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'Vulnerability', an Interesting Concept for Public Health: The Case of Older Persons

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Traditional accounts of vulnerability tend to label entire populations as vulnerable. This approach is of limited utility. Instead, this article utilizes a layered approach to vulnerability, identifying multiple vulnerabilities that older people experience. It focuses on distinguishing the different layers of vulnerability that may be experienced by the elderly in middle-income countries of Latin America. In doing so, I show how the layered approach to vulnerability functions, and demonstrate why it is more interesting and useful than the traditional approach. The article achieves three things. First, it unwraps the different potential layers of vulnerability that develop in old age and the multidimensionality aspects of aging. Second, it reestablishes the usefulness of the concept of vulnerability and explains its functioning. Finally, it shows how different policies can be designed in order to address each vulnerability layer. The layered account promotes a multifaceted approach to public policy analyses and design. In this sense, the layered concept of vulnerability is an appealing concept to consider in public health ethics.

Introduction

The elderly are often considered a vulnerable population.[1] However, this absolute labeling is simplistic and detrimental. It obscures a range of questions and problems related to this situation. 'Vulnerability' has not been theorized in public health ethics. It comes, instead, from research ethics. Perhaps because vulnerability has been understood primarily as a label,[2] it has been difficult to see its usefulness and importance for public health ethics.

This article leaves aside the traditional or typical subpopulation approach to vulnerability[3] that is dominant in both research ethics guidelines and codes but also in public health.[4] Instead, it identifies multiple vulnerabilities that older people experience. It focuses on distinguishing the different layers of vulnerability that persons may have to bear (Luna, 2008, 2009a,b). This layered approach provides a novel view of the dynamic and functioning of this concept, rendering it more interesting and useful.

In this article, I will show how this new reconceptualization of the concept of vulnerability might make of it an interesting conceptual tool for public health ethics. It can complement and enrich other normative proposals in the public health field. I will apply it to the case of older populations, although it can also be used in other policy analyses.

The article has the following structure. I begin with a short introduction to aging in Latin American middle-income countries and a brief description of the theoretical tool of the layered account of vulnerability. Applying this conceptual tool, it then identifies different layers of vulnerability that coexist in the lives of the elderly and the sick. It illustrates a complex and contextualized view of vulnerable older people in countries like Argentina and Brazil, and the challenges they face. Then it analyzes the importance and possibilities of this concept for public health ethics. Based on these considerations, the article closes with different proposals for public policies.

Background Considerations

Let us first consider some background that is relevant to the analysis.

The Rapid Aging Population in Latin American Middle-income Countries[5]

Society's demography has changed, generating the paradox of having successfully cured many diseases

and improved people's quality of life and life span, while at the same time, having to bear the burden of an aging society. The case of Latin America and the Caribbean is interesting. In the 1950s, it had a small population of about 160 million people (which is less than current population of Brazil) (Cotlear, 2011: 1). Two-thirds of Latin Americans lived in rural areas. Families were large and women had one of the highest fertility rates. Since then, the size of the population of Latin America and the Caribbean has tripled, and the rural population has been transformed into a largely urban population. Life expectancy has grown by 22 years (Cotlear, 2011: 1).

A society is considered aged when persons over 60 years of age exceed 7 per cent of the population. In 2007, 13.3 per cent of Argentina's population was already over 60, and this was even higher in the city of Buenos Aires where 22 per cent were over 60 (Oddone and Aguirre, 2007: 35). By 2050, projections show that 25 per cent of people in Argentina will be over 60 years. Brazil's projections also include a rapidly aging population (Camarano, 2004): in 2000, 15.1 per cent of its population was more than 65 years, and by 2050, this figure is expected to have more than doubled to 31.8 per cent (Gragnolati et al., 2011).

Society's aging population poses serious challenges including, for example, the sustainability of social structures, the impact of aging on health status and health care and questions of fair intergenerational transfer of resources. The impact of an aging population has been acknowledged and studied for years in industrialized countries. This situation evolved smoothly in high-income countries: 'Whereas the demographic transition lasted over a century in developed countries, similar challenges are occurring much more quickly in Latin America and the developing world of today (...) France had 115 years to accommodate a doubling of its elderly population from 7 percent to 14 percent; this relatively slow process was common in other European nations and in North America' (Cotlear, 2011: 10).

In Latin America, the process is happening very fast; for example, Chile is transitioning in 26 years, Brazil is projected to do it in 21 years and Colombia 19 years (Cotlear, 2011: 10). This acceleration is problematic, as there is no adequate pre-existing health and social structure to support it. Middle-income nations like Argentina and Brazil are still battling structural problems such as poverty and no access to public pensions, as well as deep socioeconomic inequalities. These countries are less prepared to face this challenge of aging than more developed regions, in part because aging has not been seen a priority for low- and middle-income countries.

In 2000, 249 million people or 59 per cent of the world's 65 and over population lived in low-middle income countries (US Census Bureau, 2001). According to a UNESCO report, 70 per cent of older persons live in developing countries and only 33 per cent of them have access to specially designed services for the elderly and health-care providers with some geriatric training. The incidence of chronic and age-related diseases is rising rapidly in low-middle income nations and the lack of professionals with training in geriatric medicine prevents older adults from receiving the health care they need (Keller et al., 2002).

Old Age and Gender

Another feature is the feminization of old age. According to the World Health Organization (WHO), women outlive men by an average of 7.5 years (Cotlear, 2011: 7; World Health Organization, 2002). Their morbidity rate is higher and they have less access to health care. In Latin America, the situation is more complex: women generally work until they die. Their work is not visible and includes household chores (in certain cases it is very intensive, including care for a sick partner, care for grandchildren and so on). For example, the Caring for Those Who Care, a Buenos Aires City Government program, indicates that 88 per cent **of** the caregivers are women, that 80 per cent are over 50 years of age, that 60 per cent spend more than 5 h per day with the person in need of care and that 72 per cent carry out the care on a daily basis (Oddone and Aguirre, 2007: 35–36).[6] This phenomenon has received limited attention, and specially designed public policies to tackle these issues are lacking.

Thus, two phenomena characterize aging in Latin America: the accelerated aging of society and the feminization of old age. This is the setting in which the article will examine the vulnerability of older persons. Though this article considers Latin American middle-income countries, many of the problems and layers of vulnerability that I identify can also be found in other middle- and high-income countries, especially those without a welfare state or adequate policies for its less privileged members of society.

Layers of Vulnerability and Old Age

Vulnerability has been a concept traditionally used in research ethics. The majority of research ethics codes

identifies and list specific vulnerable groups: the elderly, prisoners, infants, among others (Belmont Report, 1979; CIOMS–WHO, 1993: Guidelines 10 and 13, The Common Rule of USA, CFR 1991: 46.107 (a), 46.111 (a) and (b); Coleman, 2009). They label entire groups as vulnerable (Levine *et al.*, 2004; Luna, 2008, 2009a; Coleman, 2009). The idea is to identify subpopulations in need of special care and protection. In public health we can also find a similar strategy. Many public health institutes,[7] health policy centers,[8] regional public health offices,[9] even the WHO[10] do refer to vulnerable populations and provide a list of these groups. To some degree this approach is to be expected because public health addresses the needs of groups or populations. However, the simple approach of labeling populations as vulnerable does not provide any insight into how the challenges facing these groups can be met, and stereotypes them.

