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GENDER DISPARITIES IN MORTALITY: CHALLENGES FOR HEALTH EQUITY IN PUERTO RICO

TERESA D. PEDROSO ZULUETA*
ESCUELA DE CIENCIAS DE LA SALUD, UNIVERSIDAD DEL ESTE - CAROLINA

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Abstract

The aim of this study is to deepen the analysis of mortality indicators by sex in Puerto Rico. The gender perspective is used to identify the differentials and inequalities that generate disparities in mortality among women and men in that country. In 2008-2010, life expectancy at birth for both sexes reached 78.83 years, with a gap of 7.71 years among women and men, which is higher in the group of very low mortality countries, internationally. The years of potential life lost (YPLL) by age and external causes of death and natural death are used, among other indicators, for further analysis of male mortality from a gender perspective. Young men have a very high premature mortality because many deaths are due to by external causes: homicides, suicides and accidents. In the case of women's, premature deaths are prevalent due natural causes in all age groups. The result of the study is to promote gender mainstreaming to achieve health equity for women and men. Puerto Rico requires health plans, programs and policies that take into account gender disparities in order to achieve a longer life span-free of preventable disease, disability, injury and premature death- which currently affects more men than women.
Key words: Mortality disparities, sex and gender, equity in health, years of potential life lost (YPLL)

DISPARIDADES DE GÉNERO EN MORTALIDAD: RETOS PARA LA EQUIDAD EN SALUD EN PUERTO RICO

Resumen

El objetivo de este estudio es profundizar en el análisis de indicadores de mortalidad por sexos en Puerto Rico, desde la perspectiva de género, con el propósito de conocer diferenciales y desigualdades que generan disparidades en la mortalidad de mujeres y hombres en ese país. En 2008-2010 la esperanza de vida al nacer de ambos sexos alcanzó 78.83 años, con una brecha de 7.71 años entre mujeres y hombres, la más elevadas en el conjunto de países de mortalidad muy baja, a escala internacional. Se utilizan los años potenciales de vida perdidos (APVP) por edades y causas de muerte externas y naturales, entre otros indicadores de mortalidad, para profundizar en el análisis de la sobre mortalidad masculina, desde una perspectiva de género. La mortalidad prematura reporta pérdidas elevadas de años de vida, en hombres jóvenes, por causas de muerte externas -homicidios, suicidios y accidentes; en el caso de las mujeres, prevalecen las causas de muerte natural en la mortalidad prematura de todas las edades. Los resultados del estudio promueven la incorporación de la perspectiva de género para lograr la equidad en salud de mujeres y hombres. En Puerto Rico se requieren planes, programas y políticas de salud, que tomen en cuenta las disparidades de género para lograr una vida más larga, libre de enfermedades evitables, invalidez, lesiones y muerte prematura, que en la actualidad afectan más a los hombres que a las mujeres.
Palabras clave: Disparidades de mortalidad, sexo y género, equidad en salud, años potenciales de vida perdidos (APVP)

DISPARIDADES DE GÊNERO EM MORTALIDADE: DESAFIOS PARA A EQUIDADE NA SAÚDE EM PORTO RICO

Resumo

O objetivo deste estudo é aprofundar na análise de indicadores de mortalidade por sexos em Porto Rico, desde a perspectiva de gênero, com o propósito de conhecer diferenciais e desigualdades que geram disparidades na mortalidade de mulheres e homens nesse país. Em 2008-2010 a expectativa de vida ao nascer de ambos os sexos alcançou 78,83 anos, com uma diferença de 7,71 anos entre mulheres e homens, a mais elevadas no conjunto de países de mortalidade muito baixa, na escala

* Dra. Teresa D. Pedroso Zulueta, P.O. Box 2010, Carolina, Puerto Rico 00984 -2010. pedrosot@suagm.edu , terepedroso@hotmail.com

internacional. Utilizam-se os anos potenciais de vida perdidos (APVP) por idades e causas de morte externas e naturais, entre outros indicadores de mortalidade, para aprofundar na análise da mortalidade masculina, desde uma perspectiva de gênero. A mortalidade prematura reporta perdas elevadas de anos de vida, em homens jovens, por causas de morte externas - homicídios, suicídios e acidentes; no caso das mulheres, prevalecem as causas de morte natural na mortalidade prematura de todas as idades. Os resultados do estudo promovem a incorporação da perspectiva de gênero para obter a equidade em saúde de mulheres e homens. Em Porto Rico requerem-se planos, programas e políticas de saúde, que levem em consideração as disparidades de gênero para conseguir uma vida mais longa, livre de doenças evitáveis, invalidez, lesões e morte prematura, que na atualidade afetam mais aos homens que às mulheres.
Palavras chave: Disparidades de mortalidade, sexo e gênero, equidade em saúde, anos potenciais de vida perdidos (APVP).

