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Decreasing of Maternal Mortality in Peru and Capacities

Disminución de la mortalidad materna en Perú y el enfoque de capacidades

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Abstract: This research intends to learn the capacities provided by the public policy of Peru to women, as individuals, their households or their place where they live in order to prevent maternal mortality. A brief summary of maternal health policies over the 25 years of the Millennium Development Goals is presented, underlining the most important ones such as Proyecto 2000 and *ParSalud*. Thirteen in-depth interviews were held with public servants, academics and activists, among others. The interviews suggested that the increase in infrastructure as well as in deliveries in which culture was respected have decreased maternal mortality.

Key words: Millennium Development Goals, maternal mortality, Peru, capacities, public policy.

Resumen: El presente estudio pretende conocer las capacidades que otorgó la política pública en Perú a las mujeres, de manera individual, a su hogar o al entorno donde habitaban, para disminuir la mortalidad materna durante los 25 años de los Objetivos de Desarrollo del Milenio (ODM). Se expone un breve resumen de las políticas de salud materna llevadas a cabo en dicho periodo, en el cual se destaca el Proyecto 2000 y *ParSalud* (Programa de Apoyo a la Reforma del Sector Salud). Se efectuaron 13 entrevistas a profundidad a servidores públicos, activistas y académicos, entre otros. Las entrevistas sugieren que el aumento de infraestructura y de la opción de partos donde se respetaba la cultura hizo que la mortalidad disminuyera.

Palabras clave: Objetivos del Milenio, mortalidad materna, Perú, capacidades, políticas públicas.

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Introduction

Not only is maternal death a medical issue, but also a social, economic, political, cultural, etc., problem. The overall objective of the article is, first: to restate that the increasing or decreasing in people's health and socioeconomic level is a relationship that can go both ways; but when there are medium or low socioeconomic levels, public policy may intervene via the furthering of capabilities to improve health. Second, to identify the capabilities that must be considered by public policies in order to reduce maternal death. Third, to analyze the case of Peru due to its outstanding progress in the fifth Millennium Development Goal (MDG's).

The article is structured as follows: first, some theories on capabilities are analyzed, as they can influence the reduction of maternal death; subsequently, a methodological framework is proposed on the basis of identifying and listing variables and indexes for the purpose of simplifying the analysis and identification of the capabilities that were granted (to women, their households or environments) in the different programs implemented in Peru from 1990 to 2015, highlighting the most emblematic policies: Project 2000 and "ParSalud". Due to the lack of statistics at a disaggregated level, 13 in-depth interviews were held with officials in charge of the design and the implementation of public policies (at a managerial level), activists or experts in the field, among others, making a total of 7 women and 6 men. To quote them, their position is mentioned for the first time to contextualize, in addition to their name and surname, the following time, it is only cited by the surname. In like manner, in the paragraph where "cultural adequacy" in health policy is addressed and several respondents are quoted, the sources appear as a footnote for easier reading.

Capability building to decrease maternal death

The study of maternal health and its failure, seen as mortality, is a problem with many sides and also highly avoidable. In addition to the figures, its seriousness is the social repercussions it entails and that it is an indicator of the quality of health care services in a country (Coneval, 2012: 11-22). Maternal death occurs during a period of life in which women are young, fertile, and productive (around between the ages of 10 and 50), turning this into an early death, where human assets are lost and no longer contribute to their greatest potential. For this reason, "improve maternal

health" was placed on the international agenda as a goal to be achieved within 25 years, from 1990 to 2015 among the MDG's. United Nations (UN) member countries committed, as part of their national public policies, to reducing maternal death by 75% and achieving universal coverage of skilled birth attendance by 2015 (WHO, 2015).

The countries with the highest incidence of this problem had a medium or low level of development, concentrated mainly in rural and/or poor areas. In 2005, while in Africa one in every 26 women died, in developed countries one in every 7,300 died (WHO *et al.,* 2008: 17). For poor nations, the goal was difficult to reach, since common sense indicates that at higher economic and development levels, there is an improvement in health and, therefore, a decreasing in mortality in general terms (and maternal death in particular). Though, empirical evidence points out that wealthy countries do not always have the healthiest individuals, as it is the case of the United States and Russia (Deaton 2013: 21-22).

Sen (1999) restates on the relationship between economic development and health. He argues that a higher investment in health care does not always become better health for people, because there are those who are excluded from development, and to prevent this from occurring, public policy must intervene (Sen, 1999: 44, 46-49). An example of the above are the cases of the Indian state of Kerala, China, Sri Lanka and Costa Rica, which were or are poor or middle-income places, and which managed to increase health levels (Sen, 1999: 46-49). Other examples include Bangladesh, Cambodia, China, Egypt, Ethiopia, Laos, Nepal, Peru, Rwanda, and Vietnam, which reduced maternal death despite the relative low levels of health care spending and GDP per capita, given the political and socioeconomic challenges they faced at the time (Kuruvilla *et al*., 2014: 541).