Focus on Subpopulations

The traditional or typical approach is controversial. In focusing on subpopulations, the traditional analysis does two things. In the case of research, it first assumes a baseline standard for a default paradigmatic research subject: a mature, moderately well-educated, clear thinking, literate self-supporting person. Second, it assumes the possibility of identifying vulnerabilities in subpopulations as variations of the paradigm or as defaults of the paradigm. One problem then is that, as not everyone is comparable in the relevant way, members may fall outside the defined subgroup.

Traditional analyses have tried to define 'vulnerable populations' in terms of its necessary and sufficient conditions. That is, if a person satisfies *x* and *y* conditions, he or she belongs to a particular group of people and is therefore, by definition, a vulnerable subject. This has led to an essentialist and overly rigid view of the concept that categorizes a group as vulnerable. In turn, this entrenches stereotypes and categories and ignores variation between members of the group (Luna, 2009a: 122–127). It provides only a partial analysis of vulnerability because it does not provide tools to identify or understand variations or situations that may accentuate or minimize vulnerability. Finally, another undesirable consequence for public health is that the use of a subpopulation approach leads to a simple and 'one-size-fits-all' solution for the subpopulation and is insensitive to particularities.

Emphasis on Existential Vulnerability

A supplementary analysis, the existential approach, claims that everyone is vulnerable, fragile and finite. It expresses a view about the overall human condition appealing mainly to continental philosophical perspectives.[11] On this account, vulnerability is a universal human feature, an ontological condition. Whilst it is true that everyone is exposed to suffering, deterioration and death, *this is not the relevant point*. What is significant, when reviewing and conducting research with human subjects or when designing public health policies, is that the participants or persons express their fragility in multiple ways in response to particular circumstances.[12] And they express this fragility in different degrees and combinations. Some persons or groups experience specific situations of vulnerability, and it is these specific forms of vulnerability that must be addressed, by offering not only protection and safeguards but also the possibility of empowerment (Rogers *et al.*, 2012b). A similar argument applies to public health. It is not the universal human condition that public policies target but specific persons or groups in need of safeguards, protection or empowerment.

The danger of the existential and essentialist interpretation of vulnerability is the risk of *naturalizing* vulnerability: if everyone is equally and essentially vulnerable, no one is *specifically* vulnerable. Moreover, no one would need any kind of *special* protection. This is exactly what critics of the typical account of vulnerability want. They seek to annul the normative force of this concept. Thus, Levine *et al.* say 'If *everyone* is vulnerable, then the concept becomes *too nebulous to be meaningful*' (Levine *et al.*, 2004: 46).[13] For this reason, the overly broad use of vulnerability is dangerous, unless other normative concepts are introduced (disadvantage, injustice etc.) to protect vulnerable persons. In contrast, it seems more accurate to think that the universal dimension of human vulnerability functions as merely a background condition, and the contextual or relational features of the concept of vulnerability are the important features.

Relevant Definitions and the Layered Approach

More helpful are other definitions of vulnerability (Goodin, 1985a,b; CIOMS-WHO, 2002; Hurst, 2008; Rogers *et al.*, 2012b). For example, in philosophy, Robert Goodin uses vulnerability and dependency interchangeably (Goodin, 1985a,b). He poses the following situation: A is vulnerable to B if and only if B's actions and choices have a great impact on A's interests. And he

equates interests with welfare. In bioethics, Rogers, Mackenzie and Dodds explain that more than ordinary vulnerability entails an increased risk of harm (Rogers et al., 2012b).[14] Although with slightly different emphasis, all these definitions point to dependency, exclusion, increased risk of harm or wrong to the interests, well-being, health or autonomy of others. However, even though endorsing one of these definitions may help understand who is vulnerable, it will not show the richness and particular functioning of this concept. Nor will it explain why sometimes it is felt there are so many disparate and differing dimensions of vulnerability (that is, related to the consent capacities, the possibility of abuse or exploitation, the lack of special social support, etc.) In addition to an adequate definition of vulnerability, we also need a dynamic and contextual analysis that can capture the multifaceted aspects of the concept of vulnerability. This is the layered approach.

This approach 'unpacks' the concept of vulnerability. Layers may overlap, rendering the person increasingly more vulnerable. To illustrate, consider the following example:

> 'Being a woman does not in itself entail vulnerability. However, a woman living in a country that does not recognize or is intolerant of *reproductive rights* acquires a layer of vulnerability. In turn, an educated and resourceful woman in that same country can overcome some of the consequences of the intolerance of reproductive rights; however, a *poor woman* living in a country that is intolerant of reproductive rights acquires another layer of vulnerability. (She may not have access, for example, to emergency contraceptives and, hence, will be more susceptible to unwanted pregnancies). Moreover, an *illiterate* poor woman in a country that is intolerant of reproductive rights acquires still another layer. And, if she is an immigrant, undocumented, or belongs to an indigenous community, she will acquire increasing layers of vulnerabilities and suffer under these overlapping layers.' (Luna, 2009a: 128–129)

Regarding old age, as we will see, some layers may have to do with gender, others with disability and sickness, physical or psychological dependence, while others may be related to social circumstances, such as the lack of adequate pensions, family relations or even basic human rights violations.

In summary, the subpopulation approach is inadequate because it is tantamount to using the vulnerability concept as a mere slogan, categorizing and stereotyping the elderly. It obscures the different dimensions and features of vulnerability. In gerontology, an approach that labels all elderly as vulnerable is also rejected and called 'ageism', a prejudice against old people (Butler, 1993; Oddone and Salvarezza, 2010: 5–6). Gerontologists speak of difficulties with labels and stigmatization of the elderly (Oddone and Aguirre, 2004). Moreover, with the subpopulation approach, diverse and targeted public policies cannot be designed because the population as a whole is labeled as vulnerable and this implies that one solution will fit everybody. And, as we will see, it is precisely well-designed public policies that can address the different layers of vulnerability via targeted strategies. In order to achieve this, the first step is to identify these layers of vulnerability potentially affecting elderly people.

Identifying Layers of Vulnerability in Old Age

Although the article specifically considers the situation of Argentina and Brazil urban populations, that situation is surely similar to other countries. Poverty and exclusion do not pertain only to middle- and low-income countries—though in these countries it is greater and more generalized—it can also apply to the poor and low-middle classes of the world. This section describes some of the multiple layers that can be identified.