INTRODUCTION

The study about disparities in mortality among women and men in Puerto Rico incorporates the gender perspective in the analysis of summaries of mortality indicators by gender, with the aim to span in aspects of the health profile. In Puerto Rico, there is an excess of marked mortality for men, compared with women. In a concise and succinct manner, the study shows gender issues that are very important for mainstreaming gender in the field of health.

The mortality indicators selected -life expectancy at birth and years of potential life lost-allow the analysis of gender disparities in health, which should be considered in the process of mainstreaming gender. Under the premise that gender equity is the mean to achieve results in equal health for women and men, the late reflections suggest the relevance of implementing the process of gender mainstreaming in the Health System of Puerto Rico. The process requires the incorporation of the gender perspective as a transverse axis in the functions, competencies and activities of the Health System with the purpose of guiding health plans, programs and policies, which result in the elimination of inequities and inequalities in the health of women and men in Puerto Rico.

Sex and gender in health

Gender is an analytical category of universal scope, emerged in the 60s and 70s of the twentieth century from scientific research in medical and social sciences, among other fields of knowledge, that registered significant contributions in addressing and analyzing the problems of inequality prevailing between women and men in society.

In the health field, it is important to know that gender and sex are different. The nature of these differences allows us to identify inequalities in the health status of men and women. In all dimensions, both sex and gender interact with complex associations that are difficult to isolate because they are not mutually excluded categories. A conceptual approach to the categories indicates that:

- *Sex:* Refers to *differences* between women and men, given the biological and physiological condition. Sex is determined by the identifier at first sight for the morphological characters of the genital organs of women and men (Hartigan P, Gómez E, da Silva J, de Schutter M. (1997); Gómez, 2001; Organización Panamericana de la Salud/ Organización Mundial de la Salud, s/f). According to Pedroso (2013), *sex* refers to genetic attributes, exceptions generated by congenital anomalies or surgical processes strictly corresponding to a pair typology, which in humans corresponds to the precise terms of woman / female - man / male.

- *Gender:* Refers to the set of symbolic, social, political, economic, legal and cultural attributes socially assigned to being a man or a woman (forms of behavior, values, activities to do, their place in the world) that establish roles and stereotypes for women and men. Feminist anthropology defines gender as "the cultural construction of sexual difference" (Lamas, 1996); gender is expressed as *the feminine* and *the masculine*, and from these distinctions, people construct their identities (Y. Rodriguez, C. Robledo and Pedroso T., 2011, Yin, 2007). Gender establishes social relations of power between women and men. There are several types of power[1], specifically the "power over", most often exercised by men against women, which has a negative connotation when incorporating gender inequalities and inequities in the field of health and life in general (Centro Nacional de Equidad de Género y Salud Reproductiva, 2007 y 2009b; Sen, 2002; Torres, 2009).

[1] From the perspective of Rowland (1997) "power over" is the power that a person or group exercises, in order to get other people to do something against their will. The "power to" is a productive power that opens up new possibilities and actions without any domination. The "power with" is the ability to get along with others which would not be possible to achieve alone, and the "power from within" occurs when you recognize that people are not helpless, but restricted in part by external structures. The first power is a negative power, which generates inequalities between women and men, the other three powers are positive, through them increased power of a person increases the total power available. (Centro Nacional de Equidad de Género y Salud Reproductiva, 2009b).

Factors of Sex and Gender in the Population Health Status

The differences in the health status of men and women depend on factors that are identified with the *biological genesis of sex*, and the *socio-cultural factors of gender* that create health inequalities, both interacting with each other in determining the health status of the population. The sex-gender analysis in the health field considers biological and sociocultural factors that are related to norms and gender roles, and to access and control of health resources (Pan American Health Organization, World Health Organization, s / f).

Biological factors

Health differentials due to sex are basically determined by biological characteristics, which are fixed and inherent in women and men -identified as discussed, by anatomical, chromosomal, genetic predisposition and physiological elements that establish differences in the health of women and men.

Sociocultural factors

These are related to mechanisms of identity assignment of male and female and differential socialization for both genders. Socio-cultural factors act as a causal impact of gender inequalities in health. These factors are structured as:

- *Gender norms and roles:* Are based in perceptions about attitudes and behaviors on the "ought to be" of people, as belonging to men or women. At the individual, social and institutional levels, gender norms and roles are reinforced by tradition, customs, laws, social class and ethics; they are not neutral or static and can be changed. But often, the process is controversial. Norms are expectations of society regarding acceptable attitudes and behaviors of men and women, boys and girls. Roles are defined from specific allocations to women and men in terms of functions that define gender stereotypes[2].

- *Resource access and control:* It is an important component of gender that contributes to reveal gender differences and the ways in which women's and men's health is affected. Access to resources refers to the opportunity of having tangible goods or services. There are different types of resources: economic, social, political, educational and information; time and individual or internal resources (self-esteem, autonomy and empowerment), among others. Resource control is the ability to define, influence and make binding decisions on the use of a resource. In turn, it implies the ability to define or use of resources and impose its definition to others.