There are factors that link the relationship between higher income and better health, or vice versa, they include or exclude people from development benefits and make mortality rates increase or decrease. In 1974, Lalonde (1974: 31) identified that the health levels of a community were determined by four elements: "human biology, environment, lifestyle and health care systems". In 1985, Buck (1985: 10-12) made a critique of Lalonde by adding more dimensions: 1) dangerous environments; 2) lack of basic needs and amenities; 3) stressful, ungrateful, and depersonalizing jobs; 4) isolation and alienation; and 5) poverty. Health is determined by a number of factors such as "a wide variety of biological, social, economic, cultural, technological and ideological processes" (Salgado AND Guerra,

2014: 393-394), but nevertheless, the concept "determinants of health" can be summarized as the structural (which should be guaranteed by the State or the market) and living conditions (of the individual or group) that are the main causes of health care inequalities, unfair and preventable health care differences observed within and between countries (Rivera and González, 2012: 280; Salgado and Guerra, 2014: 393-394).

In Breslow's definition (cited by Kickbusch, 2003), these determinants are services provided by the State, and health care is a construction accomplished through the granting of capabilities to people, i.e., the determinants of health can be changed or reversed through the granting of capabilities (Kickbusch, 2003: 384). Which, according to Sen (1999), are the freedoms that people can enjoy, what people value and have reasons to value (Sen, 1999: 87). Capabilities may change the determinants of health in a positive way, increasing the healthy state of people.

Sen (1992 and 1999) identifies the problem of lack of capabilities specifically in the deaths of female individuals and calls it "loss of women". This phenomenon is very common in South Asia, North Africa and China, and has to do with medical, social or demographic issues rather than low income, since malnutrition, lack of health care and even fetal selection contribute to increasing the phenomenon (Sen, 1992: 1; Sen, 1999: 20, 89, 106), even though it is well known that poor women are more vulnerable to acquiring diseases (Lomelí *et al.,* 2012; Sen, 2000: 40-44).

Dheeshana and Subadra (2011) take up Sen's (1992 and 1999) theories on capability building applied to maternal death. They analyze 142 developing countries using the principal component analysis. Its conclusion is that social development has a direct effect on the reduction of maternal death, by increasing reproductive capacity and freedom, also through the development of a social policy (Dheeshana and Subadra, 2011: 228). Likewise, the study found that political and social development had positive impacts on development and that efforts should be strengthened in public policies that allow social development such as: health care, water, communications, safe abortions, etc. In addition, the authors conclude that in countries with low levels of development, maternal deaths can be reduced with policies that expand the capabilities of people, especially women. It should be noted that Dheeshana and Subadra (2011) do not confine themselves to specific capabilities (as neither does Sen in any of his definitions) but open the possibility to anything that can improve or change women's health and choose capabilities according to their own criteria and experience (Dheeshana and Subadra, 2011: 229).

To analyze the decreasing of maternal death in Peru, a non-exhaustive list of capabilities that can influence health is proposed as a methodological framework. The theory does not specify what should be considered capabilities (because it is based on the principle of the granting of freedoms); therefore, there may be more variables not contemplated. The list is also based on other theories such as the determinants of health, other "factors" and other studies (see Annex).

The variable "capabilities that must be granted by public policy to reduce maternal death" was operationalized, from which three great dimensions were derived: "capabilities that must be granted to women as individuals", "capabilities that must be granted to the households where women live" and "capabilities that must be granted to the place/country where they live".

This classification into three major concepts responds to the characteristics of the individual, the family nucleus and the socioeconomic, geographical, political, cultural, etc., conditions that surround it. Subsequently, a subdivision of the dimensions was made that respond to economic, cultural, health, social, etc., characteristics. From these characteristics, the indicators emerge, which are the specific capabilities that are intended to be analyzed. Some are shown separately, but could be related to each other; for example, the use of contraceptives or work. There are times in which the decision does not depend on the woman, but rather on the couple as a set, or on situations outside the woman's control (availability of methods and cost, labor market, etc.). It has been decided to separate them to simplify the analysis (see Annex).

Decreasing maternal death in Peru

Peru has been one of the Latin American countries that has advanced the most on the fifth MDG. In 1990, they had a Maternal Death Ratio (MDR) of 251 deaths per 100,000 live births, which was only surpassed by the poorest nations on the continent: Haiti, Bolivia, and Honduras. By 2015, Peru had an MDR of 68 (World Bank, 2017). Although the target was 66 deaths per 100,000 live births, it was one of the 20 countries that reduced maternal death the most (Del Carpio, 2013: 462).