A first issue to identify, then, is a layer of *economic vulnerability*. This occurs when older persons are excluded from the productive sector although they still have the ability to work. The impact of a compulsory retirement age is obviously more significant in a country without a strong and efficient pension scheme. People with access to pensions or superannuation schemes have the option of retiring and carrying out the projects they had had to postpone during their working lives (traveling, hobbies and so on). Instead, for many persons living without an effective coverage system, retirement is not a rational option. Older persons can be excluded from the job market; they receive minimal pensions, and the little money they can earn does not always cover their basic needs. This is obviously exacerbated by the economic status of the person.

In Argentina, a significant proportion of the working people do not have a retirement pension available as they do not work under formal contract conditions or their employers avoid the pension system (approximately 8 million from a population of 42 million)

(Stang, 2013) and the ones that do have a pension, in general, obtain a quite small amount of money. Of course some well-off older people in Argentina will enjoy their retirement funded by private savings (Oddone and Salvarezza, 2010: 8). But many of the options open to older adults are unjust. It is unfair to compel them to continue working at minimum wage; it is also unfair that they be forced into a bad retirement. The diminished income caused by 'forced' retirement can generate unease, depression and diverse types of dependence. In this sense, they acquire a first layer of vulnerability.

A second layer of vulnerability is generated by the *judicial system*. In Argentina, for example, lawsuits to adjust pension payments in line with inflation can often take 5 years or more. Hence, applicants are forced to battle red tape and endure the impoverishment that an unadjusted pension produces in countries with high inflation rates.

A third layer relates to housing in inadequate establishments that fail to meet their needs. The *housing vulnerability layer* is particularly relevant to older persons who cannot live alone and need a geriatric institution that can offer them the care and tranquility they deserve at this stage of their lives.

As noted earlier, these kinds of vulnerabilities arise as a consequence of an accelerated aging society. Processes to address the needs of the elderly, that have taken numerous decades to develop in industrialized countries, are required in middle-income countries in only a few short decades. The absence of adequate processes deepens inequality and injustice in the system and exacerbates sociopolitical devaluation of this population (Engelman and Johnson, 2007). Because they are considered to produce little of value to society, older people are often excluded from educational and vocational training programs and hindered from receiving credits or loans (HelpAge International, 2000). As Engelman and Johnson explain, 'Unlike interventions for (young) women and children, which are viewed as an investment contributing to the social and economic development process, programs and healthcare services for older people are often viewed as a cost (and a burden) to society's already constrained resources' (Engelman and Johnson, 2007: 9).

Cultural context also plays a role. Older persons annoy, do not understand and find it difficult to adapt easily. They are suspended in time. An example of this is *communication vulnerability*. Today's world is populated by machines, computers, tablets, mobile phones, with means of communication via emails, Twitter or Facebook—an increasingly virtual world. The elderly in countries, who have scarcely been exposed to these technologies, encounter an insurmountable barrier. They are expensive and demand technical skills. Simple errands involve dealing with indecipherable gadgets, impersonal answering machines and an absence of human contact. Older persons face a distant far-off world that no longer belongs to them. This vital difficulty also generates a layer of vulnerability where they have to deal with an inflexible system, which does not wait for them to adapt. This reality impedes their daily quality of life, their chances to interact and their ability to solve problems independently.

A fifth aspect of vulnerability relates to personal relationships—*relationship vulnerability*. Family structures have changed, especially in cities. In the past, different generations lived together and kinship ties were extended (grandparents with uncles and aunts, grandchildren and children)[15]. Today's nuclear models only include parents and their children, with no room for older persons. Moreover, families themselves have become more multifaceted—separations, new marriages or blended families, step-brothers or sisters and so on. In general, the modern family situation is not very receptive to accommodating and accompanying older members, and, undoubtedly, this can give rise to a layer of vulnerability for many older people; they feel they are alone, isolated and a burden on their families.

Associated with relationship vulnerability is the sixth layer: *emotional vulnerability*. This refers to the dependence that many people feel for their caregivers and is not a new phenomenon. As mentioned, women tend to be the primary caregivers.[16] However, physical and emotional abuse by caregivers is frequent—an often overlooked but highly common and problematic issue.[17]

An additional layer is *cognitive vulnerability*. This seventh layer is linked to psychological alterations, such as memory loss and dementia, common to many older individuals. It is often difficult for the family to keep company during these processes; the overwhelming situation and the inability to find solutions create feelings of guilt or inadequacy. Resolving these common situations is extremely complex, and those suffering from these conditions need help, generating yet another layer of vulnerability.

The last layer, I will point out, is the decline of *physical capability*. This situation is also associated with vulnerability. Characteristic of this stage of life is physical instability, fragility, the risk of fractures from falls, among others. This physical vulnerability could be heightened by external factors that make it more incapacitating and severe. For example, older people's

degree of mobility is reduced owing to the architectural barriers in cities such as the lack of ramps, adequate handicapped access, protective barriers and broken streets or sidewalks.

The above examples reveal situations of vulnerability that any older person who is not sick can encounter. These are only some of the possible layers of vulnerability the elderly face. Note how the view becomes more refined, how it unfolds and how the analysis becomes more complex with a layered analysis compared to an account that simply states that older persons are vulnerable.

Layers of Vulnerability in Sickness

Sickness adds a new dimension to the above layers, and some distinctions should be noted.

One situation is the one of the *chronically ill patient*. The person requires care but can lead a relatively independent lifestyle. He or she is likely to need informal caregivers, who are generally women. The wife or daughter tends to assume responsibility for care giving. These patients may be exposed to similar layers than the above described but these may be exacerbated by illness. They may confront different kinds of vulnerabilities, depending on the degree of social involvement and adaptation they maintain.

Other challenges are present in the *home health care patient*. The need for home care can arise in a number of situations, including the lack of necessity to hospitalize the patient or the desire to be at home rather than in a nursing facility. Patients with a terminal illness may prefer less invasive medical care and seek palliative care in the home. The home health care patient, for whatever reason, has a greater degree of dependence on family members, and in addition to all the other layers, creates a layer of high costs. Health insurance plans (even private ones) often do not cover the full care these patients will need. Worse still, at times it is a hospital that wishes to 'free itself' from the patient and send him or her home to the family. Even though a family expresses a 'desire' to take responsibility for the patient, it may lack the requisite infrastructure to provide proper care, especially in the case of a patient needing respiratory assistance, feeding tubes or basic hygienic care. There is no simple answer. These types of care demand specific training by qualified caregivers. Although home services and qualified persons do exist, the patient needs to be immersed in a family setting that can provide and administer such treatment.

This entails making adjustments that are economically and emotionally difficult to meet, at times generating family disputes, abandonment or possibly even abuse. Levels of vulnerability can sometimes be tied to cultural and social situations. In an increasingly individualistic society, it can be difficult for families to accommodate an older person, especially for long periods. Who will tend to the sick grandmother or uncle? Above all, where will he or she stay, in small poorly equipped apartments?