In circumstances related to access and control of health resources, institutions decide on the type of services to offer, who uses the services, the ease with which they can be used, and how resources are used in care, prevention and promotion of health.

Gender disparities in health: Expression of inequities and inequalities

Health disparities as defined in Healthy People 2020[3] are "a particular type of health difference that is closely linked to the social, economic and / or environmental disadvantages development. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial, ethnic, religion, socioeconomic status, gender, age, mental health, cognitive, sensory or physical disability, sexual orientation or gender identity, geographic location, or other characteristics historically linked to discrimination or exclusion ". The set of factors that create health disparities are known as *determinants of health*. Some determinants are associated with differentials in the health status of people, but most health disparities reflect inequities inherent in factors known as social determinants of health. The most disadvantaged and segregated on grounds of class, territory, skin color, ethnicity, sex and gender are the most vulnerable (World Health Organization, 2005).

The model of social determinants of health proposed by the World Health Organization as the basis of social differentiation includes two traditional indicators: *income and education.* There are three new and truly innovative indicators: *gender, sexuality and ethnicity* –which until 2005 had not been considered as such, and in some cases they were only used as variables or indicators for reports, studies and other documents of public health.

Gender equality and equity in health

Gender equality and gender equity are distinct concepts. According to the international consensus gender equality

[2] Gender stereotypes in health are assumptions based on predetermined rules and roles that are usually negative because they limit the capabilities and opportunities of women and men to take advantage of their potential for development and action for health. (Rodríguez, Robledo & Pedroso, 2011).

[3] Healthy People 2020 is the health policy of the United States, which contains goals for 10 years to improve the health of all Americans. For three decades, Healthy People has established reference points and process monitoring through time in order to: 1) Encourage collaboration between communities and sectors, 2) Empowering people to make informed decisions about their health; 3) Measure the impact of prevention activities. (Taken from http://www. healthypeople.gov/2020, 03/04/2013)

is a legal imperative, which seeks equality of fact and right in the form and content of the law, and the full exercise of rights between men and women. Gender equality seeks elimination of all forms of discrimination in all spheres of life generated by belonging to either sex. Meanwhile, gender equity is an ethical imperative based on the principle of social justice that seeks to compensate the imbalances in access to and control of resources between women and men (Pan American Health Organization / OMS, 2009).

The relationship between gender equality and equity is expressed through the use of strategies to achieve gender equality. Simply, that relationship could be cited as: "Equity is the means, equality is the result". The vision of Healthy People 2020 set out as "a society in which all people live long and healthy lives … the premise of health equity as the achievement …" of the highest level of health for all. Achieving health equity requires valuing everyone equally with focused and ongoing social efforts to address avoidable inequalities, historical and contemporary injustices, eliminating health disparities, and health care."

PAHO / WHO clarifies that gender equality means equal opportunities, while gender equity refers to the fair distribution of goods and resources, which could mean the correction of the imbalance between the sexes. The notion of health inequity is part of the Gender Equality Policy of WHO/PAHO, which establishes relationships between gender equality and equity through the approach that "gender inequality in health refers to the unfair, unnecessary and avoidable inequalities between women and men in regard to the health, care and participation in health work" (Pan American Health Organization / OMS, 2009).

Mainstreaming gender in health

Some reflections by Sen, George and Ostlin (2005) suggest the relevance of looking beyond the seemingly obvious biological difference, to reach the deeper social bases of power and inequality. They pose challenges to the field of health in terms of understanding gender as a social determinant of health. The gender perspective to identify the various ways in which inequality between women and men is manifested in history and everyday life has implications for their personal, family relations, labor, social, and other domains of the life-course of people. The gender perspective in health provides a conceptual tool that aims to show that the differences between men and women are given -rather than by their biological sex- by determination of socially constructed gender distinctions which determine the health status of women and men. These cultural distinctions between male and female, far from being neutral, are associated with unequal power relations between the sexes and result in differential risks, needs, and access and control of resources in health.

The strategy of mainstreaming a gender perspective arises at the IV World Conference on Women, Beijing 1995. The discussion in this forum promotes momentum and enables the international community, expeditiously and specifically, to incorporate the goal of equality between women and men in all areas and scenarios of action. The UN definition, quoted by Rodriguez Y., et al. (2011, pag. 25), indicated that "mainstreaming a gender perspective is the process of assessing the implications for men and women for any planned action whether in law or public policy programs". It is a strategy for making the concerns and experiences of women, like those of men an integral part in the development, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men can benefit from them equally and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality.

METHOD

The study is descriptive, sectional and quantitative in approach. The temporal reference of mortality indicators by sex, age and cause of death presented, corresponding to the period 2005-2010 are taken from the statistics that contain the most current information available in Puerto Rico, published in 2013. The mortality indicators are used to approach the analysis of factors that generate sex-gender differentials and inequalities in mortality in women and men.