According to the Ministry of Health of Peru (2016), among the main causes of maternal death in this country during 2015 were: indirect obstetrics (33%), hemorrhage (24%), hypertensive diseases (21%), sepsis (15%) and direct obstetrics (7%). The profile of women who died in Peru was as follows: the main place of death was health institutions (64%),

followed by their residence (25%). The majority lived with a partner: cohabitation (67%) and married (15.3%). Their main occupation was housewives (79.9%) and their highest level of education was high school (40.8%). Regarding age, 12% were between 10 and 19 years old (adolescents) and 10% were over 40 years old. The majority died during the puerperium (63%) (MINSA, 2016: 69).

The figures speak as the results of the policy: the State institutionalized childbirth and monitored it through prenatal care checkups, as previously mortality was concentrated in rural and poor areas, where there was no infrastructure. The decreasing of maternal death was due, among other causes, to the increase in institutional births, which in Peru, in 2012, was 60% (Del Carpio, 2013: 463). This is attributed to a series of improvements in care such as resolution capability, interculturality (implementation of vertical delivery), maternal waiting homes and *Seguro Integral de Salud* [Comprehensive Health Insurance] (Del Carpio, 2013: 463; Nureña, 2009: 374). All of them were health care policies that the Peruvian government implemented over time.

Many of the programs were implemented, changed, or removed, as if it were a matter of "trial and error"; but this also occurred according to the change of government and the demands of the population and civil society or international pressures. Although there was no continuity in a public policy line, it can be said that maternal health programs began during the time of Fujimori era, when they were given more impetus, since during the crisis of the eighties the State's capacity to provide health services had decreased (Iguiñiz and Palomino, 2012: 176). It should be noted that these were also policies that were implemented under pressure from the United States to control population growth, which for Peru represented development and fighting against poverty (Rousseau, 2007: 318-319).

During the time of President Alberto Fujimori (whose term of office lasted from 1990 to 2000), the *Programa Nacional de Planeación Familiar* [National Family Planning Program] (1992-1997) was implemented, which provided access to modern contraceptives, but ended up promoting sterilization. This represented a problem of violation of women's rights, who lacked information to make the decision (Iguiñiz and Palomino, 2012: 176). These programs were abused to achieve the goals and ended up in massive and forced sterilizations (Iguiñiz and Palomino, 2012: 176; Estrada and Godoy, 1996: 205; Yamin, 2003: 98).

The policy received strong criticism and pressure from human rights groups. Some programs were changed and ceased to be implemented; as a

result, the former general coordinator of the *"ParSalud"* Program, Walter Vigo, reports the following:

> The discrediting of contraceptives linked to sterilizations that were done in Fujimori's government made a conservative group participate, and this group imposed a norm that until now cannot be lifted, because it is very harsh: minors have to go with their parents to ask for contraceptives, both public and private, the norm requires it this way, so if a doctor is caught providing it to a minor, he can be prosecuted (W. Vigo, personal communication, 2016),

Peruvian legislation also criminalizes abortion for both the patient and the person who performs it. With the presidential periods of Alejandro Toledo (2001-2006) and Alan García (2006-2011), it can be said that Peru entered a democratic period; civil society organizations, political parties and the *Acuerdo Nacional* [National Agreement] reached consensus to achieve plans to fight against poverty and the *Plan Nacional Centrado en Salud* [National Plan Focused on Health] was developed (Iguiñiz and Palomino, 2012: 179; Sánchez, 2013: 30). With García, "results-based budgets" were established, which, in the words of Mario Tavera, physician-advisor to the Vice-Minister of Public Health and former UNICEF Peru health specialist, provided "financial, programmatic and results-based support and annual monitoring, where surveys become annual, to the main issues affecting the health of Peruvians and there were two priority issues: maternal and neonatal health and chronic child malnutrition".[1]

Results-based budgeting was "based on the need for prenatal services and obstetric emergencies, as indicators of the health sector performance and for their results to be auditable" (Iguiñiz and Palomino, 2012: 181); in addition to the access to information and transparency in the management of the budget allocated to maternal health (Malajovich *et al.,* 2012: 190). It should be noted that according to the *Estrategia de Cooperación Tëcnica* [Technical Cooperation Strategy] by the Pan American Health Organization (PAHO/WHO) (cited in Sanchez, 2013), Peru has one of the lowest health budgets in Latin America: 4.4% of GDP (of which 2.3% is public and 2.1%, private), which is below the Andean Community (5.8%: Bolivia and Colombia, 8.3%: Ecuador and 6.4%: Venezuela) (Sanchez, 2013: 44). More than money invested, it was accountability and focused fund that made the difference.