Unlike the above situations, *hospitalization* involves a very different set of layers of vulnerability when patients find themselves distanced from familiar surroundings (common objects and routines, the smells of their environment, memories, all the elements that help them stay alert and active), together with the separation from their relatives who are limited to brief visits. They are alone, in a strange setting and attended by people in white coats. This contributes to a stratum of vulnerability that, taken as a whole, tends to result in disempowerment. There is a tendency to infantilize patients, referring to them as 'grandmother' or 'grandfather' and calling them by their first name. They lose their authority, their 'nobility' and even their clothes. This entire situation is heightened further when patients are confined to *intensive-care units*. In this situation, the layers multiply: patients are isolated; time references fade, creating a strong psychological impact with mental disorders and loss that older persons find difficult to recover.[18] Patients are connected to an array of machines that register their vital signs, immobilizing them and causing discomfort. Physicians and nurses must follow strict protocols that, at times, appear to ignore the fact that they are dealing with human beings. On occasion, for example, at night, patients may have to be restrained for the staff's peace of mind to prevent the patients from disconnecting tubes and wires attached to life supports, consequently intensifying their suffering and anguish when they intermittently awake and are lucid. In some cases, poorly trained health-care providers exhibit a lack of empathy when moribund patients are hospitalized and providers consider the treatment a waste of resources and an inappropriate diversion from their other duties. It is often the family itself that presses for hospitalization, be it out of zealousness, the belief that the patients will be better off, or merely because they do not want to take on the responsibility of care. Many times hospitalization is an ill-advised decision and the lack of a palliative care service worsens the circumstances, but it is the patient who ultimately pays and becomes even more vulnerable.

Therefore, the existence of these different layers may intensify vulnerability. However, we can also witness old

persons who have an active, lucid and enjoyable last years of life.

Why is Vulnerability an Important Concept for Public Health Ethics?

In recent research ethics literature, 'vulnerability' has been recognized as an under-theorized[19] concept, and there have been only few attempts to analyze it (Hurst, 2008; Guidry-Grimes and Victor, 2012; Macklin, 2012; Rogers *et al.,* 2012a,b). In public health ethics, it has been analyzed to an even lesser extent. This article cannot solve all the problems vulnerability displays nor can it present a full-fledged theory, but it goes beyond research ethics and attempts to show its usefulness for public health ethics.

Vulnerability and Public Health

In 'Public health ethics: A manifesto', Dawson and Verweij explain that public health 'should aim at protecting and promoting the health of a large group or population, and that public health actions involve collective activities by governments, health care systems or even society as a whole' (Dawson and Verweij, 2008: 1). Undoubtedly, vulnerability calls for protection of groups and populations and we have already seen the subpopulation approach present in different institutions and documents regarding public health.[20]

With regard to the moral foundation of public health ethics, Faden and Shebaya argue that social justice[21] is the basis: 'Understood in this way, public health ethics has deep moral connections to broader questions of social justice, poverty and systematic disadvantage'. (Faden and Shebaya, 2010) If we consider this moral foundation of public health ethics, we can see that an analysis of vulnerability is essential. In general, the poor are among those considered to be vulnerable, as they have systematic disadvantages that a commitment to social justice may overcome. However, the peculiar angle of vulnerability is needed because even if many layers of vulnerability can be minimized through policies promoting social justice such as an efficient welfare state, other layers of vulnerability remain untouched. As discussed above, these include personal relationships that may be abusive, stigmatization, diminished capacities, etc.[22] Even more, there may be layers of vulnerability affecting groups or people that are not the 'traditional vulnerable' ones (i.e., the poor or disabled) as in the case of middle-class pregnant women

targeted by private cord blood banks that render this population vulnerable,[23] or persons with rare diseases who may not be in a disadvantaged socioeconomic condition. Hence, even if we grant that social justice or a fair society can eliminate many layers of vulnerability, other layers of vulnerability cannot be addressed by improvements in social justice alone.

Normative Status of Vulnerability

Another issue to consider is the normative force of vulnerability. We can find extreme proposals that, at one end, recognize it merely as a descriptive concept (Kottow, 2004), and at the other end, consider vulnerability as an ethical principle (UNESCO, 2005). However, there is an interesting middle ground assessing the normative force of this concept. Layers of vulnerability can be thought, at a minimum, as markers or alerts about a situation that should be considered and, if possible, modified. A stronger claim points out that vulnerability not only sets the alarm, but is a source of obligation. Following Goodin's analysis, it can be said that there is a special responsibility toward vulnerable persons, and that an obligation exists to prevent harms or protect the interests of those who are especially vulnerable to our actions or choices (Goodin, 1985a,b). This line of argument is particularly interesting. Thus, when layers of vulnerability are affected or created by existing public policies, it can be argued that governments or society should take responsibility. Primary responsibility falls to whomsoever is in the best (or in the limiting case, the unique) position to protect the vulnerable.[24] It is not an issue of making a voluntary commitment or a self-assumed obligation of having caused those layers. Many layers of vulnerability may not be the product of a person's or group's particular actions, but it is society as a whole, through state policies, for example, that should alleviate them. Thus, its relation with public health ethics is fundamental.

Layers and Taxonomies[25]

The layered approach to vulnerability makes it possible to identify different layers operating at the same time without providing a specific order. Meek Lange, Mackenzie and Dodds suggest going beyond the layers and propose a taxonomy (Meek Lange *et al.,* 2013). They characterize different sources of vulnerabilities in terms of three overlapping categories: inherent, situational or pathogenic. They contend that inherent vulnerability 'include[s] our corporeality, our neediness, our dependence on others and our affective

and social natures. . . . The extent to which inherent sources produce risk of harm or wrongs depends on our health, gender and disability as well as the person's capacities for resilience coping and the social supports she may have. Situational sources of vulnerability are context specific and include the personal, social, political, economic or environmental situation of a person or social group. Situational sources of vulnerability may be intermittent and short-term or enduring. . . . Pathogenic sources of vulnerability are a subtype of situational sources that arise from dysfunctional social or personal relationships. These relationships are often characterized by prejudice, abuse, neglect or disrespect or from political situations characterized by injustice persecution or political violence.' (Meek Lange et al., 2013: 336)

Taxonomies seem to have a reassuring effect because they make people feel reality can be organized or put in order. The problem is that reality is too complex and tends to escape from order and regulations (Luna, in press). In this case, there is not even a clear-cut taxonomy that allows us to situate each phenomenon in a different category. As the authors themselves acknowledge, the categories may overlap, which makes it even more difficult, if not nonsensical, to use the taxonomy. In addition, it is not a neat taxonomy, as categories are not at the same level (pathogenic is a subtype of the situational category, it does not have the same status as the other two).

