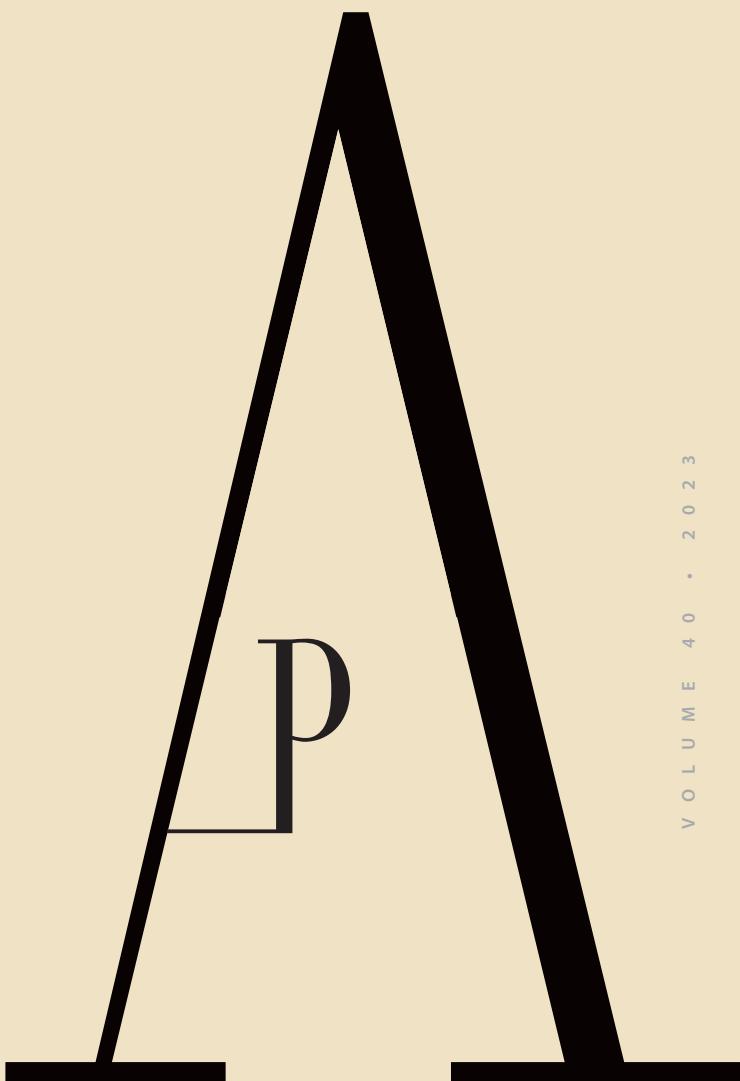


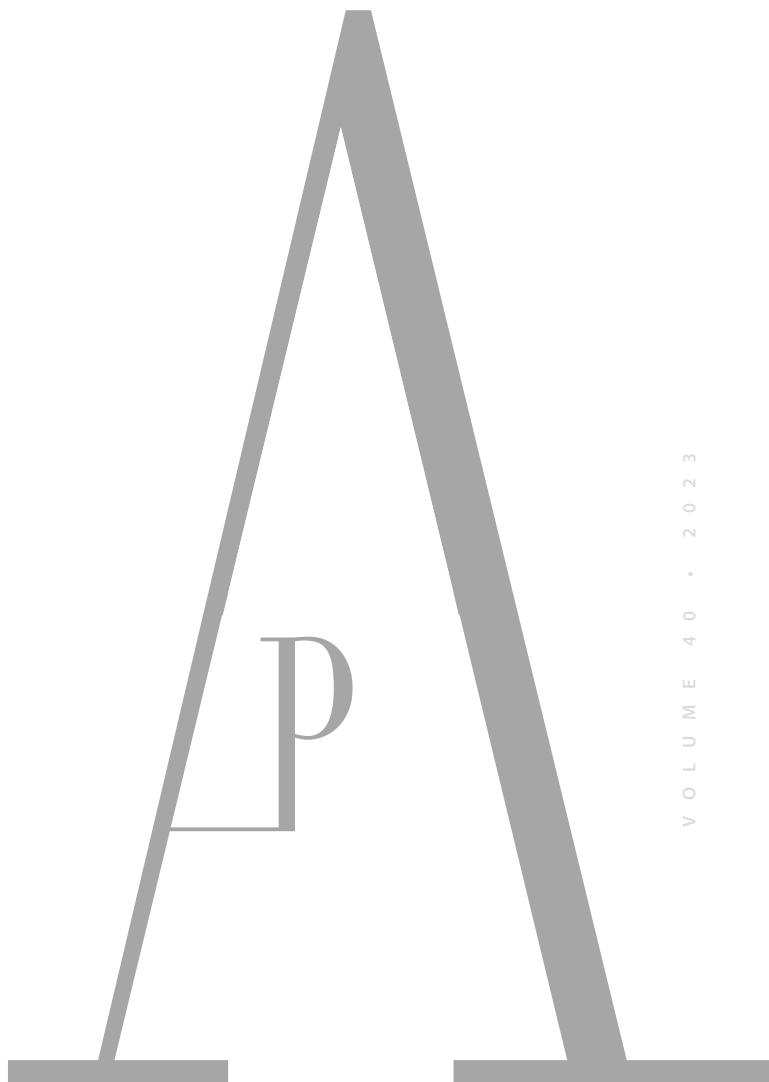
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Design

Imprensa da Universidade de Coimbra

Execução gráfica

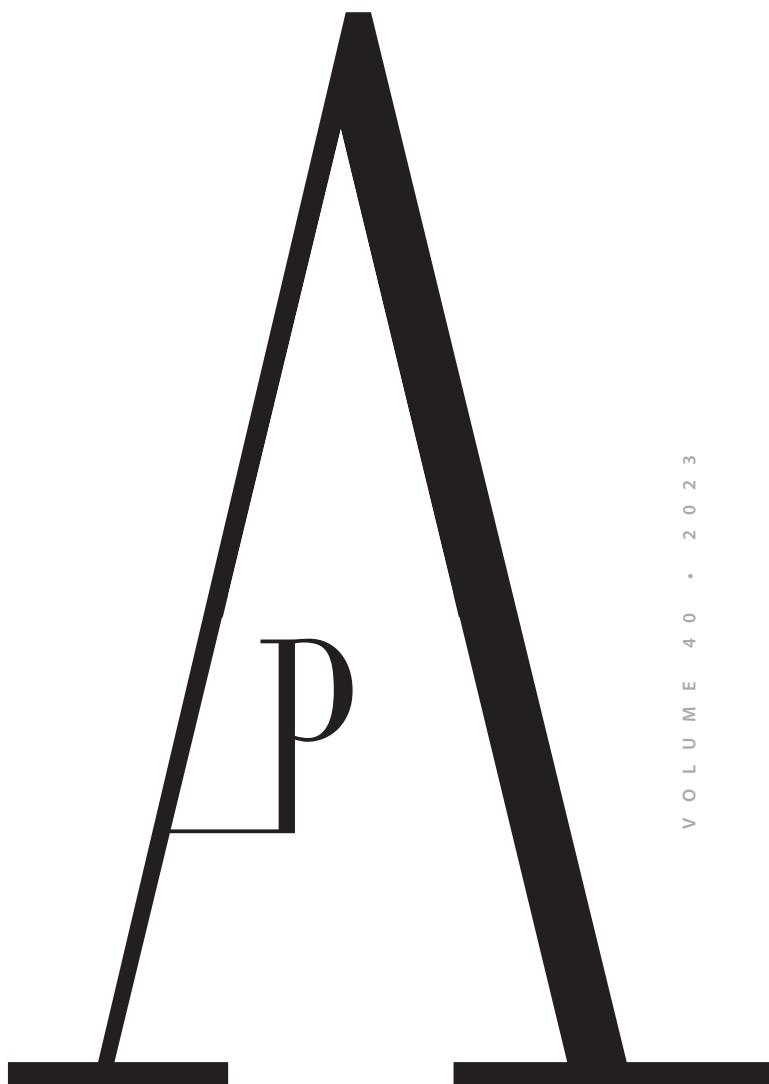
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Depósito legal 203850/03

**ISSN • 0870-0990****eISSN • 2182-7982****DOI • [https://doi.org/10.14195/2182-7982\\_40](https://doi.org/10.14195/2182-7982_40)**

ANTROPOLOGIA  
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VOLUME 40 • 2023

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# No planet B: comparative reflections on hydraulic engineering and zoonotic epidemics in the Jordan Valley in early Neolithic time and twenty first century

## Não há planeta B: reflexões comparativas sobre engenharia hidráulica e epidemias zoonóticas no Vale do Jordão no Neolítico antigo e século XXI



Shaozeng Zhang<sup>1a</sup>; Zhuo Chen<sup>2b\*</sup>

**Abstract** This article focuses on the critical importance of knowledge, a key trait of human culture, in multi-species environmental coadaptation and niche co-construction in human evolutionary history. It draws upon two cases of hydraulic engineering and associated zoonotic epidemics in the Jordan Valley, which has been part of the planetary crossroads of human migration and cultural exchange (including the exchange of knowledge) since prehistoric times. The first case is based on existing archaeological studies of the Neolithic town of Jericho as it was 10,000 years ago in today's Palestine, and the second is based on our ethnographic fieldwork on a Pumped-Storage Hydropower (PSH) project under construction since 2017, 110 km away from Jericho, located in today's Israel. Following recent observations by ecologists that the Earth is becoming one single ecosys-

**Resumo** Este artigo debruça-se sobre a importância crítica do conhecimento, um traço fundamental da cultura humana, na coadaptação ambiental multiespécie e na coconstrução de nichos na história evolutiva humana. Baseia-se em dois casos de engenharia hidráulica e epidemias zoonóticas associadas no Vale do Jordão, que tem feito parte da encruzilhada planetária da migração humana e do intercâmbio cultural (incluindo o intercâmbio de conhecimentos) desde tempos pré-históricos. O primeiro caso tem por base estudos arqueológicos da cidade neolítica de Jericó, tal como era há 10.000 anos, no que hoje conhecemos por Palestina, e o segundo baseia-se em trabalho de campo etnográfico por nós realizado num projeto de armazenamento hidroelétrico bombeado (PSH do inglês *Pumped-Storage Hydro-power*) em construção desde 2017, a 110 km de distância de Jericó, localizado onde hoje se

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tem and our only ecological niche, this article undertakes a comparative analysis of human knowledge and its part in niche construction at local and planetary scales. The neolithic people of Jericho eventually left their town due to ecological crises and dispersed into small agro-pastoral communities for survival and re-adaptation. Today, as we can infer from the PSH case study, human beings have no Plan(et) B and must adapt to the changing environment through knowledge innovation and exchange. We call for cross-disciplinary approaches to studying social-cultural processes of sharing and innovating knowledge that are adaptive to today's ecological changes at a planetary level.

**Keywords:** Planetary ecosystem; human knowledge; adaptation; niche construction; energy transition.

## Introduction

Human adaptation to environmental changes involves two strategies: migration to a new environment, and development or adoption of new knowledge for continuing local life. This article focuses on two cases of hydraulic engineering as respective examples of these two adaptation strategies and associated human knowledge practices amid climate change and environmental crisis at different moments in human evolution.

situia o Estado de Israel. Após observações recentes por parte de ecologistas de que a Terra se está a tornar num ecossistema único e no único nicho ecológico do ser humano, este artigo analisa comparativamente o conhecimento e o seu papel na construção de nichos às escadas local e planetária. Os habitantes neolíticos de Jericó eventualmente abandonaram a sua cidade devido a crises ecológicas e dispersaram-se em pequenas comunidades agro-pastoris para sobrevivência e readaptação. Hoje, como demonstrado no caso do PSH, os seres humanos não têm Plano(eta) B e devem adaptar-se a um ambiente em constante mudança através da inovação e da troca de conhecimentos. Apelamos para abordagens interdisciplinares no estudo de processos socioculturais de partilha e inovação de conhecimento que sejam adaptáveis às mudanças ecológicas atuais a nível planetário.

**Palavras-chave:** Ecossistema planetário; conhecimento humano; adaptação; construção de nicho; transição energética.

Although about 10,000 years apart, both cases are located in the Jordan Valley, a small region that illustrates the human history of adaptive evolution. The Jordan Valley is a critical part of the planetary crossroads of prehistoric humans' migration from Africa to Eurasia and the rest of the world. Based on existing archaeological studies, the first case is about the flood-control walls of the Neolithic town, Jericho, that date back to about 10,000 years and were located in today's Palestine. This hydraulic engineering project

was associated with environmental challenges and zoonotic diseases that made Jericho residents abandon the town and disperse into small agro-pastoral communities after about one and half millennia. Based on ethnographic research, the second case is about a pumped-storage hydropower (PSH) project that has been under construction in Israel since 2017. This project, designed by and being carried out collaboratively by a group of multinational engineers, can be viewed as part of our ongoing transition to renewable energy amid global climate change. A critical difference between the two cases is the respective geographical scales of the ecological niches of the people involved and the knowledge needed to achieve their goals. The Neolithic Jerichoans were lucky to have new environments available and accessible for them to re-adapt to and in which they could co-construct new niches. In contrast, amid global environmental change and zoonotic disease pandemics today, human beings all over the world are becoming part of one shared ecological niche, i.e., the ecosphere of the Earth, or also increasingly called the planetary ecosystem. Abandonment of and emigration from the Earth is not yet a viable option, i.e. for the moment, there is no Plan(et) B. Therefore, human beings necessarily have to follow the other major strategy: adaptation, namely knowledge innovation and exchange for adapting to the changing environment.

We draw inspiration from the recent attempts of (re-)articulating archaeologi-

cal and ethnographic research for a comparative analysis in a historical framework (e.g. Goody, 2006; Binford, 2019; Graeber and Wengrow, 2021). More specifically, for a comparative analysis of human knowledge in niche construction and in ecological crises, we draw upon existing archaeological research and our own ethnographic fieldwork on the prehistoric and the current hydraulic engineering projects in the Jordan Valley. Our comparative approach is firstly based on this small valley's special geographical location and environmental-ecological conditions that made it a key part of the planetary crossroads during the prehistoric migration of human groups out of Africa, and the continuous exchange of knowledge that resulted, including the knowledge of epidemic diseases.

We compare two unprecedented moments of human adaptation: the historical move into the world's very first sedentary farming town and contemporary efforts to adapt to the new realities of earth's ongoing transformation into a single ecosystem.

Unlike recent archaeological-ethnographic comparative work aimed at archaeological goals (Binford, 2019) or at modern history (Borsch, 2004), our comparative approach is future-oriented: it pulls together recent developments in multiple fields including anthropology, ecology, and STS to encourage urgently needed cross-disciplinary exploration of human adaptation to the emerging planetary ecosystem.

Our comparative approach highlights the predicament of contemporary human adaptation and its challenges. We look at the implications from Neolithic times for the development of a nonlinear understanding and how this might play a part in current technological knowledge as it is applied to present-day strategies for adapting to environmental challenges. We appreciate archaeologists' and cultural anthropologists' recent warning against the continuing emphasis — driven, as it is, by ideas of technological progress — on unilineal evolutionary theories despite multidisciplinary critiques and the 19<sup>th</sup> century rejection of unilinealism (e.g. Graeber and Wengrow, 2021). Likewise, our case studies, especially the Neolithic case, demonstrate that the advancement of technological knowledge in itself is not the decisive factor in processes of human adaptation to changing environmental conditions. Our comparative analysis focuses on the urgent need for cross-cultural exchange and knowledge innovation that would contribute to a timely adaptation to changing environments, and a rejection of the continuous hegemony of dominant models of knowledge, such as unilineal evolutionism and fossil fuel engineering. We also reject the hostile separation of human groups such as in today's Jordan Valley.

Section 1 below draws upon theories of human evolution and human ecology to guide the comparative approach for this study. Section 2 presents the research methods and focal sites of this study. Sec-

tions 3 and 4 introduce, respectively, the flood-control walls of Neolithic Jericho and the Pumped-Storage Hydropower project under construction in the Jordan Valley. Section 5 provides a comparative analysis of these two cases focusing on knowledge variety and innovation in evolutionary adaptation. Section 6 briefly concludes this article and suggests further ways of thinking about human knowledge and niche construction in the emerging planetary ecosystem today.

## 1. Human knowledge in niche construction at local and planetary scales

As a human practice and a variety of knowledge, hydraulic engineering, a subset of civil engineering, is concerned with the flow and conveyance of fluids and has been deployed from Early Neolithic times to protect settlements, enhance farming practices, and provide energy. The walls of Jericho are a textbook example (e.g., Lavenda and Schultz, 2007: 215-217) of the earliest example of large scale hydraulically engineered project designed to protect sedentary human settlement and animal domestication from flooding. However, as with many subsequent cases in a variety of locations throughout history (e.g., Borsch, 2004), zoonotic epidemics turned out to be one of the main causes of the eventual abandonment of Jericho.

Based on Jericho and other early cases, a simplistic and long held paleo epidemiological theory has associated infec-

tious zoonotic diseases with the agricultural transition and animal domestication. Scholars in bioarcheology, paleoepidemiology and related fields have recently called for a broader framework of multi-species coevolution that would employ multi-disciplinary approaches to investigating human, animal and ecosystem health with a more extensive historical view covering a wider range of human-animal-environment interactions (e.g., Bendrey and Martin, 2022; Schug and Halcrow, 2022). This framework helps to examine zoonotic disease outbreaks beyond just settlements that are associated with changing environments due to human mobility in hunting-gathering societies (Vlok et al., 2022). This article deploys such a framework to encompass humans' ongoing adaptation to global climate changes in a single planetary ecosystem, and to consider niche construction activities beyond agricultural, including such activities as hydraulic engineering and energy transition.

Even if not yet fully supported across all disciplines, scholars in ecology and neighboring fields have been warning us for some twenty-five years now that accumulated anthropogenic impacts are turning the whole Earth into a single ecosystem, and that this is the only and last ecological niche available to us and must be shared by all human and other living beings (Cohen, 1995; Lovelock, 2000; Ellis, 2015; Chase-Dunn and Lerro, 2016; Bohle and Marone, 2019). Given the limits of human knowledge and technologies

available currently, there is still no other accessible planet which would provide the stage for another "Great Discovery" in the form of human colonization (Nowotny, 2019). Sourcing highly condensed (nuclear) energy is still beyond our grasp (Sinyavsky, 2018; Campioni, 2020), despite ongoing attempts by the likes of Elon Musk and other billionaires (Musk, 2017; Szolucha, 2022). The human race finds itself facing a historically unprecedented moment full of uncertainties. One critical issue that urgently needs updating is our knowledge of the geographical scale of our ecological niche. Recent multidisciplinary studies on global climate change adaptation have often fallen back on local or community scale (Jones et al., 2021). These ill-defined and limited geographical scales are insufficient or even misleading as indicators of the success of recent climate change adaptation projects. For example, thanks to monetary donations and supposedly advanced knowledge of developed countries, local flood-control walls to fight climate change and rising sea levels have once again been built along the shorelines of Pacific islands, only to have failed after just a few years (Nunn, 2009; Dean et al., 2016; Piggott-McKellar, 2020), much faster, indeed, than the Neolithic walls of Jericho. However, since before the recognition of the Anthropocene or planetary ecosystem, anthropological studies have challenged the conventional multidisciplinary approach that treats local human settlements or groups as isolated systems

(Vayda and McCay, 1975; Moran and Lees, 2019; Jones et al., 2021). Moreover, based on recent studies of global environmental changes and adaptation efforts, a few anthropologists have begun to suggest an upgraded approach to the research of planetary ethnography that has a larger geographical scale and a longer historical scope (e.g., Calkins, 2020; Sullivan, 2021; Szolucha, 2022).

The COVID-19 pandemic reminded us again that all humans are part of the same planetary ecosystem. Multidisciplinary researchers have confirmed that global climate changes increase the emergence and transmission of zoonotic diseases, including COVID-19, a phenomenon that occurs during ecological crises called “zoonotic spillover” (Wilson et al., 2021; Carlson et al., 2022). This pandemic was special also for the historically unprecedented speed at which transmission and global coverage occurred (Brinkworth and Rusen, 2022). Since late last century, scholars have warned of the rapid and extensive transmission of pathogens in a globalized world. The disease ecology of a globalized world in which infectious diseases can be quickly spread between continents contrasts with that which Paleolithic populations were subjected to. The infectious diseases of prehistory had little impact on relatively isolated populations (Armelagos and Harper, 2005). Unfortunately, the COVID-19 pandemic has unambiguously illustrated the disease ecology of a globalized world. Multidisciplinary scholars,

especially anthropologists, have started to explore upgraded perspectives for rethinking human adaptation to environmental changes and associated epidemics as they once occurred in small and isolated ecological niches and as they have begun to emerge on a much larger scale in our own planetary ecological niche (e.g., Rival, 2021; Toraldo et al., 2021; Brinkworth and Rusen, 2022; Schug and Halcrow, 2022).

In a broadened theoretical framework of multispecies co-evolution at a planetary scale, we must focus on knowledge as a key part of ecological adaptation and niche construction. In earlier theories, adaptation among organisms is a passive process for continuing fitness and survival carried out in response to environmental changes. In niche construction theory — increasingly integrated into related fields including biology, ecology, and anthropology since the late 20<sup>th</sup> century — organisms can also be active in shaping their environments (Day et al., 2003; Ellison, 2004; Laland et al., 2016). In this view, various organisms are seen as being engaged in “ecosystem engineering” (Jones et al., 1994; Wright and Jones, 2006; Erwin, 2008; Spengler, 2014). This is true, for example, of various fungi at both micro and macro-levels (Tsing, 2015; Zotti et al., 2020) and beavers (*Castor canadensis*) as non-human experts in hydraulic engineering and the social transmission of knowledge (Laland and O’Brien, 2011; Brazier et al., 2021). An extreme example would be the human race “as a global

force...transforming the ecology of an entire planet" (Ellis, 2015: 287). Socially transmitted knowledge has been identified as the key trait of human culture that leads to almost all the transformative human impacts on the Earth (Laland et al., 2000; Odling-Smee and Laland, 2011; Jones et al., 2021). For example, use of fossil fuels in the energy sector since the beginning of industrial capitalism has been the major contributor to ever-accelerating climate change and other environmental crises (Falkowski et al., 2000; Page, 2007; Murphy et al., 2021; Persson et al., 2022). To clarify, in this article, knowledge refers not only to that of modern science and technologies but also to (pre-)historic technologies and tools (Allard, 1967), of which the principal example offered here is the knowledge of emerging agriculture and hydraulic engineering in Neolithic Jericho.

Scholars in multiple fields further suggested developing more integrative theories that can explain the transformative impacts of human sociocultural processes on ecological niches in human evolution, one of which would be the theory of "human sociocultural niche construction" or simply "anthroecology" proposed by ecologist Erle Ellis (2015). Such suggestions remobilize evolutionary theory's critical emphases on variance or diversity as the driver of adaptive evolution. "At its heart, evolutionary adaptation is a story of variance: the greater the variance in a trait, the greater opportunity for adaptation and the faster adaptation will take

place" (Jones et al., 2021: 2). More specifically, as a key trait of human culture, the knowledge of some human subpopulations or groups can be more adaptive and constructive to their local niche, or to the planetary niche, and the knowledge of some others could be insufficient or even maladaptive and destructive. Fortunately, human knowledge can be socially transmitted for wider use and further innovation which increases the potential rate of adaptive cultural evolution (e.g., Sousa and Luz, 2018). As recent works remind us (e.g., Bunce and McElreath, 2018; Centola and Lord, 2018), adaptive knowledge often arises from peripheral groups and can spread to the core, but unfortunately, peripheral groups and their knowledge are often overpowered by those with pre-established dominant positions. To achieve human adaptation for the first time at the planetary scale, we need to turn to more innovative and adaptive forms of knowledge rather than to established knowledge, such as that derived from fossil fuel energy engineering in the Western-led industrial-capitalist setting, which has led to today's environmental changes and planetary crises (Falkowski et al., 2000; Page, 2007; Murphy et al., 2021; Persson et al., 2022). In the evolutionary framework, multidisciplinary scholars have called for climate change adaptation to "focus on the sources of innovation and social structures that nurture innovations and allow them to spread" (Jones et al., 2021: 1). This article, especially when we discuss the case of intellectual collaboration

between multinational engineers in the context of pumped-storage hydropower, will engage this call to action through a comparative analysis of knowledge in historical local and contemporary planetary niche construction.

## 2. Methods and research sites

This study combines archaeological data and ethnographic fieldwork for historical comparison and also reflects critically on the (in-)accessibility of research sites in the Jordan Valley. The Jordan Valley is a geographically small, historically rich, and politically charged area. It is located on the lower course of the Jordan River which exits the Sea of Galilee in the north and ends at the Dead Sea in the south (see Figure 1). It is only 105 km long and, on average, 10 km wide. Located between the deserts on the east and the Mediterranean Sea on the west, the valley has been part of the Levantine Corridor for the migration of and exchange between multiple *Homo* species moving from Africa to Eurasia dating back to the period preceding modern *Homo sapiens* (Luis et al., 2004). Thanks to the year-round warm climate, fertile soils and water supply, the valley has hosted human agriculture (Henry, 1989) as well as water management and hydraulic engineering (Mithen, 2010) for over 10,000 years as part of the "Fertile Crescent."

More specifically, we focus on two cases in Jordan Valley, the flood-control walls of the Neolithic town of Jericho and

a Pumped-Storage Hydropower (PSH) project currently under construction. The Neolithic town of Jericho, built at an elevation of 258 meters, is located at the Ein es-Sultan Spring in the southern part of the valley, about 40 km north of the Dead Sea. It is part of today's city of Jericho in the West Bank of Palestine. For this case, we reexamine existing archaeological records and also combine historical records, geomorphological evidence, and climatological modeling for further analyses. We synthesize existing studies of the flood-control walls of Jericho and historical local ecological changes, including environmental deterioration and zoonotic epidemics, for re-analysis in our broadened theoretical framework. The analysis of this case is oriented towards a critical (re-)examination of knowledge exchange, development and insufficiency in niche construction, factors which are then compared with the other case.

Located in the northern part of the valley (see Figure 2), the PSH project<sup>1</sup> was initiated in 2017 with its completion planned for late 2021 but postponed to 2023 due to COVID-19. About 160 engineers work on the site on a regular basis. These engineers come from different national and professional backgrounds, including local engineers from the Israeli government, which is the project's developer; German and British engineers from the banks financing the project; as well as Chinese, French, Italian, and local engineers from contracted construction companies (Chen et al., 2022). The second au-

thor conducted ethnographic fieldwork at the project site for several months in 2019 and 2022 that included participant observation at engineers' work meetings and after-work activities, and in-depth interviews of thirty-five engineers. We adopted a quota sampling method (Bernard, 2017) so that the nationality of engineers in the sample roughly matched that of the overall population of 160 engineers working on the project: about 83% Chinese, 10% Israeli, and 7% European. The study participants were all male (Chen et al., 2022). In this article, we focus on the project engineers' knowledge exchange and conflicts across their multi-national and cross-cultural backgrounds and their intellectual collaboration and innovation in adapting to the local environmental and geological conditions, and to the broader energy transition needs. We coded and analyzed observation notes and interview transcripts in original languages (Saldaña, 2015; Bernard et al., 2017).

The Jordan Valley hosts a long and continuous history of human development and adoption of new hydraulic knowledge for adapting to the changing environment. There are various kinds and sites of hydraulic engineering work built during the Neolithic Period (including Jericho), the Bronze Ages (e.g., in today's Caesarea National Park), the Roman Period (in the Zippori National Park), the early twentieth century (e.g., The Rutenberg Hydropower plant) and, finally, the 21<sup>st</sup> century (e.g., the PSH project) (see Figure 2). We had considered conduct-

ing fieldwork in a few historical sites of hydraulic engineering including Jericho, but we were hindered in our attempt to do so due to political borders and military checkpoints between Israel, Palestine, and Jordan in today's Jordan Valley between. In this critical study of knowledge sharing and innovation, we also submit the common difficulty in accessing hydraulic engineering sites in the Jordan Valley to a comparative analysis of knowledge exchange and transmission.

### 3. The town walls of Neolithic Jericho 10,000 years ago

The camp sites of Neanderthals in the Jordan Valley from around 250,000 years ago and those of the first *Homo sapiens* to arrive there about 40,000 years ago were located adjacent to springs and lakes, allowing access to fresh water, although they didn't do much water management or engineering at this early date (Mithen, 2010: 5256). Not surprisingly, all the early Neolithic settlements in the Jordan Valley are also close to water courses or springs. Among them, Jericho directly relied on the artesian spring of Ein es-Sultan and on the wetlands of the Wadi Qelt stream in particular (Kenyon, 1981; Bar-Yosef, 1986). The Jordan Valley has its special ecological diversity and historical environmental changes. Geomorphological evidence and climatological modeling indicate that the climate in this region was much wetter in the 7<sup>th</sup> millennium BC than today (Bar-Yosef, 1986; Robinson et al. 2006; Mithen,



**Figure 1.** Map of the Jordan Valley. (Source: Bible Odyssey, accessed at: <https://www.bibleodyssey.org/map-gallery/jordan-river-map/>.).