Participants

The unit of analysis in this study is the population residing in Puerto Rico. The information on population by sex and age corresponds to the annual inter-census estimates of the period 2000-2010, processed and released by the U.S. Census Bureau. The demographic variable selected as the object of study is mortality. Primary data about deaths of people captured in the Death Certificate are the official tool to report each of the deaths in the Vital Statistics of Puerto Rico. Secondary information on deaths by sex, age and cause of death comes from tabulations published by the Institute of Statistics of Puerto Rico and the Department of Health of the Commonwealth of Puerto Rico, which are the entities responsible for processing and publishing the report of deaths in each calendar year.

Studies of mortality by sex and age, including information on causes of death, allow closer analysis of gender for the argument of health disparities between men and women. In this study, the information on deaths of women and men was broken down in five-year age groups 0-85 years and over, and the leading causes of death. The International Classification of Diseases, Tenth Revision (ICD-10) is used

internationally for statistical purposes, relating morbidity and mortality, among other uses. The system is designed to promote international comparability in the collection, processing, and classification of disease.

Procedure

Mortality indicators were selected by life expectancy at birth and years of potential life lost (YPLL). Life expectancy at birth is a fine indicator of mortality, which is used internationally for the preparation of demographic and epidemiological profiles and comparative studies of trends and levels of mortality. Information of life expectancy at birth was taken from series of abridged life tables for Puerto Rico between1999 - 2001 and 2008 - 2010 (Estado Libre Asociado de Puerto Rico, Departamento de Salud, Secretaría Auxiliar de Planificación y Desarrollo, 2013).

Years of potential life lost (YPLL) is used to assess the risk of death and survival of a population, the impact of disease on the health status of the population and the severity of disease. Among other indicators, years of potential life lost (YPLL), recommended by PAHO / WHO (2002), provides information on prematurity of the deaths- which is useful in the analysis of the state of health, public health surveillance, design and evaluation of plans, programs and public health policies.

There are references in the literature about the nature of the YPLL indicator, which has been widely used since the 1980s on issues of health planning, defining priorities for action and research in the field of health and related. Several authors have reviewed the methodology for calculating YPLL and mention the availability of information on deaths by age and cause of death as well as the simplicity in calculating procedures through basic mathematical operations (Arriaga, 1996; PAHO, 2002; Dranger E. Remington and P., 2004). The mathematical formulation aims to obtain the sum of the products of deaths in people under 85, and multiplying it by the calculated difference between age 85 and the average age of each age group. YPLL index related to population is obtained by dividing the YPLL among the population of each age group.

Comparative analysis

This study uses information on life expectancy at birth and calculates YPLL for men and women by age groups and causes of death, to further the comparative analysis of gender disparities between women and men in Puerto Rico. The results are used to measure the prematurity of the deaths of women and men and to make comparisons with gender from associations with sex-gender factors in health. Comparisons show gender issues in mortality and health disparities at different stages of the life course of the population of Puerto Rico.

RESULTS

Puerto Rico is ranked as one of the countries with very low mortality rates in the international context. In 2010, there were 29,290 registered deaths in Puerto Rico, in a population of 3,725,789 inhabitants as reported by the 2010 Census. The crude mortality rate was 786.9 deaths per 100,000 inhabitants. According to the Official Report of the Department of Health of Puerto Rico (2013), life expectancy at birth by sex for the period 2008-2010 reached 78.83 years. The gender difference is 7.71 years, 82.56 years for women and 74.85 years for men.

The historical evolution of life expectancy at birth in the world indicates that the gap in years of life expectancy between men and women is wider in countries and territories with the highest development. Estimates of the Population Reference Bureau 2010 (2011), presented in Table 1, show a difference of 8 years of life expectancy between women and men in Puerto Rico for 2010-2011. There is a wide gap in the list of countries with lower mortality rates in the world. In Sweden, Denmark, England and Cuba, the difference in years of life expectancy at birth between women and men is 4 years.

Table 1

Life expectancy at birth (years). Selected countries and Puerto Rico. 2010-2011

Country	Both sexes (1)	Men (2)	Women (3)	Difference (3)-(2)
Sweden	82	80	84	4
US	78	75	80	5
Costa Rica	79	77	82	5
Mexico	77	75	79	4
Cuba	78	76	80	4
Chile	79	75	82	7
Denmak	79	77	81	4
England	80	78	82	4
Germany	80	77	83	6
Czech Republic	78	74	81	7
Oceania	77	75	79	4
San Marino	83	81	86	5
Puerto Rico	79	75	83	8

Note: Population Reference Bureau 2010 (2011)

The tendency towards excessive male mortality in Puerto Rico begins around 1960, when life expectancy at birth was approaching 70 years. In 1960, life expectancy at birth for women stood at 71.9 years and for men at 67.1

years, with a gap of 4.8 years. Then the gap widened and in 1987, it was around 8 years (Vázquez, 1984 and 1990). Velázquez's study (2010) reports a life expectancy at birth of 78.87 years for both sexes in 2006-2008, rising to 80.57 years when the author makes the calculation of life expectancy at birth eliminating the deaths caused by violence in the same period.