It is also difficult to differentiate between inherent and situational sources of vulnerability because Rogers, Mackenzie and Dodds favor a relational approach to autonomy. The latter is an interesting concept of autonomy; however, it is problematic for this taxonomy, as boundaries are blurred by such a conception of autonomy, and the distinction between inherent and situational sources does not seem to work. But even if we leave aside difficult cases regarding relational autonomy and deal with easier ones such as old persons and their physical layer, if we want to rank it as an inherent source because of instability or fragility, it can be argued that this layer of vulnerability will probably be actualized when the person walks on the streets, and sidewalks are uneven, dirty, broken or when the public transportation is not adequate. But if this is the case, is this not a situational source of vulnerability as it is the environment, the social and personal situation that triggers vulnerability? If the older person goes for a stroll and there is an adequate infrastructure with ramps or if he or she has a caring companion or helper, he or she will not fall. Hence, it is not so much the inherent source that is relevant but rather, the

situational source and may end up by defining the source of vulnerability, therefore switching from inherent to situational. This ambiguity may be odd for the work that a taxonomy is supposed to do.

Also, it is not clear that only the situational sources can be intermittent or enduring. Inherent sources of vulnerability can persist during a period; moreover, if it includes the 'person's capacities for resilience coping and the social supports she may have'. Hence, taxonomy may not do what it promised.[26] Taxonomies suggest a classification, but at least in this case this classification is not truly achieved (the inherent source turns in situational or pathogenic). Instead, layers are better tuned and more accurate with the dynamic of vulnerabilities. Part of the tension with taxonomies has to do with a non-essentialist concept of vulnerability. A situation may render a person or group vulnerable, but this does not mean a permanent or essential feature. This dynamic nature of the concept of vulnerability again is better captured by a layered approach.

Public Policy Design

By applying the multilayered vulnerability approach to the design of public policies, specific strategies could tackle each layer in a more subtle and sophisticated way. Each layer can call for a particular policy to eradicate it or, at least, to minimize it. In this sense, the layered concept may be helpful for the policy maker.

This approach does not favor an a priori ranking of priorities. However, what Rogers, Mackenzie and Dodds (Rogers et al., 2012b)[27] call 'pathogenic' may trigger other vulnerabilities and render the person or groups of persons even more vulnerable. I think this distinction is quite interesting and relevant for public health. But I prefer to refer to this pathogenic source as layer having a 'cascade effect'. This denomination avoids the biological connotation of 'pathogenic'[28] and clearly illustrates the devastating consequences such layers of vulnerability involve. Therefore, layers of vulnerabilities with a cascade effect should be carefully considered and, if possible, addressed. Thus, based on existing resources and particular circumstances, plus some specific duties[29], one could construct an analysis of what could be implemented. It can also be done incrementally by considering the best way to use resources.

Possible Public Policies

The aim of this article is not to propose entirely original policies; it is, rather, to signal some policies that can be

adjusted to what is already in effect or to consider some successful existing policies that incorporate what this layered approach points out. However, more radical and novel policies can also be designed.

One example of public policies is to improve the pension system. Some countries foster savings throughout the citizenry's lifetimes (such as tax exemptions if the money is to be recovered at retirement age). Supplementary schemes that complement state retirement plans can be also proposed. Of course, this may not be easy to achieve in some developing countries where inflation is commonplace, and serious political and economic instability as well as systemic corruption is a matter of course. Yet, the time may be ripe to meet the challenge and commit to helping the future generations face their many years of old age. In addition, it is unacceptable that so much time and effort is necessary to adjust pensions. A basic task is to design a fast and efficient system to adjust pensions and avoid the consequent vulnerability. At first glance, this last policy does not appear to be so difficult to resolve and, hence, it would eliminate one layer of vulnerability, substantially improving the lives of older persons. Sometimes it is just lack of political will or inefficiency that prevents a resolution. Both layers (economic and judicial) seem to have a cascade effect impacting on many other aspects of the old person well-being. Thus, it is important to consider carefully how to minimize or eradicate them.

As to housing vulnerability, different alternatives exist with the public system's greater or lesser investment. Geriatric institutions that offer good care and a fitting service to the elderly can be built, avoiding merely a 'depository for older people'. A complementary policy can be to improve systems to monitor, authorize and maintain these institutions, demanding good quality care with the state acting as watchdog.

Given the situation of older people who are economically better off, housing can be planned for them to maintain their independence (say, small apartments with a bedroom, bathroom and living area), with privacy while offering common spaces and shared services for special needs (health care providers) or socialization. Such 'continuing care' facilities are common in many countries, and the older population can choose and plan with time. Another solution is needed for older persons who own their property and find it difficult to sustain themselves. So, sales systems can be regulated for these persons. They could offer the future sale of their apartment in exchange for a monthly rent that would allow them to live in their own apartments in comfort and with help until they die. This involves a risk for the buyer who may be paying for an apartment for 10 or more years, but it makes no difference to the older person and provides the tranquility of receiving a monthly income and the chance to live in his or her home.[30] The policy would require regulating these novel kinds of transactions.

With regard to physical challenges owing to architectural barriers, modifications can be done privately and begin in the home, the bathroom in particular. Bars can be installed to prevent slips, safety measures inside and outside of the tub or shower, alarms for fast and effective aid. There can also be public policies for the design of architectural modifications around the city and for the means of transportation. Without having to resort to very sophisticated analyses, changes can begin with the obvious: repairing the sidewalks, the countless potholes and the uneven surfaces that hinder walking and give rise to easily avoidable falls and fractures; the installation of ramps for wheelchair access; and then more advanced measures can be planned and implemented.

With respect to more complex layers like the loss of individuals' capabilities, manifold strategies must be designed to reverse the obstacles. *Communication vulnerability* may indeed be difficult to remedy, largely because of today's rapid and continual technological advancements. Obviously, the world cannot stop to accommodate some of the elderly's needs by turning back to the past. Nonetheless, public action campaigns can cultivate some values, explaining the difficulties of older persons, promoting their intrinsic value to the community, introducing intergenerational programs, fostering more understanding of the elderly and so on. It is important to inculcate and educate the affirmative values that old age can offer society: lifetime experiences, background and wisdom, while also instilling values like solidarity, altruism and empathy for the elderly. It is key to visualize this stage and to remind the younger generation that they, too, will be there one day. Sensitizing and educating the community can impact favorably on the daily lives of older people. This layer also can be perceived as having a cascade effect.[31]

At the same time, public policies should contemplate the feminization phenomenon of old age and its various manifestations; they should consider ways of alleviating the burden faced by elderly women by granting better pensions, among others.

Although bringing about these changes is no easy task (since they require action by policy makers), it is possible. Some of these proposals are already in effect and it is only a question of adapting them to Latin America's socioeconomic realities. Yet other kinds of vulnerabilities exist that are extremely difficult to root out, for example, the relationship or emotional layer.

It is clearly hard to modify family models, divorces, new partners and emotional dependence. However, identifying the layers of emotional dependence is a first step in developing safeguards and suitable protections to prevent, say, cases of abuse. Helplines can be established that can respond to reports or tender proper social support and fast responses.