**Figure 2.** Map of the Jordan Valley, including the two project sites included in our study and other historical hydraulic engineering sites. (Source: Google Maps).

2010; Nigro, 2014). The wetter climate was more favorable for water access and for lower average annual temperatures, but it also brought risks of more frequent and destructive flooding, mudslides, and soil erosion than occur today (Bar-Yosef, 1986; Robinson et al., 2006; Mithen, 2010). The environmental and geographical conditions set the stage for prehistoric Jerichoans' efforts in niche construction, which included water management and hydraulic engineering.

The town walls and towers of Neolithic Jericho represent the first known large-scale hydraulic engineering work in human history in archaeological findings to date. The first perimeter wall of Jericho was 3.6 meters high and 1.8 to 1.1 meters thick from its base to its preserved top. Some walls built later were even higher and thicker. The whole circumference is about 700 meters long. The main walls are a mud-brick construction on a stone foundation. In addition, slanting walls were built of large, undressed stones for retaining the earlier levels. The tower placed inside the perimeter of the first wall was 8.2 meters high and about 9 to 7 meters in diameter from its base to its preserved top. Later carbon-14 dating indicated that the construction occurred between 8300 BC and 7800 BC, with the earliest section of town wall built  $8300 \pm 200$  BC (Bar-Yosef, 1986: 157). That means the construction of the free-standing walls and towers was subsequent to the initial occupation of the Jericho settlement. The perimeter walls enclosed an oval mound, an area of

about 2.5 hectares (Kenyon, 1981; Smith, 1995: 3). Archaeologists estimate that the population of Neolithic Jericho was as high as 3,000–4,000 (Kenyon, 1981) and as low as 400–900 (Kramer, 1982). Similar engineering constructions are found at other Neolithic sites in the Valley due to the "pervasive problem" of flooding and mudslide (Mithen, 2010: 5266), however, all other projects discovered so far are not as elaborate or well preserved as the walls of Jericho (Bar-Yosef, 1989; Bar-Yosef and Kislev, 2014).

The walls served as fundamental infrastructure for the very first town built by humans, who were increasingly engaged in sedentary farming and animal domestication. The town of Jericho was much larger, both in population and settlement area, than the previous camp of the hunting-gathering-based Natufian culture in this location, as people from nearby small hamlets increasingly settled there to take advantage of the fertile arable land and year-round water source for plant and animal domestication (Henry, 1989). Archaeologist Bar-Yosef concluded that the walls were a system of defense against floods and mudflows (1986), an interpretation supported by later studies and widely recognized (e.g., Mithen, 2010; Nigro, 2014). Geomorphological evidence shows aggradational deposits in the alluvial fans in the Jordan Valley, including on the sloping plain where the Neolithic Jericho is located. It means that the annual flooding in Neolithic times provided new veneers of

brown soil which was essential back then to continuous cultivation of legumes and grains. While good for sedentary farming, this kind of regular sheetwash and mudflow basically "required" effective protection for human settlements like Jericho built in the middle of farming fields (Bar-Yosef, 1986: 161). In this engineering system, walls and towers are built to raise the settlement from the surrounding landscape, using trenches and ditches outside the walls to divert the water flows for town safety and possibly also for "simple irrigation" (Bar-Yosef, 1986: 160). The thickness of the different sections of the walls varies, indicating the builders' sophisticated knowledge of the varying levels of protection needed along the whole perimeter, with the wester side, for instance, requiring a high level of protection (Bar-Yosef, 1986: 160).

Agriculture emerged and succeeded as a new subsistence strategy in the Jordan Valley about 10,500 years ago (often called the Late Natufian period) thanks to human inhabitants' adaptation to the local environment and construction of the local niche, well exemplified in Jericho. Agricultural pioneers started to cultivate plants, including pulses and cereals (wheat and barley), and to domesticate animals, first dogs and soon sheep and goats as well, while continuing to hunt (Bar-Yosef, 1986; Horwitz and Smith, 2000; Nigro, 2014). With its special location, fertile land and water resources, the Jordan Valley hosted the world's earliest human innovation in agriculture

and neolithization, concentration of population and rise of long-term communities at town scale. Recent comparative studies argue that the agricultural, technological, and sociocultural heights attained in the Neolithic Jordan Valley were not replicated until much later during the Early Bronze Age (3200-1950 BCE) (Goring-Morris and Belfer-Cohen, 2010; Nigro, 2014). But, from a more critical and longer-term perspective, this success was only a short-term one (Bar-Yosef, 1986; 1989; Horwitz and Smith, 2000; Goring-Morris and Belfer-Cohen, 2010): the town of Jericho was eventually abandoned by the inhabitants due to multiple problems, including epidemics of zoonotic disease — outbreaks that were precisely associated with sedentary farming settlement and its accompanying hydraulic engineering project.

Despite the protection provided by the perimeter walls, sedentary farming in the Neolithic Jordan Valley led to devastating environmental changes and zoonotic epidemics, problems especially "common to large groups" such as the town of Jericho (Bar-Yosef, 1989: 60). Concentrated populations' continuous intensive farming in a small area resulted in ecological deterioration, including deforestation, soil salinization, and land infertility (Bar-Yosef, 1989; Goring-Morris and Belfer-Cohen, 2010). Such anthropogenic ecological deterioration worsened around the large settlement communities due to heavier over-farming and overgrazing. Moreover, early sedentary

farming raised fatal threats to human inhabitants' health at community scale, especially via the transmission of zoonotic diseases from domesticated and commensal animals. Due to increased human sedentism and food storage, Neolithic communities in the Jordan Valley also experienced a marked increase in the population of commensal animals such as the house mouse (*Mus musculus*), spiny mouse (*Acomys cahirinus*), and house sparrow (*Passer domesticus*) (Horwitz and Smith, 2000: 79). The daily proximity of domesticated and commensal animals and multi-species crowding were immediate causes of new and repetitive contagious zoonotic diseases. Definite evidence of a specific zoonotic disease in the late Neolithic period was first found at the site of 'Ain Ghazal in the Jordan Valley, where the remains of two individuals were diagnosed with tuberculosis (El Najjar et al., 1997; Horwitz and Smith, 2000). Moreover, the community streams and irrigation ditches in and around the settlements were ideal homes for pathogens and creatures that carried them. Therefore, open sewage and poor hygiene from waste disposal in the immediate environs of living quarters and farming land further facilitated the emergence and transmission of infectious diseases, such as malaria, sleeping sickness, encephalitis and *Schistosoma* worms (Horwitz and Smith, 2000; Goring-Morris and Belfer-Cohen, 2010).

The early sedentary agriculturalists' "newly created living environment" in the

Neolithic Jordan Valley (Goring-Morris and Belfer-Cohen, 2010: 70) eventually turned out to be unfit for human health and survival and thus was abandoned. Also, ecological deterioration overwhelmed the settlement communities, leading some into the gradual decline and others into total abandonment in the late Neolithic period. As a historical icon, the perimeter walls of Jericho were heavily damaged and entirely buried by severe flooding around 7400-7300 BC (Bar-Yosef, 1986: 157). Infectious diseases were one of major causes for the decline and abandonment of the Neolithic settlements in Jordan Valley (Lavenda and Schultz, 2007: 215-217; Goring-Morris and Belfer-Cohen, 2010; Nigro, 2014). Inhabitants of these settlements including Jericho (re-)dispersed into small agro-pastoral communities, in which farming and herding continued but at smaller scale and where hunting and gathering was redeveloped (Lavenda and Schultz, 2007: 215-217; Goring-Morris and Belfer-Cohen, 2010).

Overall, the exchange of knowledge and development was of critical importance to the environmental adaptation and niche construction in Neolithic Jericho. The Jordan Valley has been part of the planetary crossroads not only for human migration and material exchanges but also for sociocultural information and knowledge sharing between human groups, and it provided the historical arena for innovations in early agriculture, urban settlement, and water management (Bar-Yosef, 1986: 159; Henry, 1989).

Thanks to its special location, which became a natural center for knowledge sharing and innovation, Neolithic Jericho can be seen as the historical landmark of the origin of water management and hydraulic engineering (Bar-Yosef, 1986). The strategic design of the walls and the continuous work of construction, repair and enhancement demonstrates the Neolithic Jerichoan inhabitants' accumulated and tested knowledge in architecture and engineering geared toward niche construction. The eventual abandonment of the Neolithic town of Jericho is worth re-thinking. Archaeologists argued that the overexploitation of resources, ecological deterioration and zoonotic epidemics in Neolithic Jericho were all due to beginner agriculturalists' lack of ecological knowledge about sedentary farming and animal co-living, a fact which compares negatively with earlier mobile hunter-gathers' long-term experiences and knowledge in adaptation to the dynamics between people, game animals, plants, and the environment (Goring-Morris and Belfer-Cohen, 2010: 70). From a broader evolutionary perspective, the then "newly created living environment" best represented by Neolithic Jericho might be more aptly called *a multi-species co-constructed ecological niche*: which started mainly with human engineering practice and knowledge, but eventually became unfit for human survival due to early agriculturalists' lack of necessary knowledge of multi-species coadaptation.

#### 4. The pumped-storage hydropower project today

As new arrivals to the planetary ecosystem — our newly created living environment —, there have been many emerging projects oriented towards systematic transition from fossil fuels to renewable and sustainable energy, all of them working under the premise of reducing anthropogenic greenhouse gas emissions and mitigating global climate change. One example is the pumped-storage hydropower project in the Jordan Valley, which has mobilized and updated hydraulic engineering knowledge from different parts of the world during the COVID-19 pandemic over the last few years.

Pumped-storage hydropower (PSH) is a type of renewable hydroelectric energy storage. Electric power systems use it for "load balancing." Put simply, a hydrologic battery allows energy from other renewable but intermittent sources (e.g., solar and wind) to be saved for periods of high demand. PSH functions by building two reservoirs at different elevations. Water moves downward through a turbine, generating power at high-demand (and high-price) times, and is pumped back up at low-demand (low-price) times. Compared to conventional hydroelectric dams of similar productive capacity, PSH reservoirs are much smaller, but require a rarer convergence of geomorphological conditions that include both water availability and geographical height difference (Rehman et al., 2015). In our case, the reservoirs draw

water from a freshwater lake nearby. The typical negative effects of aquatic migration found in conventional hydroelectric dams have been avoided in this case.

As a modern hydraulic engineering technology first developed almost in the same historical era as the emergence of petroleum energy (both in late nineteenth century, first PSH 1882, first modern oil well 1859; Botterud et al., 2014), PSH came into use worldwide at a much later time. The first wave of PSH project constructions was around the 1970s to help utilize (or load-balance) excess energy generated by nuclear power plants, while the second wave started in the early 21<sup>st</sup> century in conjunction with large-scale wind and solar power production. In general, PSH has always played a supporting role in energy technology, and has remained underutilized outside of these periods, at least from a dominant fossil energy perspective (Antal, 2014; Petrescu and Petrescu, 2015). However, it is increasingly used worldwide for energy storage in the transition toward renewable energy, which has been, to a large extent, driven by the fossil energy crisis and global climate change (Lovins, 1977; Solomon and Krishna, 2011). PSH projects are thus expected to see the highest decadal growth in history as they come online to address the worldwide demand for greater system flexibility and stability in wind and solar energy capacity and storage (International Energy Agency, 2021). As an illustration, near the PSH project in Jordan Valley, there are solar,

wind, and garbage power plants already built or under construction. In addition, PSH is also a backup energy source in Israel, making up over 50% of the country's emergency power, crucial for Israel's power grid stability and national security.

The PSH project focused on here has far-reaching significance for human knowledge exchange and innovation. It represents a new frontier in terms of group collaboration in which the application, practice and reproduction of hydraulic engineering knowledge is being applied to our adaptation to environmental changes, and it should be seen as creating an example for energy transition at national and global scales. The diversity of the project engineers' national and professional backgrounds creates a context in which the engineering knowledge and practice on this particular PSH is seen to be more innovative and adaptive than similar projects developed by engineers based only in Western countries. The multinational engineers themselves emphasized the fact that this was a "mutual learning process", and suggested that knowledge, experience, and technology not only flowed from the core (developed countries) to the periphery (less developed countries), as argued in classic theories of globalization (e.g., the World Systems Theory, Wallerstein, 1989), but also flowed in the other direction. For instance, because of the geopolitical location of the project and the multi-national character of its personnel, engineers routinely debated

whether to apply European, American, Israeli, or Chinese standards in design and construction and demonstrated a great capacity for multicultural innovation and adaptation to the specific locale. "No particular set of standards was superior to others," said a Chinese mechanical engineer, whose Israeli counterpart added that "it was up to the on-site engineers to apply the right standards to a particular problem." When none of the published standards were applicable, engineers discussed and evaluated the particular situation, which was often comprehensively affected by local geological, hydrological, technological, and human conditions, and then creatively applied and re-developed standards from other areas — for example, South Africa — to solve a given problem. New engineering patents have also been applied accordingly.

Knowledge innovation as such benefited from the engineers' rich working experiences. About 70 percent of the interviewed engineers had significant experience working in other countries, including Thailand, Vietnam, Morocco, Sudan, South Africa, France, Italy, and Switzerland. Engineering experience and knowledge transcended the physical location of this particular project and the boundaries of nation states and benefited from the global mobilization behind the formation of its technical staff. As a result, engineering standards employed on the ground no longer reflect a Western-driven singularity but are rather plural in nature, subject to dialogue, ne-

gotiation, and adaptability to the local environment. As the epitome of knowledge innovation in this project, the new patents that engineers have obtained are ready to be applied to future projects, engaging, and evolving with local environments in and beyond Israel. This continuous and recursive knowledge production process as part of the global renewable energy transition could be considered as the newest example in human history of strategic environmental adaptation and collaborative niche construction (Ellis, 2015; Jones et al., 2021).

This productive exchange and collaboration didn't come about easily. Moments of friction and conflict regularly arose partly due to the variance in the engineers' backgrounds, and it took time and effort to get accustomed to each other's professional practices. For example, engineers once argued about the proper value of a certain parameter called "bend radius," which specifies the minimum amount a given material can be bent without damaging it. While the exact amount of the "bend radius" varies according to European, Israeli, and Chinese standards, the engineers attributed the seemingly technical-based conflicts mostly to their national and professional-training differences. They had to admit that "bend radius" wasn't just a mathematical conundrum with a single correct answer but rather a complicated situation requiring them to be patient and understand each other's "logic" and "reasoning" to reach a consensus. Through a hard

but fruitful process, the engineers on the PSH established a new working procedure accepted by each party instead of falling back on a fixed value for "bend radius." Knowledge innovation rose out of conflict-management, out the heterogeneity of the engineers on the ground, out of the dynamics of the successive problems to be solved, and out of a willingness among the engineers themselves to exchange ideas. Like the patents, this newly established cross-cultural working procedure was an end result of a previously uncodified procedure: a particularly human, social, and intellectual bi-product of the willingness to innovate in solving the problems of renewable energy's application and growth in a complex geopolitical and sociotechnical environment — and it should serve as a model for similar projects worldwide.

The ongoing collaborative construction of the PSH plant was delayed but not suspended by the Covid-19 pandemic. The frequent travel of the project engineers from 20 countries and their concentration at the project site exemplifies the intense human movement and contact in our globalized world. This kind of frequent travel worldwide has contributed to the rapid and global transmission of the COVID-19 virus (Armelagos and Harper, 2005; Brinkworth and Rusen, 2022). However, the project engineers and the project itself survived the pandemic. For one thing, when the pandemic started there was absolutely no discrimination against the Chinese engineers at the

PSH site, this in contrast to many other locations around the world (Bollyky et al., 2021). When a Chinese engineer came down with Covid, his Israeli colleague called him and said, "you got Covid? Take a rest, I'll invite you to lunch next week!" The Chinese engineer told the second author with a surprised but happy face, "Ha-ha, he (the Israeli engineer) invited me to lunch next week. Brave guy, isn't he afraid of being infected?!" The friendliness went much further than the individual level. The open and collaborative dynamics between the project engineers encouraged some of them, especially the Chinese, to take early precautionary measures, letting other team members know that from their experience of what was happening in China, this was, indeed, a fast-spreading pandemic, thus contributing to the knowledge base of the project's COVID policy from very early on in the pandemic. Based on this early knowledge shared remotely by their families, the Chinese engineers took the lead in wearing masks and taking vaccine shots; meanwhile, following the local experience of European public policy, the engineers implemented flexible quarantine-based schedules to guarantee everyone's health and the project's progress. The whole group of multinational engineers followed the project's Covid "policy package" in support of each other. In contrast to what happened in prehistoric Jericho, this time around the zoonotic spillover from ecological crises neither destroyed the hydraulic engineering project (see

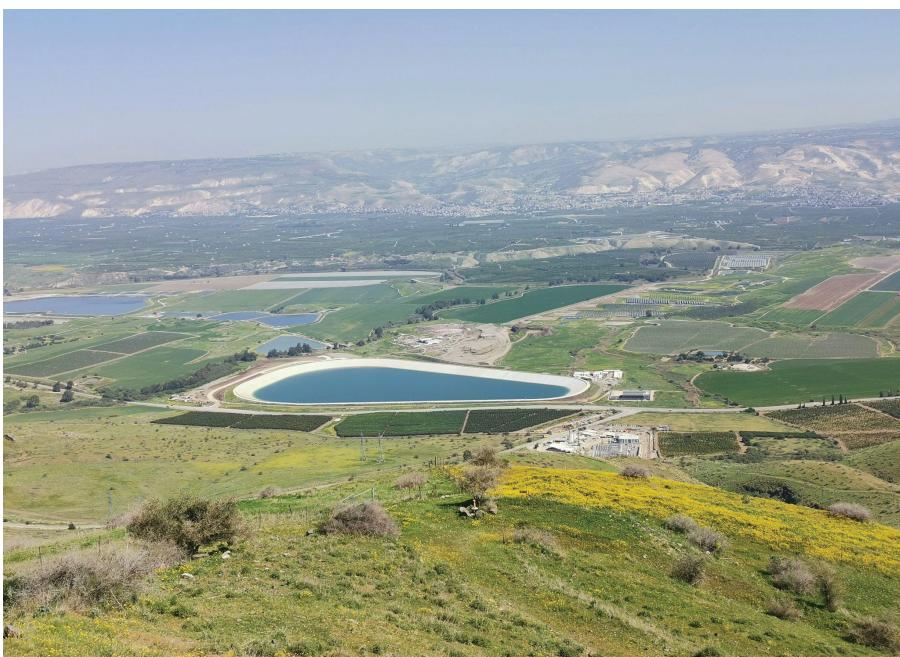
Figure 3) nor killed or disbanded the human group on site, thanks at least partly to the multinational engineers' open and dynamically collaborative approach to knowledge exchange and sharing.

## 5. Knowledge variety and innovation for evolutionary adaptation

While the neolithic people of Jericho eventually abandoned their town due to ecological crises and dispersed into small agro-pastoral communities in order to survive and re-adapt, human beings today so far have no Plan(et) B and thus have to adapt to the changing environment through knowledge innovation and

exchange. So, what kind of knowledge are we talking about, knowledge that is more technologically advanced or that which is more environmentally adaptive? And how to develop and share it?

Recalling the recent theories of adaptive evolution and niche construction introduced earlier, development or adoption of new knowledge that is adaptive to the changing environment works better for human evolution. Technological knowledge advancement in itself, either in sedentary farming or in hydraulic engineering, was not as decisive as social organization for knowledge practice and environmental adaptation in human development (Nigro, 2014: 59; Graeber and



**Figure 3.** A photo of the completed lower reservoir of the PSH in 2023. (Source: Interviewees).

Wengrow, 2021). After all, knowledge itself, along with social organization and other features, is only part of how human culture developed in and for human adaptation, a classical premise in anthropology (e.g., Allard, 1967; Jones et al., 2021). This notion is finally receiving wider recognition in other fields such as ecology (Laland et al., 2000; Odling-Smee and Laland, 2011; Ellis, 2015). According to the unilineal evolutionary theories in Western scholarship since the 19<sup>th</sup> century, large-group sedentary farming in Neolithic Jordan Valley has been considered as the most advanced human culture across the world around 10,000 years ago. However, as we have seen above, in the case of Jericho, human evolution in Neolithic Jordan Valley went from small-group hunting-gathering to large-group sedentary farming and (back) to small-group mixture of agro-pastoralism and hunting-gathering. Recent archaeologists have pointed out that the development of sedentary farming in this region was indeed early and pristine, but "nonlinear and undirected" with unpredictable outcomes and implications (Goring-Morris and Belfer-Cohen, 2010: 77; Graeber and Wengrow, 2021). We suggest applying these multidisciplinary insights of non-unilinear evolution to modern technologies as well. This is because however advanced fossil fuel technologies have become, they have turned out to be — with all the knowledge we have now gained vis-à-vis the climate and its inability continue absorbing car-

bon — maladaptive. They are destroying the only niche left us. The message of accelerating global climate change is as clear as day. And, however advanced Elon Musk's SpaceX Starships are becoming, they are still not ready (and not even intended for) the removal of all 8 billion *Homo sapiens* to another livable planet. In comparison, renewable energy technologies could be more promising in exploring adaptive ways of continuing human life on this changing planet.

Recent evolutionary theorists have stressed the transformative powers of sociocultural processes in human beings' niche construction and adaptive evolution (Ellis, 2015), including the development of knowledge as a key cultural trait (Jones et al., 2021). The PSH project in the Jordan Valley today turned out to be well aligned with this long tradition of sociocultural openness to exchange and collaboration which is of fundamental importance to engineering practice and innovation for and likely beyond this project. Engineers of different ethnicities including Jewish and Arab and from a variety of countries, including Israel, China, European countries, and the U.S. joined and collaborated with each other, bringing together their unique training and professional experiences from across the world and integrating this diverse knowledge in a collaborative and innovatively novel approach to civil construction. Significantly, the project team has more Chinese and Arab engineers than engineers from developed countries. Based

on their training and experiences from developing countries, such as China, Thailand, and South Africa, and on their more widely and freshly tested knowledge, they have often complimented and at times challenged the engineering standards long established as standard practice by Euro-American engineers.

Upon reflection, the development of the latest PSH technology, shows that in comparison to its peak in the 1970s, when most PSH projects were carried out in the U.S. and European countries, the current surge in PSH construction is occurring in more developing countries including China, in countries in Southeast Asia, and in the Middle East (Deane et al., 2010; IEA, 2021; Bernardi and Wu, 2023). The Jordan valley project not only illustrates that PSH, as a renewable energy technology now more active on the periphery, may be more adaptive than the still dominant petroleum energy technology, but that it also demonstrates that in terms of the development of PSH technology itself, innovative and collaborative knowledge from the global periphery is reshaping the knowledge from the global north, thereby making PSH's position in the energy transition quite significant. As recent works in anthropology and ecology have highlighted, adaptive knowledge often originates from the periphery and has the potential to permeate to the core, contributing to human evolutionary adaptation (Bunce and McElreath, 2018; Centola and Lord, 2018).

However, peering over the fence of the PSH project site, we see right away

the brutal reality of political-military divisions among human groups and their knowledge bases in this small valley. While on sight, some international engineers from the PSH project also wanted to visit historical hydraulic engineering sites in the Jordan Valley, but, like us, failed to receive permission to do so. On Google Maps, the trip from Jericho to the PSH project is only an hour and forty-three-minute drive; but in reality it's extremely difficult, and probably not even possible for most people to move freely across strictly controlled militarized zones. As a result, the rich spectrum of human knowledge and experience in hydraulic engineering in the Jordan Valley is off limits. And many of the sights are significantly destroyed by historical and contemporary political-military segregation and conflicts (Vaknin et al., 2022). This represents a terrible loss of knowledge and also impedes knowledge innovation. Today, the Jordan Valley typifies segregation, conflict, and war.

## 6. Conclusion

The history of human evolution is a history of multispecies co-adaptation to environmental and ecological changes as well as to the associated consequences of zoonotic diseases. The shift from mobile hunting and gathering to sedentary agricultural, as it occurred in Neolithic Jericho, was one of the most significant milestones in human history. However, archaeological studies of the Jordan Valley

have concluded that technological advancement in itself was never going to be as sufficient or decisive as human diversity and social dynamics for human beings' continuous adaptation and development — in other words, for human civilization (Alland, 1967; Nigro, 2014). Even with the earliest hydraulic engineering infrastructure, Neolithic Jericho eventually failed, and the town residents moved out of the town to (re-)adapt to new environments and mixed lifeways. As we enter into a new planetary ecosystem as the only and shared ecological niche with no plan(et) B, contemporary humans will be obliged to adapt once again. This can only happen through knowledge innovation and exchange, a strategy also developed in the history of evolution and especially well-represented in the hydraulic engineering projects in the Jordan Valley. The PSH project focused on in this paper provides a good example of a development of knowledge that facilitates the balancing and systematization of renewable energy generation and use, and no less importantly, serves as an opportune example of cross-cultural collaboration and knowledge exchange for niche construction. The sociocultural and intellectual dynamics in the special human group at the PSH project, open and collaborative even during the Covid-19 pandemic, corroborates and updates evolutionary theorists' observation of how knowledge exchange, diffusion, and innovation comes to the fore in certain settings. It is more than obvious that human cultural diver-

sity and especially marginal subpopulations can and do contribute when environmental changes demand knowledge innovation for niche (re-)construction and (re-)adaptation (Jones et al., 2021).

Taken together, the political and militarized brutality in today's Jordan Valley and the crisis unfolding in the emerging planetary ecosystem are a call to study the sociocultural processes in human knowledge innovation and adaptation. Such a study calls for a more engaged dialogue, comparative approaches, and collaboration between academic disciplines such as anthropology, ecology, Science and Technology Studies (STS), and more (e.g., Ellis, 2015; Jones et al., 2021). In practical terms, the Neolithic town of Jericho provides early lessons on engineering innovation, environmental adaptation and niche construction that are still meaningful today; and the PSH project, still an open-ended story, demonstrates possible trajectories of collaboration, exchange, and innovation for hydraulic engineering, energy transition and environmental adaptation even in the most challenging and brutal environments.

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# Ritual care: how the Akha take care of their small kids?

## Cuidado ritual: como os Akha cuidam das suas crianças?

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**Abstract** This article draws on long-term fieldwork materials to explore a cosmological approach to the process of childcare among the Akha, an ethnic minority community in southwest of China. The article introduces the Akha definition of childhood in relation to their cosmology, showing how cosmological forces are vital to a child's survival and health, and how this perception shapes villagers' childcare practices. Children are viewed as creatures of both the human world and the ghost world, and human parents have to fight with ghosts to protect the life of their children. Two pairs of gods and goddesses of children pose additional threats to children's survival and health, but they also bestow blessings and protection at ritual and daily occasions. Meanwhile, because children are born with souls, they might fall sick if their

**Resumo** Este artigo baseia-se em trabalho de campo de longa duração e propõe uma abordagem cosmológica ao processo de cuidado infantil entre os Akha, uma comunidade étnica minoritária no sudoeste da China. O artigo analisa a definição de infância dos Akha em relação à sua cosmologia, mostrando como as forças cosmológicas são vitais para a sobrevivência e a saúde de uma criança, e como esta percepção molda as práticas de cuidado infantil dos Akha. As crianças são vistas como criaturas do mundo humano e do mundo dos fantasmas, e os pais humanos têm de lutar com os fantasmas para proteger a vida das suas crianças. Dois pares de deuses e deusas de crianças representam ameaças adicionais à sobrevivência e à saúde das crianças, mas também conferem bênçãos e proteção em rituais e ocasiões diárias. Enquanto isso, como

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souls are scared away. Finally, there are two hostile beings associated with neighbouring ethnic groups that cause disease, or even death, to vulnerable children. To protect children from all these multiple life-threatening cosmological forces, Akha villagers have developed several ritual care practices such as daily caring acts, protective talisman, and healing rituals. These practices are meant to deal with cosmological forces, and as such, they transcend more secular dimensions of bodily and emotional care (including biomedicalized forms of care), thus broadening the meaning and the scope of what is conventionally understood to be included in the work of care by social scientists and medical professionals who approach the subject with a strictly secular paradigm.