The mortality of women and men in Puerto Rico, by age and cause of death

The pattern of mortality by cause of death based on the International Classification of Diseases (ICD-10) shows that the Puerto Rican population is in advanced stages of epidemiological and demographic transition. The main causes of death are the classified chronic degenerative diseases and deaths from the Human Immunodeficiency Virus (HIV - AIDS) ranked 13th in the list, and it is the only infectious disease that appears among the 15 main causes of death in Puerto Rico.

The distribution of deaths by sex, age and cause of death of Puerto Rico reproduces the typical pattern of populations with very low mortality. The five main causes of death are classified in the group of chronic degenerative diseases. According to the information released by the Department of Health in 2010, these causes of death accumulated 57.1 percent of total deaths, disaggregated into: heart disease (17.8%), malignant tumors (17.7%), diabetes mellitus (10.1%), Alzheimer's disease (6.4%) and cerebrovascular disease (5.1%) (Estado Libre Asociado de Puerto Rico, Departamento de Salud, 2013a). The analysis of mortality by sex and cause of death presented below shows a tendency to excess male mortality in Puerto Rico, accentuated by the occurrence of deaths due to external causes of death -accidents, homicides and suicides.

In 2008, the sex distribution of deaths due to external causes reports a 74.6 percent male and 25.4 percent female. The most significant gender disparity is recorded in homicide mortality, reporting very high rates of mortality in men. The ratio of mortality rates by gender shows that male mortality is more than 14 times higher than in women (40.3 and 2.8 per hundred thousand people, respectively). Male deaths by suicide in Puerto Rico also exceed those of women. The ratio indicates that they occur more than 5 times. In the exercise of power, the negative dimension identified by Rowlands (1994) as "power over" leads men to commit acts of violence and aggression aimed at

Table 2
Mortality Rates and Main Causes of Death. Puerto Rico. Year 2008

Causes of Death (ICD-10, 2004)	Deaths Men	Deaths Women	Mortality Rate (x 100,000 inhabitants) Men (1)	Mortality Rate (x 100,000 inhabitants) Women (2)	Ratio (1)//(2)
All causes	15906	13194	838.2	641.5	1.31
1.Heart diseases	2883	2473	151.9	120.2	1.26
2.Malignant neoplasms (Cancers)	2842	2166	149.8	105.3	1.42
3.Diabetes Mellitus	1401	1451	73.8	70.5	1.05
4. Alzheimer's disease +♀	537	1054	28.3	51.2	0.55
5.Cerebrovascular disease +♀	699	830	36.8	40.4	0.91
6.Chronic lower respiratory disease	548	612	31.0	29.8	1.04
7. Accidents	842	255	44.4	12.4	3.56
8.Nephritis, nephrosis and nephrotic syndrome	601	457	31.7	22.2	1.43
9.Influenza and pneumonia	488	461	25.7	22.4	1.14
10. Septicemia	450	411	23.7	20.0	1.18
11. Homicide	754	57	40.3	2.8	14.39
12. Primary Hypertension and renal hypertensive disease	253	266	13.3	12.9	1.03
13. HIV/AIDS	314	106	16.5	5.2	3.17
14. Suicide	251	48	13.2	2.3	5.74
15. Liver disease and cirrhosis	200	58	10.5	2.8	3.75
All other causes	2963	2489	-	-	-

Note: Instituto de Estadísticas de Puerto Rico (2010).

women, other men and to themselves. The triad of violence is exercised mainly by men and in many cases results in deaths by homicides and suicides that could be avoided.

The profile of mortality by cause of death in Puerto Rico also reported a significant difference in the mortality rates of men and women due to transit accidents and liver disease and cirrhosis. The ratios between the mortality rates of men and women amounted to 3.56 and 3.75. Alzheimer's disease and cerebrovascular disease are the only ones reporting higher rates of mortality in the female population than in males. These conditions tend to occur in old age, and in Puerto Rico the female population that survives to this age far exceeds that of men.