During the 1990s, a large number of the population that was not insured in the formal and free health systems for pregnancy control and childbirth and postpartum care was incorporated into the *Seguro Público*

1 M. Tavera, personal communication, 2016.

de Salud [Public Health Insurance] (Rousseau, 2007: 316); but although the incorporation of the poorest groups granted the expansion of rights, it saturated the services, as explained by the director of the *Centro de Promoción y Defensa de los Derechos Sexuales y Reproductivos* [Center for the Promotion and Defense of Sexual and Reproductive Rights], Susana Chávez:

> There is an absolute precariousness in the provision of medical services by the Peruvian State, this is supplied by the market and people have more out-of-pocket expenses, and this generates more inequities in the population, and for this reason maternal death has not been lowered [...] we should not confuse the issue of health care for all with the assurance or the affiliation of the person (S. Chávez, personal communication, 2017).

This is because "affiliation is not proof of coverage" (Durán, 2012: 612), which coincides with a study done in Mexico by the University of Chicago, where the results conclude that people affiliated to *Seguro Popular* [Popular Health Insurance] receive lower priority care and worse treatment; and there is also a double mortality ratio in these beneficiaries, compared to those who are affiliated to national health systems (Eng, 2014).

In Peru, the new model of reforms "focused the attention on poor rural women in areas with high levels of maternal death. In other words, a mitigation without addressing any of the underlying inequities" (Yamin, 2003: 33), as women were dying due to a lack of cultural inaccessibility or lack of capacity for resolution (Yamin, 2003: 203). The two programs that solved the problem of "lack of cultural accessibility" and "lack of infrastructure" were Project 2000 and *"ParSalud",* respectively.

Project 2000 (1995-2000) was funded by the United States Agency for International Development (USAID).[2] Its objective was to reduce maternal death through access to obstetric emergencies, but it operated only in some regions of Peru (Seclén *et al.,* 2003: 422; Yamin, 2003: 140). The results of the program vary, but some agree that it educated users about warning signs and hospital care (Seclén *et al.,* 2003: 433; Yamin, 2003: 268) and communication strategies were established to improve the provider-user relationship (Seclén *et al.,* 2003: 433).

For this, there were two strategies: the first is summarized in the words of the former executive director of Communications of Project

2 The figures are different according to different researchers: 60 million dollars, according to Iguiñiz and Palomino (2012: 176) and 126 million dollars according to Yamin (2003: 121).

2000, Victoria Pinedo, when she says that "the relationship with local, regional and provincial governments was strengthened and at the same time strategic partners such as social liaison organizations were called upon";[3] and the second, in the words of the former consultant for the *Ministerio de Salud* [Ministry of Health] and former regional director of *Promoción y Desarrollo de Huancavelica* [Promotion and Development of Huancavelica], Raúl Choque, is micro-local cultural adaptation and community participation: "Community participation is a process through which the community reflects, analyzes and decides on its health, it is not an imposition, but for there to be community participation there must be facilitators to promote it".[4]

Project 2000 was culturally adapted to the indigenous/countryside areas and made local governments take ownership and adapt it. Public policy gave communities (the environment in which women live) the power to decide for themselves how to manage the health of their inhabitants.

For Nureña (2009: 374), the decreasing of maternal death rates was due to "the cultural adequacy of services, the implementation of vertical childbirth and the work of waiting homes". The "health/waiting/maternal homes" were built in rural areas since 1998; in 2004 they were included among the national norms and protocols of Peru's health policies (Iguiñiz and Palomino, 2012: 180).

The waiting homes are equipped with "kitchen and also some room for the children and parents to sleep and accompany during childbirth so that the mother would feel comfortable".[5] There is even space for them to bring their animals, as the former president of the *Centro de Promoción Familiar y Reconocimiento Natural de la Fertilidad* [Center for Family Promotion and Natural Fertility Recognition], Martín Tantaleán, says: "Women have empowered themselves, they are locked and loaded",[6] since often the women living in the mountain ranges did not want to go to the health care facilities, because "mothers do not have anyone to leave their children with, or anyone to take care of their animals".[7]

3 V. Pinedo, personal communication, 2016.

4 R. Choque, personal communication, 2016.

5 V. Pinedo, personal communication, 2016.

6 M. Tantaleán, personal communication, 2016.

7 V. Pinedo, personal communication, 2016.

However, waiting homes didn't worked in all regions, only in some of them, since they were used for people who presented complications and these were difficult to predict in many cases (Yamin, 2003: 276). Neither did it work for cultural reasons: "I feel that we failed in the Amazonian river areas, childbirth is still between 15% and 30%, only institutional, the rest is still at home, and women are still dying".[8] The reasons given by the doctor and national coordinator of the *Estrategia Sanitaria Nacional de Salud Sexual y Reproductiva* [National Health Strategy for Sexual and Reproductive Health], Lucy del Carpio, are: "Because they have another type of housing, another type of style and they even have very deep-rooted that in some places they have to give birth in the river".[9]