**Keywords:** Children; health; ritual care; cosmology; insecurities.

## Introduction

When I first saw an Akha grandfather offering his cigarette lighter as a toy to his infant grandson, who then put the lighter in his mouth to bite it, I was shocked and could not stop myself from snatching the cigarette lighter from the child. I was also shocked when a four-year-old boy happily picked up and played with a dead rat from the roadside, while the adults around him showed little concern. This was the summer of 2012, and I was

as crianças nascem com alma, elas podem adoecer se suas almas ficarem assustadas. Finalmente, existem dois seres hostis associados a grupos étnicos vizinhos que causam doenças, ou mesmo a morte, a crianças vulneráveis. Para proteger as crianças de todas estas múltiplas forças cosmológicas que ameaçam a vida, os Akha desenvolveram várias práticas rituais de cuidado, tais como atos diários de cuidado, talismãs protetores e rituais de cura. Estas práticas destinam-se a lidar com forças cosmológicas e, como tal, transcendem dimensões mais seculares do cuidado corporal e emocional (incluindo formas biomedicalizadas de cuidado), ampliando assim o significado e o alcance daquilo que se entende convencionalmente como incluído no trabalho de cuidado por parte de cientistas sociais e profissionais médicos que abordam o assunto com um paradigma estritamente secular.

**Palavras-chave:** Crianças; saúde; cuidado ritual; cosmologia; inseguranças.

a young and inexperienced Chinese Anthropology student who grew up in a Han-dominated area and was based at the Max Planck Institute for Social Anthropology in Germany. Back then, I could not help but feel confused and somewhat astonished by some of the Akha childcare practices. My experience was not entirely different from Western anthropologists such as Charles Stafford who while doing fieldwork with Han Chinese in rural Taiwan in the late 1980s was struck by the extent to which very young children

were allowed to play with firecrackers and to wander into the street in the middle of motorcycle traffic (Stafford, 1995: 21). My feelings in 2012 echoed those of Charles Stafford almost thirty years earlier: «there seems to be a lack of concern about child safety» (Stafford, 1995: 21).

This feeling quickly dissolved when I started to notice that Akha parents and grandparents were concerned about their children's safety and health in a different way. On one occasion, my host family's little girl kept crying and demanding for a chance to visit the county seat with me, but her family did not allow her to go. I thought they did not want me to have to worry about taking care of the girl, or perhaps that they thought I was too young and inexperienced, so I repeatedly assured them that it would be my pleasure to take her with me and I promised to look after her. Eventually she joined me on my trip, but when we returned to the village, her grandfather immediately tied a thread around her wrist and gave her a boiled egg. He explained to me that he needed to call back the little girl's souls from the county seat, lest she fall sick if her souls remained there. That had not been the only peril of the trip to town: another villager later told me that the girl's family had been reluctant to allow her to go to the county seat because there are hostile nonhuman beings hidden in the crowds and these beings can damage a child's health.

These stories of threats to children's safety and health and the corresponding

care practices form the starting point of my research on Akha kinship and childcare practices (Wang, 2019; 2021). Taking seriously the Akha perception of cosmological threats to children's safety and health requires broadening our understanding of notions of care, health, and well-being. More specifically, it requires looking at childcare from a more holistic perspective that situates children in relation to larger cosmological framings and ritual procedures aimed at securing their survival as well as their health and well-being.

The article will proceed as follows. I first engage with the theoretical discussions of care, children and insecurity. I then introduce the Akha definition of a child in relation to their cosmology, examine how various cosmological forces are seen to be connected to children's survival and health, and how this connection shapes villagers' childcare practices. Finally, I discuss the meaning of ritual care and I reflect on the larger anthropological significance of Akha ritual care practices.

The research presented here is based on long-term field research conducted in an Akha community in Yunnan Province. The Akha are a transnational ethnic group spread throughout Yunnan and Southeast Asian countries like Myanmar, Vietnam, Thailand, and Laos, comprising a population of about 650,000 in total (Yang and Yu, 2010). The group in China, also named as Yani or Aini, is mostly settled in Xishuangbanna Prefecture, Lancang County and Menglian County in Pu'er Prefecture. I conducted fieldwork

between July 2012 and September 2013 (Wang, 2019) among a cluster of Akha villages located in Menglian, a multiethnic county on the border between China and Myanmar. There are 41 Akha villages with a registered population of 9,585 (2010) in Menglian, spreading over highland and, in some cases, valley areas. I spent most of my time in a hill village called Hakaq and in a valley village called Kekaq. In the summer of 2017, I revisited Hakaq and Kekaq, staying for over two weeks catching up on the latest changes.<sup>1</sup>

Both Hakaq and Kekaq are medium-sized villages by Akha standards, with respectively twenty-nine households of four patrilineal lineages and twenty-three households of five lineages. Each has a registered population of over one hundred people. Their resident population is often much less, changing along with the number of those migrating to cities. People staying in the village mainly include: the old, the married, children, and a small number of young people who are not attracted by the outside world. These villages had historically developed a mixed agricultural subsistence, combined farming, gardening, raising livestock, hunting, fishing, gathering, handcrafting, and trading. Thanks to state-run projects to reduce poverty and the increase market need in recent decades, various cash crops, such as corn, sugar cane, tea, and coffee, have

gradually becoming their most significant way to make money.

Despite their deep engagement with the outside world, Hakaq is often considered 'conservative' by its own people due to the slow speed of cultural change there. There are more than twenty elders who are professed to hold traditional knowledge, and they mostly to adhere to the Ahka *li* (SC. 礼), the traditions that define the Akha way of life. By contrast, Kekaq is considered to be a 'young' village because there are fewer elders, and they are much younger than those in Hakaq. They tend to make relatively aggressive changes in terms of their living environment, dressing style, livelihood, marriage, etc. Following the networks and contacts of these two villages, I also paid short visits to other Akha villages in neighbouring areas. These villages are all connected through ties derived from the Akha patrilineal descent system and/or though ties derived from the Akha asymmetric alliance system. The two villages have been living according to the Akha *li*, albeit adapting the Akha *li* to natural and social changes at a different pace.

All villagers speak Akha, a tonal language of the Sino-Tibetan family spoken by groups in Yunnan, eastern Myanmar, northern Laos, and northern Thailand. In recent centuries, the Akha of Menglian have maintained close ties with their ethnic Wa, Lahu, and Dai neighbours, which means that most elderly people in and around Hakaq and Kekaq are able to speak these languages, albeit imperfectly.

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<sup>1</sup> I am currently based at Chongqing University in Southwest China and have not been able to return to the field since 2017, but I remain connected to my research area through telephone and social media exchanges.

Younger people also know these languages, yet they are far less proficient in them. They speak the Yunnan dialect of Chinese much better than the elderly. During my stay, I learned some Akha, but the language I used most, especially in interviews, was the Yunnan dialect of Chinese.

During my field research, I participated in the daily and ritual life of households, particularly as it concerned small children, in order to observe their childcare practices. I started in-depth work with my host family from morning to night, having meals with them, going to the fields along with whoever was taking care of their child, weeding, harvesting rice, corn, coffee or cotton with them, recording the interactions between the child and adults. The same pattern was also applied in other households with children. I conducted formal interviews with elderly people knowledgeable about Akha cosmology, kinship systems, and ideas about children, etc. I also informally interviewed youngsters about their personal experiences and opinions and what they knew about Akha traditions and general social life. Except for some of the timid ones, most villagers were willing to share their ideas and experiences.

### Care, children and insecurity

This article will illustrate the cosmological approach to Akha materials, but before proceeding to the ethnographic discussion, I would like to situate my approach in a larger field of cosmology-fo-

cused theoretical discussions of children and childcare in anthropology.

Care is well-known as essential to the elderly, the sick, the handicapped and children, and has come under widespread academic attention. As Tatjana Thelen (2015) summarises, scholars such as neo-Marxists, feminists, experts in disability studies and social security studies, and anthropologists specialised in kinship and exchange research have all made contributions to our understanding of care. Their debates over care involve various aspects of life, such as the public state, the private market, the intimate family and other close personal relations. They also shed light on the emotional side of care, which gives rise to love and affection, and good or bad feelings flowing through the process of care practices. Unlike those Thelen considers, she herself insists that care practices should be taken as the central element of social organization. Her statement brings us back to one fundamental question: what practices could be counted as care?

Medical anthropologists like Arthur Kleinman (2015: 240) and Annemarie Mol (2008: 1) both agree that caring acts are often centred on physical acts such as curing, dressing, feeding, lifting, touching, toileting, washing, and so on. Childcare undoubtedly engages with all these kinds of caring acts. However, taking care of children is far from a purely physical business, but is embedded as well within a broader cosmological world.

The concern for the physical survival and health of children is identified

by Robert LeVine (1977: 20) as the first universal goal of child-rearing which parents strive to fulfil, and the most fundamental priority; it is a prerequisite to all other goals. Yet there are significant cross-cultural variations in childrearing practices. Comparing ethnographic materials drawn from different contexts, anthropologist Heather Montgomery (2009) shows some of these cross-cultural variations, while drawing attention to the linkages between childhood and personhood, and in particular the special relation between children and spirits. David Lancy (2014) explores this cosmological approach in more depth. Lancy reviews over 200 ethnographic and archaeological accounts of infancy to conclude that in most societies infants are believed to be suspended between the human world and the world of spirits, ghosts, ancestors, and gods, and are thought to have no intention of becoming fully human. Infants' essence as part human and part spirit underscores their vulnerability, and this vulnerability helps understand why various kinds of ritual activities need to be performed to protect infants. In societies holding these two-world models, illness in infants is seen to be caused by the separation of the body from the soul or by the invasion of evil spirits. Accordingly, caregivers often turn to supernatural forces for the corresponding remedies. For these reasons, Lancy makes the case that anthropologists should place children and childcare in a larger cosmological context, where invisible nonhuman

beings such as spirits, ancestors, ghosts, gods, and souls exist and act.

Health-threatening insecurities from the cosmological world also have been demonstrated in numerous ethnographies written from the perspective of both medical anthropology and the anthropology of religion, which overlap in their concern for exploring the causes of illness and death. A rationale for this overlapping interest can be traced at least to the 1920s. In his famous book *Medicine, Magic and Religion*, William Hal-lam Rivers (2001[1924]: 7–22), one of the founding figures of medical anthropology, analysed the widespread nature of belief systems attributing human and supernatural causes to illness. Forrest Clements (1932) further specified these supernatural causes of illness as sorcery, breach of tapu (taboo), disease-object intrusion, spirit intrusion and soul loss. By giving an extension table showing tribes or regions of the world and the distribution among them of these five categories, Clements concluded that supernatural forces are universally believed to pose threats to people's health.

These concerns with health-threatening cosmological insecurities are very salient in the ethnography of the Akha living in the highlands of Southeast Asia, who also perceive their cosmological world as a cause of illness (Lewis, 1969; Goodman, 1996; Mansfield, 2000). This cosmological perspective is also very salient among the Akha minority communities in Southwest China (Zhang and

Zhang, 2011; Wang, 2019; 2021), and is shared by many neighbouring ethnic minorities such as the Dai (He, 2006) and the Lahu (Ma, 2013). Cosmological beings such as gods, spirits, ghosts, ancestors, and so on, are not just sources of insecurity, they are also sources of protection and blessing — the divine favour — mainly associated with prosperity, fertility, and security (Du, 1996). In a word, when doing research among the Akha on matters of health care including childcare, it is practically impossible to overlook the question of cosmological insecurities caused by nonhuman actors on the one hand, and their protective effects on the other.

In this article, I follow Lancy, among others, in my approach to childcare as a sociotechnical system that involves multiple actors including multiple invisible non-human actors operating within a larger social and cosmological environment (see for example Gottlieb, 2004; Topley, 2011; Gottlieb and DeLoache, 2017; Santos, 2017; 2021). If people perceive ritualistic protection and blessing as a favour that improves their health and security, it should be counted as a type of "care". I refer to it as 'ritual care'. Differing from those secular caring acts like feeding or washing, ritual care refers to caring acts that engage with cosmological forces, such as healing rituals, talisman, amulets, and other protective devices or activities. When parents or grandparents draw on these religious resources to ensure their children's survival and health, they are providing ritual care.

The importance of ritual care has been widely documented by religious and medical anthropologists working in a wide range of contexts, but it is less prominent in ethnographies of affluent modern societies shaped by secular cosmologies. This article seeks to contribute to studies of childcare by exploring the cosmological aspects of care practices and calling for a rethinking of secular approaches to insecurity and care (see for example Topley, 2011).

### **Children in Akha cosmology: creatures of two worlds**

Children are often not only a member in a family in this world but are born into two worlds. This is the case with the Akha. The term "children" (*zaq*<sup>2</sup>), in the Akha community, refers to people under the age of fifteen. Before this age, people are taken as half-human and half-naevq; they have not yet "become a person" (SC. *chengren*, 成人). According to the Akha's best-known myth, the supreme god Apeimiye is the creator of the world. He

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<sup>2</sup> All local expressions are cited in the Akha language except where marked with SC for standard Chinese or Putonghua as spoken by Akha people in Yunnan province. The orthography used to transcribe Akha terms in this article follows the most recent romanization system developed in December 2008 by Akha scholars from China, Thailand, Myanmar and Laos, a system that is becoming increasingly popular in these countries. The Yunnan dialect of standard Chinese spoken by Akha people is transcribed in the official Pinyin system in the article along with the corresponding Chinese characters.

created Tsawrhaq (meaning “human”), the ancestor of all human beings, and Tsawrhaq has a cosmological brother called Naevq, meaning “ghost”.<sup>3</sup> Tsawrhaq and Naevq share one mother called Tanqpanq Aqma. After their mother died, everything was divided between these two brothers, and henceforth that which was “good” belonged to Tsawrhaq while the rest, the “not good”, went to Naevq. Eventually, the pattern of the divided but paired worlds between Tsawrhaq and Naevq was formed. The world of Tsawrhaq and his offspring (“the human world”) is separated from the world of Naevq and his offspring (“the ghost world”). When humans do something wrong to *naevq*<sup>4</sup> or when *naevq* comes into human territory, various forms of harm can result leading to destructive effects on human lives and property. Thus, the Akha people carefully maintain the boundary between human and *naevq* by employing a variety of rituals and taboos.

Since children are taken to be half-human and half-*naevq*, humans have to fight with *naevq* to keep their children in the human world. The first step to protect children is to give children a name before *naevq* do. Hence, paternal grandparents always think of names for their future grandchildren as soon as they

<sup>3</sup> I translate “*naevq*” as “ghost” because villagers often translate “*naevq*” as “ghost”, but the word “ghost” here does not refer to the ghost of dead people as is the case in Han Chinese popular religion.

<sup>4</sup> The word “*naevq*” is both singular and plural. As a singular, it refers to a member of this non-human species; as a plural, it refers to the entire group.

learn of the pregnancy. When a child is born, grandparents, mostly grandmothers, or midwives<sup>5</sup>, immediately give the baby a name. If they fail to do so, *naevq* will name the child and take it away, that is, the child will die. Here a name equals an identity: infants named by humans are accepted as human children. Since 2013 villagers have been obliged to give birth in hospital instead of at home by the local government; the Akha grandmothers or midwives usually accompany the delivery women to hospital so that they can name the newborns in time. If the Akha refuse to name an infant, they basically refuse to take it as a human. This is what happens with abnormal births of twins and deformed infants who were traditionally killed at birth (Wang, 2021). Nor are aborted foetuses or stillbirths named; and even a live birth that dies before being named is not given a name subsequently. All such infants are excluded from the village cemetery. Generally, they are buried in the wilderness. By contrast, named infants, no matter how long they have lived, all qualify for a proper funeral.

The second thing that needs to be done to keep children safe is to avoid scolding children as *naevqzaq* (“ghost children”). This stands in stark contrast with Han Chinese cultural practices in rural areas. For example, Han Chinese parents in rural Taiwan often call their children “little ghosts” (SC. *Xiaogui*, 小鬼)

<sup>5</sup> Midwives, called “mothers who carry the baby” in the Akha language, usually are some respectful old women in the village.

(Stafford, 1995: 54). This would not be possible in the Akha cultural context. The specialist in rituals Aqbawr Pu repeatedly highlighted this taboo:

We must not say that any child under fifteen is like a *naevq*. It is forbidden to say anything related to *naevq*. We definitely cannot say that. Unreasonable people might say it does not matter. However, parents should never scold their own children saying, "Are you a *naevq* child? Are you trying to be sneaky like a *naevq*?" Don't say such things! We Akha parents absolutely do not scold our children like this!

As Aqbawr Pu explained, such scolding will make *naevq* think that parents do not want their children, and they will take the children away. Adults are not endangered by comparison with *naevq* in the same way. For example, Akha husbands normally scold their wives as *naevq* women (*naevqmiza*) or wild women (*yasaqstawhaq*), because in a myth Akha's first wife came from the wild and was considered *naevq*. Aqbawr Pu was pretty sure about this, "Only the Akha scold their wives in this way, other ethnic groups do not. Wherever the Akha come from, they all scold wives like this! I know it!".

But children are vulnerable in ways that adults are not. Similarly, one should never scold children under age of thirteen with bad words, such as "dumb", "stupid", or "insane", lest they develop accordingly. A child who is often told s/he is stupid will become a stupid person. Here too, it is *naevq* at fault: "words are followed by *naevq*" ("do maenmr *naevq* cawr"), to

quote an Akha adage; they are able to hear when humans scold a child. *Naevq* take the scolds seriously and make things happen according to what a human says. Thus, a simple scolding becomes a curse that may well come true.

Though all agree that it is better not to scold children, it is sometimes necessary. Children deserve a lesson when they behave improperly, upsetting adults, and adults need to give vent to their anger. So, the Akha scold their children with a very limited vocabulary. Akha people, no matter whether old or young, parents or not, mostly scold children with the one word, "zaq (child)!" If they are annoyed, upset, or disgusted by a child or an adult from a younger generation, they say, "ah zaq ah (ah, child)"; or if they are strongly annoyed, "ahmamamama zaq ah" (ah, you child), or "tsawrhaq zaq ah" (ah, human child). Other reproaches to small children include *ma lya* (not well-behaved) and *ma tinhua*<sup>6</sup> (SC.不听话) (not listening to words, disobedient). Seen as a whole, the various expressions used by adults to scold their children have nothing to do with *naevq* or other non-human beings. Moreover, the expressions do not question the child's human nature. Their focus is on practical matters, and this implies that the child is a human (not a *naevq*) child and that he or she has merely done something wrong.

<sup>6</sup> This is a phrase borrowed from Han Chinese culture. It is derived from Putonghua (Standard Chinese or Mandarin), the official language of the People's Republic of China.

At the same time as keeping children separate from *naevq*, the Akha parents have to deal with the gods in order to secure their children's well-being.

### The gods and goddesses of birth and of children

Everything, including human and *naevq*, has its own spirit or god called *yasanq*. *Yasanq* are omnipresent. Once wronged by people, a *yasanq* will cause pain and illness which can only be healed by ritual sacrifice. In this cosmological system, there are two pairs of deities who oversee pregnancy, birth, and children, *Zaqghen Zaqsan* and *Ghesan Gheje*. These two gods and two goddesses take care of children from the moment they are conceived until the age of fifteen.

*Zaqghen Zaqsan* are the goddesses who make pregnancy happen by putting children into women's bellies. When a woman gives birth, *Zaqghen Zaqsan* stay around and take care of them. Because of their presence, the woman's mother and other members of her natal family are forbidden to come and stay with her. If they do, the woman will be unable to deliver the child smoothly, or she will suffer more pain and the baby will cry more. This rule is strictly observed, even as women are now required to give birth in hospitals. In one case, a woman suffered a lot when giving birth to her son in the hospital. The doctor told her that "there was a bone in her cervix, and the excessive amniotic fluid could choke

the baby". Thus, the doctor proposed a Caesarean section. During this process, her husband's family was with her, waiting outside the delivery room, while her natal family members did not show up at all. Her mother was worried a lot, but also was afraid that her presence would make the labouring daughter and the newborn baby suffer more. Therefore, she waited at home and only went to visit her daughter the next morning.

*Zaqghen Zaqsan* continue to protect children after birth. Aqbawr Pu claimed that because of their protection, children will not be injured even if they fall off of a balcony, which is normally two metres off the ground. "Nothing will happen!" he said. "Try it if you do not believe it! Nothing will happen if children fall off! [But] just imagine what will happen to our old men if they fall off of the balcony? [The children are not hurt] because *Zaqghen Zaqsan* are protecting them!" Indeed, while I was in the field a one-year-old baby boy did fall to the ground from an unfenced balcony and received only a bump on the head. However, the grandfather soon built a bamboo fence around the balcony to guard the little boy from future falls. But in most cases, adults paid little attention to toddlers playing on unfenced balconies, even if they were standing right at the edge. Many times, I became very anxious in seeing small kids playing or urinating at the edge of a fully open balcony. I was always worried by what I saw as dangerous situations, but Akha adults expressed no concern. They just replied casually

when I reported the event to them, "Oh, let it be".

Due to the protection and care from the goddesses, Akha parents are forbidden to call their children's real names in the first year, or to teach them to walk, or to sing them traditional lullabies. These tasks are generally taken up by grandparents. The deities are upset when the parents undertake such tasks, but they do not mind if grandparents train infants to walk or sing them lullabies. Somehow, I was not satisfied with the explanation of why parents should not do these things, but the only answer I received was that the goddess would be upset. I kept asking why they would be unhappy and what would happen, but villagers just burst into laughter and replied, "upset is upset". Though they failed to give me a "sensible" answer, in practice they strictly followed these rules, even young parents who had been educated in school, travelled to big cities, and worked in them for years.

*Ghesan Gheje* are a pair of gods in charge of children's wellbeing. They look after young children, from birth to fifteen years of age, but especially children under the age of ten. Children's health depends on the favour of these two gods. Aqbawr Pu firmly stated, "Nothing will happen to children unless *Ghesan Gheje* do harm to them!" I was confused: "They are the gods of children, so why would they harm children?" He insisted, "It is impossible for them not to harm children!" Being aware that I was unlikely to get a direct answer to the question "why", as it had occurred

many times before, I had to switch the focus to "How do they harm children?" Using this question, I collected massive amounts of data.

*Ghesan Gheje* can claim children's lives if they think parents are raising them in an improper way. More often, *Ghesan Gheje* cause various sicknesses in children. Some, like *ghedm*, may be fatal. This is a serious disease that makes children moan, and when it becomes fatal, it also involves nosebleeds. Other illnesses manifest with various levels of severity. *Ghemula* refers to pains in the body shared by both children and mothers. *Ghewawdzaw* involves needle-like pain. *Gheke* is a trachea problem; *ghepije* refers to diarrhoea and breathing troubles. *Ghelaba* results when the souls of a woman are scared away during her pregnancy or labour.

Although they cause sickness, *Ghesan Gheje* are healers. They withdraw harm from children when they are satisfied with the animal sacrifices made to them. On this point, Aqbawr Pu gave me a very clear answer, "Only *Ghesan Gheje* can heal sick children, even if they have problems with the inner organs, like heart, liver or lung. If they do not care about you, you will not be cured." I curiously asked, "How about going to a hospital to buy some Western medicine? Does it help?" His answer did not change, "Western medicine is useless except for diminishing inflammation. For children, injections and medicine do not help if *Ghesan Gheje* do not take care of them." Here it should be noted that villagers never completely rely on healing rituals for children's

health problems. In fact, they draw on a variety of medical resources, strategizing according to situations and needs. In addition to healing rituals, Akha parents may rely on official biomedical resources from local clinics and hospitals, just as they may seek the use of other traditional medical techniques such as herbs.

Preterm infants often need a healing ritual to survive. As Aqbawr Pu said, "Sometimes a child has an incomplete heart, which is determined by *Ghesan Gheje*. Preterm infants, those who are born at the seventh or eighth month, always have this problem, an incomplete heart. But you have to protect them well, hold proper rituals for them, and their hearts will gradually grow completely. If you properly perform rituals, which work on *Ghesan Gheje*, their hearts will be fine." He kept citing an example to me:

"Aqzawr Ju's sister was born in the seventh month. The elders all said that she was too tiny to survive. Thirteen days after her birth, her family asked a *nyirpaq*<sup>7</sup>, also a relative, for a diagnosis, and it turned out to be caused by *Ghesan Gheje*. At that time, we were in the cooperatives, and all ritual performances were forbidden. However, Aqbawr Ge, a pima master, was working at the village office. He was also a barefoot doctor. He secretly performed the ritual for her. It was done secretly, so that the girl survived and grew up."

<sup>7</sup> *Nyirpaq* is a shaman-like figure in the Akha community. They have the ability to see through the spiritual world, thus can find out the spiritual cause of sickness.

Generally, if parents notice their children often feeling uncomfortable, having no appetite, and becoming thinner and weaker, they turn to experts in ritual for a diagnosis. Sometimes, they turn to healing rituals if western medicine and herbs proved ineffective. During fieldwork, I recorded six cases of sickness attributed to *Ghesan Gheje*. Three of the afflicted children were girls and three were boys. Two were one-year-old infants, one was a two-year-old toddler, two were three-year-old toddlers, and one was a fifteen-year-old teenager. Smaller children mainly suffered from long-lasting colds and diarrhoea that western medicine failed to cure. However, the full range of their different symptoms were discovered by ritual experts to originate in the imprisonment of their souls by *Ghesan Gheje*, or by the covering of their eyes or blocking of their throats — all by *Ghesan Gheje*. The teenage girl had a belly pain which could not be identified in the hospital. She told me that she went to the hospital several times, but doctors failed to find the cause of her pain. Then her family asked Aqbawr Pu for his diagnosis; he said something which the girl did not understand. At last, the healing ritual to *Ghesan Gheje* was performed for her.

Though powerful, these gods and goddesses of children by no means solve all the health problems of children. Children's souls also need to be treated carefully.

## Souls that cannot be lost

It is one of the fundamental beliefs in the Akha community that beings have souls (*savqlavr sulavr*). Human, animals, and plants all have souls. Humans possess souls as soon as they are born. There is no chance at all for newborn babies to survive if they do not have souls. Thus, Akha villagers always welcome every newborn by repeating the same sentence, "*savqlavr sulavr ta baq dey*". The phrase means "souls, do not go away to the other world, please come back quickly!" or "souls, do not be scared away". This is a good wish, asking the souls of newborns to stay with the owner.

Souls of living people seem powerless: they are incapable of doing any good or bad to other beings, and they are unable to protect themselves on their own. But they often turn out to be victims of other cosmological beings. Gods, spirits and even ancestors often imprison them, block their throats, cover their eyes, etc., so as to ask for a sacrifice from the human world. They are very timid, easily scared away from their owners by fearful beings, accidents, and events, such as thunder, fights, and attacks. They are also childish, always attracted to nice things and places. Once attracted, they forget to accompany their owners, and rather stay wherever fascinates them, wander around in the fields, hide underground, or stay in the water, and eventually get lost. In each situation, the loss of the soul always causes pain and sickness to the souls' owner. Thanks

to the easy virtue of souls, people can easily hold onto them by offering nice things, for example, a boiled egg. Even if souls have already gone away, it is still possible to call them back via sacrificial rituals at different levels.

Children's souls, in particular, are weaker than others. They are too vulnerable to resist any frightening or attractive distractions. Hence, Akha people pay great attention to keeping souls together with their children, especially during short or long journeys, to other villages, to the hospital, or to the county seat. If children, along with their parents, visit their relatives in another village, they always receive many boiled eggs before they go back home. Parents would feed their children an egg at the moment of leaving, to ensure that their children's souls return with them. When crossing a river on the way, picking a pebble from the river is a very efficacious way to keep souls of children with their owners. When passing by a market, buying a small gift, such as a mirror, is sufficient to lure souls back home. Traditionally, Akha children were hardly ever brought to markets in town until the age of thirteen. When they reached thirteen, their parents would take them to town and buy a valuable gift for them. After coming back home, parents were required to kill a chicken to call their souls back. Due to the socioeconomic development in the local society, villagers as well as their children have started to visit markets more frequently than before. Nowadays, villagers have lowered the age

limit to one year, while still performing the same ritual of calling souls back after children's first visit to town. Similarly, if children go to hospital for health problems, ritualistically calling souls back is also necessary. Otherwise, their souls might stay in the street or in the hospital.

As a knowledgeable elder Aqbawr Gu mentioned, souls can be scared away by something horrible, such as fighting or killing. He further explained that "You will know if your souls go away when you are dreaming. If you are scared somewhere and you dream of that place at night, it means your souls stay there...Souls will run away when they are terribly frightened, but they still stay with you when only slightly scared." Aqbawr Bu posed a simpler version of soul-loss: "you lose a soul each time you are scared". In reality, there is no clear-cut measure of fear levels, but I found that the seriousness of the situation could be distinguished through the treatment of each case. The lowest level is where there is possibility that one's souls might be frightened away. For example, during the Swing Festival in August, villagers play on a swing over ten metres high. As they sit or stand on the swing, they shout aloud, "Souls come back" (*sala sula wo la ley*) before swinging. That is because the swing is so high that souls might be afraid, so it is better to call them in advance.