The results of the analysis of mortality rates with gender perspective reinforce the arguments on disparities in mortality among women and men in Puerto Rico. To determine the magnitude and direction of disparities, the YPLL was used as an indicator by age groups of natural and external causes of death, as shown in Table 3. Comments on the mortality of men and women at different stages of the population life course are presented below:

Stage of childhood – adolescence

YPLL by age group shows the effects of excessive male mortality at all ages[4]. Regarding the YPLL indicator, it is necessary to clarify that the weight of deaths in the early ages contributes to more years of life lost than deaths at later ages. In calculating YPLL, Puerto Rico's infant mortality (0 to less than 1 year) shows this effect, even though the mortality rate is very low, 8.1 per thousand live births 2008-2010 (Estado Libre Asociado de Puerto Rico, Departamento de Salud, 2013 b). Consistent with the pattern of mortality in developed countries, childhood and early life deaths were largely associated with congenital malformations. In contrast, in less developed countries with a high level of mortality, health problems are associated

Table 3
Years of Potential Life Lost (YPLL) by Sex. Puerto Rico. Year 2006

Groups of ages	YPLL		% of difference (YPLL of Male x 100 YPLL of Women)	YPLL Index (X 1000 inhabitants)	
	Men	Women		Men	Women
Total	281514	147743	190.5	157.9	76.2
0	16900	12506	135.1	760.8	589.6
1-4	1320	743	177.6	14.3	8.5
5-9	1163	543	214.2	9.5	4.7
10-14	1233	798	154.5	9.0	6.1
15-19	10125	1553	652.0	70.2	11.2
20-24	21563	2750	784.1	165.0	21.1
25-29	19435	2760	704.2	165.0	22.1
30-34	16328	4830	338.1	135.7	37.4
35-39	13190	5938	222.1	113.3	47.5
40-44	15045	7650	196.7	131.3	60.4
45-49	19238	10725	179.4	166.5	81.0
50-54	23043	12578	183.2	208.2	97.2
55-59	26675	15593	171.1	261.0	128.5
60-64	28688	18045	159.0	285.6	152.1
65-69	27265	17798	153.2	337.9	185.6
70-74	21250	15613	136.1	343.7	208.6
75-79	14340	12450	115.2	325.3	215.6
80-84	4713	4870	97.0	170.4	123.4
85 y +	-	-	-	-	-

Note: Calculations by the author with information on deaths by age (Gobierno de Puerto Rico, Departamento de Salud, 2010).

[4] Gender disparities are beginning to take shape before birth. In the stage of pregnancy in all societies there is a higher mortality of males than females, the imbalance is attributed to chromosomal differences and slower lung maturation in males. In the perinatal period, for the same causes, child mortality of boys is higher than that of girls.

with socio-economic conditions, and childhood deaths often occur due to infectious diseases linked to situations of poverty and marginalization.

Adolescence is a period of transition from childhood to youth. In Puerto Rico's case, mortality is very low in the age groups of 1-4, 5-9, 10 -14 years. YPLL shows higher occurrence of premature deaths in males than in females.

Stage of youth - adulthood

Youth is the stage in the life course of higher exposure to sex differences associated with gender learnings, with implications for health risks. The information of YPLL for men compared to women, presented in Tables 3 and 4, shows the effects of excessive premature mortality in Puerto Rico. In the 20-24 ages the ratio is 784.1 years lost of men per 100 years lost of women.

Male mortality reaches higher levels in the group of 15-34 years of age, due to the predominance of external death causes; whereas deaths among women of all ages mostly occur due to natural death causes. Male deaths caused by three external causes: traffic accidents, homicides and suicides are related to building "masculinities" models that often become "*machismo* traits". In the field of health, these traits are associated with risky behaviors, damage to physical and mental health, challenges to death, and premature deaths of young and early adult males.

According to situations described by Ramírez (1999), the traits of *machismo* in Puerto Rico are highlighted through conduct and negative behaviors that permeate relationships of men in different contexts and dimensions of everyday life such as family, work environment and school, recreation, social activities, among others. These are often places where deaths occur from accidents, homicides and suicides, which may be preventable.

In Puerto Rico, habits and customs associated with stereotypes of masculinity, such as high consumption of alcohol and drugs, less care and self-care, extreme sports without proper protection, among other situations, impair the health of men and increase their risk of death. Meléndez (2008) emphasizes premises on violence in Puerto Rico identified by Farrell in 1993. The author states that male issues and problems among men such as depression, suicide, drug and alcohol abuse, unemployment, low self- esteem, insecurity and health, etc, are reduced to a secondary role. Undoubtedly, these results corroborate the arguments on determining factors of the excess male mortality trend shown in this study.

Premature deaths in women in all age groups occur by natural causes, whereas in YPLL men 15 to 40 years losses prevail due to external death cause. After 40 years of age, the trend of YPLL maintains excessive male mortality, but deaths from natural causes are reporting the biggest losses of life years due to premature mortality.