For the Andean region, one of the outstanding additions was respect for culture. This means freedom for women, that to say, a capability that is granted by public policy, since they are allowed to give birth as they are accustomed to but supervised by specialists who intervene in case of complications. Culture becomes a major determinant of health, especially in places where it prevents women from receiving health care because only their husbands are allowed to touch them (Santos, 2010: 25) or because of mistreatment and not receiving assistance in their own language (Romero *et al.,* 2010: 44) or "mistreatment, delays, very cold spaces, having mothers with open legs for a long time, telling mothers that they are unclean or suddenly not allowing them to bring their family members to the health service".[10]

The ability to provide "intercultural childbirth" in these places was essential to lower maternal death rates. For Nureña (2009: 372-373):

> the health system's decision to incorporate vertical childbirth does not seem to have originated from political demands by the social actors involved (whose influence was only incipient in the country in those years), but rather from an attempt to achieve public health goals and as a form of affirmative action by the State in response to criticisms of development approaches that ignored cultural perspectives. These criticisms were greatly enhanced by the increasingly frequent claims of identity in regional and international political and academic debates.

Cultural adjustments made it possible to reduce maternal death in rural-indigenous areas, but many things had to be incorporated or changed for this to occur, which are detailed below.

8 M. Tavera, personal communication, 2016.

9 L. del Carpio, personal communication, 2016.

10 V. Pinedo, personal communication, 2016.

First of all, "vertical birth"[11] was incorporated, since in the Andean zone women "give birth squatting"[12] and the birth is assisted by "a familiar member";[13] it is often the husband, but the mother-in-law is the most important one, since "from our western vision the father must be present [...] but from the Andean vision it is not the pregnant woman who defines who is giving birth, but the mother-in-law".[14] A "tile is used to cut the umbilical cord",[15] since "in the Andean world, it is understood that if you cut the child with a knife, the child will be a delinquent"[16] in the future.

Likewise, the rooms had to be changed to dark and warm spaces, since cold is a synonym of death; black is sacred, light is the opposite, as stated by one of the people interviewed:

> Doctors are white. In the Andean culture, white is the opposite, it is terror; black is the sacred, the spiritual. If you put yourself in the head of the countryside patients and look at the whites, you realize that they are afraid to go to the health center.[17]

Therefore, if the sheets are white or light-colored, "they don't want the sheets, they want their blankets and they want their sheepskin in their delivery room"[18] ; i.e.,

> in order to make the beds warmer, they began to use sheepskins and hides; the other is that, according to the mother's periods, they began to use woven blankets made by the mothers themselves. In some parts of the Sierra, health personnel began to speak Quechua and Aymara.[19]

Finally, the placenta is given to the family, who bury it in a ceremony, as explained by the dean of the *Colegio de Obstetras del Perú* [College of Obstetricians of Peru], Rosa Elva Quiñones: "There are cultures, which you cannot throw away the placenta, you have to give it to them because it is part of their culture, they feel it as rebirth, so the family has to bury

11 R. Choque, personal communication, 2016; M. Tavera, personal communication, 2016; L. del Carpio, personal communication, 2016.

12 M. Tantaleán, personal communication, 2016.

13 M. Tavera, personal communication, 2016.

14 W. Vigo, personal communication, 2016.

15 R. Choque, personal communication, 2016.

16 W. Vigo, personal communication, 2016.

17 R. Choque, personal communication, 2016.

18 L. del Carpio, personal communication, 2016.

19 R. Choque, personal communication, 2016.

it",[20] because, as another interviewee pointed out: "It is the payment to the earth".[21]

Although Nureña (2009) also argues that Project 2000 had a gender focus, and Yamin (2003) denies it, if a policy fails to empower women, it will be of no use until there is a cultural change:

> Machismo is very strong and there has not been enough work on the social determinants of health. The social determinants should have made it so that women really go more to primary and secondary school, but women do not decide about their bodies and still do not have that capability, that empowerment that includes their own body to say I am bleeding, I am going to the hospital ... that in a response analysis of maternal deaths, many of them arrive late at the facility because they did not have a husband to make the decision to take them or because they were there and did not even have a sol to mobilize themselves.[22]

If there is no women's empowerment, health policy will continue to be pure welfarism, as Sen (1999: 218) and Nussbaum (2000: 2) speak of making women their own agents of development. The lack of decision-making capability has repercussions on complicated aspects such as their health and even on simple things such as food preparation:

> Due to the issue of malnutrition, women were empowered in the decision making capability to prepare food because in Peru the question always arises, *well, what are we going to eat today?*, contrary to what one might believe [...] and her partner generally looked for food that he understood was good for him and that he believed was good for the child, which in the end were preparations like soups, that did not generate nutrition, they had breakfast but not necessarily, so the idea was to empower women so that they could decide on food.[23]