When something terrible really occurs, the minimum form of treatment is to give the victim a boiled egg in his or her right palm, then for any nearby elder

to tie a thread around the victim's right wrist. The boiled egg is to lure souls back; the thread serves to reel them in and tie them to the victim. Its purpose is, first, to tie a person's souls to the body so as to maintain the person's health; second, the thread warns *naevq*-ghosts that a person is a member of the human world whom they should not harm. Ultimately, to tie a thread is to protect a person from the cosmological beings who cause illness and pain. The colour of thread could be dark blue, black or white, according to the targets of rites, the seriousness of the sickness, and seasons of the year. This is a very common situation in the Akha's everyday life. In one case, a five-year-old girl in Kekaq village, accidentally fell from a rubbish tank when playing with her peers and cried out, which caused her grandfather to believe that her souls had been scared away. He immediately tied a thread around her wrist to ensure that her souls didn't leave her. In another case, a three-year-old girl in Hakaq village witnessed her drunk father beating up her mother, an incident of horrible domestic violence that terrified her. She slept with her grandmother at night and screamed with bad dreams. When I saw her the next morning she was in her grandmother's arms. Her eyes were still full of panic. Her grandmother put a boiled egg in her right hand, and tied a thread around her wrist explaining that, "Dad fighting with mom frightens the little girl. Souls don't be scared away! Grandma is here, grandpa is also here. Souls don't be scared away!"

If something worse happens, then a ritual called *lakuku* (calling souls back) is necessary. The ritual is a specialised one utilizing soul-calling chants, normally conducted by an elder. I encountered several such cases in the field. In the first case, a three-year-old girl, who suddenly behaved abnormally on a rainy day, was believed to be enchanted by a hostile being called *lapyā*. Fortunately, Aqbawr Gu successfully drove the *lapyā* out of the girl. After the healing, Aqbawr Gu was invited to perform a *lakuku* for her. During the ritual, he explained to me that the souls of the girl were scared away since *lapyā* had invaded her body, thus it was necessary to call them back. In the second case, a teenage girl had a long-lasting fear of thunder, and she was also too timid to stay at home alone on windy days. Once, it thundered when she was on the way to the fields, and she was so scared that she instantly fell down on her knees and started crying. Hence, her parents invited an elder to perform a *lakuku* to call her souls back.

Despite the apparent invisibility of these various nonhuman entities, their existence and influence remain real to Akha emotions and childcare practices. In addition to these various cosmological forces, there are two other powerful entities. Unlike gods or ghosts, these cosmological entities are connected to human beings, but possess ghost-like evil powers that are capable of harming the most vulnerable, particularly children.

## Piser and Lapyā: hostile beings to small children

*Piser* and *lapyā* are the best-known hostile beings threatening people's lives, sometimes causing death. In official Chinese language (*Putonghua*), *piser* and *lapyā* are given the same name, *pipa gui* (SC.琵琶鬼), a kind of ghost. The fear of *pipa gui* is shared by most ethnic groups in Menglian. Most documented cases of *pipa gui* all come from the Dai community (Wang, 1998; Zhao, 2010; Liu, 2013), but they can be found in most local ethnic groups, including the Akha, Lahu, Wa, Dai, and Han.

Akha villagers believe that the Lahu are the group with the most *piser* because *piser* are indispensable in founding a Lahu village. For this reason, it is said that there is at least one *piser* in every Lahu village. The Han are seen to be the group with the second highest number of *piser*. As to the Wa and the Dai, they are said to have *piser*, but only very few.

To Akha, *piser* refer to people whose souls are able to come out of their body through the forehead. Once out, the souls transform into visible animals, wander around, and harm people, especially the most vulnerable, when they are sleeping. *Piser* eat dead animal corpses, blood, and the weak, such as infants and the sick. Women delivering babies are also in danger from *piser* because they like to drink blood and to eat newborn babies. An old woman Aqmee Ku recalled that before the only *piser* in a local

Akha village was chased away, infants in that village had hardly ever survived. This *piser* ate all the babies.

Thus, the Akha have developed measures to protect their vulnerable members from the threat of *piser*, especially *piser* coming from nearby Lahu villages. One of the protective measures is the usage of a wild botanical hard shell with sharp hooks, called *pisermaqdo*, literally meaning "*Piser* does not bite". It is said that the vicious *piser* will not come to bite and drink the blood of one who possesses this shell. Pregnant women always keep such a shell by their side when giving birth, at home or in hospital. Shellac is viewed as the best "medicine" to protect against *piser*. Akha parents or grandparents always make bracelets and tiny medicine bags out of shellac for newborn babies. The shellac bracelet is made by a father for his newborn children during the naming ceremony. The drug bag is a tiny bag of roughly four-square centimetres, made of red cotton cloth. It is filled with various drugs against *piser*, among which shellac is indispensable. Generally, this drug bag is made by grandparents or great-grandparents for the newborn. Infants are supposed to wear this tiny bag in the first year, and then their family may remove it at will. As long as they are wearing this drug bag, infants and sickly adults are secure to travel around. Despite the protection, a middle-aged woman still emphasised that they rarely bring their young children to markets because there might

be *piser* in the crowds. That was why my host family were reluctant about me taking their little girl to the market. However, one old man told me that going to the market nowadays might not be as threatening to humans as in earlier times because the market now has a bigger meat department that allows the *piser* to satisfy their desire for drinking blood.

Like *piser*, most *lapyā* are known to come from the Lahu and Han groups. Compared with *piser*, the soul of a *lapyā* is invisible. It invades a person's body through the fingers and toes, takes up residence, and drinks its victim's blood. After two days or so, the victim's finger and toes will curl up. Meanwhile, the victim behaves like another person, speaks whatever language the *lapyā* speaks, and falls sick. Eventually, the victim dies. Since *lapyā* are capable of attacking even the strongest man, they are considered more threatening than *piser*. Fortunately, the *lapyā* soul may be driven out of the victim by healers who have the right knowledge and medicine. Accordingly, *lapyā* fear all healers, and are scared to look straight at them.

When I shifted research focus to Kekaq village in July 2013, villagers were eager to describe a recent event of a *lapyā* invading a 3-year-old girl. The girl's parents had taken her to a clinic, but they had forgotten to bring the small drug bag which protects children from *piser* and *lapyā*. That night, the girl had suddenly lost consciousness, her lips had become black. In the following morning,

she behaved in a totally different manner. It was raining heavily, but she refused to use an umbrella or oilcloth, and was just walking in rain. Villagers tried to test her by asking the same questions in the Akha, Lahu, Wa, Han, and Dai languages, to check in which language she replied, so as to tell from which group the *lapyā* was from. Aqbawr Gu, the most knowledgeable elder and a good healer in the Kekaq village, was invited to expel the *lapyā* from the girl. Aqbawr Gu uttered a certain incantation, the girl felt very uncomfortable, and rushed alone into the sugarcane field next to the village. Villagers, under his supervision, shot their hunting guns three times around the girl, in order to scare the *lapyā* away. If the *lapyā* speaks his or her own name, it will be easy for healers to drive him out. Aqbawr Gu explained, "If the *lapyā* speaks its name, I will address it directly when uttering the incantation. Then no matter where the body of the *lapyā* is, in the human world or the *naevq* world, it hears me, and realises that we know it." Because the *lapyā* did not speak his name, Aqbawr Gu had to try other treatments. He prepared some herbal medicine, and then put it and a lot of chilli into the fireplace. Above these, he placed a large steamer. They put the girl into the steamer. She did not suffer from the heat or the strong smell of chilli, but other men in the room could not bear the strong smell. Aqbawr Gu realised that the *lapyā* was a very powerful one. Then, he took the herbal medicine out from the fireplace, soaked it in boil-

ing water while uttering incantations, fed it to the girl, and then showered her with the leftover water. Then she fell asleep. When she awoke, she had recovered.

After the event, people were still shaken. The girl's grandfather, Aqbawr Hu, explained why: "We have to be very careful regarding *lapyā*. People, children or adults, will die two or three days after being attacked by them." In this case, the *lapyā* was expelled and the girl recovered. But, not all attacks can be resolved. According to Aqbawr Gu, a man from a neighbouring Akha village had died from a *lapyā* last year. His villagers clearly knew that this man was attacked by a *lapyā* but failed to expel it. Aqbawr Gu also stressed, "This is the first time that a *lapyā* has come to our village. We have to chase it away, otherwise in the future it will come back again and eat more people. If you completely defeat it at the beginning, the *lapyā* dare not come again." It seemed that his expulsion had been completely successful, but the danger was not passed. If nothing else, the girl would remain vulnerable. As Aqbawr Gu explained, if a person is attacked by *lapyā* three times, even if he is cured through incantation all three times, his or her brain will be partly damaged, and he will become less intelligent than before. Because of all these threats and damages, villagers paid a lot of attention to protecting their small children. In general, infants, without exception, wear similar handmade hats with a tiny red drug bag attached, a shellac bracelet which protects them from hostile beings, and a bunch of dark-blue

threads around the right wrist to tie their souls to their bodies.

## Conclusion

Anthropologists who specialize in studying children bring us insights into childcare from other cultures across the world, from Portugal, the United States, China, to Somali, Peru and so on (Gottlieb and DeLoache, 2017; Lancy, 2017). All of these cases are telling us a simple fact: raising children is a culturally and socially constructed process. It involves family and other social relationships, demands money and love, often is regulated by governmental polices and is coloured by religious beliefs. Accordingly, parents need to provide different types of care to raise their children, such as daily care, health care, and emotional care. My account has focused on ritual care practices aimed at securing the health and well-being of children. Such ritual care practices have obviously been noted and highlighted in previous anthropological studies of childcare, but this focus on ritual care practices remains marginal. And yet, it has long been suggested by anthropologists working at the intersection between medicine and religion that ritual care is a vital component of child-centred practices of healthcare.

This research presented here reveals that the Akha villagers in Menglian mainly sense uncertainties and insecurities from the cosmological world and these uncertainties and insecurities are seen to par-

ticularly threaten the health and well-being of vulnerable children. Indeed, the cosmology defines what a child is, and helps to shape the corresponding childcare practices. Thus, I argue that the perceived cosmological insecurities should be taken into consideration in the field of childcare.

To protect their children from these malevolent cosmological beings, Akha have developed a shared collective pattern of ritual care. Compared to adults, Akha children have closer connections with the cosmological beings because their personhood is not fully developed, and they are more vulnerable. Until they are thirteen years old, children are viewed as half-human and half-naevq, creatures of both human and ghost worlds. The essence of children greatly defines even the most fundamental practices of childcare among the Akha. Giving children names at birth before the naevq can do so, and never scolding children as “naevq children”, are practices of ritual care that help maintain the necessary boundaries and balance between the human and non-human worlds.

From the moment of conception, Akha people depend on the particular protection of two pairs of deities, *Zaqghen Zaqsan* and *Ghesan Gheje*, to take care of babies and children. These gods and goddesses are meant to protect babies and children from dangers such as falling down from a balcony, but they also cause illnesses which can only be cured through healing rituals. This work of protection as well as the threats the deities pose to ba-

bies and children play an important role in defining villagers' childcare practices. Moreover, villagers put much effort into protecting newborn infants and toddlers from hostile *piser* and *lapyā*, by dressing them with talismanic nuts, bracelets, drug bags, and so on. As for those powerless, timid and restless souls that children are born with, villagers work hard to tie them to their rightful owners, using techniques like tying threads around the children's wrists, attracting the children's souls with gifts or food, calling back these souls through rituals.

All in all, Akha villagers need to constantly provide ritual care to their babies and children from the time they are conceived until they are born and after, so as to protect them from threats posed by cosmological beings. Here so-called ritual care distinguishes itself from caregiving activities at the physical, social or secular level. First of all, unlike body-centred acts such as washing, dressing or feeding, the Akha health caring acts does not necessarily centre on the physical body. Practices such as asking grandparents to name a child, avoiding the use of the term "ghost child" to refer to one's child, or avoiding taking small children to markets, are all practices of ritual care that are not centred on the body and are meant to ensure children's survival and health.

Second, their caring acts always engage with some cosmological beings. For example, naming a child is not only to give a child social identity, but a process of distinguishing him or her as

a human. Feeding a child with a boiled egg is not always for good nutrition, sometimes it is intended to attract the child's soul back. Practices like picking up a pebble from a river that children cross, buying a gift from a market that children pass by, tying a thread around children's wrists, and performing healing rituals to call the soul back are all practices of ritual care that engage with cosmological beings in an effort to keep children's souls in the right place with their owners. That is, to insure their good health.

Finally, ritual care is provided by both human actors and non-human cosmological beings. Humans such as parents, grandparents, and fellow villagers can offer a favour or observe a taboo, thus providing their ritual care to children through all these caring acts mentioned above. Meanwhile, these caring acts, particularly healing rituals that make sacrifice to gods, demand blessing, protection and support given by gods. In other words, non-human cosmological beings are also believed to take care of children through rituals. In the case of goddesses of children, they also offer everyday protection to infants.

Undoubtedly, ritual care plays a central role in taking care of babies and children among the local Akha community. It compels us to reconsider the question of what care is. It is not merely physically centred acts, souls need to be cared for, too. It is not merely human acts directed by religious values, but socio-cosmic activities accomplished together by human

and cosmological forces. This research suggests that besides bodily care or emotional care, there is another type of care that deserves to be deeply studied.

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# Human rights and secularism in conflict with Hindutva: the *Water* controversy

## Direitos humanos e secularismo em conflito com Hindutva: a controvérsia em redor do filme *Água*



Amit Singh<sup>1a\*</sup>

**Abstract** This article analyses tension between human rights (including secularism) and Hindutva, the Hindu nationalists' discourse. Particular focus is put on women's rights and the right to freedom of expression and dissent in India using the film *Water* and the controversy associated with it in the north Indian district of Varanasi in 2000. Firstly, the relation between human rights, secularism and Hindutva/Hindu nationalism is discussed conceptually. This is followed by a discussion of the narratives of Hindutva's followers in Varanasi and their involvement in the controversy surrounding the film *Water*. Extracts from interviews of Hindu nationalists are included to illustrate this tension. The article concludes by claiming that Hindutva is an antithetical to secularism and human rights.

**Resumo** Este artigo analisa a tensão entre os direitos humanos (incluindo o secularismo) e o Hindutva, o discurso dos nacionalistas hindus. É dada especial atenção aos direitos das mulheres e ao direito à liberdade de expressão e dissidência na Índia, utilizando o filme *Água* e sua controvérsia, que teve lugar no ano 2000, no distrito de Varanasi, no norte da Índia. Primeiramente, é introduzida uma discussão conceptual sobre a relação entre direitos humanos, secularismo e nacionalismo Hindutva/Hindu. Segue-se uma discussão sobre as narrativas dos seguidores de Hindutva em Varanasi e o seu envolvimento na controvérsia do filme *Água*. Excertos de entrevistas com nacionalistas hindus são apresentados para ilustrar esta tensão. O artigo conclui afirmando que Hindutva é antitético ao secularismo e aos direitos humanos.

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**Keywords:** Hindutva; Hindu nationalism; India; freedom of expression; women's rights; film *Water*.

**Palavras-chave:** Hindutva; nacionalismo Hindu; Índia; liberdade de expressão; direitos das mulheres; filme *Água*.

## Introduction

India is a multicultural country where Hindus are the majority (80%), while Muslims are the second largest community, forming 14.6% (approximately 206 million) of the total population. During the Indian freedom struggle, people from all religions, castes, and classes rose up against the British Empire. Indian nationalism emerged during the anti-colonial freedom struggle, but it was inclusive and tolerant in nature.

On August 15, 1947, India became a secular democratic nation after its independence from Britain. Independence was overshadowed by fierce Hindu-Muslim violence which led to the partition on August 14, 1947 of India into two countries, India and Muslim Pakistan. For Hindu nationalists, the partition was seen as a Muslim betrayal of the Indian nation. Animosity continued between Hindus and Muslims in post-Independence India. Later on, in 1950, "inclusiveness" was consecrated in the secular Indian Constitution that promoted the cultural accommodation of religious minorities. For the makers of the Indian Constitution, "secularism" was an essential tool for the effective functioning of democracy (Jha, 2002). The Congress party, under the

sway of Jawaharlal Nehru, the first prime minister of India, preferred secularism and religious pluralism over a Hindu nation. During this early period (1940s and 1950s), the political influence of Hindu nationalists on society was limited, and their dream of remaking India into a Hindu nation went unrealised. Furthermore, the assassination of Mahatma Gandhi by Hindu nationalist Nathu Ram Godse in 1948 turned the people's sentiment against the ideology of Hindutva.

Initially, the Congress Party leadership was confident that a political culture based on religious pluralism would become the foundation of the new society (Doss, 2018). However, this did not happen. Communalism, as an ideology for political mobilisation, continued to resonate among Hindu nationalists which resulted in the aggressive rise of the Hindu extreme right in the 1980s (Engineer, 1995: xiii–xiv). The demolition of Babri Mosque by Hindu militants in 1992 confirmed their success in Indian politics (Varshney, 1993). As a political tactic, Hindu nationalist organizations such as Rastriya Swaymsevak Sangh (hereafter RSS) and Bhartiya Janta Party (hereafter BJP) evoked the historical trauma of Hindu humiliation under Muslim rule (1000 AD - 1757 AD), and continually incited the

Hindu majority to seek revenge against past atrocities (Kinnvall, 2016). Founded in the 1920s, the RSS offers unity to the Hindu community to build the Hindu Rastra (the Hindu state). Hindu nationalists stipulate that minorities should have no special constitutional privileges that would allow them to retain their distinct religious identities (Jaffrelot, 1996; 2002). The goal of Hindu nationalism is to convert Indian secular democracy into a majoritarian Hindu state — an objective that RSS is currently trying to achieve through its political arm, BJP. The BJP has been accused of pursuing a religiously divisive agenda, which seeks to make India a Hindu state and has led to a rising tide of violence against Muslims and civil society (Petersen, 2022). The journey of Hindu nationalism started during the Hindu revival movement (17<sup>th</sup> to 19<sup>th</sup> century) and continued during the colonial period. In post-independence India (particularly in 1980s), proponents of Hindutva notably continued to push their agenda; they stood against secularism, women's rights, freedom of expression and dissent (Sen, 1993; van der Veer, 1996). However, most concerning is their attack on those who criticise the Hindu religion (Jaffrelot, 2008; Thapar, 2015). Their tendency to censor dissent is reflected in the case of *Water*.

The film *Water* (2005) and the surrounding controversy (2000) provide an insight into the political ideology and strategy of Hindutva, particularly, from 2000 onwards. The film was translated into Hindi by Anurag Kashyap. Shooting

of the film began in 2000 in Varanasi but had to be stopped due to violent protests and could only be continued in 2005 in Sri Lanka under the name "Full Moon". The film was released in India in 2007. It was nominated for "Best Foreign Language Film of the Year" at the 2007 Academy Awards. *Water* explores the plight of widows forced into poverty in the holy city of Varanasi in 1930s. Its title and setting allude to the sacred waters of the Ganges. The river and the Goddess Ganga, from which its name derives, are also symbols of Hindu conservatism under which widows are attributed extremely low social status. For the people of Varanasi, Ganga, is synonymous with their religious identity and sacred pride (Darian, 1987). The film centers on a young widow, Kalyani (who falls in love with a Brahmin man who is a follower of Mahatma Gandhi) and a child widow (Chuhiya) who is forced to live in the same ashram as Kalyani in Varanasi along with other "undesirable" widows. Their lives are controlled by a venal old woman, Madhumati. She pimps the young widow Kalyani with wealthy Brahmin men. Kalyani, defying social restrictions imposed on widows, runs away to marry her Brahmin lover, but finally discovers that his father is one of her "clients." She drowns herself in the Ganges, and the young man disowns his father. Chuhiya is abused and then rescued by Shakuntala, another widow, who helps her escape (*Water*, 2005).

The script of the film was leaked before shooting. Some of the dialogue in

the script was seen by the nationalists as offensive to their religion (Siddharth, 2000). They claimed that the film would hurt Hindu sentiments because widows are depicted as prostitutes, engaged in romantic affairs, and are exploited by a Hindu priest. In reaction to these perceived affronts, the filmset at Tulsi Ghat was destroyed on the 30<sup>th</sup> of January 2000 by members of The Kashi Sanskriti Raksha Sangharash Samiti (KSRSS), an organisation that includes members of the RSS. Finally, under pressure from Hindu nationalist groups, shooting was banned, and the crew was forced to leave the city (Dainik Jagran, 2000).

The violent reaction by Hindutva groups to *Water* shows how threatened these groups feel when challenged by ideas of women's empowerment and human rights. Interviews with Hindu nationalists show how they use nationalist narratives to exert control over women's bodies and to channel their anger at secularism and human rights. Their ability to invent and divulge anti-secular and anti-gender activities shows how fluid Hindutva ideology is in transcending the limits of time and location and in its ability to shape the contemporary socio-political situation in India. Since 2014, the increase in Anti-human rights tendencies among Hindu nationalists starting with the *Water* controversy (2000) is mirrored by growing intolerance towards dissenters and disregard for women's rights under Narendra Modi's Hindu nationalist government onwards. The *Water* contro-

versy was an early indication of the exacerbating influence of Hindu nationalism and of declining secularism and human rights in Indian society and politics.

Empirically, the *Water* controversy reveals the tension between Hindu widows and Hindu nationalists who have denied certain of the widows' basic human rights. Theoretically, the controversy reflects an implicit tension between competing discourses, one grounded in the human rights of Hindu widows and the other in the ideologies of Hindu nationalism and religion. The former questions authority and promotes equality whereas the latter (and religion in general) propagates submission, hierarchy and usually inhibits freedom of expression and dissent (Witte and Green, 2012). The destruction of the filmset by Hindutva supporters was an attempt to control the narratives of the bodies of Hindu widows, who are considered an essential part of Hindu nationalism and Hindu culture (Saltzman, 2006). The script of *Water* highlights their oppression, their right to free agency, and their human rights. This article is an attempt to analyze the complexities of modern theories (secularism, human rights) and their implications in a northern non-western Indian Hindu society by studying the impact of the filming of *Water* in such a sensitive context. It does so by first introducing a conceptual discussion on the relation between secularism, human rights, and Hindutva/Hindu nationalism. It then moves on to discuss the narratives of Hindutva's followers in-

volved in the film controversy. Extracts of their interviews are included to illustrate the relationship between these competing agendas. The article concludes by claiming that Hindutva is antithetical to secularism and human rights.

## Conceptual discussion

During India's freedom struggle, Congress leader Mahatma Gandhi was concerned with enmity between Hindu and Muslims (Khilnani, 2016). Gandhi proposed an idea of 'religious neutrality' in the convention of 1931. Later, to prevent potential sectarian violence between Hindus and Muslims, it was considered vital for the newly liberated Indian State to be seen as "neutral." This gave rise to the notion of 'political neutrality' (Balsekar, 2014), which is now a guiding principle. India's freedom struggle was a joint struggle of various communities irrespective of their religion and caste, and this meant that the nature of Indian nationalism was inclusive (Khilnani, 2016). This inclusivity could be better safeguarded through a vision of "inclusive secularism" capable of accommodating different communities and their religious differences. Sen (1993) argues that Indian secularism has been able to promote cultural diversity and religious tolerance and to create a democratic environment where religious minorities feel safe.

Though secularism in India has been linked with religious tolerance, this tolerance has not led to critical public

discussions about religious differences (Richman and Geetha, 2007: 85). According to Donald Smith (1963: 139), Indian secularism is a pragmatic response to the challenge of religious pluralism. He argues that the principal of a secular state represents a practical approach for national unity and communal harmony. However, critics argue that secularism is flawed since it has been associated with modernization that belittles faith and fails to respect religious believers (Srinivas, 2003). Ashis Nandy (1995) and T.N. Madan (1987) reject secularism as it is deemed radically divergent from Indian culture and tradition. They advocate revisiting genuine religion and the indigenous traditions of religious tolerance in order to uphold a multireligious and pluralistic society. Nandy contends (1995; 1999) that contemporary Western rational-scientific secularism has not succeeded in removing religion from politics or in fostering more religious inclusivity, and that it has ultimately led to communal violence.

Interestingly, none of these critics would support a theocratic state that subordinates the state and constitution to a particular religious system. Nandy's yearning for an 'authentic' cultural essence carries the risk of authoritarianism (Desai, 2002: 78). Moreover, the anti-secular argument overlooks the fact that religious society in India prior to the rise of Western post-Enlightenment modernity was not devoid of religious violence (Panther, 1997: 529). Pardesi and Oetken (2008: 23) assert that the separation of re-

ligion and state is necessary to safeguard society from the potential radicalization of religion and promote stability. However, Anderson and Jaffrelot (2018) question whether religious pluralism and the protection of human rights, which are preserved by Indian secularism, can be preserved under a Hindu-majority state.

Secular principles have faced challenges due to a history of religious and ethnic conflict, which initially peaked with the partition of British India in 1947. This conflict continued to dominate the political scene in the 1980s, 1990s, and from 2014 onwards. To gain a comprehensive understanding of the roots of Indian secularism, it is crucial to take a critical and empirical approach to the study of Hindutva (Hindu nationalism) politics and Hindu majoritarianism in contemporary Indian politics. The majority-minority framework of current Indian polity under the BJP endangers secularism due to the influence of dominant religious forces (Rajan and Needham, 2007). Nehru had created secularism to ensure fair treatment of all religions, but Hindutva, a substitute for secularism according to majoritarian politicians, has now taken hold of the Indian political climate (Chandhoke, 1999). Proponents of Hindutva, including organizations like RSS/BJP, have never fully embraced secularism and its associated values, including religious equality and egalitarianism, and have demonstrated little regard for the human rights of minorities and Dalits (Khilnani, 2016; Jaffrelot, 2022).

## Hindu nationalism (Hindutva)

Hindu nationalism emerged as an alternative political culture during the Indian independence movement in the early 20<sup>th</sup> century and has now become the dominant idiom. It advocates the imposition of a religion, culture, language, and sacred territory (Jaffrelot and Therwath, 2007: 4). Scholars have branded Hindu nationalism various names for its hegemonic and anti-democratic characteristics. Catarina Kinnvall (2006) terms it "anxious nationalism", Dibyesh Anand (2011) labels it as "schizophrenic nationalism", and Sikata Banerjee (2012) describes it as "muscular nationalism". Hindutva has and is currently being utilised in the process of nation-building to establish a Hindu-majority identity, and a Hindu nation. Part of its strategy is to cultivate a narrative of Hindu insecurity and blame this insecurity on Muslims (Anand, 2011). Hindutva is now synonymous with Indian nationalism (Tharoor, 2020).

Hindutva is the belief in the hegemony of Hinduism in India and the establishment of the country as a Hindu, rather than secular state (Jaffrelot, 1996). The word Hindutva was popularized by Vinayak Damodar Savarkar — the president of Hindu Mahasabha — in 1920s. The discourse of Hindutva rejects foreign influence and cultural diversity and propagates the sacredness of Hindu religion; Savarkar used the term "Hindutva" to describe "Hinduness" or the "quality of being a Hindu" (Tharoor, 2020: 221). The

Hindutva ideology has been associated with rightwing extremism and fascism due to the puristic racial elements of the movement and its association with intolerance of minorities; anti-Muslim sentiment and violence in particular is palpable in India (Casolari, 2002; Peterson 2022). Hindutva in colonial India emerged through sustained interaction with ideologues in fascist Italy and Nazi Germany (Casolari, 2002; Leidig, 2020). Hindu fundamentalist organizations (RSS/BJP) have used Hindutva to develop an aggressive sense of ethnic Hindu identity in the mobilization against religious minorities, and secularists (Jaffrelot and Therwath, 2007; Zavos, 2010).

Since the advent of the right-wing Hindu nationalist Prime Minister Narendra Modi — known for his anti-secular and anti-Muslim stance — in 2014, Hindutva discourse has shifted from the margins to the mainstream, becoming almost the national ideology of India. This shift has eroded the discourse of human rights and secularism. Modi, who is also affiliated with the RSS, has pushed human rights activists, NGOs, secularists, and dissenters out of the political arena (Human Rights Watch, 2022). Hindutva groups have emphasised the concept of Hindu nationalism to segregate and dominate religious minority groups, to galvanise majority Hindus, and to advance belligerent Hindu religious nationalism. The particularly aggressive ethnic behaviour of religious nationalists has led to several anti-Muslim riots, including

Jamshedpur (1979), Moradabad (1980), Bombay (1993), and Gujarat (2002) (Varshney, 2003). Ethnic mobilisation often produces exclusionary nationalism, where a dominant group seeks to impose its values on other groups within society. This may include violent exclusion of ethnic groups from positions of power. Hindutva, for instance, enforces cultural homogeneity over religious minorities, secularists and those who do not share their ideological beliefs. As a result, dissenters are often excluded from positions of power. Hindutva supporters maintain that a homogeneous identity is essential for nationhood, and only a shared cultural outlook can achieve such cohesion (Sen, 2005: 298). Driven by the idea that Hindus suffered oppression during Muslim rule in India, Hindutva leaders have orchestrated communal riots to retaliate against Muslims (Jaffrelot, 1996; Brass, 2005). Hindutva forces have effectively utilized religion in Hindu nationalism, resulting in a significant negative impact on Indian democracy, human rights, secularism, and women's rights (Jaffrelot, 1996; Ludden, 2005; Chowdhury and Keane, 2021; Boese et al., 2022).