Table 4
Years of potential life lost (YPLL) by sex and cause of death. Puerto Rico. Year 2006

Groups of ages	Index of potential years of life lost (lost years x 1000 people)					
	All causes of death		Natural causes		External causes	
	Women	Men	Women	Men	Women	Men
15-19	16.7	74.6	12.0	15.6	4.6	58.9
20-24	27.6	161.1	16.0	22.4	11.6	138.7
25-29	31.6	155.5	22.5	29.7	9.2	125.8
30-34	32.7	138.2	28.6	52.7	4.1	85.5
35-39	53.1	145.1	45.1	73.1	8.1	71.9
40-44	69.8	164.7	64.5	112.2	5.5	52.6
45-49	78.9	215.6	73.2	174.3	5.7	41.3
50-54	97.2	234.8	95.1	206.0	2.1	28.7
55-59	124.6	289.8	121.2	265.1	3.4	24.7
60-64	177.2	327.8	172.9	306.5	4.3	21.2
65-69	194.1	350.9	191.0	335.5	3.1	15.4
70-74	233.7	355.7	230.6	344.6	3.1	11.1
75-70	216.8	336.8	214.6	328.5	2.1	8.3
80-84	133.6	183.7	132.3	179.7	1.3	4.0
85 y +	-	-	-	-	-	-

Note: Calculations by the author with information on deaths by age (Gobierno de Puerto Rico, Departamento de Salud, 2010).

Stage of late adulthood - older ages

In older adults, the population group with the highest mortality rates, male mortality prevails over female. The causes of natural death produce the greatest losses due to premature mortality. In the case of Puerto Rico, ages for calculating YPLL correspond to 85 years and over.

The comparison of YPLL by sex in old age shows that there are gender disparities in health, in the sense of an apparent excess mortality of men. Until age 84, men report more premature losses than women, meaning that fewer men than women reach the age of 85. At older ages, there is a predominance of deaths from natural causes, defined as chronic degenerative diseases as the leading causes of death in Puerto Rico. Behavior of male mortality by natural and external causes of death remains the same. It may be that men at older ages maintain certain habits and customs that represent risks to survival in advanced ages.

DISCUSSION

Studies of morbidity and mortality by sex show health disparities between women and men associated with gender inequalities and inequities in the field of health. Such issues must be addressed by health systems through plans, programs and health policies with a gender perspective. The strategy of mainstreaming a gender perspective explicitly takes into account the complexity of biological and sociocultural determinants of disparities in the health status of women and men.

The study entitled "*Equidad, Género y Salud*" (Gómez, 2001) contains ethical and empirical mandates of PAHO for "mainstreaming gender in policies and strategies for health" grounds. The author suggests distinguishing between health status and health care; from the perspective of equality is an empirical concept, while equity represents an ethical imperative associated with principles of social justice and human rights:

• *Equity in health* aims to achieve the highest attainable welfare by all people in specific contexts. It has to do with people's psychic, physical, and social welfare

• *Equity in health care* is one of the determinants of health, refers to central aspects of health services, such as accessibility, utilization, quality, resource allocation, and financing.

Gómez (2001) suggests adopting a gender perspective in the field of health with reference to one or more of the following dimensions: health status and determinants, effective access to care according to need, care financing according to ability to pay, balance in the distribution of the burden of responsibility and power in health care.

In Puerto Rico, young and adult women report losses well below those recorded by men. From a gender perspective, external cause of death may show the effects of the Gender Paradox in Health. Taking into account that diagnoses and prevalence of depressive syndrome and other mental and emotional problems are more common in women than in men, it is paradoxical that violent deaths-accidents, suicides and homicides, which are partly associated with depression and other mental health conditions, result in excess male mortality, while there is a higher prevalence of these conditions in women.

Young women of reproductive age are exposed to health conditions from complications of pregnancy, childbirth, postpartum and abortion. It is very positive that in Puerto Rico few female deaths occur associated with motherhood and reproductive tract diseases than in other regions and less developed countries, where women of reproductive age die prematurely from these preventable diseases. However, it is necessary to reflect and record sensitive issues concerning the mortality of women that need to be addressed in more detailed studies of causes of death, in particular, female deaths caused by domestic violence, in the form of gender violence.

The violent actions of extreme degree exercised by men against women each year reported an occurrence of deaths, which may be avoidable if they are serviced from a holistic view of public health problems. 98 female deaths in situations of domestic violence were reported in the period 2005-2009, and 68 murders of women by their domestic partners occurred from 2010 to 7 October 2012 (Vázquez, 2013).

Strategies for gender equity in health try to reduce and eliminate health disparities between men and women attributable to a sex-gender system. It is intended that women and men have equal opportunities to enjoy living conditions and services that enable them to be in good health, without disease, disability and death, injustice or preventable causes (Rodriguez et al. 2011). Mortality indicators and analysis of health disparities of women and men in Puerto Rico, at first glance, highlight inequity in health as well as a negative charge on the exercise of "power over" on the construction of masculinity of Puerto Rican men with implications and effects on excess male mortality.

The design and implementation of a strategy for mainstreaming gender in health, also enunciated as a process to incorporate the gender perspective, seeks to advance gender equality, should be integral and permeate through all levels of an organization. The gender approach should be applied to all policies, strategies, programs, administrative and economic activities, and even in the institutional culture of the organization in order to truly contribute to a change in the situation of gender inequality.