Minimizing Vulnerabilities in the Health-Care Environment

Regarding the health-care setting, we should also identify the various layers that interact in the same situation and try to protect the patient, eradicating or at least minimizing vulnerability. For example, satisfactory medical follow-ups of the chronically ill patient could serve to monitor existing health problems, while preventive strategies can help the patient remain independent. Even though a person may be self-sufficient, the home must still be prepared to avoid accidents that could initially be trivial but that could become more serious over time, resulting in a complete destabilization of the older person. Accidents like a simple fracture can eventually prove fatal, thus the need for protective measures and alarm systems. A system of qualified caregivers or nurses would also contribute to the well-being of these individuals, making them feel cared for and comfortable while relieving the family so they themselves are not obliged to take care of the person but can help as they choose, generating psychological comfort and improvements in the family relationship.

In the case of home health care, the issue of vulnerability becomes much more dramatic, as the person has lost his or her independence and needs ongoing care. In general, in Argentina, the public and private health-care systems provide little help and leave the family with the anguish and responsibility to care for their relative until death. This should not be an 'imposition' owing to an unresponsive health-care system. To achieve successful home health care, appropriate measures should be decided together with the medical and institutional system to work smoothly within the family environment, which ultimately takes over the care of the patient. This kind of home care should be closely linked to the formal health-care system and rely on its collaboration and organization for the benefit of the elderly.

Although hospital-based intensive care may be necessary in some cases, it is frequently ill-advised and could produce complications in the patient and a waste of resources for the health-care system. In such cases,

we confront again a layer of vulnerability with a cascade effect. This is far from new; for years, physicians and bioethicists have pointed out the importance of proper medical referrals or recommendations for intensive care (Gherardi, 1998) It is essential to continue to educate health-care providers so that they avoid the 'temptation' to make inappropriate decisions. This will help to avoid all the negative consequences of hospitalization. However, it is often family members who refuse to resign themselves to the imminent death of their kin and press physicians to 'do everything', even when this may not be the best option for the patient. Underlying this proposal is the dichotomy between the quality and quantity of life[32], as well as a certain conceptualization of old age and the requirement of an aggressive medicine or not: whether what is technically or medically possible is in the best interests of the patient.[33]

One way to advance these questions and diminish layers of vulnerability is again by educating the population, providing information, explaining the complications that an intensive care unit can generate when it is unwise—the implied costs for a society of limited resources, the suffering involved in the final days of life. And, just as it is essential to educate the health-care providers, so too is it important to educate the family, that is, the community who demands this care out of lack of understanding or mistaken beliefs. After such campaigns, debates and sensitization come the nuclei of more personal decisions on how one lives his or her own dying. However, these decisions should be reached after carefully sifting through analyses and information.

With respect to the type of treatment to provide in the hospital or at home, the work of palliative care services is fundamental.[34] These are specially designed services to treat acute or advanced illnesses. The palliative team utilizes an integral multidisciplinary approach that covers the patients and their families who are experiencing a process of pain and mourning. The same holistic approach that treats persons with different end-of-life pathologies, considering both physical and psychological aspects, should be applied to many older patients who have not yet reached this stage of their lives. The type of approach used in palliative care, interdisciplinary and involving the family, based on the comfort and well-being of the patient, can be made extensive in non-terminal cases of sick, elderly patients, whether in homecare situations or hospitalization. This implies creation of policies that support this kind of health care and services in both public and private settings. Palliative care, essentially being a non-invasive approach, is not only more human but

also less expensive and, for this reason, important to develop as a public policy for middle income countries.

How to rank priorities and what policies to implement is the work for conscientious public health officers. Having the conceptual map of the many layers of vulnerability involved in old age, may help policy makers in their decision-making process. Layers with a cascade effect should be specially targeted and tried to be solved in order to avoid their strong negative effects. Even if many of the policies may be difficult to implement, not all strategies involve great expenditures or investments, some need better regulation (ameliorating the judicial system of pension actualization) or adequate legislation (sale system of apartments, tax exemptions).

Conclusion

As is readily apparent, society's aging population poses innumerable challenges in middle-income countries. These countries still face many structural problems (a first and a third world coexist with the injustice and poverty this entails). Older people's well-being and health are normally not regarded as a priority. These countries are ill-prepared to cope with this new demographic: few institutions are adequately equipped or have sufficient staff to take care of the elderly. Society's aging is happening very fast and it is hard to adjust for these countries to this new situation. A huge part of the population has limited resources and lack adequate pensions. Among many other failures, social and economic infrastructure to support vital needs of this population is lacking. In addition, as it was shown, many other layers of vulnerability coexist.

To address vulnerabilities multiple policies can be developed. They may include awareness campaigns, social modifications, new pension arrangements and legal agreements, changes in infrastructure, housing and architecture, as well as modifications in the health-care setting. This article has presented only some of the possibilities to begin to address this serious problem in greater depth.

To show how vulnerability affects old age, this proposal endorses a layered approach, which reveals different facets of vulnerability. It shows how multiple synergetic layers reinforce one another, thereby rendering the elderly increasingly more vulnerable. To minimize this effect, I have explored different potential possible policies that address each layer individually.

I also argue that that for policy making, and for thinking through the challenges of old age, it makes no sense to speak merely of the vulnerability of older people; it is far richer to speak of the different layers of vulnerability that are operating and explore how they can be minimized. The layered concept of vulnerability is sufficiently robust to use in developing appropriate and nuanced public health policies. It is time to begin considering this approach to vulnerability seriously as a useful tool for public health ethics.

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None declared.

Notes

1. 'Elderly people are commonly regarded as vulnerable'. (CIOMS-WHO, 2002: Guideline 13, p 64–66). They are also mentioned in public health documents and agencies (see notes 4, 7, 8 and 10).
2. See section 'Layers of vulnerability and old age'.
3. For the description of these traditional views (Luna, 2009a). In recent years there have been new proposals analyzing the concept of vulnerability. For example, IJFAB has devoted an issue to this topic (Hurst, 2008; Macklin, 2012; Rogers et al., 2012a,b; Martin et al., 2013: in press).
4. The Seattle and King County has formed a Vulnerable Population Action Team (VPAT) that includes among their target vulnerable populations, the senior, children, physically disabled, immigrant communities, mentally ill impoverished, undocumented persons, homeless and shelter dependent. See http://www.kingcounty.gov/health

services/health/preparedness/VPAT/segments.aspx. Also, Florida Health Department, in its Web site, has the goal of meeting vulnerable population needs. See http://www.doh.state.fl.us/demo/bpr/Vulnerab lePopulations.html In the same vein, the Canadian Environmental Health Atlas worries of vulnerable populations. See http://www.ehatlas.ca/heatwaves/ human-impact/protecting-vulnerable-population See also notes 7, 8 and 10.