### **Hindutva vs. human rights**

The discordant relationship between Hindutva and human rights is intricate and inextricable. Human rights challenge inequality and religious dogma, and advocate for minority rights, women's rights, and the freedom of expression (Witte and

Green, 2012). In contrast, Hindutva discourse, as a by-product of Hindu religion, openly rejects inclusivity, secularism, gender equality and religious plurality. Hence, the discourse of human rights challenges the fundamental principles on which Hindutva stands. Human rights represent a contemporary language of empowerment and societal transformation. By promoting social emancipation, equality, and the legal obligation for nations to protect its inhabitants from discrimination, the discourse of human rights has become a force for change. However, the discourse of human rights is not without its limitations. The confluence of moral appeal and conceptual ambiguity renders human rights a highly effective rhetorical tool. Annibal Quijano (2007) argues that human rights have become a form of moral imperialism, which operates on the basis of the “coloniality of power,” both including and excluding humanity. Boaventura Santos questions the exclusionary nature of human rights (Santos, 2012) while Baxi (2006) challenges the Western hegemony in interpreting international human rights laws. The abstract universality of human rights has been considered hostile to non-Eurocentric perspectives (Santos and Martins, 2021). Many instances of human suffering are not considered violations of human rights according to the prevailing conception of them. Santos and Martins (2021: 1-3) ask “why there is so much unjust human suffering that is not counted as a violation of human rights”? It is important to consider the hypocrisy

of imperial powers like Britain and France, who on one hand brutally suppressed anti-colonial movements in Kenya, Malaya, Indochina, and Indonesia, while simultaneously engaging in human rights diplomacy at the UN (Hoffmann, 2011). Actions like these are not only immoral but also contradictory. Historically, traditional colonial powers have colonized one-third of the world in an unremitting attempt to satisfy their desire for power, natural resources, and domination. Despite the moral prohibition against racial discrimination outlined in the UN charter which came into effect on 26 June 1945, colonization with all of its instruments of discrimination continues today, not necessarily as stated policy, but in ever more subtle ways.

It is possible that under certain circumstances the discourse of human rights may perpetuate an unequal and unjust set of social and political relations (Campbell, 2005). Controversy surrounding the applicability of human rights has provided a pretext for some Asian states (China, Singapore, Thailand, India) to ignore and impede their implementation within their jurisdictions (Freeman, 1996). Yet, inherent weaknesses in the discourse of human rights has not deterred human rights activists and the ordinary citizen from holding “the authorities accountable” for human rights violations. Of note, signatory States have voluntarily signed United Nations treaties that are legally binding (United Nations, 2012). They must be committed to safeguarding and

respecting fundamental freedoms,<sup>1</sup> including freedom of expression and the right to equality. In the context of India, the ideology of Hindutva is theoretically and empirically at odds with numerous international human rights laws. This analysis is crucial, given the stance of the current ruling Hindu nationalist party in India (BJP), which has been identified for its anti-human rights attitude, particularly towards religious minorities and for instrumentalizing laws<sup>2</sup> against dissent (Human Rights Watch, 2022).

In contemporary India, the act of expressing dissent is frequently viewed as being unpatriotic (Ganguly, 2019; Chandrachud, 2020), a reflection of the prevailing climate for freedom of expression under the current Hindutva government of Narendra Modi. Human Rights Watch (2022) has documented numerous instances of harassment with heavy-handed sedition and counterterrorism laws being levied against human rights activists, attorneys, and journalists who have criticised government officials. The

mainstream media, under government pressure, has become complicit in the demonization of dissent (Mujeeb, 2022). In present-day India governed by Hindutva, peaceful expression is criminalized, gradually eroding the human right to dissent and protest (Lokur, 2020).

Discrimination based on gender is forbidden under virtually all human rights conventions.<sup>3</sup> However, the discourse of Hindutva runs counter to human rights norms of equality and non-discrimination. The ideological structures of the Hindutva movement contain inherent elements of “patriarchy” and “sexism”, with the female body used as a mere tool for promoting Hindu nationalism (Basu, 1993). Furthermore, the RSS ideologue Mohan Bhagwat has frequently expressed the notion that a woman’s role is solely within the domestic sphere, in which she must care for her husband and children (Tharoor, 2020). The ideology of Hindutva promotes a

<sup>1</sup> Various domestic and global human rights instruments, including International Covenant on Civil and Political Rights (ICCPR; United Nations, 1966a) (article 19) and International Convention on the Elimination of All Forms of Racial Discrimination (ICERD; United Nations, 1965) (article 5), enshrine the right to freedom of opinion and expression.

<sup>2</sup> Article 19(1)(a) of the Indian Constitution (Ministry of Law and Justice, 2022) grants Indian citizens the right to freedom of speech and expression. However, the right to freedom of expression may be restricted on some grounds such as state security, public order, decency and morality, defamation, and incitement to an offense (Article 19(2)). These laws have been manipulated to file cases against dissenters.

<sup>3</sup> The International Covenant on Civil and Political Rights (ICCPR; United Nations, 1966a) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR; United Nations, 1966b), allow for equal rights between men and women in the enjoyment of all rights through their common article 3. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW; United Nations, 1979) is devoted to promoting women’s human rights. The principle of gender equality is firmly established in the Indian Constitution’s Preamble, Fundamental Rights, Fundamental Duties and Directive Principles. Articles 14, 15, 15(3), 16, 39(a), 39(b), 39(c) and 42 of the Constitution are particularly significant in this context. India has also ratified numerous international conventions and human rights instruments aimed at securing equal rights for women, including the 1993 CEDAW, which places legal obligations on States to uphold, promote and safeguard women’s rights.

traditional family hierarchy based on the Manu Smriti, the Hindu moral code which defines certain women's roles in society, denying them individual agency. The RSS leaders opposed the Act to empower Hindu women to claim an equal share in family property (Sarkar, 1999).

The film *Water* challenges Hindutva's portrayal of women's subservient role in Hindu Brahmanical culture. The film has caused insecurity among Hindu nationalists by challenging the very assumptions on which the birth of Hindu nationalism is based (Kinnvall, 2019). During my interviews with supporters of Hindutva, a recurrent theme emerged, reinforcing the inferior position of women and showcasing a general disregard for human rights, dissent, and secularism.

### **The film Water and the controversy (2000)**

This research applied qualitative research methods, specifically in-depth interviews, desk research, and narrative analysis. This research, coupled with a theoretical exploration, is a narrative based study which attempts to gather data about people's perceptions about their lived reality. A narrative approach according to Rubinstein (1995) helps to relate individual experience to a larger socio-cultural context. The data collection method includes analysis and evaluation of texts as well as the empirical collection of primary data gained through interviews (one-on-one interviews with open-ended questions). Much of my in-

formation regarding the *Water* controversy which took place in 2000 comes from the Hindi Daily, Dainik Jagran. In 2019 and 2022, I interviewed ten Hindutva supporters who were involved in the violent protests against the filming of *Water* in Varanasi. The majority of respondents (8 males, 2 females) were upper-caste Hindus who resided in Varanasi. They were middle-aged and had at least obtained a bachelor's degree. Their narratives were examined for a perspective of religious nationalism that encouraged them to assert dominance and power.

Three primary themes were identified during the analysis of Hindutva respondents' narratives.

#### **Theme 1. "Secularism is anti-Hindu"**

Hindutva respondents considered secularism inimical to Hindu interests. Professor Ashok, one of the interviewees, asserted, "secularism is a foreign concept, it is useless for India, secularism has been used to appease Muslims, India is a country of Hindu. Those who live in India must show their allegiance to India and must respect rashtra (nation)." Another interviewee, Swami Jitendra said: "India was divided along religious lines in 1947 because Muslims said they could not live with Hindus. In Independent India, the rights of Muslims who made up only eight percent of the population were prioritized over the rights of Hindus who made up ninety percent of the population. Hindus do not have any rights...there cannot be harmony between secularism and Hinduism."

To certain extent, these statements are representative of Hindutva followers who contest against the idea of secularism on mainly three points: firstly, secularism cannot be applied in India because it is of foreign origin; secondly, it has been used for preferential treatment to support Muslim over Hindu interests; thirdly, those who practice secularism are not faithful to the nation and Hindu tradition. These three ideas kept surfacing during the interviews. These anti-secular sentiments also echo the spokesperson of the BJP, Ashoka Pandey's statement:

If we do not sing "Vandematram" [the national song], then we are called secular, but if we sing it then we are considered "communal"...if we speak the language of Imran Khan [The president of Pakistan who speaks Urdu] then we are called secular, but if we support, "Modi ji" then we are "communal"...this is unfortunate.

The above statement clearly shows that Hindutva respondents see secularism as an ideology which benefits not just Muslims, but that also puts Hindus at a disadvantage, hindering their freedom to practice their religious and national rituals; if they do, they are called "communal." Gulshan Kapoor argues, "why in the name of secularism is only Hinduism is targeted?... there are social evils present in Islam and Christianity — no films are being made on those issues."

Statements such as these show a consistent pattern among Hindutva respondents of anti-secular views. Secular

views are viewed as antithetical to Hinduism and disadvantaging Hindus. However, these statements also show how their anguish is exaggerated. Not singing Vandematram — the national song — makes one neither secular nor religious, just as speaking Urdu doesn't make one secular or Muslim. As an ideology, Hindutva imposes a homogeneity and uniformity on Hindu religious and nationalist practice, characteristics which are, in turn, internalized by Hindutva respondents and, indeed, by the Hindu majority. In this context, increasingly violent religious outrage among South-Asian communities has been well documented (Jaffrelot, 2008; Rollier et al., 2019).

Hindu nationalism's argument that secularism is a western-centric idea may be true, nevertheless, the idea of modern "Hinduism" and "nationalism" — including Hindu nationalism itself — is a western-centric construction, not an indigenous one (van der Veer, 1994; Gottschalk, 2007). Hindu nationalism is created by the same colonial-capitalist nexus whose power, in combination with the hierarchies of religion and caste, reject Muslims and Dalits by creating an "abyssal exclusion" (Shani, 2021). Nearly all of the respondents rejected secularism, calling it as "anti-Hindu" and a "western idea".

## **Theme 2. "We cannot let our women run free"**

Widows are a sacred symbol of the Hindu society: the majority of Hindutva respondents reasserted this narrative. "The

dignity of our daughters is not for sale...we cannot tolerate undignified representation of widows," asserted one respondent. Swami Jitendra, another respondent, stressed, "in the sacred land of India where widows are considered as pure as the Ganges [a sacred river to Hindus], this [film] is really a sad affair." The religious and symbolic significance of the river Ganges is associated with holiness, and female chastity. In a patriarchal male society that sees women as bearers of its culture and civilization rather than as individuals with rights, this association is born out in the worship of women, often raising them to the dubious and disabling status of "female goddesses" (Darian, 1987: 89). In this view of things, the sacredness of women in Hindu nationalism, which is associated with the purity of the Hindu nation that depends upon Hindu motherhood, cannot and must not be defiled.

Another respondent Govind Pandey, asserts: "India is the country of Sita (the Indian goddess) and Savitri (a mythical female figure known for absolute dedication to her husband) ... the river Ganges is our mother, RSS wants this country to be the spiritual guru of the world." Hindutva organizations (such as RSS) want to restore the spiritual glory of ancient Hindu India, but this will not be possible without controlling the sexual independence of its women whom they are trying force to live within their traditional role, which reduces them to mere glorification in the service of the Hindu nation. Hindutva nostalgia over the control of women's sexuality is only increasing, as these interviews suggests. Hindutva leaders condemn feminism and wom-

en's freedom. Interviewee Swami Jitendra argues that "Women's freedom in the West is all about sexual freedom; we cannot replicate and implement ideas of European women's liberation in India... the basis of our Indian culture is different from that of the West...we cannot let our women run free." In his statement, this Hindutva's attitude reflects a typical "patriarchal" bias in which women are clearly placed in an inferior position. In general, the statement suggests that western women are corrupt because they are sexually free, whereas in India such freedom is not acceptable to traditional Hindu society. In fact, public discussion on issues such as child marriage, and the prostitution of widows is discouraged by the Hindutva intellectuals and organizations (RSS, VHP, Kashi Sanskriti Raksha Sangharsh Samiti) who do everything in their power to suppress such discussion in order to deflect the public from criticising oppressive Hindu traditions (Phillips and Alahakoon, 2000).

The idea of women's purity, particularly the sacredness of the Hindu widow is connected with hegemonic Brahmanic control over the women's bodies. Some scholars argue that control of female sexuality, bodies and reproduction is crucial to nationalism (Butler and Spivak, 2010). Brahmanism recognizes that women have a vital role to play in the reproduction of its envisioned social order, particularly in the maintenance of caste and lineage purity. Women must therefore be controlled (Ray, 1999: ii). Hindutva respondents' perspectives fall in line with their Brahmanical ideology.

### Theme 3: "There is a freedom of expression, but dissent is not allowed"

Most of the respondents felt offended by certain of this film's dialogues. The focus of their anger was on the film script which many of them perceived as offensive to Hinduism. Ashok Pandey warned, "the right to freedom of expression is not there to divide the society, nor is it there to gain cheap publicity." Sailendra Srivastava, national executive of Samskar Bharti, asserts, "this film is trying to depict widows as characterless and driven by sexual desire; the government needs to determine cultural policy and set limitations on freedom of expression." The most common response among Hindutva followers was that they were against adopting a critical view of Hinduism; it is clear in their responses that any kind of critique or dissent, cultural or academic, concerning Hinduism is not to be tolerated. Respondent, Jyotsna Srivastava, warned, "if they portray our *Pandit* (Priest) ji in a poor light...assassinate his character, we will not tolerate this... freedom of expression does not mean you hurt someone's honour..." furthermore she argues, "every right comes with a duty, everyone must obey this duty along with their rights."

Hindu nationalists assert submission to social norms and prefer "duty" over "rights." The idea of "duty" sustains Hindutva status quo, whereas "rights" question them. This gives rise to a theoretical tension between human rights and religion. Almost all of the respondents felt enraged about provocative remarks in

the film script and argued that the *Water* is not about freedom of expression. Gulshan Kapoor asserted, "Freedom of expression is allowed only to the point where it respects traditions... we should discuss or do only those things in public which respect culture." To a certain extent, Veena Pandey expressed similar sentiments: "We cannot allow anything that enrages the modesty of our women and culture. Freedom of expression should not offend religious sentiments." Most of the respondents dismissed "critical thinking" when justifying the limits on free expression. "The film script must be shown before filming, only a script approved by *Kashi Vidvat Parishad* should be allowed to be shot", asserted the head of Samskar Bharti, the cultural wing of RSS.

Nearly all respondents asserted that narratives critical to Hinduism should have been supervised. In the case of *Water*, they did not rely on the discretion of the film censor board of India; rather they disregarded the government's approval for film shooting and resorted to violence to stop the shooting. A tendency to silence critical expression was strong among Hindutva respondents. A propensity to control dissent with violence is a symptom of an authoritarian state; Hindutva being an authoritarian ideology displays characteristics unfit in a secular democratic state (Jaffrelot, 2022). Journalist Gauri Lankesh, activist Narendra Dabholkar and academic Govind Pansare were killed by the Hindutva extremists for their critiques of Hindu superstitions (Sukumaran, 2018); chapters

in university books critical on Hinduism have been removed from university syllabi; teachers and professors have been fired for their critiques of Hindutva (The Economic Times, 10 May 2022). In general, Hindutva supporters have no problem with the right to freedom of expression, as long as it doesn't lead to dissent.

Hindutva ideology is not only currently moulding India's contemporary socio-political environment but has also extended beyond temporal and geographical boundaries of the Indian sub-continent. The anti-human rights tendencies observed during the *Water* controversy in 2000 are currently (2023) in full bloom in India; a general disregard for freedom of expression and human rights by the state and the majority Hindu population is becoming the norm. The Modi government is systematically eroding the rights of all the various groups that compose civil society in India (Mukherji, 2022). Muslims are facing attacks based on their religion and are at risk of genocide (Aljazeera, 16 January 2022). The World Press Freedom Index (2023) ranks India 161st out of 180 nations, which points to severely limited freedom of expression.

## Conclusion

Since the *Water* controversy in 2000, India, especially under the Modi government (2014 to the present), has taken an authoritarian turn towards becoming a Hindu nation (Kaul, 2023). This political

shift reveals a conceptual tension between Hindutva, secularism, and the discourse of human rights. This tension first became markedly apparent in the actions of Hindutva supporters during the *Water* controversy of 2000. The ideology of Hindutva does not allow for a critical view of Hinduism. It displays intolerance towards dissent and justifies violence against those who question it (Banaji, 2018). In contrast, Indian secularism promotes religious and gender equality and creates a public space where all religions can be analysed critically. Human rights uphold secular principles of equality, freedom and liberty and challenge religious orthodoxy (Witte and Green, 2012) and patriarchy, while enabling individuals to question unjust social norms. In the Indian context, secularism and human rights values were written into the formation of a democratic society. However, Hindutva, as an authoritarian ideology, rejects the notion of religious and gender equality and is inherently patriarchal. It supports violent measures in suppressing democratic dissent. It aims to transform the secular Indian citizen into a compliant subject and relegate religious minorities to second-class status. These inclinations are evident in the Hindu nationalists involved in the *Water* controversy whom I have interviewed, and who embody the rise of an extreme form of Hindu nationalism and its expanding sway over Hindu society, governance, institutions, and public sphere. The ban on filming *Water* in 2000 marks

the beginning of an ever-increasing impact of Hindu nationalism on government affairs, its gathering dominance in public space, and its willingness to suppress opposition through violent means while disregarding women's rights. The protests served as a way to mobilise and aid the RSS in achieving its strategic victory over the production of *Water* (Dainik Jagran, February 9, 2000) and paved the way for future communal politics. Presently, the future is materialized in the form of Modi's Hindutva government (2023). Currently, Hindu nationalists appear to be more organised, powerful, and assertive. They are striving to eliminate secularism and human rights from both the political arena and society. Nevertheless, the discourse of human rights and secularism appears to be an obstacle to Hindutva in making India a Hindu nation. Indeed, this controversy has revealed that Hindutva is antithetical to secularism and human rights.

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# La soledad en la vejez: una etnografía en residencias para mayores

## Loneliness in old age: an ethnography in residences for the elderly



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**Resumen** A partir de los resultados de un trabajo de campo etnográfico realizado en instituciones residenciales para mayores pertenecientes a la Congregación Religiosa Internacional de las Hermanitas de los Ancianos Desamparados, en las siguientes páginas abordamos uno de los principales problemas que afecta a aquel grupo de edad que lleva la «marca» de la vejez o ancianidad. Ese problema no es otro que la soledad, que, si bien no es exclusivo del mundo de los mayores, tiene una incidencia notable en este grupo de edad. Contra la soledad de la persona mayor se actúa desde todas las residencias de aquella Congregación, recurriendo a una ética del cuidado o "caring" que responde a un particular sistema de valores religiosos, como

**Abstract** Based on the results of ethnographic fieldwork carried out in residential institutions for the elderly which belong of the religious and International Congregation of the Little Sisters of the Abandoned Elderly, both national and foreign, in the following pages we address one of the main problems that affects that age group that bears the «mark» of old age. This problem is none other than loneliness, which, although it is not exclusive to the world of the elderly, has a notable incidence in this age group. Action is taken against the loneliness of the elderly in all the residences of that Congregation, resorting to what we call the *ethic of care* or "caring" that responds to a particular system of religious values, such as the Catholic one. Likewise, in all the centers

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es el católico. Asimismo, en todos los centros que he visitado durante mi trabajo de campo tratan de evitar el aislamiento de la persona mayor realizando actividades grupales con un monitor.

**Palabras claves:** Etnografía; vejez; soledad; cuidado; enfermedad; religión.

## Introducción

### La soledad en la vejez a propósito de un trabajo de campo etnográfico en residencias para mayores

Las siguientes páginas versan sobre el fenómeno de la soledad en la vejez a partir de una investigación etnográfica multisituada llevada a cabo entre los años 2008 y 2022 en instituciones residenciales para mayores privadas y religiosas ubicadas en la Comunidad Autónoma de Castilla-La Mancha y pertenecientes a la *Congregación Internacional de las Hermanitas de los Ancianos Desamparados*, fundada el 27 de enero de 1873 por el venerable Saturnino López Novoa y Santa Teresa Jornet. Se trata de una Congregación religiosa de derecho pontificio con residencias por cinco continentes: Europa, Asia, África, América y Oceanía, y en países como: Alemania, Argentina, Bolivia, Brasil, Chile, Colombia, Cuba, Ecuador, El Salvador, España, Filipinas, Guatemala, Italia, México, Mozambique, Papúa-Nueva Guinea, Perú, Portugal, Puerto Rico, República Dominicana y Venezuela.

that I have visited during my fieldwork they try to avoid the isolation of the elderly by carrying out group activities with a supervisor.

**Keywords:** Ethnography; old age; loneliness; care; disease; religion.

También se han visitado residencias de carácter laico y públicas en países como Portugal, Grecia y Finlandia.<sup>1</sup> En este último país a las expresiones *Tercera Edad* y *Cuarta Edad* – esta última, que se refiere a los mayores de 80 años, es comprendida en términos de “el envejecimiento del envejecimiento” – que son las más comúnmente empleadas y por las que se identifica a aquel grupo de edad inmerso en la vejez o ancianidad, se suma desde hace años la expresión *Quinta Edad*. Con esta expresión se refieren en el país nórdico a las personas mayores de 90 años,

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<sup>1</sup> Se han aprovechado diversas estancias de investigación y docencia en varios de estos países para realizar visitas a diferentes residencias para mayores. Concretamente, se han visitado algunos centros para mayores en Lisboa y Oporto (Portugal); Turku (Finlandia) y Heraklión (Creta, Grecia). Este trabajo no persigue -pues no es su objetivo- realizar un estudio comparativo exhaustivo entre diferentes países, aun cuando en todas las residencias por mí visitadas se detecta en mayor o menor medida el mismo problema: la soledad de la persona anciana que se ha acrecentado a raíz de la pandemia que hemos padecido a nivel global y que ha afectado a todos los colectivos de edad, aunque con especial intensidad al grupo de los mayores que es el grupo al que aquí nos referimos.

cuyo número se está incrementando exponencialmente debido al aumento de la esperanza y calidad de vida en una sociedad en la que, como consecuencia del acelerado proceso de envejecimiento poblacional (véase Sokolovsky, 2009; Danelly y Lynch, 2013), están creciendo significativamente el número de residencias para mayores, tanto de titularidad pública como privada, no pudiendo las primeras, al menos en gran parte de los casos y en algunos de los países visitados, absorber la creciente demanda. Residencias tanto públicas como privadas que podemos dividir en tres tipos: Residencias de *válidos, asistidos o mixtas*. Las residencias de la *Congregación de las Hermanitas de los Ancianos Desamparados* son de este último tipo, acogiendo a personas mayores tanto válidas como asistidas.<sup>2</sup>

Justificamos la elaboración de este trabajo de investigación en el hecho de que se trata de una temática de indudable actualidad, a lo que hay que añadir que la soledad, más allá del colectivo al que aquí nos referimos, es una realidad muy extendida a nivel global, contemplándose como una “enfermedad social” – es incluso referida en términos de pandemia –, por las consecuencias psicológicas que puede acarrear y porque afecta a cada vez más personas y de todos los grupos de edad, aun cuando lo hace con

especial intensidad en el grupo o cohorte generacional de las personas mayores. Es este el grupo que nos interesa analizar y al que nos hemos aproximado a partir de nuestro trabajo de campo etnográfico. También nos ha interesado estudiar la respuesta que a aquella situación de soledad se da desde las residencias de la Congregación internacional de las Hermanitas de los Ancianos Desamparados, cuyos miembros son conscientes de que en las sociedades actuales, envejecidas o con una clara tendencia al envejecimiento poblacional, el grupo de las personas mayores o ancianas se encuentra claramente desplazado por el resto de los grupos de edad, sobre todo por parte de los más jóvenes, algo que está indudablemente en relación con los valores que sustentan estas mismas sociedades y que podemos resumir en uno de sus más importantes aspectos en su culto a la juventud denostando la vejez o ancianidad como sinónimo de decrepitud.

En nuestras sociedades tampoco existe ya el compromiso familiar de cuidado hacia el anciano tal y como existía ataño, de ahí que los cuidados, en la mayoría de los casos, se hayan profesionalizado e institucionalizado en residencias para mayores cuyo incremento, como hemos indicado, ha sido significativo en los últimos años.

Al encontrarse internas en una residencia como “lugar de retiro”, las personas mayores experimentan en ocasiones una sensación de aislamiento y/o exclusión y sobre todo un sentimiento de

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<sup>2</sup> En el entorno internacional nos encontramos también con dos tipos de centros para ancianos: «*nursing homes*, o residencias asistidas, y *old people's homes*, o residencias mixtas o de válidos» (De Guzmán Pérez Hernández, 2009: 73-74). También en el contexto español se utiliza esta doble denominación.

soledad que, por los testimonios que he recopilado durante estos años aquellas no sentían cuando vivían en su propio hogar. Como me dijo en una ocasión una interna de una residencia de la *Congregación de las Hermanitas de los Ancianos Desamparados*, una mujer de 78 años: "Siempre es mejor el propio hogar que una residencia para la tercera edad...", a lo que añadió que "hoy no se quiere a los viejos" (informante, comunicación personal)<sup>3</sup>, opinión que han secundado muchas otras personas mayores en entrevistas y conversaciones que he mantenido con ellas durante los años que ha durado mi trabajo de campo etnográfico.

El sentimiento de soledad afecta, en mayor o menor medida, a todas las personas mayores de las residencias que he visitado, la mayoría de las cuales echan de menos a familiares y amigos, muchos de los cuales ya han desaparecido, un gran número de ellos a consecuencia de la pandemia Covid 19 que hemos padecido y que ha azotado con especial intensidad a este colectivo acentuando todavía más su sensación de vulnerabilidad, aislamiento y soledad (véase Comas-Herrera et al., 2020; Costa-Font et al., 2021).

Aunque desde las residencias de la *Congregación* en que he realizado mi trabajo de campo se intenta, como veremos en uno de los apartados de este trabajo, que los mayores se relacionen entre ellos

mismos realizando actividades en equipo, esto resulta particularmente difícil cuando hablamos de personas que se encuentran en situación de «asistidas», las cuales sufren una situación de mayor fragilidad y vulnerabilidad. Aquellas que son capaces de comunicarse experimentan también un mayor sentimiento de soledad. Esto se debe al mayor «aislamiento» que padecen al encontrarse, debido a su situación personal, sufriendo una o varias enfermedades o dolencias – en algunos casos hablaríamos de pluripatología crónica –, en la enfermería que es el lugar que ocupan las personas asistidas.

Los ancianos "asistidos" suelen ser personas con enfermedades degenerativas sobre todo de orden psíquico o mental. Suelen ser también individuos con más de una enfermedad o dolencia que les limita significativamente y los hace extremadamente dependientes y, por lo tanto, objeto de cuidados más intensos por parte del personal capacitado para ello (véase Tylor, 2008; Lock, 2013).<sup>4</sup> Muchas de las dolencias o enfermedades que sufren, como el alzheimer – grave y muy extendida enfermedad neurodegenerativa – o la demencia senil, aunque también la artrosis o la sordera (disfun-

<sup>3</sup> Se ha ocultado la identidad de todas personas mayores y del resto de los actores sociales que se mencionan en esta investigación de campo. Se ha actuado indudablemente desde el respeto hacia todos ellos.

<sup>4</sup> Según el Diccionario de la Real Academia Española de la Lengua, dependencia es, entre otras acepciones, la situación de la persona que no puede valerse por sí misma. Véase la Ley de Promoción de la Autonomía Personal y Atención a las Personas en Situación de Dependencia, conocida como Ley de Dependencia. La aprobación de la Ley 39/2006, de 14 de diciembre, de Promoción de la Autonomía Personal y Atención a las personas en situación de dependencia ha supuesto un nuevo horizonte en la atención de las personas en situación de dependencia.

ción auditiva), suelen ser consustanciales al mismo proceso de envejecimiento. Todo ello genera en este tipo de ancianos un sentimiento de vulnerabilidad, de aislamiento y soledad intensos, por las limitaciones que esto les supone en el ámbito de las relaciones humanas que se ven claramente perjudicadas. Se trata de ancianos que en las residencias de la *Congregación religiosa Internacional de los Hermanitas de los Ancianos Desamparados*, en ocasiones son visitados – como yo mismo he observado – por gente anónima que se acerca a las propias residencias a hacerles compañía, incluso gente muy joven, pues como me dijo en una ocasión una de las personas que trabaja en la enfermería de una de las residencias, una mujer de 55 años, “aún queda gente joven que le interesa la vejez” (informante, comunicación personal).

