for Uruguay than for the other countries suggests that the lower disability effects found in Uruguay were not mainly attributable to response rates.

Finally, we should note that reports on the SABE have mentioned that Uruguay is the only country included in the SABE where the proportion of older people living in institutions is higher than it is in the other countries. Since the SABE samples are household-based and exclude those in institutions, there may be a selection among those who remain independent instead of becoming institutionalized that affects the health measures (Palloni and McEniry 2007). However, since the main source of long-term care services in LAC is unpaid care that family members, primarily women, provide to care-dependent older people, it is unlikely that this issue played an important role in our results. Indeed, in all seven cities in our sample, the shares of older adults living alone were lower than the shares in North America and Western Europe (Palloni et al. 2002; DeVos and Palloni 2002).

In Bridgetown (Barbados), like in Montevideo (Uruguay), our findings that there was a large gender gap in life expectancy, and that a large proportion of the gap was spent without disability (61%), may be attributable to a larger male disadvantage, since it has been reported that the region has struggled in the past decade with a very large burden of deaths from liver cirrhosis attributed to alcohol abuse and heavy smoking among men (Moonie and Quashie 2011).

Explanations for these contradictory findings regarding health and mortality among women and men – or the so-called health-survival paradox – have been mainly developed from the perspective of excess mortality among males (due to biological and acquired risks) or excess disability among females (due to types and severity of illnesses and disability, illness and prevention orientation and health reporting behavior). The evidence for these explanations is still inconclusive and conflicting, with studies showing either that male excess mortality is more important or that female excess morbidity is the more prominent factor (Austad 2006; Austad 2011; Grundy 2006).

Our work adds to this body of literature by showing that such an ambiguous relationship was not only present in the Latin American and the Caribbean context, but also that the relative contributions of women's morbidity and men's mortality varied substantially throughout the region. The results suggest that policy-makers seeking to address health inequalities should consider not only the total gender gap, but also whether those differences are related to health or mortality factors.

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