"ParSalud" targeted the poorest regions of Peru that had high maternal death rates, i.e., "57% of pregnant women in rural areas and 52% of maternal deaths in the country" (Unidad de Monitoreo y Evaluación, 2012: 2). The program was funded by the World Bank (WBG) and the Inter-American Development Bank (IDB), and its objective was to support the modernization and reform of the health system (ParSalud, 2008: 3-4). It was based on the decentralization of services, the creation and equipping of facilities with resolution capability and the strategic distribution of these in places where they were needed (ParSalud, 2008: 12). As the coordinator of the *Administración Financiera* [Financial Administration]

20 R. Quiñones, personal communication, 2016.

21 M. Tantaleán, personal communication, 2016.

22 R. Quiñones, personal communication, April 20, 2016.

23 W. Vigo, personal communication, 2016.

of the *"ParSalud"* program, Fernando Masumura, explains: "The objective was set at two hours first because we could afford it and secondly in two hours because it is assumed that two hours is the time in which a woman with hemorrhage can endure to be attended".[24]

The program also aimed to "reduce the prevalence of anemia in pregnant women from 41.5 in 2005 to 35 in 2013" (ParSalud, 2008: 41). The estimated cost of the program was US$162,383,024, to be implemented over a five-year period (Unidad de Monitoreo y Evaluación, 2012: 1).

The Peruvian government's effort to bring health to people (individual capability) had an impact on the expansion of institutional capability (with the construction of hospitals and clinics), but also on the granting of other capacities to households (water, electricity) or to the environment (road network):

> Since investment in economic and social infrastructure began in 1992, the health sector has benefited from the construction of health clinics, but above all from the provision of electricity, water, telephone, and road services, which obviously have repercussions in improving the possibility of reaching the *Cuidados Obstétricos de Emergencia* [Emergency Obstetric Care] at the right time (Yamin, 2003: 137).

It should be noted that the situation of women has changed, increasing: the level of education, participation in the labor and political market, and access to birth control and urbanization (Yamin, 2003: 86). It should be noted that Peru met several of the MDG's targets: decrease in poverty, hunger, infant mortality, and tuberculosis; and increase and attention to family planning (Kuruvilla *et al.*, 2014: 538). One of the interview responses highlights and summarizes all of the above:

> There has been improvement in women's education, at least in basic education. Illiteracy has not been eradicated (especially functional illiteracy), but there has been a great improvement in women's education and women's participation (something that has surely happened in other countries of the world) and the processes of urbanization in Peru were historically, but particularly associated with the phenomenon of the Shining Path violence, which devastated Peru between the 1980s and 1994-1995, among other reasons [...] There were also economic reasons: there was a great migration from the rural to the urban world, and the urban world allows greater access to services, more information and more education. Peru has also had a progressive improvement in access to communication routes (since the time of Fujimori's regime), as many roads began to be built. It is not yet an ideal situation, but in relation to how it was before, it could be said that from 1995 onwards, the story of what it was to reach certain places in Peru was terrible, and then there are still places like that, but they are fewer, and that is key to the issue of motherhood.[25]

24 F. Masumura, personal communication, 2016.

25 M. Tavera, personal communication, 2016.

Some published Peruvian national statistics show how these capacities have been increasing, while maternal deaths have been decreasing. Some are cited below as examples with the available data (unfortunately, some do not have all the years of the MDG's): the average years of schooling attained by the female population from 15 years and older went from 9.1 years in 2002 to 9.9 years in 2015 (INEI, 2018).

The employed female population in 2007 increased from 6,207,000 to 7,299,000 people in 2015, and the total percentage of women of childbearing age using contraceptive methods, which in 1991 was 57%, increased to 74.6% in 2015, impacting a decrease in the fertility of Peruvian women, whose rate went from 3.83 children in 1990 to 2.29 children per woman by the final year of the MDG's (INEI, 2018).

In 1991, the number of hospitals was 503, and in 2015 it reached 651. Likewise, the percentage of births attended in health facilities increased, going from 45.5% to 91% in the aforementioned years; consequently, prenatal care by health professionals, which in 1996 was 67.3%, reached 97% in 2015 (INEI, 2018).

At a national level, there was an increase in the percentage of households that improved their living conditions, such as having access to electricity service, which in 2004 represented 75%, and by 2015, 93.8%, or in access to mobile telephony, which in 2001 was 7.8%, and by 2015 it was 87.22% (INEI, 2018). This reflects the country's economic situation, as GDP in Peru grew. In 1994 it was 98,579 million soles, and by 2015 it was 604,802 million soles (INEI, 2018). With this, it can be seen that it was not only the programs to reduce maternal deaths with an intercultural approach and the expansion of institutional capability that influenced the reduction of mortality, but also the changes over time in the situation of Peruvian women and the country in general.