## Metodología de la investigación etnográfica de campo

Esta etnografía multisituada se incluye en lo que denominamos una *Cultura de la ancianidad* que englobaría todos los aspectos relacionados con este grupo de edad. Como parte de esa *Cultura de la Ancianidad*, aparecen las residencias u hogares de ancianos que constituyen su territorio específico (Fericgla, 2002) al que nos hemos aproximado desde la perspectiva que aporta el trabajo de campo.<sup>5</sup>

<sup>5</sup> El trabajo que aquí presentamos es un claro ejemplo de antropología aplicada, que nos ha permitido identificar un problema como es la soledad en la persona mayor o anciana. Robert C. Harman (2005)

Al tratarse de una etnografía, nuestro trabajo adquiere una identidad muy particular que no tiene parangón con el proceso metodológico propio del resto de disciplinas que forman parte de campo de la ciencia social (Delgado y Gutiérrez, 1994; Jociles, 2018).

La metodología ha consistido en la observación directa y participante, las conversaciones informales y las entrevistas semiestructuradas abiertas. Estrategias de investigación etnográficas que nos han permitido llevar a cabo el proceso de investigación en diversos centros religiosos y privados para mayores de la *Congregación de las Hermanitas de los Ancianos Desamparados* cuya red de residencias se extiende por cinco continentes: Europa, Asia, África, América y Oceanía, aunque también se han visitado residencias de carácter laico y público en los siguientes países europeos: Portugal, Grecia y Finlandia.

La observación directa y participante, las conversaciones informales y las entrevistas de campo llevadas a cabo en las residencias de la *Congregación de las Hermanitas de los Ancianos Desamparados* se han realizado en las salas de ocio de los

en “Applied Anthropology and the Aged” ya subrayaba el importante papel que juega la antropología aplicada en el estudio de la vejez, por la perspectiva holística, comparativa y emic: «*Anthropology’s contributions to the study of the aged are holistic, comparative, and emic*» (Harman, 2005: 307) «Por qué deberían los estudiantes de antropología aplicada estar interesados en la gerontología, en el estudio de los ancianos? Hay un número de razones; la más obvia, y quizás la más importante, es que la población del mundo está rápidamente envejeciendo» (la traducción es mía) (Harman, 2005: 307 y s.).

ancianos, el comedor, la cafetería, los pasillos, la enfermería, el gimnasio, la peluquería y también en los espacios religiosos o iglesias de las propias residencias.

Se han realizado 50 entrevistas en profundidad a personas mayores con edades comprendidas entre los 60 y 90 años y personal institucional, así como se han mantenido conversaciones de carácter más informal (se ha conversado con un total de 150 mayores, hombres y mujeres, así como con personal de los diferentes centros para la tercera edad: enfermeras, cuidadores formales e informales, "hermanas" o monjas, terapeutas ocupacionales), lo que nos ha permitido "acceder" a lo que Hammersley y Atkinson denominan en su obra *Etnografía. Métodos de Investigación "relatos orales nativos"* (Hammersley y Atkinson, 2009). Con otros muchos mayores se han intercambiado algunas palabras sin llegar a ser conversaciones.

Las expresiones utilizadas en este trabajo para referirnos a los individuos de este grupo de edad son las siguientes: "personas mayores" o "ancianos/as", aun cuando estos utilizan los términos "viejo" o "vieja", que nosotros particularmente consideramos un término extremadamente estigmatizante y que no utilizamos para referirnos a las personas mayores porque, como dice Simone de Beauvoir, «toda una tradición ha cargado esta palabra de sentido peyorativo, suena como un insulto» (Beauvoir, 1983: 345). Así dicen aquellos, según yo mismo los he escuchado decir: "somos viejos", "estamos viejos". La vejez es concebida por los propios actores sociales en términos de

dependencia e incapacidad, enfermedades, dolores, quejas, aflicciones, o estorbo para los demás, contraponiéndola a otros grupos de edad, sobre todo a la juventud. Un anciano me dijo en una ocasión – aunque es una opinión compartida por otros muchos más – que la "juventud no quiere nada con los viejos, no quiere saber nada de los viejos" (hombre de 78 años).

En base a estas ideas este colectivo diseña su propio imaginario sobre la vejez o ancianidad en un siglo XXI en el que el acelerado envejecimiento poblacional no trae consigo un mayor aprecio por este grupo de edad, sino un mayor distanciamiento, pudiéndose hablar de una relación inversamente proporcional.

### **La soledad en la ancianidad y su relación con la «muerte psicológica y social»**

La soledad en la vejez o ancianidad, unido al estigma de ser "viejo" en nuestras sociedades, conduce a lo que podríamos denominar una especie de "muerte social" que remite a aquella situación en la que uno vive, pero es ignorado o padece una situación de exclusión, indiferencia o marginación por parte de los demás (véase Walsh et al., 2021). En el caso de las personas mayores la indiferencia provendría por parte de otros grupos de edad, intensificada aquella por el distanciamiento cada vez mayor a nivel intergeneracional.<sup>6</sup>

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<sup>6</sup> Carles Feixa propone «recuperar a autores como Frazer y su análisis de la construcción simbólica de las generaciones. *The Golden Bough* puede leerse como una interpretación simbólica del conflicto entre jóvenes y viejos, del papel central de la vio-

Este distanciamiento obedecería a toda una serie de estereotipos negativos sobre la condición de ser mayor que se vincula a la idea de deterioro o decrepitud en una sociedad que sacraliza la juventud. El rechazo de la vejez, de los "viejos", como así se les denomina de forma despectiva en las sociedades modernas, su marginación o estigmatización, responde, como ya decía hace años el profesor Isidoro Moreno, a que han sido excluidos o han aceptado excluirse la mayoría de ellos, de algunos mercados. Por ejemplo «el mercado de lo que se define como belleza – que está muy relacionado con los valores que se atribuyen a *lo joven*, aunque a la vez, se excluya a la mayoría de los jóvenes del mismo, por su escasa capacidad económica –, el mercado del prestigio, el mercado del sexo...» (Moreno, 2008: 509 y s.). Los ideales de belleza se vinculan a la juventud asociando la idea de fealdad con la vejez o ancianidad, así como con la existencia de un cuerpo decrepito o en decadencia vital.

La sociedad de consumidores contemporánea o posmoderna difunde entre sus miembros la idea del cuidado corporal por una cuestión principalmente de estética o de imagen del individuo ante sí mismo y ante los demás, así como lo hace bajo la forma de *estar en forma*.

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lencia intergeneracional en la fundación de toda cultura y de la construcción de la vejez en torno a una crisis de sentido» (Feixa, 1996: 325). El profesor Feixa también se ha ocupado de la devaluación de los mayores en las sociedades modernas frente al prestigio de que disfrutaban en las sociedades antiguas (Feixa, 1996: 326).

Salud y *estar en forma* suelen ser usados como sinónimos; después de todo, como afirma Z. Bauman (2006: 83), «ambos aluden de forma apremiante al cuidado del cuerpo, al estado que uno desea lograr para su propio cuerpo y al régimen que el propietario de ese cuerpo debe seguir para cumplir ese anhelo». El énfasis se pone en ambos términos: salud y esfuerzo por estar en forma, relativos especialmente al cuidado extremo de los cuerpos, jóvenes y esbeltos, en nuestras sociedades de consumo occidentales (véase Bauman, 2006: 83). Todo ello conduce a contemplar la vejez o ancianidad como sinónimo de decrepitud corporal y fealdad. Situación que también ha descrito perfectamente el profesor David Le Breton, quien dice que «el anciano se desliza lentamente fuera del campo simbólico, deroga los valores centrales de la modernidad: la juventud, la seducción, la vitalidad, el trabajo. Es la encarnación de lo reprimido. Recuerdo de la precariedad y de la fragilidad de la condición humana, es la cara de la alteridad absoluta», y añade el eminentе antropólogo y sociólogo francés que nos encontramos en una sociedad «que tiene el culto de la juventud y que ya no sabe simbolizar el hecho de envejecer o de morir». La vejez traduciría el momento «en el que el cuerpo se expone a la mirada del otro de un modo desfavorable» (Le Breton, 2002: 142 y ss.).

Si esto es así, también es verdad que, como me dijo una anciana de 79 años: «Todos tenemos que pasar por aquí, somos pequeños, nos hacemos mayores y viejos» (mujer de 79 años, comunicación personal).

La decrepitud se asocia, por tanto, al hecho de ser “viejo”. El propio término, como ya dijimos, es de por sí estigmatizante. Se ve en aquella un defecto físico que se equipara a un defecto moral: «El mundo mira esta vejez, pero no desea verla. La omite» (Boixareu, 2008: 329-330). Las personas mayores viven una situación de desarraigado y pérdida de prestigio social, un «rol sin roles»<sup>7</sup> al que ya se refería la antropóloga Teresa San Román (San Román, 1990, 44 y s.). Muy al contrario de lo que ocurría en las denominadas etnocéntricamente sociedades “primitivas”<sup>8</sup> donde se valoraba a la persona mayor a la que se investía de enorme autoridad y por la que se mostraba un mayor respeto y aprecio sin parangón en nuestra sociedad (véase Gomez, 1995; Aguirre Oraá, 2007). Se trataba de sociedades gerontocráticas, donde a la persona mayor se le reconocía un mayor liderazgo y sabiduría, siendo el de los mayores el grupo de edad al que el resto de los grupos se debían encomendar o al que siempre debían escuchar ante cualquier problema que pudiera surgir en el seno del propio

<sup>7</sup> El desarraigado social tiende generalmente a incrementarse a medida que el individuo anciano envejece.

<sup>8</sup> El término “primitivo” es utilizado por los antropólogos Stanley Diamond y Bernard Belasco en el sentido técnico de *preliterario*, para indicar las sociedades sin escritura y con tecnología simple. Para estos autores la connotación de inferior capacidad de razonamiento y de forma de vida atrasada es «absolutamente ajena a la significación científica del término. Algunos antropólogos llaman a los pueblos preliterarios *nuestros superiores primitivos*» (véase Diamond y Belasco, 1982: 116).

grupo social, así como en su relación con otros grupos en los posibles litigios que con estos se pudieran entablar.

En nuestras sociedades ocurre todo lo contrario. Apenas se escucha a las personas mayores o ancianas. Se contempla a los ancianos como personas que tienen poco que aportar, que “afean el paisaje”<sup>9</sup>. Se les ve como si fueran portadores de una enfermedad contagiosa que amenaza el orden y el equilibrio vital o, como diría la antropóloga Mary Douglas, contamina (Douglas, 2007: 20 y ss.). Se les señala asimismo como una carga social, cuyo incremento es proporcional al proceso de envejecimiento poblacional. El aumento del número de personas de edad avanzada en nuestras sociedades no se ve como una conquista sino como un lastre económico para el resto de la sociedad. Los mayores aparecen como «una carga al no participar en actividades productivas. No estamos pensando en el daño que causan estos estereotipos, y que representan una auténtica espiral de retroalimentación estereotipos-discriminación» (Bellosta Martínez, 2007: 260).

A los mayores se les ha “usurpado” el lugar que merecerían ocupar a nivel so-

<sup>9</sup> Esta situación no es nueva, aunque cada vez se acrecienta más. Hace décadas B.L. Mishara y R.G. Riedel (1986) en clásico trabajo, *El proceso de envejecimiento* decían que, «Los ancianos se sienten alienados porque creen que ser viejo implica ser moribundo. Es triste esta prevención hacia los ancianos (...), porque nos impide acercarnos a ellos» (Mishara y Riedel, 1986: 202). En este trabajo, obviamente, no podemos hacer referencia a la casuística de todos y cada uno de los ancianos, o lo que es igual, el por qué han acabado en un centro residencial.

cial, es decir, sufren de una notable falta de reconocimiento por parte del resto de la sociedad. Ana Belén Cuesta Ruiz Clavijo afirmaba hace años que no es cierto que la persona mayor sea necesariamente improductiva, inútil socialmente. La persona mayor apoya a la sociedad con "tiempo, apoyo familiar, saberes cuyo valor es incalculable". Y tampoco se puede considerar al mayor como alguien necesariamente pasivo (véase el trabajo de Estes y Mahakian, 2001), pues en la actualidad "las personas mayores han pasado a ser sujetos activos que reivindican su espacio en estructuras sociales participativas" (Cuesta Ruiz Clavijo, 2007: 148).<sup>10</sup>

Aunque esto es cierto, esa no es, en mi opinión, la percepción de la mayoría, sobre todo en la sociedad occidental, lo que nos conduciría a hablar de "muerte social" del anciano por el desafecto que sufre por parte del resto de los grupos de edad. Una situación que podemos resumir en el fenómeno del "edadismo" (*ageism* – término acuñado por Robert Butler en 1969), que es socialmente dañino. Con el término "edadismo" nos referimos al prejuicio/discriminación por razón de edad (Fernández-Ballesteros, 1992). Esta discriminación o rechazo se puede interpretar de muchas maneras,

siendo una de ellas tratar de evitar la relación con la persona mayor, como he detectado durante mi trabajo de campo. El contacto de muchos mayores con sus familiares, por lo que yo mismo he podido observar durante el tiempo que he pasado con ellos en las residencias de la *Congregación Religiosa Internacional de las Hermanitas de los Ancianos Desamparados*, se reduce a llamadas de teléfono esporádicas y de una duración muy limitada. La mayoría de las personas mayores el único contacto que tiene con la familia es a través del teléfono. Esta pauta conductual, "a la que llamamos intimidad a distancia, constituye una característica importante de las relaciones familiares. La mayoría de los familiares inmediatos no están dispuestos a integrar en su espacio doméstico y cuidar al anciano". La intimidad a distancia es una nueva forma de intimidad "en la que el territorio compartido como elemento imprescindible para que se dé, desaparece. La comunicación telefónica reviste, pues, una importancia capital para los ancianos y para sus familiares próximos". En muchos casos constituye una forma de resolver la molestia que representa el anciano para el resto de los familiares que no pueden – o no quieren – cuidarlo o ni siquiera visitarlo. Podemos afirmar que la intimidad a distancia «es una de las peculiaridades más claras de las relaciones familiares de los jubilados y seniles actuales con el resto de los parientes, e incluso entre ellos» (Fericgla, 2002: 287 y s.). La intimidad a distancia incrementa el sentimiento de

<sup>10</sup> Como afirma R. M. Boixareu en relación con este grupo de edad: «la omisión, el olvido, la pérdida de valores sociales, puede ser motivo de algunos padecimientos y enfermedades» (Boixareu, 2008: 334) que intensificarían la sensación de aislamiento, así como el sentimiento de soledad (véase Pinazo Hernandis y Donio Bellegarde Nunes, 2018; Rueda Estrada, 2018).

aislamiento y soledad y contribuye progresivamente a la muerte social, a nivel familiar, de la persona afectada, pues las llamadas, por lo que algunos de mis informantes me han comentado, son cada vez más esporádicas.

En una de las residencias de la *Congregación* por mi visitadas, un hombre de 78 años, que suele hablar de vez en cuando con familiares por teléfono – como tantos otros –, me dijo en una ocasión: "Ninguno de mis hijos me quiere tener y eso que se quedarán con la paga el tiempo que me tuvieran y con la casa del pueblo, pero eso no les interesa, no quieren tener viejos. Incluso cuando me han visto por la calle se han cambiado de acera. Mi hija me ha dicho que cuando me muera no va a venir tampoco" (hombre de 78 años, comunicación personal). La situación de este anciano muestra la que es una de las principales causas que llevan al individuo al autoingreso en un hogar para ancianos: «de tipo psicológico (soledad, malas relaciones familiares, miedo a morir abandonado, sentimiento de representar una molestia para los demás), más que de tipo sociológico (falta de vivienda, falta de servicios médicos en el domicilio)» (Fericgla 2002: 302).<sup>11</sup> Otro anciano de 77 años también me dijo en una ocasión que "no quieren a los ancianos ni los familiares. A los ancianos no los quiere nadie. Hoy no se quiere a los viejos" (Hombre de 77 años, comunicación

personal). Y otro anciano de 80 años me comentó en el transcurso de una entrevista que mantuve con él que "tengo 13 hijos que no me hacen caso, me marginan, están desperdigados por toda España, en varios sitios, Madrid, Alicante, Murcia, Barcelona, con buenos puestos pero que pasan de mí. No me quieren tener" (Hombre de 80 años, comunicación personal). Un anciano de 84 años comparó al anciano con una mesa, con "algo que estorba" (Hombre de 84 años, comunicación personal). Y una anciana de 79 años lanzó duras críticas a la sociedad y a la juventud por su "pasotismo" y por "despreciar la vejez, a los viejos" (mujer de 79 años, comunicación personal). En una ocasión le pregunté a una anciana de 77 años quién la visitaba, si lo hacían familiares, amigos u otras personas, y me dijo que "familiares vienen poco, nos visitan más gente anónima y mayor, gente joven tampoco, no quieren saber nada la gente joven" (mujer de 77 años, comunicación personal). El deterioro o empobrecimiento de las relaciones sociales del anciano también incluye su entorno más inmediato, por las pocas o nulas relaciones que mantienen entre sí algunos ancianos, aunque como veremos en un siguiente apartado de este trabajo desde la *Congregación de las Hermanitas de los Ancianos Desamparados* tratan de mitigar esta situación con actividades grupales dirigidas por un monitor.

El deterioro de las relaciones sociales – por mi experiencia de campo – afecta más a los hombres que a las mujeres que se suelen relacionar más entre sí. La situa-

<sup>11</sup> La integridad psicológica del anciano sufre un fuerte choque al verse a sí mismo en situación de internarse en una residencia. El anciano acaba perdiendo la mayor parte de los puntos de referencia válidos hasta entonces (Fericgla, 2002: 302 y s.).

ción de aislamiento o soledad afecta más a los hombres. Estos se relacionan menos entre sí y si lo hacen en múltiples ocasiones media el conflicto por aspectos muy banales como, por ejemplo, qué canal de televisión ver. Un informante que trabaja como terapeuta en otra de las residencias de la *Congregación* por mí visitadas, un hombre de 45 años me dijo: "Con los hombres lo que hay es más envidia, hay más pelusa, a la mínima que, a lo mejor es una tontería, ..., son como niños pequeños en ese sentido, siempre tienes que estar ahí con mil ojos, de que, si haces algo a uno, tienes que hacérselo al otro. Entonces esas envidias siempre están, sobre todo en los hombres, las mujeres lo llevan mejor o por lo menos a las mujeres se les nota menos, eso sí. Entre ellas hay más unión" (comunicación personal).

He observado que hay ancianas que tratan de ayudar y acompañar a otras de sus compañeras. En el sector de mujeres de una de las Residencias de la *Congregación*, observé en una ocasión que una anciana de 79 años a la que le cuesta andar, pues va cojeando, así como generalmente pasea sola por la Residencia a diario, es objeto de atención por parte de algunas otras ancianas que se preocupan por ella. Un terapeuta de 38 años de esta última residencia me dijo que "Aurora – nombre ficticio – se aísla a sí misma, por cuestiones personales suyas o porque ha discutido con alguna" (informante, hombre de 38 años, comunicación personal). Hay ancianas que se autoexcluyen por su situación personal o su forma de ser, dice este informante, como es el caso de Aurora,

aun cuando otras ancianas siempre están dispuestas a ayudarla. Una anciana de 76 años me comentó en una ocasión precisamente lo que yo he comprobado en varias ocasiones realizando observación participante: que a Aurora "le cuesta andar, va cojeando", y por eso "ayudo a Aurora a ir a por recetas" (mujer de 76 años, comunicación personal). Esta anciana también me ha dicho en alguna ocasión que "las hermanas de Aurora se avergüenzan de ella, porque Aurora tiene un defecto, y es que anda mal". Aurora, como muchas otras ancianas, sobre todo las que se encuentran en la enfermería, camina con la mirada perdida, está como ausente. Su mirada está como vacía, lo que nos permite hablar, con Mishara y Riedel, pues así interpretan ellos este hecho, de "muerte psicológica" que se encuentra «con harta frecuencia asociada a la vejez. El hecho de que muchas personas de edad vivan aisladas o internadas en una residencia puede suscitar en ellas una especie de muerte psicológica que sería consecuente con la esterilidad de la soledad. A la muerte psicológica se añade la muerte social» (Mishara y Riedel, 1986: 192).

Muerte psicológica y/o social que junto con el sentimiento de soledad que acompaña a un gran número de personas mayores en la última etapa vital, constituyen una grave amenaza sobre todo a nivel emocional. Como ponen de relieve algunos autores, la soledad es uno de los mayores enemigos del ser humano «y puede ser la causa de trastornos psíquicos y de multitud de enfermedades. Sentirse solo

debilita, deprime y entristece; hay que evitar que las personas mayores se sientan solas». La soledad podríamos decir que es «una separación de los demás» (Hernández Rodríguez, 2007: 224), así como también se puede definir como un estado o sentimiento personal que se experimenta cuando se estima que «el nivel de las relaciones sociales es insuficiente o que éstas no son satisfactorias. La soledad puede asociarse a una cierta timidez que impide asumir la iniciativa de los contactos sociales tras un cambio de ambiente o de condiciones» (Mishara y Riedel, 1986: 159).

### **La respuesta a la soledad en las residencias de la Congregación Religiosa Internacional de las Hermanitas de los Ancianos Desamparados**

Contra la soledad de la persona mayor se actúa desde todas las residencias de la *Congregación Internacional de las Hermanitas de los Ancianos Desamparados*, tratando que la persona anciana no se sienta sola o aislada. Desde las residencias de esta *Congregación* también afrontan aquella situación desde el cuidado espiritual del anciano<sup>12</sup>, sobre todo del más “frágil” (véase Kaufman, 1994), vulnerable o desvalido. Hablaríamos de

una ética del cuidado o “caring” (véase Daly y Lewis, 2000; Russell, 2001; Razavi, 2007; Saillant, 2008; Buch, 2015; Daly, 2020; Villar et al., 2021; Comas-d'Argemir y Bofill-Poch, 2022), barnizada desde un particular sistema de valores religiosos, como es el católico, extensible a todas residencias de la *Congregación*.<sup>13</sup> Se concede especial importancia al amor a Dios reflejado en la persona mayor, a la que se anima a buscar refugio en la religión para hacer frente a cualquier situación y así encontrar la paz interior, siendo también una manera de enfrentar la soledad buscando la compañía de Dios. Como me dijo una Madre Superiora que dirigía una de las residencias de esta *Congregación*, “nosotras adoptamos el estilo de Cristo que nos amó hasta el extremo” (informante, comunicación personal)<sup>14</sup>, así como añadió que:

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<sup>13</sup> En las residencias de la *Congregación* se celebran actividades litúrgicas, como, por ejemplo, misas, todos los días, así como también podemos observar por aquellas diferentes elementos de carácter religioso. Es fácil encontrar una Biblia en la entrada a los centros de esta *Congregación* y sobre aquella un diploma que dice “A la Madre Superiora por su labor al frente de las Hermanitas de los Ancianos Desamparados”. También se pueden ver imágenes de santos, de Jesucristo o de la Virgen María. Junto a las imágenes religiosas aparecen carteles alusivos al mundo de los ancianos. En uno de ellos se lee: “bienaventurados los ancianos”. La *Congregación* tiene su propia revista: “Anales de las Hermanitas de los Ancianos Desamparados”, una revista anual de la institución y también es fácil ver en las salas de los ancianos la revista “Alba. Del Tercer Milenio”.

<sup>14</sup> La figura de Cristo o Dios Padre actuaría a modo de tótem grupal ordenando el mundo sagrado. Símbolo del grupo, Cristo representa al protector sobrenatural. La figura del dios cristiano actúa como tótem grupal, promoviendo la unión, la cohesión y la solidaridad colectiva especialmente

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<sup>12</sup> Esta es una de las principales diferencias con las residencias de carácter público y laicas, tanto de otros países por mi visitados, como también de las existentes en España. En estas el cuidado de la persona mayor no suele adquirir connotaciones religiosas, lo que no implica que no haya un cuidado afectivo. Se cuida de la persona mayor, pero no se focaliza el cuidado en actividades de carácter religioso.

"La "hermanita" ha sido llamada fundamentalmente a hacer de su vida una gozosa donación de amor y ayuda al otro – a la persona anciana –, valores religiosos que se intenta que reproduzcan las personas mayores. Algo que no resulta especialmente difícil, habida cuenta de la importancia que presenta la religión y los valores de ayuda al otro, la caridad, la compasión, entre la comunidad de mayores, sobre todo entre las mujeres", concluyendo con lo siguiente: "el hecho religioso reporta a los mayores un beneficio psicológico".<sup>15</sup>

La imagen del anciano que se difunde desde la *Congregación* se resume en una visión de este como fuente de vida, de conocimiento y sabiduría, muy lejos por lo tanto de la consideración que hacia la persona mayor se tiene en la sociedad actual donde, como dijimos, se ve a los ancianos como cargas que nada pueden aportar, siendo onerosos para el resto de la sociedad.<sup>16</sup> Una de las personas que dirige otra de las residencias de la *Congregación*,

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en rituales periódicos, emocionales y efervescentes como por ejemplo las ya mencionadas celebraciones litúrgicas que se celebran a diario en las residencias de la *Congregación de las Hermanitas de los Ancianos Desamparados*. Hablaríamos de la funcionalidad social que representa cada tótem como símbolo grupal (Vallverdú, 2008: 60).

<sup>15</sup> El párroco de las iglesias que se encuentran en el interior de las residencias de la Congregación suele hacer referencia a la idea del amor en términos de «sufrir con el otro, padecer con el otro, solidarizarse con él».

<sup>16</sup> Elana D. Buch, citando a Robertson (1990) dice que «A resulting "apocalyptic demography" of catastrophist public and official discourses raises concern that the growing burdens of caring for an aging population are likely to devastate both families and polities» (Buch, 2015: 278).

*gación*, una Madre Superiora, me dijo en una entrevista de campo lo siguiente:

"Los ancianos siempre enseñan, a nosotras pues nos enseñan mucho los ancianos, y sobre todo la persona que es observadora, observador pues sí, y es muy hermoso estar al lado de un anciano cuando te cuenta su experiencia, lo que pasa es que hoy en día el mundo no escucha, cada uno vamos, como tenemos tantas prisas y tanta cosa, pero sí que sacamos mucho de los ancianos, se aprende mucho de las personas mayores, las personas mayores tienen mucha experiencia."

Y en otra ocasión, una "hermana" (monja) que trabaja en otra de las residencias de la *Congregación* me dijo lo siguiente: "Lo peor que le puede pasar a una persona mayor es inutilizarla, pensar que no vale para nada", haciendo hincapié en que "nosotras las incentivamos mucho, que pueden hacer cosas, y de hecho eso les da, les da la vida, yo creo que les alarga la vida".

En las residencias de la *Congregación Internacional de las Hermanitas de los Ancianos Desamparados* cuidan sobremanera la parte o dimensión social de la persona mayor tratando de evitar su aislamiento o exclusión. Buscan que esta no se sienta sola, así como también que se sienta útil y activa.<sup>17</sup> Uno de los principales objetivos es que las personas mayores estén y, sobre todo, se sientan en compañía, fortaleciendo sus relaciones

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<sup>17</sup> Actualmente se habla de "Smart aging" (véase Nouchi y Kawashima, 2017) o "Successful aging" (véase Thane y Lamb, 2018) que estarían en relación con la idea, promovida también por la ONU e incluida entre los principios del desarrollo sostenible, de la importancia del envejecimiento activo.

sociales con sus iguales. Es por ello por lo que se realizan diferentes actividades que se llevan a cabo todos los días. Con las personas mayores o ancianas trabaja el terapeuta ocupacional realizando diferentes talleres. A través del taller de cálculo se muestran tarjetas con un número que los mayores deben identificar y luego se les propone una operación matemática sencilla donde se juega con ese número sumando y restando mentalmente. A través de la terapia retrospectiva lo que se hace es proporcionar a la persona mayor una tarjeta donde vienen todos sus datos personales, sus familiares más directos y su relación con ellos, y se le va haciendo preguntas con el fin de que recuerde su pasado. Con la terapia de orientación a la realidad, se pregunta a la persona mayor, por ejemplo, sobre la fecha actual, sobre el lugar en que nos encontramos. A través del taller de compras, se interpretan papeles a través de los cuales las personas mayores hacen como que se dirigen a comprar – previamente se les ha informado de los precios – y ellas deben calcular lo que les va a costar la compra. A través del taller de memoria, se les proporciona a las personas mayores una tarjeta con tres palabras o más (por ejemplo, una ciudad, una comida y un nombre de persona) y después de leerlas se les recoge la tarjeta y gana la que recuerda cuáles eran sus tres palabras. En otro de los talleres, se reparte a cada persona mayor un lote de réplicas de billetes en curso y con ellos tienen que comprar lo que se les indique. Tienen

que elegir el billete con el que van a pagar y cuál es el cambio que deben recibir. Este taller se considera AlVD (actividad instrumental de la vida diaria). Con las personas mayores se llevan a cabo más actividades/talleres: adivinanzas, poesía, canciones y recetas de cocina. Todos los talleres se plantean desde el punto de vista más lúdico posible, con actividades estimulantes (estimulación cognitiva y táctil) y atractivas para la persona mayor. Se trata de que esta no sólo se divierta y entreteenga, sino que también fortalezca sus relaciones interpersonales. Los talleres son grupales y el número va variando según el tipo de taller, excepto el taller de Estimulación Cognitiva, en el que, algunas de las actividades, se trabajan de forma individual. En el taller de manualidades se trabaja en grupo, aunque cada individuo lleva su propio ritmo y recibe las explicaciones que necesite.