Gender mainstreaming requires several steps or premises. In the case of Puerto Rico, it would be advisable to

consider the relevance of a process of gender mainstreaming in health to eliminate health disparities between women and men. The following basic steps for mainstreaming gender in health are described:

- The system should strengthen the capacity of production, analysis and use of databases with information disaggregated by sexes and other relevant demographic and socioeconomic variables for planning health alternatives for gender.

- Gender analysis in health is the tool to identify problems in the health of women and men from gender inequalities and differentials between men and women immersed in a subject or specific health problem. The gender matrix, the instrument used for gender analysis, assumes that health disparities between men and women correspond to two groups of factors: *biological (*associated with belonging to either sex, " born man " or " born woman ") and *socio-cultural* (mechanisms related to allocation of male and female identities and differential socialization of women and men). These factors are identified as the causes of gender inequalities in health (Pan American Health Organization / WHO, 2009).

- Incorporate gender planning in the design of plans, programs and health policies. The gender planning tools proposed by the PAHO and WHO (1997) outlined in the manual Gender Equity in Health, National Center for Gender Equity and Reproductive Health (2009) suggest three levels:

Affirmative Action: Public policy expressed in a statute, court decision or an official decision. Seeks to improve opportunities for segregated society groups against dominant groups, should NOT be considered as an end in itself, but as a transitional mechanism to reduce disparities in access to health, education, employment, political representation, among others.

Practical approaches to gender (PAG): Responding to short term needs related to access to health resources and material living conditions in women and men. PAG seeks to respond to the health needs of women and men within socially accepted roles in society, without trying to change or challenge gender inequities.

Strategic approaches to gender (SAG): They tend to be a long-term gender equity strategy for redistribution of roles, responsibilities and power between the sexes. They tend to generate positive changes in the health of the population at risk. If efficient and effective, they reduce inequities in the delivery of health services and impact in reducing gaps in health of women and men.

CONCLUSIONS

In this study, gender analysis favors an approach to the problem of male mortality from the construction of the typical "masculinity" of Puerto Rico. The results of analysis of mortality from external causes of death with simple and natural indicators, mortality rates and YPLL presented in Tables 2 , 3 and 4 show the wide gap in mortality in men compared with women, that corroborates historical trends mentioned on the excessive male mortality since the 1960s .

YPLL index in 2006, presented in Table 3, accounts for a very large differential in premature mortality of men compared to that of women in recent years. The index was 190.5 YPLL of men per 100 women lost years due to premature death; at ages 20-24 years premature mortality of males was 784.1 years on 100 years of YPLL for women. In terms of ratio of mortality rates by sex, information for 2008 shows that male deaths from homicides, suicides and accidents caused 14.39, 5.74 deaths and 3.56 times higher than those of women, in that order.

In the case of Puerto Rico, it was found that in young adulthood the weight of premature male deaths is very high due to external causes- homicide, accidents and suicides. Undoubtedly, the traits and stereotypes of masculinity that mark the essence of the triad of violence exerted by men (against men, against women and to themselves) are present. Exercise of extreme violence can cause homicide and suicide. And in the case of accidents, it is evident that Puerto Rican men, more than women, assume behaviors and practices with exposure to risks dangerous for life. In the case of mortality from natural causes, the ratio indicator between the mortality rates of men and women for liver disease and hepatic cirrhosis and Human Immunodeficiency Virus (HIV-AIDS), was also high, 3.75 and 3.17, respectively.

Contemporary social and health issues, with reference to historical trends in mortality in Puerto Rico, precisely indicate that much of the incidents of violence that occur in Puerto Rico result in homicides, suicides, and serious accidents with injuries leading to death. It would be advisable to consider evidence that has historically shown the statistics and analysis of mortality by sex, age and cause of death for making explicit a public policy that goes beyond the legal and judicial standards of applying a penalty in prison to the party that commits the crime.

In conclusion, issues that underline the necessity for a new approach between research and public policy in Puerto Rico need to be addressed. The problem of mortality by sex, and excess male mortality as a feature of the situation in Puerto Rico, has been documented from various postures. Vázquez (1984) identifies the levels and differentials in mortality by sex since the beginning of the demographic phenomenon.

However, no documented references to explicit policies programs or specific plans of action to address gender inequality in health affecting women and men in Puerto Rico

were found in preparation for this study. Multiple evidences, diagnostic and research results indicate that Puerto Rico requires the implementation of a comprehensive policy on gender equity in health.

An explicit gender policy in Puerto Rico requires a comprehensive process of gender mainstreaming in health, taking into consideration the differentials and inequalities in health to promote a change in the state of health, lifestyle and well-being of the Puerto Rican population at different stages of the life course. Gender perspective in health is the basis for improving the functions of health care, prevention and control of diseases, health promotion and health education for the establishment of good community practices.

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