On the other hand, there are no individual-level data or other sociodemographic, economic, cultural, etc., details of the women who died. In the *Encuesta Demográfica y de Salud Familiar (ENDES)*[26] [Demographic and Family Health Survey], "information on maternal and child health is emphasized" (INEI, 2014: 3). The survey is conducted over several months of follow-up to more than 20,000 households and women.

Based on this survey, direct and indirect estimates of the maternal death ratio are made, using the "sisterhood method" (Maguiña and Miranda, 2013: 20). The women interviewed were asked whether they had any sisters

26 The first survey was conducted in 1986 and was repeated for a period of five years until 2000. From 2009 to date, it is carried out every three years.

who died as a result of or after pregnancy and whether they suffered from violence. No further details are asked. For example, in the 2013 ENDES, out of 23,5000 women interviewed, 40 sisters died during pregnancy, 35 from abortion and 42 during childbirth, but not in the same year.

Both Project 2000 and *"ParSalud"* succeeded in having medical services personnel destined to places with non-Spanish speaking population trained in learning vernacular languages; since in Peru a significant part of the population is indigenous, around 40% (Nureña, 2009: 369), who live in poverty, in illiteracy and in the aftermath of the guerrilla (Gabrysch *et al.*, 2009: 724), and therefore, being mostly poor, they are highly dependent on the health care services provided by the government (Rousseau, 2007: 309).

This is important because the causes of death are linked to the places where people live, their socioeconomic level and lifestyle. For example, in studies done in Mexico, it was found that in poorer entities and rural areas, the main cause of death is obstetric (hemorrhage); while in entities with greater economic development such as the north of the country and the capital, urban areas, the main causes of death are indirect: preeclampsia and underlying systemic conditions (such as diabetes) (Uribe *et al.*, 2009: 58; Chávez *et al.*, 2010: 68); this gives a general idea of the socioeconomic conditions of women, but they do not say in detail about what capabilities they are lacking.

Conclusions

Many of the strategies and policies implemented in Peru to reduce maternal death are directly or indirectly related to capability building. The problem is how to measure them. There is not enough statistical data at a detailed level (individual and/or household) to prove what were the capabilities that Peru's health policy granted to women and what caused maternal death to decrease. However, two facts are worth noting.

The first one is that over the 25 years of the MDG's there was a change at a national level in the living conditions of women, their households and the country in general. There was an increase in the educational level (of the total population and in particular the female population) and an increase in the female labor force; when this occurs, there is a decreasing in fertility that can be observed by the increase in the use of contraceptives. Regarding the other economic conditions, there was an increase in GDP, an improvement in the living standards of households with

electrification or mobile telephony (which has repercussions in the increase of communications in case of obstetric emergencies, for example) and a long etcetera such as the country's entry into democracy. All of the above directly or indirectly created social, economic and political capabilities.

The second one is that the decreasing of maternal death in Peru is largely and particularly due to the implementation of public health policies, which incorporated the population into their health systems, and to the expansion of infrastructure and improvement of institutional capability (creation of hospitals and clinics, increase and distribution of trained personnel in places where they were needed) and in attracting the user (who previously for cultural reasons did not approach health services), giving them above all the freedom to choose their way of giving birth, with cultural adaptations. This also responds to a capacity granted and created by the government itself in a public policy.

The interviews yielded two important results. The first was the relevance of the programs in reducing maternal death: *"ParSalud"* contributed to the increase and creation of institutional capability on the part of the State, and Project 2000 brought and attracted the population closer to health services by institutionalizing childbirth through cultural adjustments.

This represents a capability because it gives people the freedom to choose. The interviews also highlighted the main challenges that Peru now faces. Among the many that exist —but were not mentioned or elaborated on in this article—, are the legalization of abortion, teenage pregnancy, and the increase of maternal death in urban and higher income regions, as well as the cultural appropriateness of deliveries in the jungle region. The collection of maternal death statistics and surveys should be improved to try to incorporate as many of the capabilities described in the Annex as possible.

This will help subsequent research to know what capabilities women need before, during or after childbirth to improve their health; above all, the incorporation of these capabilities so that they can be provided by public policy in general and women's empowerment in particular, so that they can be agents of their own development. The Annex, in addition to serving as a methodological framework for analysis, can serve as a proposal to create a cross-cutting issues policy that provides capabilities to women, their households or the country and has an impact on in health.