Sin embargo, como yo mismo he observado y también me corroboró un terapeuta que trabaja con los ancianos en otra de las residencias, un hombre de 35 años: "Las mujeres participan más, sí, sí, al participar más ellas hay como un feedback ahí, que a ellas les reporta también ese bienestar, les reporta también beneficio psicológico y sí, son ellas las que más actividades hacen".<sup>18</sup>

<sup>18</sup> Una de las Madres Superiores que dirige una de las residencias de la Congregación, me dijo: «De hecho, quien viene aquí viene ya con esa cosa, que van a vivir ellos tranquilos, o ellas tranquilas, cuando vamos de excursión o hacemos actividades que intentamos pues que haya una familia y que estén todos juntos, porque aquí es una familia. A veces hay fiestas o bailes y todos intervienen y se relacionan».

## Conclusiones

### La soledad en la persona mayor desde la ética de la compasión

A partir de los resultados de un trabajo de campo etnográfico realizado en instituciones residenciales para mayores pertenecientes a la *Congregación Internacional de las Hermanitas de los Ancianos Desamparados* ubicadas en la Comunidad Autónoma de Castilla-La Mancha, hemos abordado uno de los principales problemas que afecta a aquel grupo de edad que lleva la "marca" de la vejez o ancianidad.<sup>19</sup> Ese problema, como hemos visto, no es otro que la soledad. Un problema que no es exclusivo del mundo de los mayores, ya que afecta a cada vez más personas de todas las edades o cohortes generacionales por diferentes motivos o razones en este siglo XXI en que nos encontramos tecnológicamente conectados, pero no por ello nos sentimos más o mejor acompañados. Sin embargo, tiene aquel problema una incidencia notable en el grupo de edad de los mayores. Estos son excluidos de muchos espacios, así como recluidos en algunos otros – como, por ejemplo, en instituciones residenciales que cada vez proliferan más en una sociedad abocada al envejecimiento

poblacional – lo que intensifica su sentimiento de aislamiento y soledad, al no verse "aceptados" – más bien rechazados – por los demás grupos de edad.

Vivimos en una sociedad que idealiza el hecho de ser joven, ya que los mensajes que se envían no son otros que aquellos que incitan a tratar de serlo o al menos parecerlo, viendo en la vejez no otra cosa sino fealdad, decrepitud o decadencia vital. Una sociedad que estigmatiza la vejez o ancianidad, olvidando que esta no es sino una etapa más por la que todos debemos pasar en el proceso biológico que conduce irremediablemente a la mortalidad. Al predominar más la estética que la ética se equipara la vejez con la fealdad, la decadencia y la *enfermedad*, y no con el potencial vital que atesora la persona mayor por el hecho de haber vivido más. Todo ello contribuye a que este colectivo o grupo de edad se sienta cada vez más socialmente denostado incrementándose el sentimiento de soledad entre sus miembros por la falta de aprecio e interés hacia ellos por parte del resto de miembros de la sociedad.

Una sociedad que no cuida de sus mayores, o lo que es igual, que no los trata adecuadamente es una sociedad con unos déficits de ética y humanidad que acabarán teniendo un *efecto rebote* sobre el resto de los individuos que conforman esa misma sociedad, aumentando la distancia intergeneracional que de por sí ya existe entre aquel grupo generacional y el resto de grupos de edad, especialmente el de los más jóvenes que, como afirman

<sup>19</sup> Como ya se ha dicho también se han visitado residencias de carácter público y laico en Portugal, Grecia y Finlandia, aunque el trabajo de campo prolongado se ha llevado a cabo en residencias privadas y religiosas pertenecientes a la Congregación de las Hermanitas de los Ancianos Desamparados y ubicadas en la Comunidad Autónoma de Castilla- La Mancha (España).

algunos de mis informantes, "no quiere saber nada de los viejos, de los mayores...".

Desde las residencias de la *Congregación de las Hermanitas de los Ancianos Desamparados*, tratan, sin embargo, de mitigar esta situación, luchando contra la soledad de la persona mayor acompañándola para que no se siente sola, así como también tratan de que aquella se inserte en actividades grupales que fomenten sus relaciones sociales. El cuidado de la persona mayor, tanto si hablamos de su salud corporal, como también de su salud afectivo espiritual y social, es el principal objetivo de las personas que dirigen las residencias de la *Congregación de las Hermanitas de los Ancianos Desamparados*. Son muchos los mayores que demandan ese cuidado o la proximidad solícita del otro, lanzando un «grito de dependencia (de compañía, de consuelo)», para así «poder transformar el sentido de la propia vida» (Boixareu, 2008: 266). Cuando hablamos de personas mayores nos estamos refiriendo a personas más frágiles y vulnerables que necesitan de ámbitos de confianza. Necesitan verse inmersas en relaciones ético-compasivas, sobre todo si sufren enfermedades o dolencias que las limitan.<sup>20</sup> La enfermedad también demandaría por parte de las personas que la

<sup>20</sup> Con este trabajo no queremos decir que todas las personas mayores sean absolutamente frágiles y dependientes – el grado de dependencia varía de una persona a otra –, así como envejecer tampoco significa necesariamente que la persona se deslice drásticamente hacia el deterioro físico y mental, o «hacia la soledad, el abandono, hacia la no participación en la vida sociopolítica de la comunidad en la que vive» (Bellosta Martínez, 2007: 260).

sufren de una respuesta social que puede ayudar a sanar. El grupo social puede actuar como agente activo ante la enfermedad y el dolor y esto se tiene muy en cuenta en las residencias de la *Congregación* a que me he referido en este trabajo de investigación. Los padecimientos, como dice Eduardo Menéndez, «presentan un eje individual y colectivo» (Menéndez, 1994). Un eje o dimensión colectiva en que incluimos la acción ética compasiva al ser esta una acción compartida. En último término, como dice Joan-Carles Mélich (2010), en su obra *Ética de la compasión*, la ética no tiene sentido ni por su fundamento, ni por su normatividad, sino por la compasión (Mélich, 2010). La ética es una relación compasiva que es la que reclama la persona mayor sobre todo enferma o con dolor. Este puede ser físico o del alma, como me dijo una anciana: «Me curaron ayer, la enfermera, pero me duele todo, hasta el alma» (Mujer de 74 años, comunicación personal). El dolor del alma remite a un dolor de tipo moral, psíquico o emocional que desencadena, o así parece, una dolencia somático-corporal. Esto nos permite hablar de la dimensión antropológica del dolor, el cual no se debe interpretar de forma unidimensional, sino de forma holística o global (Scarry, 1985; Good, 1994; Good et al., 1994; Clark, 1999; Le Breton, 1999; Lewis, 2004).

Como argumenta J. Vilar y Planas de Farnés, quien ha estudiado el fenómeno del dolor desde una perspectiva antropológica, «estar bajo la ley del dolor provoca un sentimiento creciente de soledad y

despierta el deseo de encontrar a alguien, con quien poder comunicarse y hacer partícipe del propio sufrimiento». El dolor se convierte así «en una forma de relación humana mutua» (Vilar y Planas de Farnés, 1998: 137).<sup>21</sup> El anciano doliente sufre más intensamente el deterioro consustancial al hecho de envejecer, pues como dice Simone de Beauvoir: «la idea de desgaste entraña la de vejez» (Beauvoir, 1983: 351). Pero sobre todo el dolor nos aísla, como dice H. G. Gadamer. Nos aísla del vasto mundo exterior de nuestras experiencias "y nos encierra en lo que es puramente interior". Gadamer destaca el «recogimiento interior provocado por el sufrimiento y por el padecimiento del dolor» (Gadamer, 2001: 92). Pero el dolor o la enfermedad, como hemos visto en este trabajo de investigación, puede hacer de puente «entre el enfermo y el lugar, provocando redes específicas de relación social que rompen la soledad, el sentimiento de abandono y el desconcierto en el cual se sumerge la persona enferma». Estos son los procesos sociales «que se desencadenan a consecuencia de la enfermedad» (Boixareu, 2008: 246).

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<sup>21</sup> La interpellación del otro que exige ser atendido es un elemento clave como motor de la acción moral desde el punto de vista de la ética del cuidado (Mingol, 2009: 102).

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# Nódulos de Schmorl em indivíduos da Colecção de Esqueletos Identificados Século XXI (CEI/XXI) da Universidade de Coimbra (Portugal)

Schmorl's Nodes in individuals from the 21<sup>st</sup> Century Identified Skeletal Collection (CEI/XXI)  
University of Coimbra (Portugal)



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**Resumo** Os nódulos de Schmorl (NS) são depressões na superfície do corpo vertebral que afetam, com maior frequência, a região inferior da coluna torácica e lombar, sendo comuns em populações atuais e do passado. O presente trabalho tem como objetivo cardinal a estimativa da prevalência de NS numa amostra de 128 indivíduos adultos (81 do sexo feminino e 47 do masculino) pertencentes à Colecção de Esqueletos Identificados Século XXI (Departamento de Ciências da Vida, Universidade de Coimbra). Adicionalmente, pretende-se demarcar a sua distribuição anatómica na coluna vertebral, e averiguar possíveis vínculos com o sexo biológico e a idade à morte. Foi registada uma prevalência total de 61,7%, a mesma para ambos os sexos. A idade à morte dos indivíduos com NS (média = 80,7 anos; DP = 8,1) é praticamen-

**Abstract** Schmorl's nodes (SN) are identified by a depression in the surface of the vertebral body and most commonly affect the lower thoracic and lumbar regions of the spine, being prevalent in both modern and historical populations. The main objective of this study is to estimate the prevalence of SN in a sample of 128 adult individuals (81 females and 47 males) from the 21st Century Identified Skeleton Collection (Department of Life Sciences, University of Coimbra). Additionally, we aim to delineate their anatomical distribution in the vertebral column and investigate potential associations with biological sex and age at death. A total prevalence of 61.7% was recorded, identical for both sexes. The age at death for individuals with SN (mean = 80.7 years; SD = 8.1) is nearly identical to those without SN (mean

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te idêntica à dos indivíduos sem NS (média = 81,7 anos; DP = 9,9). Não foram encontradas, portanto, associações entre a presença de NS e o sexo biológico ou a idade à morte – num contexto em que existe uma elevada variabilidade nas prevalências reportadas de acordo com o sexo e a idade. A maioria das lesões, frequentemente localizadas no centro dos corpos vertebrais, foi classificada como severa. As vértebras mais afetadas foram a L1 (3,0%), a L2 (2,9%), bem como a T11 e a T12 (ambas com 2,8%). De facto, a região toracolombar foi a mais afetada, possivelmente devido à sobrecarga de forças, à amplitude de movimentos e à menor espessura do disco intervertebral nessa região da coluna vertebral, bem como às limitações biomecânicas associadas à postura bípede. Os resultados exprimem uma elevada prevalência de NS nesta amostra, equiparável às frequências mais elevadas referenciadas na literatura médica e paleopatológica.

**Palavras-chave:** Corpos vertebrais; lesões ósseas; postura bípede; envelhecimento; paleopatologia.

## Introdução

Os nódulos de Schmorl (NS) são defeitos focais, de formato irregular ou hemisférico, nas superfícies articulares dos corpos vertebrais (Schmorl e Junghanns, 1971; Pfirrmann e Resnick, 2001). A sua designação deve-se ao patologista alemão Christian Georg Schmorl que os descreveu histologicamente pela primeira vez em 1927 (Mattei e Rehman, 2014). Os NS podem ocorrer praticamente em

= 81.7 years; SD = 9.9). Therefore, no associations were found between the presence of SN and biological sex or age at death – in a context where there is high variability in reported prevalences according to sex and age. The majority of lesions, often located in the center of vertebral bodies, were classified as severe. The most affected vertebrae were L1 (3.0%), L2 (2.9%), as well as T11 and T12 (both with 2.8%). In fact, the thoracolumbar region was the most affected, possibly because it is under a greater stress, along with biomechanical constraints associated with the bipedal posture. Intervertebral discs are also thinner in that part of the vertebral column. The results indicate a high prevalence of SN in this sample, comparable to the higher frequencies reported in the medical and paleopathological literature.

**Keywords:** Vertebral bodies; skeletal injuries; bipedal posture; aging; paleopathology.

qualquer posição da superfície articular do corpo vertebral, estendendo-se, por vezes, até ao canal vertebral (Waldrön, 2009). Do ponto de vista anatómico, são herniações do núcleo pulposo através da região cartilaginosa até ao corpo da vértebra adjacente; apresentando-se como pequenas cavidades remodeladas nas superfícies superiores e inferiores do corpo vertebral (Schmorl e Junghanns, 1971; Kyere et al., 2012). A herniação do disco intervertebral acontece quando o disco

situado entre as vértebras se desgasta ou sofre uma fissura, o que fomenta a expansão do núcleo pulposo (Kim e Jang, 2018). Schmorl e Junghanns (1971) sugeriram que estes nódulos nas vértebras resultam de um enfraquecimento dos discos vertebrais, apresentando-se mais finos na zona central adjacente ao núcleo pulposo.

Os nódulos são mais frequentes na região torácica inferior e lombar (Cholewicki e McGill, 1996; Plomp et al., 2015a), provavelmente devido à tensão biomecânica (Cholewicki e McGill, 1996). Ocorrem tanto em populações contemporâneas como nas mais antigas (Plomp et al., 2015a; Plompt et al., 2015b). De facto, são frequentemente observados em esqueletos provindos de contextos arqueológicos e forenses, e também de coleções osteológicas de referência (Dar et al., 2010; Jiménez-Brobei et al., 2010; 2012; Burke, 2012; Henríquez e Arriaza, 2013; Plischuk et al., 2015; 2018; Brito, 2022).

A maior parte dos NS é assintomática (Mattei e Rehman, 2014). Todavia, a herniação do núcleo pulposo do disco intervertebral pode provocar lombalgia quando afeta um sistema nociceitivo (Hamanishi et al., 1994; Takahashi et al., 1995; Fahey et al., 1998; Peng et al., 2003; Faccia e Williams, 2008; Fukuta et al., 2009; Plomp et al., 2012; Kim e Jang, 2018). Muitos dos casos clínicos de NS são detetados de forma accidental em exames imagiológicos da coluna vertebral, podendo ser confundidos com outras lesões e, em particular, com tumores metastáticos (Kim e Jang, 2018).

Embora a etiologia dos NS não seja totalmente compreendida existem vários estudos que discutem a sua manifestação clínica na coluna vertebral. Assim, estas lesões vertebrais não apresentam uma causa particular para o seu desenvolvimento, e tanto fatores extrínsecos (nutricionais, intensa atividade física – compressão e rotação, traumatismos diretos na coluna vertebral) como intrínsecos (genéticos, imunitários e endócrinos) são fatores de risco para a ocorrência da lesão (Crubézy, 1988; Fahey et al., 1998; Pickering e Bachman, 2009; Zhang et al., 2010). Algumas doenças preexistentes são também apontadas como causa dos NS, incluindo a osteomalacia, a doença de Paget, o hiperparatiroidismo, infecções, neoplasias e traumatismos (Schmorl e Junghanns, 1971; Resnick e Niwayama, 1978; Pfirrmann e Resnick, 2001; Peng et al., 2003; Plischuk et al., 2018). Os NS podem estar ainda associados a ações que criam tensão mecânica na coluna vertebral, como, por exemplo, transporte de cargas pesadas ou trabalhos agrícolas (Weiss, 2005). No entanto, são também indicadores de traumatismos agudos, como as fraturas dos discos intervertebrais (Wagner et al., 2000; Faccia e Williams, 2008; Suby, 2014).

A formação de NS em indivíduos jovens relaciona-se com a realização de tarefas estrénuas e reiteradas (Capasso et al., 1999; Weiss, 2005) que podem afetar as áreas de enfraquecimento das placas terminais vertebrais (Dar et al., 2010) e estão, normalmente, vinculados à doença de Scheuermann (Aufderheide e Rodri-

guez-Martín, 1998). O envelhecimento constitui outro fator de risco, enfraquecendo o osso trabecular nos corpos vertebrais e a respetiva cartilagem articular (Aufderheide e Rodríguez-Martín, 1998; Pfirrmann e Resnick, 2001; Jiménez-Brobei et al., 2012; Plischuk et al., 2018). Certas condições metabólicas, como a osteoporose, conduzem ao enfraquecimento do tecido ósseo subcondral dos corpos vertebrais e, desse modo, potenciam a formação de NS (Pfirrmann e Resnick, 2001; González-Reimers et al., 2002).

As causas últimas, ou evolutivas, dos NS estão relacionadas com a postura bípede de *Homo sapiens* (Plomp et al., 2015b; Waizbort e Luz, 2017). Plomp et al. (2015b) investigaram a “hipótese de forma ancestral” que propõe que a hérnia discal afeta sobretudo os indivíduos cujas vértebras são morfológicamente mais semelhantes às de um animal quadrúpede. Os autores destacaram que a adoção da postura bípede implicou a mudança do centro de gravidade do corpo. Nada obstante, os hominíneos retiveram o sistema musculoesquelético básico de um quadrúpede, impondo-lhe um novo regime de stresse, carga e desgaste (Waizbort e Luz, 2017).

No presente estudo pretende-se aferir a prevalência de nódulos de Schmorl numa amostra da Coleção de Esqueletos Identificados Século XXI (Departamento de Ciências da Vida, Universidade de Coimbra), caracterizar a sua distribuição anatómica na coluna vertebral, e identificar possíveis associações com o sexo biológico e a idade à morte.

## Material e métodos

A Colecção de Esqueletos Identificados Século XXI (CEI/XXI) conserva-se no Laboratório de Antropologia Forense do Departamento de Ciências da Vida da Universidade de Coimbra (Portugal). Atualmente é composta por 302 indivíduos adultos – sobretudo idosos – de ambos os sexos (162 femininos e 140 masculinos), de nacionalidade portuguesa, falecidos entre 1982 e 2012, e provenientes do Cemitério dos Capuchos em Santarém, Portugal. A coleção possui documentação com informações biográficas relativas a cada um dos indivíduos que a compõem, incluindo o sexo biológico, a idade à morte, a nacionalidade e a residência à data da morte – mas não a profissão (Ferreira et al., 2014; 2021).

A amostra selecionada para este estudo comprehende 128 indivíduos, representando 42,4% da CEI/XXI, dos quais 81 são do sexo feminino (63,3%) e 47 do sexo masculino (36,7%). A coleção não foi avaliada na sua totalidade porque em muitos indivíduos a coluna vertebral encontra-se fragmentada e/ou fragilizada. Além disso, de acordo com uma lista disponibilizada pelo Laboratório de Antropologia Forense, alguns indivíduos não se encontram disponíveis para estudo já que apresentam condições de preservação não compatíveis com a manipulação dos seus remanescentes esqueléticos. Os indivíduos selecionados foram divididos em quatro classes etárias, de acordo com a sua idade à morte (Tabela 1), apresentando idades com-

preendidas entre os 61 e os 99 anos (média = 81,0 anos; DP = 8,8). Os indivíduos que constituem a amostra foram exumados entre 1999 e 2016 (Guerreiro, 2022).

A identificação dos NS foi realizada através de uma observação macroscópica da superfície dos corpos vertebrais, com o auxílio de uma lupa de magnificação (10x) quando necessário. Foram analisadas as superfícies superiores e inferiores dos corpos vertebrais de todas as vértebras do esqueleto, com exceção do atlas.

As alterações visíveis nos corpos vertebrais foram avaliadas de modo a excluir situações de destruição *post mortem* e/ou lesões metastáticas que apresentam uma margem esclerótica ou reação osteoblástica, enquanto os NS geralmente exibem uma margem esclerótica contínua da placa vertebral (Kim e Jang, 2018).

O averbamento diagnóstico dos NS foi efetuado com base nos métodos desenvolvidos por Knüsel et al. (1997) e Jiménez-Brobei et al. (2010). Na metodologia desenvolvida por Knüsel et al. (1997), a avaliação da vértebra é classificada em

dois estágios: o estágio 1 pauta-se por uma profundidade do nódulo igual ou menor que 2 mm e um tamanho menor do que a metade do comprimento ântero-posterior do corpo vertebral; o estágio 2 é identificado quando a profundidade é maior que 2 mm e a área afetada é maior do que a metade do comprimento ântero-posterior do corpo vertebral. A análise morfométrica foi realizada através do auxílio de uma craveira digital. O método proposto por Jiménez-Brobei et al. (2010) assenta na avaliação das faces superiores e inferiores de cada vértebra, dividindo-as em três segmentos denominados centro, canal e periferia. No caso de existir mais do que uma área afetada, a classificação é realizada de acordo com a lesão que possua maior profundidade.

Com a finalidade da verificação dos erros intra e interobservador, foi selecionada uma subamostra da CEI/XXI com 30 indivíduos, que foi observada duas vezes pela primeira autora (SG) e uma vez pelo último autor (FC). As observações foram realizadas com cinco dias de intervalo e

**Tabela 1.** Distribuição da amostra (N = 128) da CEI/XXI por sexo e classe etária dos indivíduos.

Classe Etária (anos)	Feminino		Masculino	
	n	%	n	%
60-69	10	12,3	6	13,0
70-79	16	19,8	19	41,3
80-89	37	45,7	18	39,2
90+	18	22,2	3	6,5
Total	81	100	46*	100

\*Um dos indivíduos masculinos da amostra carecia de dados relativos à idade à morte.

nas mesmas condições de luminosidade. A consistência intraobservador foi avaliada através do alfa de Cronbach, ao passo que a consistência entre avaliadores foi estimada através do coeficiente de correlação intraclass (ICC). Valores do alfa de Cronbach superiores 0,700 sugerem uma fiabilidade apropriada das medições (Marôco e Garcia-Marques, 2006), ao passo que valores de ICC superiores a 0,900 indicam uma excelente consistência entre observadores (Koo e Li, 2016).

A prevalência de NS foi calculada por indivíduo – rácio entre a presença de pelo menos um NS e o número total de indivíduos da amostra – e por tipo de vértebra – presença de NS num determinado tipo de vértebra e o número de vértebras desse tipo na amostra. Utilizou-se o teste de independência do Qui-quadrado para avaliar a associação entre variáveis categóricas. Foi avaliado o pressuposto do Qui-quadrado de que não devem existir mais do que 20% das células com frequências esperadas inferiores a cinco. Nos casos em que este pressuposto não se verificou, recorreu-se ao teste do Qui-quadrado por simulação de Monte Carlo. O nível de significância para rejeição da hipótese nula foi fixado em ( $\alpha$ )  $\leq 0,05$ . O teste t de Student foi utilizado para avaliar a hipótese nula de que as médias da idade à morte em indivíduos com e sem NS são iguais. A normalidade da distribuição da idade à morte foi averiguada através do teste de Kolmogorov-Smirnov e o teste de Levene foi utilizado para testar a homogeneidade das variâncias.

## Resultados

Foram analisadas 2699 (91,7% do total possível, considerando o número de 23 por indivíduo, já que o atlas não foi avaliado) vértebras identificadas de acordo com o respetivo número/tipo. Foram ainda analisadas 39 vértebras em que apenas se conhecia a respetiva região vertebral (cervical, torácica ou lombar). Em onze indivíduos não foi possível recolher os dados completos da coluna vertebral.

### *Erro intra e interobservador*

O erro intraobservador foi avaliado através do alfa de Cronbach, uma medida da consistência interna. Por seu lado, a consistência entre avaliadores (erro interobservador) foi analisada através do ICC. Os valores de alfa variaram entre o mínimo de 0,732 e o máximo de 0,838, enquanto os valores de ICC variaram entre um mínimo de 0,943 e um máximo de 1,000 (Tabela 2).

**Tabela 2.** Consistência interna (erro intraobservador) e consistência entre avaliadores (erro interobservador).

	alfa de Cronbach	ICC
Vértebras presentes	0,801	1,000
NS Superfície superior	0,826	0,943
NS Superfície inferior	0,838	0,978
NS Localização superior	0,803	0,948
NS Localização inferior	0,732	0,989

ICC, coeficiente de correlação intraclass.

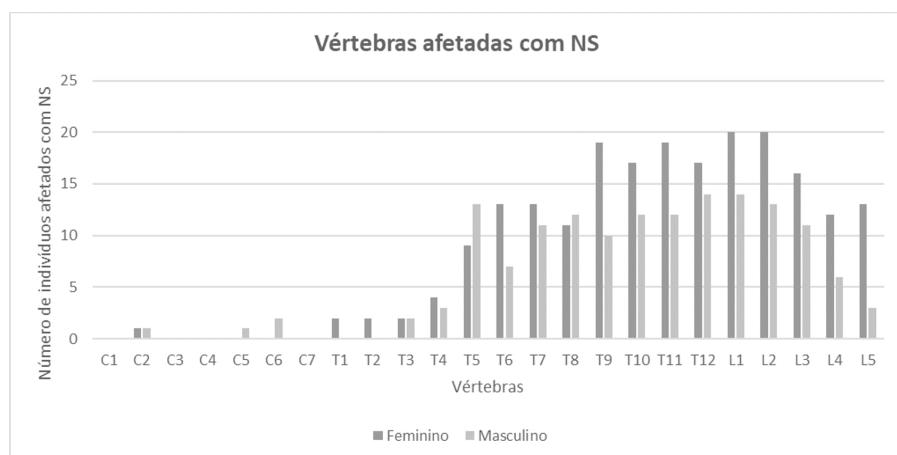
## Prevalência de nódulos de Schmorl

Foram observados nódulos de Schmorl em 79 dos 128 (61,7%) indivíduos da amostra. Estes apresentavam, no mínimo, uma vértebra afetada. A prevalência de NS é de 61,7% em ambos os sexos (50/81 nos indivíduos femininos e 29/47 nos masculinos). Os indivíduos masculinos apresentam mais vértebras afetadas com NS (15,0%; 112/745) do que os femininos (13,5%; 176/1308), mas a diferença não é estatisticamente significativa (*Qui-Quadrado*: 0,980;  $p = 0,322$ ). A idade à morte dos indivíduos com NS (média = 80,7 anos; DP = 8,1) é muito similar à dos indivíduos sem NS (média = 81,7 anos; DP = 9,9) e a diferença não é estatisticamente significativa (*teste t de Student*: 0,640,  $gl = 125$ ,  $p = 0,262$ ).

Dos 79 indivíduos com NS, 22 (27,8%) exibiam apenas uma vértebra afetada. Já 32 (40,5%) indivíduos possuíam entre

duas e quatro vértebras com NS. Vinte e cinco (31,7%) indivíduos possuíam cinco ou mais vértebras com NS. O número máximo de vértebras com NS num indivíduo foi de 14. Quanto à localização, foram observadas 216 (8,0%) vértebras com NS na superfície superior, 273 (10,1%) na superfície inferior e 34 (1,2%) vértebras afetadas em ambas as superfícies.

A região lombar foi a mais afetada com NS, com 122 (22,6%) de vértebras lesionadas, seguida pela região torácica, com 223 (16,4%) vértebras lesionadas. Apenas cinco vértebras cervicais (0,6%) foram afetadas com NS (Tabela 3), uma (0,7%) num indivíduo do sexo feminino e quatro (3,1%) em indivíduos do sexo masculino. A vértebra mais afetada com NS foi a L1, com 34 casos (3,0%), seguida da L2, com 33 (2,9%) casos, e as vértebras T11 e T12 com 31 (2,8%) vértebras afetadas (Figura 1). Nos indivíduos do sexo feminino com NS, as vértebras mais afetadas



**Figura 1.** Frequência de nódulos de Schmorl por elemento vertebral na amostra da CEI/XXI.

**Tabela 3.** Distribuição e caracterização dos NS na amostra da CEI/XXI por região vertebral, severidade e localização de acordo com os métodos propostos por Knüsel et al. (1997) e Jiménez-Brobei et al. (2010).