5. I am considering countries HIGHEST Human Development Index (HDI) category as developed or high income countries, and countries not in this group are referred to as developing. I distinguish between low-income and middle-income countries following international standards. See Chapter 1 of the UNDP Human Development Report 2010. http://hdr.undp.org/en/media/HDR_ 2010_EN_Chapter1_reprint.pdf

6. It should be acknowledged this study was done during the economic crisis in Argentina, which might have had an influence.

7. For example, the National Academy for Public State Health Policy issued a report 'Toward Meeting the Needs of Vulnerable Populations: Issues for Policymakers' Consideration in Integrating a Safety Net into Health Care Reform Implementation'. (Grossmann et al., 2012). The Urban Institute, in its Web site, defines vulnerable populations and gives the usual examples (the poor, racial and ethnic minorities, undocumented immigrants etc.). See http://www.urban. org/health_policy/vulnerable_populations/

8. The CDC (Center for Disease Control and Prevention) from USA and its Office of Minority Health and Health Equity (OMHHE) aims to eliminate health disparities for at risk–vulnerable populations. See http://www.apha.org/membergroups/ newsletters/sectionnewsletters/comm/fall06/2985. htm. The American Public Health Association considers vulnerable populations in its strategy.

9. See note 4.

10. In its Web site, WHO speaks of vulnerable populations in emergency, including children, pregnant women, elderly people and malnourished people. See http://www.who.int/environmental_health_ emergencies/vulnerable_groups/en/

11. Onora O'Neill expresses this view. She says, 'Human beings begin by being *persistently* vulnerable in ways typical of the whole species: they have a long and helpless infancy and childhood; they acquire even the most essential physical and social capacities and capabilities with others' support; they depend on long-term social and emotional interaction with others; their lives depend on making stable and productive use of the man-made world . . . .' (O'Neill, 1996: 192). It can be found in continental philosophers like Paul Ricoeur (2007) or Emmanuel Levinas (2005). Lately other analyses try to capture this idea (Martin et al., 2013: in press).

12. This controversy leads to the discussion over the scope of the concept of vulnerability, and there have been some efforts to solve the discussion (Martin et al., 2013: in press; Meek Lange et al., 2013). However, this topic goes beyond the scope of this article.

13. 'Under one or another of these rubrics, *nearly everyone is vulnerable*, especially since the benefits of research can never be guaranteed in advance [. . .]. *If everyone is vulnerable, then the concept becomes too nebulous to be meaningful*' (Levine et al., 2004: 46). My emphasis.

14. In another article they explain that more than ordinary vulnerability entails an increased risk of harms and wrongs (Meek Lange et al., 2013).

15. It has been recently pointed out that this is not historically accurate in the USA or UK. However, life expectancy was of 65 years; hence, the problem was not as acute as it is now (Odonne and Salvarezza, 2010: 9).

16. The first caregiver is the spouse (generally women as they are younger and live longer than their husbands), the second caregiver is the daughter, the third a paid person outside the family, the fourth is the son.

17. An Argentine study revealed 8.5 per cent of violence in the family setting and 30 per cent in the streets (Oddone, 2001).

18. Although this occurs in any case of prolonged hospitalization at any age, this has greater impact on older persons because they are confronting the possibility that they may not return home and they lack the flexibility to adapt to new situations.

19. I agree with Rogers, Mackenzie and Dodds (Rogers et al., 2012a,b) that there is no one theory that satisfactorily addresses all the issues, but that a number of theories provide useful conceptual resources.

20. See notes 4, 7, 8 and 10. They provide some examples of this phenomenon.

21. Another view is the one that considers public health ethics as an injunction to maximize welfare (Faden and Shebaya, 2010).

22. This is why, among other reasons, justice-based definitions of vulnerability are insufficient and inadequate (Hurst, 2008).

23. This also has to do with the nature of 'vulnerability' and with a non-essentialist concept of it. A situation may render a person or group vulnerable but this does not mean a permanent or essential feature (Luna and Vanderpoel, 2013).
24. Goodin also considers residual responsibility (Goodin, 1985b: 779).
25. I will only consider Meek Lange, Rogers and Dodds (Meek Lange *et al.*, 2013) because they specifically present a proposal to go beyond layers, though there are other taxonomies. The quotes will be from this 2013 version, though the original taxonomy is in Rogers, Mackenzie and Dodds (Rogers *et al.,* 2012b).
26. Some other suggestions offered by Rogers, Mackenzie and Dodds are appealing. For example, their proposal of duties or the pathogenic source.
27. See note 25.
28. I am grateful to María Florencia Santi for this suggestion.
29. Some of Meek Lange, Rogers and Dodds (Meek Lange *et al.*, 2013) duties can be reformulated and extended to public health as follows: (i) duty to avoid exacerbating occurrent layers of vulnerability and/or making dispositional layers of vulnerability occurrence; (ii) duty to avoid generating layers of vulnerability with a cascade effect; (iii) duty to alleviate or relieve layers of vulnerability dependent on our actions and choices, and (iv) duty to promote agency and autonomy. I cannot expand on this scheme, but I go beyond Meek Lange *et al.* proposal and include (iii).
30. This model has been implemented in some countries and has proven highly beneficial for older persons who find themselves alone.
31. For example, by rendering these persons more isolated and unable to solve by themselves practical problems of everyday life (extracting money from bank accounts, paying bills, etc.).
32. On the one hand is the value of the length of life and appeal to aggressive and invasive medical technology to prolong precious moments, hours or days of life, and on the other, is the view that upholds the quality of life and considers old age a vital stage that will inevitably end in death. The latter value does not involve actions that could overly incapacitate the patient, and stresses the importance of acknowledging limits.
33. These are quite controversial issues widely debated. Their discussion goes beyond this article.
34. Countries adapting end of life policies, such as euthanasia, had first provided and supported a strong palliative care. For example, the Netherlands.

References

Belmont Report. (1979). *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.* Washington, D.C.: US Government Printing Office.

Butler, R. (1993). Envejecimiento Global. Desafíos y Oportunidades del Próximo Siglo. *Gerontología Mundial*, **1**, 2–8.

Camarano, A. M. (2004). *Os novos Idosos Brasileiros: muito além dos 60?* Rio de Janeiro: IPEA (Instituto de Pesquisa Econômica Aplicada), available from: http://www.ipea.gov.br/portal/images/stories/PDFs/livros/Arq_29_Livro_Completo.pdf [accessed 12 February 2014].

CIOMS-WHO. (1993). *International Ethical Guidelines for Biomedical Research Involving Human Subjects.* Geneva: Council for International Organizations of Medical Sciences.

CIOMS-WHO. (2002). *International Ethical Guidelines for Biomedical Research Involving Human Subjects.* Geneva: Council for International Organizations of Medical Sciences.

Coleman, C. H. (2009). Vulnerability as a Regulatory Category in Human Subject Research. *Journal of Law, Medicine and Ethics*, **37**, 12–18.

Cotlear, D. (2011). Population Aging: Is Latin America Ready? In Cotlear, D. (ed.), *Population Aging: Is Latin America Ready?* Washington, DC: The World Bank, pp. 1–42.