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Annex

Methodological framework for the analysis of maternal health capabilities

Variable	Capabilities that must be granted by public policy to reduce maternal death	
Dimensions	Capabilities that must be granted to women as individuals	
Sub dimensions	General health, maternal and reproductive health capabilities	
	Indicators	Reference from which the indicator is taken
	Absence of malnutrition	Hernández and Palacio (2012: 123), Lomelí *et al.* (2012: 254-255), Nussbaum (2000: 78-80), Sen (1999: 19), Plata (2010: 71-72) and Romero *et al.* (2010: 43).
	Vaccines and immunization	Dheeshana and Subadra (2011: 224) and Welti (2012: 71).
	Contraceptives	Coneval (2012: 25), Plata (2010: 71-72), Romero *et al.* (2010: 43), Dheeshana and Subadra (2011: 224), Hernández and Palacio (2012: 123) and King *et al.* (2008: 13-43).
	Prenatal checkups	Dheeshana and Subadra (2011: 224) and Santos (2010: 25).
	Humanized and/or intercultural childbirth	MINSA (2009: 38) and Nureña (2009: 374).
	Disease detection and addiction treatment	Hernández and Palacio (2012: 123).
	Screening and monitoring of pregnancies in patients under 18 and over 35 years of age	Hernández and Palacio (2012: 123), Plata (2010: 71-72) and Romero *et al.* (2010: 43).
	Quality of care received associated with maternal health (absence of obstetric violence, negligence, waiting time for medical care, etc.)	Santos (2010: 25).

	Economic capabilities	
	Indicators	Reference from which the indicator is taken
	Paid work	Hernández and Palacio (2012: 123), Nussbaum (2000: 61), Plata (2010: 71-72), Sen (1992: 1), Sen (1999: 218) and Welti (2012: 67).
	Home or land owner	Nussbaum (2000: 78-80) and Sen (1992: 1).
	Microloans/ Microfinance	King *et al.* (2008: 13-43).
	Social capabilities	
	Indicators	Reference from which the indicator is taken
	Level of education/years of schooling	Hernández and Palacio (2012: 123), King et al. (2008: 13-43), Lomelí *et al.* (2012: 254), Nussbaum (2000: 61), Sen (1992: 1), Sen (1999: 19), Sen (2000: 34) and Welti (2012: 67).
	Absence of violence (psychological, economic, sexual)	Chávez *et al.* (2010: 69), MINSA (2009: 34) and OEA (1994).

Variable	Capabilities that must be granted by public policy to reduce maternal death	
Dimensions	Capabilities that must be granted to the households where women live	
Sub dimensions	Economic capabilities	
	Indicators	Reference from which the indicator is taken
	Household income	Santos (2010: 25).
	Health resources	Santos (2010: 25).
	Social security affiliation	Hernández and Palacio (2012: 123), Romero *et al.* (2010: 43) and Sen (1999: 131).
	Decision on food	Cartwright and Hardie (2012: 80-81), Chávez *et al.* (2010: 72) and Sen (2000: 40-44).

	Infrastructure capabilities	
	Indicators	Reference from which the indicator is taken
	Water and drainage	Hernández and Palacio (2012: 123), Lomelí *et al*. (2012: 252-255) and Welti (2012: 67).
	Electricity	Dheeshana and Subadra (2011: 224).
	Telephone and Internet	Dheeshana and Subadra (2011: 224).
	Cultural capabilities	
	Indicators	Reference from which the indicator is taken
	Absence of impediment or restriction for a woman to be assisted	Santos (2010: 25).
Variable	Capabilities that must be granted by public policy to reduce maternal death	
Dimensions	Capabilities that must be granted to the place/country where women live	
Sub dimensions	Economic capabilities	
	Indicators	Reference from which the indicator is taken
	Adequate working conditions for pregnancy and breastfeeding	Hernández and Palacio (2012: 123).
	GDP, percentage of expenditure on health and social security	Dheeshana and Subadra (2011: 224) and Sen (1999: 10, 39).
	Social capabilities	
	Indicators	Reference from which the indicator is taken
	Absence of discrimination based on racial or ethnic origin	Welti (2012: 67).
	Infrastructure capabilities	
	Indicators	Reference from which the indicator is taken
	Access to hospitals and health centers within two hours, regardless of the size of the locality (urban or rural)	Hernández and Palacio (2012: 123), Lomelí *et al.* (2012: 252-255) and Welti (2012: 67).
	Delivery care by qualified personnel (doctors, obstetricians, midwives)	Santos (2010: 25) Dheeshana and Subadra (2011: 224).

	Technology available to treat complications in pregnancy, childbirth or puerperium	Lomelí *et al.* (2012: 254).
	Referral systems and coordination between hospital levels of care, availability of information, networked clinical records, etc	Coneval (2012: 18), Seclén-Palacín *et al.* (2003: 433).
	Political capabilities	
	Indicators	Reference from which the indicator is taken
	Democracy, governance and the rule of law, freedom and political participation	Deaton (2013: 14), King *et al.* (2008. 13-43), Nussbaum (2000: 61), Sen (1995: 10) and Welti (2012: 74).
	Access to legal abortion	Dheeshana and Subadra (2011: 224).

Source: Own elaboration based on the references described in the same table.

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