Dawson, A. and Verweij, M. (2008). Public Health Ethics: A Manifesto. *Public Health Ethics*, **1**, 1–2.

Engelman, M. and Johnson, S. (2007). Population Aging and International Development: Addressing Competing Claims of Distributive Justice. *Developing World Bioethics*, **7**, 8–18.

Faden, R. and Shebaya, S. (2010). Public Health Ethics. *Standford Encyclopedia of Philosophy*, available from: http://plato.stanford.edu/entries/publichealth-ethics/ [accessed 12 February 2014].

Gherardi, C. R. (1998). Reflexiones Sobre la Futilidad Médica. *Perspectivas Bioéticas*, **3**, 59–61.

Goodin, R. E. (1985a). *Protecting the Vulnerable.* Chicago: University of Chicago Press.

Goodin, R. E. (1985b). Vulnerabilities and Responsibilities: An Ethical Defense of the Welfare

State. *The American Political Science Review*, **79**, 775–787.

Gragnolati, M., Jorgensen, O. H., Rocha, R. and Fruttero, A. (2011). *Envelhecendo em um Brasil mais velho. Banco Internacional para a Reconstrução e o Desenvolvimento*. Washington (D.C.): World Bank.

Grossmann, L., Witgert, K. and Hess, C. (2012). Toward Meeting the Needs of Vulnerable Populations: Issues for Policymakers' Consideration in Integrating a Safety Net into Health Care Reform Implementation. *National Academy for State Health Policy*, available from: http://nashp.org/sites/default/files/safety.net_.hcr_.pdf [accessed 12 February 2014].

Guidry-Grimes, L. and Victor, E. (2012). Vulnerabilities Compounded By Social Institutions. *International Journal of Feminist Approaches to Bioethics*, **5**, 126–146.

HelpAge International. (2000). *The Aging and Development Report: Poverty Independence and the World's Older People*. London: HelpAge International.

Hurst, S. A. (2008). Vulnerability in Research and Health Care; Describing the Elephant in the Room? *Bioethics*, **22**, 191–202.

Keller, I., Makipaa, A., Kalenscher, T. and Kalache, A. (2002). *Global Survey in the Medical Curriculum*. Geneva: World Health Organization (WHO), available from: http://www.who.int/ageing/projects/en/alc_global_survey_tegeme.pdf.

Kottow, M. (2004). Vulnerability: What Kind of Principle Is It? *Medicine, Health Care, and Philosophy*, **7**, 281–287.

Levinas, E. (2005). *Humanismo del otro Hombre*. Mexico: Siglo XXI.

Levine, C., Faden, R., Grady, C., Hammerschmidt, D., Eckenwiler, L. and Sugarman, J. (2004). The Limitations of 'Vulnerability' as a Protection for Human Research Participants. *American Journal of Bioethics*, **4**, 44–49.

Luna, F. (2008). Vulnerabilidad: la Metáfora de las Capas. *Revista Lexis-Nexis Jurisprudencia Argentina*, **IV**, 60–67.

Luna, F. (2009a). Elucidating the Concept of Vulnerability. Layers not Labels. *International Journal of Feminist Approaches of Bioethics*, **2**, 120–138.

Luna, F. (2009b). La Declaración de la UNESCO y la vulnerabilidad: la importancia de las capas. In Casado, M. (ed.), *Sobre la Dignidad y los Principios. Análisis de la Declaración Universal de Bioética y Derechos Humanos de la UNESCO*. Navarra: Civitas, pp. 255–266.

Luna, F. and Vanderpoel, S. (2013). Not the Usual Suspects: Addressing Layers of Vulnerability. *Bioethics*, **27**, 325–332.

Luna, F. (in press). Rubens, Corsets and Taxonomies: A Response to Meek Lange, Rogers and Dodds. *Bioethics*.

Macklin, R. (2012). A Global Ethics Approach to Vulnerability. *International Journal of Feminist Approaches to Bioethics*, **5**, 64–81.

Martin, A., Taglione, N. and Hurst, S. (2013). Resolving the conflict: Some Clarifications of Vulnerability in Health Care. *Kennedy Institute of Ethics Journal* **24**, 51–72.

Meek Lange, M., Rogers, W. and Dodds, S. (2013). Vulnerability in Research Ethics: A way forward. *Bioethics*, **27**, 333–340.

O'Neill, O. (1996). *Towards Justice and Virtue*. Cambridge: Cambridge University Press.

Oddone, M. J. (2001). *Actitudes, Percepciones y Expectativas de las Personas de Mayor Edad*. Documento de trabajo N°3. Buenos Aires: Centro de Documentación e Información, Ministerio de Economía y Finanzas Públicas.

Oddone, M. J. and Aguirre, M. B. (2004). 'Ochenta y más: los desafíos de la longevidad'. In Molina, S. (ed.), *Aspectos Psicosociales del Adulto Mayor*. Buenos Aires: Ediciones de la UNLa, pp. 63–85.

Oddone, M. J. and Aguirre, M. B. (2007). A Pendular Movement Between the Intergenerational Pact and the Exhaustion of Support Networks in Argentina. In Paoletti, I. (ed.), *Family Caregiving for Older Disabled People: Relational and Institutional Issues*. New York: Nova Sentence Publishers, pp. 35–62.

Oddone, M. J. and Salvarezza, L. (2010). Una mirada gerontógica de la vejez. In Roisinblit, R. (ed.), *Odontología Para las Personas Mayores*. Buenos Aires: Ediciones del Autor, pp. 3–17.

Ricoeur, P. (2007). Autonomy and vulnerability. *Reflections on the Just*. Chicago: University of Chicago Press.

Rogers, W., Mackenzie, C. and Dodds, S. (2012a). Introduction. *International Journal of Feminist Approaches to Bioethics*, **5**, 1–10.

Rogers, W., Mackenzie, C. and Dodds, S. (2012b). Why bioethics needs a concept of vulnerability? *International Journal of Feminist Approaches to Bioethics*, **5**, 11–38.

Stang, S. (2013). La mitad de las personas que trabajan no tienen aportes jubilatorios. *La Nación*, (10 de julio), p.1.

UNESCO. (2005). *Universal Declaration on Bioethics and Human Rights*. Available from: http://unesdoc.unesco.org/images/0014/001461/146180e.pdf [accessed 12 February 2014].

United Nations Development Programme (UNDP). (2010). *Human Development Report 2010*. Available from: http://hdr.undp.org/en/media/HDR_2010_EN_Chapter1_reprint.pdf [accessed 12 February 2014].

US Census Bureau. (2001). *An Aging World*. Washington, DC: US Government Printing Office.

World Health Organization. (2002). *Envelhecimento Ativo: uma Política de Saúde*, WHO. (2005 first edition in Portuguese. Brasília: Organização Pan-Americana da Saúde.), Geneva.