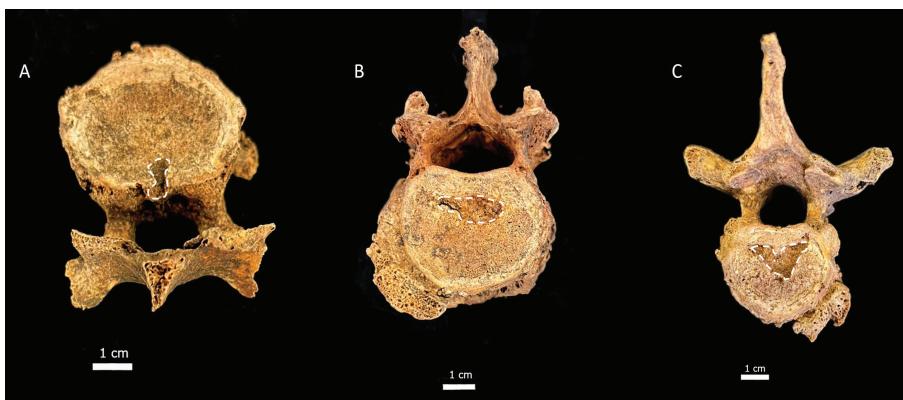
		Vértebras cervicais		Vértebras torácicas		Vértebras lombares		
		n	%	n	%	n	%	
102	Superfície superior	Ausência	769	99,6%	976	90,8%	377	82,1%
		Presença	3	0,4%	99	9,2%	82	17,9%
	Superfície inferior	Ausência	755	99,7%	903	84,6%	382	86,2%
		Presença	2	0,3%	165	15,4%	61	13,8%
	Severidade superfície superior	Estágio 1	1	50,0%	35	36,1%	25	30,5%
		Estágio 2	1	50,0%	62	63,9%	57	69,5%
	Severidade superfície inferior	Estágio 1	0	0,0%	39	23,8%	15	24,6%
		Estágio 2	2	100,0%	125	76,2%	46	75,4%
	Localização superfície superior	Central	2	100,0%	68	70,1%	64	79,0%
		Canal	0	0,0%	24	24,7%	8	9,9%
		Periferia	0	0,0%	5	5,2%	9	11,1%
	Localização superfície inferior	Central	3	100,0%	100	61,0%	41	67,2%
		Canal	0	0,0%	62	37,8%	16	26,2%
		Periferia	0	0,0%	2	1,2%	4	6,6%
	NS	Ausência	700	99,4%	1132	83,6%	417	77,4%
		Presença	5	0,6%	223	16,4%	122	22,6%

tadas foram a L1 e L2, com 20 (1,8%) casos. Já nos indivíduos do sexo masculino, as vértebras mais afetadas foram a T11 e L1 com 14 (1,2%) casos. Os resultados obtidos mostram uma maior frequência de NS na região inferior das vértebras torácicas (15,4%) e na região superior das vértebras lombares (17,9%).

Entre as vértebras que apresentavam NS, o grau menos severo (estágio 1) foi registrado em 33,7% (61/181) das faces superiores e em 23,8% (54/227) das faces inferiores. O estágio 2 de severida-

de foi observado em 66,3% (120/181) das superfícies superiores e em 76,2% (173/227) das superfícies inferiores.

Na superfície superior das vértebras verificou-se que 74,4% (134) dos NS localizam-se na parte central do corpo vertebral, 17,8% (32) no canal e 7,8% (14) na periferia. Na superfície inferior, 63,2% (144) dos NS encontram-se na região central do corpo das vértebras, 34,2% (78) no canal e apenas 2,6% (6) na periferia (Figura 2).



**Figura 2.** Exemplos de NS: A – Vértebra T9 do indivíduo 32, do sexo feminino, 81 anos, com NS na superfície inferior em estágio 2, localizado no canal - segundo a classificação de Jiménez-Brobei et al. (2010); B - Vértebra L1, do indivíduo 160, do sexo masculino, 87 anos, com NS na superfície superior, estágio 2, localizado na região canal. C - Vértebra T5 do indivíduo 15, do sexo masculino, 88 anos, com NS na superfície inferior, no estágio 2, localizado no centro.

## Discussão

O objetivo precípua deste trabalho passou pela avaliação da prevalência de nódulos de Schmorl em 128 indivíduos da Colecção de Esqueletos Identificados Século XXI através das metodologias propostas por Knüsel et al. (1997) e Jiménez-Brobei et al. (2010). Nesse sentido, a observação da coluna vertebral limitou-se ao registo dos NS mas não de outras possíveis condições patológicas. Refira-se que os dois métodos de reconhecimento dos NS em remanescentes esqueléticos humanos são complementares, visto que o método de Knüsel et al. (1997) possibilita a anotação da severidade dos NS enquanto o método de Jiménez-Brobei et al. (2010) indica a sua localização no corpo das vértebras. Os métodos de identifi-

ficação dos NS alicerçam-se em processos simples e bem descritos, requerendo uma curva de aprendizagem pouco prolongada, o que justifica, em parte, os baixos erros intra e interobservador.

Os resultados exprimem uma elevada frequência (61,7%) de NS nesta amostra da CEI/XXI, comparável às frequências mais elevadas reportadas na literatura médica e paleopatológica, e que variam entre os 16% e os 76% (Hilton et al., 1976; Saluja et al., 1986; Pfirrmann e Resnick, 2001; González-Reimers et al., 2002; Williams et al., 2007; Üstündağ, 2009; Dar et al., 2010; Jiménez-Brobei et al., 2010; Lessa e Coelho, 2010; Mok et al., 2010; Suby, 2014; Plischuk et al., 2018; Sadiq, 2019). Plischuk et al. (2015), por sua vez, observaram também uma prevalência elevada de NS em outras coleções de referência Europeias,

designadamente em Coimbra (Portugal) com 48% dos indivíduos afetados, Granada (Espanha) como 55% e Valladolid (Espanha) com 51%. Brito (2022), num estudo realizado na Coleção de Esqueletos Identificados dos séculos XIX-XX (CEI/XIX-XX) da Universidade de Coimbra, identificou NS em 58,1% dos indivíduos da amostra – uma prevalência similar à observada na base de estudo da CEI/XXI.

A variação observada na prevalência de NS deve-se a diversos fatores, incluindo as diferentes metodologias aplicadas na recolha de dados, a experiência dos observadores, a região vertebral examinada, a integridade e as condições das vértebras, e os distintos processos biológicos envolvidos na formação dos NS (Burke, 2012). Salienta-se que algumas vértebras nesta amostra não puderam ser observadas por se encontrarem mal preservadas. Por outro lado, recorda-se que não foi possível examinar os 302 indivíduos pertencentes à CEI/XXI.

A elevada prevalência de NS sugere um maior stresse mecânico na coluna vertebral dos indivíduos (Plischuk et al. 2018), podendo encontrar-se associada a padrões de atividade quotidiana intensos (Lessa e Coelho, 2010). As atividades físicas que motivam um aumento da carga biomecânica podem causar microtraumatismos repetidos (Kelley e Angel, 1987; Rathbun, 1987; Lai e Lovell, 1992; González-Reimers et al., 2002; Novak e Šlaus, 2011; Suby, 2014; González- Reimers et al., 2021) e, em consequência, podem desenvolver-se cavidades remodeladas nos

corpos vertebrais provocadas a partir de demandas diárias e excessivas, as quais superam a capacidade funcional da estrutura anatómica (Schmorl e Junghanns, 1971; Lessa e Coelho, 2010).

Ambos os sexos foram afetados de forma similar na amostra da CEI/XXI. Na maioria dos estudos verifica-se uma taxa de prevalência mais elevada em indivíduos do sexo masculino (Saluja et al., 1986; Pfirrmann e Resnick, 2001; Üstündağ, 2009; Jiménez-Brobeil et al., 2010; Mok et al., 2010; Sadiq, 2019; Brito, 2022), embora outros a frequência seja similar em ambos os sexos (Dar et al., 2010; Plischuck et al., 2015), ou mesmo um pouco maior nos indivíduos do sexo feminino (Plischuck et al., 2018). Em geral, o peso e a força de levantamento maiores, bem como atividade física mais intensa, estão associadas à degeneração dos discos vertebrais e, por isso, podem afetar a integridade das estruturas do corpo vertebral – sobretudo em indivíduos do sexo masculino. No entanto, outros fatores predisponentes podem também afetar os indivíduos de ambos os性os de maneira distinta (Mok et al., 2010).

Nos indivíduos da CEI/XXI a frequência de NS é mais elevada na região toracolumbar e reduzida na região cervical. Estes resultados são similares aos obtidos em vários estudos (Resnick e Niwayama, 1978; Pfirrmann e Resnick, 2001; Williams et al., 2007; Üstündağ, 2009; Mok et al., 2010; Plischuk et al., 2018; Sadiq, 2019), e corroboram a ideia proposta por Plomp et al. (2012) de que as vértebras na região to-

racolombar são mais afetadas devido aos movimentos de flexão, extensão e rotação a que estão sujeitas. O stresse biomecânico é mais elevado na região de transição entre as vértebras torácicas e lombares (Mok et al., 2010) o que é, em parte, explicado pelo stresse colocado sobre a coluna vertebral pelo bipedismo (Filler, 2007; Lieberman, 2015; Palanza e Parmigiani, 2016) e, apesar da etiologia multifatorial dos NS, a sua distribuição anatómica parece estar relacionada com fatores evolutivos relacionados com a postura bípede (Plomp et al., 2012; 2015b). Por seu lado, a escassez de NS na região cervical pode ser explicada pela espessura relativamente elevada dos discos intervertebrais nessa área e também pela menor exposição às forças biomecânicas que atuam sobre a coluna vertebral (Üstündağ, 2009).

Na amostra estudada neste trabalho, os indivíduos afetados por NS apresentam entre uma e 14 vértebras afetadas. Devido à falta de informações sobre a atividade laboral desses indivíduos, não é possível afirmar se as variações na ocorrência de NS estão relacionadas com a sobrecarga exercida na coluna vertebral ou com outros fatores extrínsecos ou intrínsecos. Conforme notou Waldron (2009), é impossível identificar a causa dos NS apenas com base em remanescentes esqueléticos. Plischuk et al. (2018) também sugerem que qualquer inferência biocultural realizada a partir da observação de NS só é válida se acompanhada de outros indicadores de atividade ocupacional, como alterações das

enteses ou determinadas patologias articulares, assim como de outras evidências históricas ou arqueológicas.

A maioria dos NS localizava-se na superfície central inferior das vértebras torácicas e na superfície central superior das vértebras lombares, enquadrando-se no que foi reportado em trabalhos anteriores (Cholewicki e McGill, 1996; Dar et al., 2010). Vale a pena salientar que a amostra observada neste trabalho é constituída por indivíduos com idade à morte superior a 61 anos, desconhecendo-se a idade em que desenvolveram os NS. Autores como Üstündağ (2009) afirmam que a relação dos NS com a idade é meandríca e opaca, não se tendo observado uma associação entre a presença de NS e a idade. Resultado idêntico foi obtido por Brito (2022) numa amostra de outra coleção de referência portuguesa (CEI/XIX-XX) constituída por indivíduos mais jovens.

### Considerações finais

O propósito cardinal do presente estudo foi o de avaliar a presença de nódulos de Schmorl em 128 indivíduos pertencentes à CEI/XXI, tendo sido estimada uma prevalência de 61,7%. Não foi encontrada qualquer associação entre a presença de NS e o sexo biológico ou a idade à morte. A maioria dos NS observados localizava-se nas regiões centrais inferiores das vértebras torácicas e nas superiores das vértebras lombares. A região toracolombar foi a mais afetada, designadamente as vértebras T11, T12, L1

e L2 o que pode estar relacionado com a sobrecarga de forças, a amplitude de movimentos e a menor espessura do disco intervertebral nessa região da coluna vertebral, bem como com as restrições biomecânicas ligadas ao bipedismo.

As limitações deste trabalho incluem a ausência de informações acerca das atividades profissionais dos indivíduos, a escassez de indivíduos jovens na CEI/XXI e a própria natureza da base de estudo que apenas permite uma observação transversal (após a morte do indivíduo) dos nódulos de Schmorl.

## Agradecimentos

Ao Laboratório de Antropologia Forense (DCV, FCTUC) e à Professora Doutora Maria Teresa Ferreira. Agradecemos ainda os comentários de dois revisores anónimos, que muito contribuíram para melhorar a qualidade do trabalho.

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# Association between rapid weight gain in early years and subsequent adiposity indices in Portuguese children aged 3 to 5 years

Associação entre o ganho rápido de peso nos primeiros anos de vida e índices de adiposidade subsequentes em crianças portuguesas dos 3 aos 5 anos



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**Abstract** The present study aimed to evaluate the association of rapid weight gain (RWG) in early years with subsequent measures of adiposity in Portuguese children. We used data from a cross-sectional study of a representative sample of 5359 Portuguese children aged 3 to 5 years in 2009-10. Measures of adiposity

**Resumo** O presente estudo objetivou avaliar a associação do ganho rápido de peso (RWG) nos primeiros anos de vida com as medidas subsequentes de adiposidade em crianças portuguesas. Foram utilizados dados de um estudo transversal de uma amostra representativa de 5359 crianças portuguesas dos 3 aos 5 anos,

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indices included age-specific body mass index z-score (BAZ) and skinfold (suprailiac, subscapular and triceps) thickness. RWG was defined as the difference between z-scores of weight-for-age and birthweight  $> 0.67$  Standard Deviation. Quantile regression models were used to estimate the difference in the 50<sup>th</sup> (median) and 90<sup>th</sup> (upper end) percentiles of each measure by RWG. Rapid weight gain in early years (62.5% of children) was associated with greater levels of BAZ and skinfold thickness measures, both for the median and 90<sup>th</sup> percentile. For the median, the difference was 1.08 (95% CI: 1.01-1.16) for BAZ, 1.11 mm (95% CI: 0.98-1.25) for suprailiac, 0.99 mm (95% CI: 0.87-1.11) for subscapular and 1.34 mm (95% CI: 1.11-1.57) for triceps skinfolds thickness after the adjustments. The increases in the 90th percentiles of adiposity measures associated with RWG were greater than those in median levels. RWG in childhood was associated with increased levels of adiposity measures, independent of prenatal and childhood factors.

**Keywords:** Pediatric obesity; weight gain; body weight; skinfold thickness.

## Introduction

The levels of body mass index (BMI) and overweight/obesity have increased rapidly in recent decades across age groups and in most populations (NCD-RisC, 2017). The worldwide prevalence of overweight and obesity in children aged 0-5 years increased from 30.3 mil-

lion to 38.9 million between 2000 and 2020 (FAO, 2022). In Portugal, in 2018/19, the prevalence of childhood overweight and obesity remained high at 29.7% and 11.9%, respectively (PORTUGAL, 2021). Childhood obesity tends to persist into adulthood (Reilly and Kelly, 2011) and is associated with a range of adverse health outcomes (NCD-RisC, 2017), in-

**Palavras-chave:** Obesidade infantil; ganho de peso; peso corporal; pregas cutâneas.

cluding cardiovascular diseases (WHO, 2018). Obesity is a global public health problem (Karnik and Kanekar, 2012).

Early years are a key risk period for the development of obesity (Gillman, 2010), and there are growing studies confirming an association between early rapid postnatal growth and subsequent higher adiposity measures (Ong and Loos, 2006; Zheng et al., 2018). Recent studies have shown that rapid weight gain (RWG) in early years, defined as a change in weight-for-age  $> 0.67$  standard deviation (Ong et al., 2000), is an important early life risk factor for the development of obesity in the short, medium and long term (Woo Baidal et al., 2016). A meta-analysis showed that children with RWG by two years of age were 3.7 times more likely to become obese in adulthood (Zheng et al., 2018). Furthermore, systematic reviews also found that RWG was related to increased body fat percentage, waist circumference, and waist-to-height ratio (Lucas, 2010). However, most of these studies tend to focus primarily on a single measure of adiposity such as BMI.

The first thousand days of the child's life are a crucial window for prevention and intervention measures for reducing the risk of obesity (Mameli et al., 2016). Therefore, this study aimed to examine the association of RWG in early years with BMI and three skinfold thickness measures in a nationally representative sample of Portuguese children aged three to five years.

## Methods

We used the data from a cross-sectional survey, the "Portuguese Prevalence Study of Obesity in Childhood, changes from 2002 to 2007. The Effects of Lifestyle and Environmental Factors". The survey was conducted between March 2009 and January 2010 in public and private kindergartens and primary schools in all districts of Portugal, except the Portuguese archipelagos (Madeira and Azores). The study sample was selected using proportional stratified random sampling according to the number of children in each district. This is a nationally representative survey totaling 17.509 children aged 3 to 10 years. The participation rate was 57.4% (Jago et al., 2012). The study was approved by the Directorate-General for Innovation and Curriculum Development and all participants received information about the research objectives and signed the Informed Consent Form.

## Study sample

In this cross-sectional study, children between the ages of 3 and 5 years were included. Children without birthweight, height or weight measurements, or with implausible values were excluded, i.e. standardized weight-for-age index (WAZ) scoring  $< -6$  or  $> 5$ , and BMI for age (BAZ) scoring  $< -5$  or  $> 5$  (WHO, 2011). The final eligible sample included 5359 children (Figure 1).

## Measures

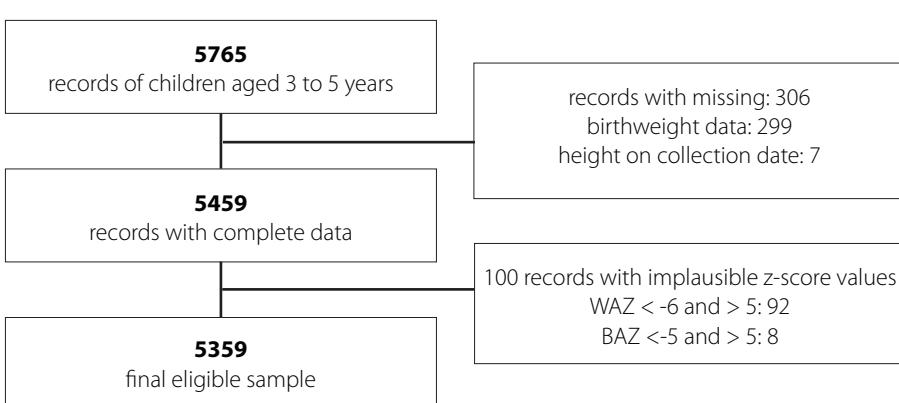
Trained researchers using standardized procedures performed anthropometric measurements. Height and weight of children were measured to the nearest 0.1 cm and 100 g, with light clothing and without shoes, using a portable stadiometer and a portable electronic scale, respectively. The thickness of the suprailiac skinfold (SSF), subscapular skinfold (SSSF) and triceps skinfold (TSF) (mm) were measured twice with a skinfold caliper and the average of the two readings was used for each skinfold measure (Li et al., 2016). BMI ( $\text{kg}/\text{m}^2$ ) was calculated for each child and converted to age- and gender-specific BMI z-score using the WHO Anthro Program (WHO, 2011). Birthweight was reported by parents based on data from the individual card that each child got from the maternity where they were born. In this card, they have all the information concerning the birth.

## Exposure and outcome

Rapid weight gain (RWG) as an exposure with the definition of a change in weight-for-age z score  $> +0.67$  (from birth to collection date) is the most frequent and widely accepted definition (Ong et al., 2000). The outcome measures were BMI z-score (BAZ) and three (suprailiac, subscapular and triceps) skinfolds thickness measures.

## Confounders

Covariates included the mother's height and weight (for calculating maternal BMI), maternal age, maternal education (low - primary/sub-secondary  $\leq 9$  years, middle - secondary 10–12 years, and high - higher education based on the Portuguese Educational System), and duration of breastfeeding (months).



**Figure 1.** Sample flowchart.

## Statistical analysis

They were summarized using mean values (standard deviation) for continuous variables and frequencies for categorical variables. Their differences by RWG group were tested using t-student and chi-square tests, respectively. As the distributions of adiposity measures were skewed (Yu et al., 2003), we applied quantile regression models to examine whether RWG was associated with the median (50<sup>th</sup> percentile) and upper end (90<sup>th</sup> percentile) of the adiposity measures (Koenker, 2005). The differences (95% Confidence Interval) in median and 90<sup>th</sup> percentiles for each adiposity measure between children with and without RWG were estimated. We first fitted an unadjusted model (Model 1), then ad-

justed for maternal BMI, maternal age, and birthweight (Model 2), and further for maternal education and duration of breastfeeding (Model 3). Data were analyzed using the software STATA (v14).

## Results

This study includes 5359 children from 3 to 5 years, being 50.46% ( $n = 2704$ ) boys and 49.54% ( $n = 2655$ ) girls. The children had a mean birth weight of 3207.87g. The children's mothers had a mean age of 34 years.

There was a high proportion of children who experienced RWG (62.5%). They had a lower mean birthweight than those who did not. There was no difference in mean maternal BMI, maternal age, maternal education, and duration of

**Table 1.** Mean, standard deviation and frequency (%) for maternal and child characteristics of Portuguese children according to rapid weight gain (RWG). Portugal, 2009 -10 ( $n = 5359$ ).

Variables	RWG			P value*
	<i>n</i> †	No	Yes	
	5359	2007 (37.5%)	3352 (62.6%)	
Maternal BMI (kg)	4979	23.9 (3.8)	23.8 (3.8)	0.246
Maternal age (year)	5281	34.6 (4.9)	34.5 (5.1)	0.315
Birthweight (g)	5359	3472.6 (433.2)	3049.4 (466.6)	<0.001
Breastfeeding (months)	4579	5.33 (0.12)	5.08 (0.09)	0.099
Maternal education	5263	1972 (37.5%)	3291 (62.5%)	0.362
Low education	2115	811 (38.4%)	1304 (61.7%)	
Middle education	1093	391 (35.8%)	702 (64.2%)	
High education	2055	770 (37.5%)	1285 (62.5%)	

\* p < 0.05 for difference between RWG and non-RWG groups (t-test for continuous variables and chi-square test for categorical variables).

† Children (3 - 5 years) with adiposity measures.

breastfeeding between those with and without RWG ( $p>0.05$ ) (Table 1).

RWG was associated with increased levels of all adiposity measures (BAZ, SSF, SSSF, TSF) at both the 50<sup>th</sup> and 90<sup>th</sup> percentiles. The differences in mean adiposity measure by the RWG group increased after adjusting for maternal BMI, maternal age, and birthweight, and maintained when further adjusting for maternal education and breastfeeding duration (Figures 2 and 3). The adjusted difference (model 3) in median BAZ was 1.08 z-score (95% CI: 1.01-1.16). The respective difference in skinfold thickness was 1.11 mm (0.98-1.25) for SSF, 0.99 mm (0.87-1.11) for SSSF, and 1.34 mm (1.11-1.57) for TSF (Figure 2).

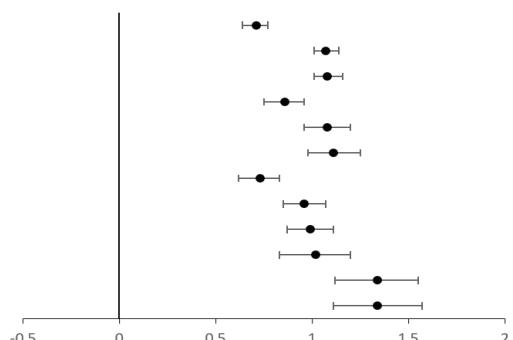
RWG was also associated with the upper end of the distribution (90<sup>th</sup> per-

centile) for each adiposity measure. The adjusted difference (model 3) was 1.47 (1.34-1.60) for BAZ, and for the SSF, SSSF, and TSF measures was 2.89 mm (2.43-3.35), 2.34 mm (1.94-2.74), and 2.37 mm (1.93-2.81), respectively. The difference by RWG was greater in the 90<sup>th</sup> percentile than the median (Figure 3).

## Discussion

The present study showed that children with RWG had greater levels of adiposity of several adiposity indices (e.g., BAZ, SSF, SSSF, TSF), both in median and upper end of distributions after adjusting for prenatal and childhood factors. These differences were consistently greater in the 90<sup>th</sup> than the 50<sup>th</sup> percentile, indicat-

Outcomes	Models	$\beta$ (95% CI)
BAZ	Model 1	0.71 (0.64-0.77)
	Model 2	1.07 (1.01-1.14)
	Model 3	1.08 (1.01-1.16)
SSF	Model 1	0.86 (0.75-0.96)
	Model 2	1.08 (0.96-1.20)
	Model 3	1.11 (0.98-1.25)
SSSF	Model 1	0.75 (0.62-0.83)
	Model 2	0.96 (0.85-1.07)
	Model 3	0.99 (0.87-1.11)
TSF	Model 1	1.02 (0.83-1.20)
	Model 2	1.34 (1.12-1.55)
	Model 3	1.34 (1.11-1.57)

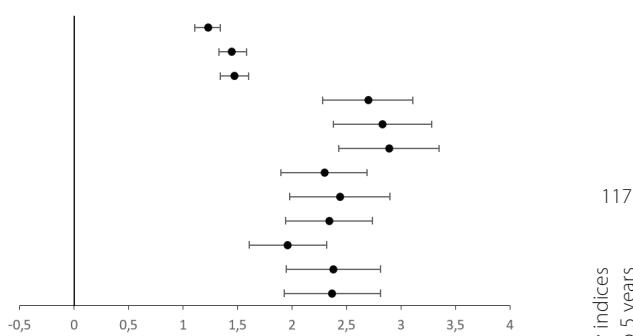


**Figure 2.** Difference (95% CI) in 50<sup>th</sup> percentile (median) of adiposity indices by the presence of rapid weight gain (RWG), without and with adjustments\*. Portugal, 2009-10 (n = 5359).

\* Estimated from quantile regression. Model 1 unadjusted. Model 2 adjusted for maternal BMI, maternal age and birthweight. Model 3 includes all variables in Model 2, plus breastfeeding and maternal education.

Acronyms: 95% CI: 95% Confidence Interval; BAZ: BMI z-score; SSF: suprailiac skinfold; SSSF: subscapular skinfold; TSF: triceps skinfold.

Outcomes	Models	$\beta$ (95% CI)
BAZ	Model 1	1.23 (1.11-1.34)
	Model 2	1.45 (1.33-1.58)
	Model 3	1.47 (1.34-1.60)
SSF	Model 1	2.70 (2.28-3.11)
	Model 2	2.83 (2.38-3.28)
	Model 3	2.89 (2.43-3.35)
SSSF	Model 1	2.30 (1.90-2.69)
	Model 2	2.44 (1.98-2.90)
	Model 3	2.34 (1.94-2.74)
TSF	Model 1	1.96 (1.61-2.32)
	Model 2	2.38 (1.95-2.81)
	Model 3	2.37 (1.93-2.81)



**Figure 3.** Difference (95% CI) in 90<sup>th</sup> percentile of adiposity indices by the presence of rapid weight gain (RWG), without and with adjustments\*. Portugal, 2009-10 (n = 5359).

\* Estimated from quantile regression. Model 1 unadjusted. Model 2 adjusted for maternal BMI, maternal age and child birthweight. Model 3 includes all variables in Model 2, plus breastfeeding and maternal education. Acronyms: 95% CI: 95% Confidence Interval; BAZ: BMI z-score; SSF: suprailiac skinfold; SSSF: subscapular skinfold; TSF: triceps skinfold.

ing that RWG not only increased the median, but increased more for the extreme high levels of adiposity measures.

A recent systematic review and meta-analysis of populations from countries on five continents showed that RWG by the age of 2 years was associated with increased risk of overweight in childhood and adulthood (Zheng et al., 2018). Our findings are consistent with previous studies (Nanri et al., 2017; Zheng et al., 2018). It has been reported that changes in velocity of weight growth in the early years have long-lasting effects for adipose tissue accumulation (Hooper et al., 2001; Godfrey et al., 2007) and other health outcomes (Godfrey et al., 2010; Hanley et al., 2010; Lillycrop, 2011; van der Haak et al., 2019). Using the same definition of 0.67 standard deviation of the WAZ, Brazilian

children showed a 69% and 64% increase in the overweight and obesity risks, respectively (Monteiro et al., 2003).

In general, large infants tend to be at greater risk of overweight and obesity during adolescence (Lyons-Reid et al., 2021). However, accelerated growth in premature, small for gestational age, or low birthweight infants is associated with a range of long-term deleterious effects (Victora et al., 2001; Martin et al., 2017), including obesity and hypertension (Parsons et al., 1999). Infants born with low birthweight have a higher risk of having increased growth velocity (Gillman et al., 2010). Given that the relationships between extremes of weight (high or low) outcomes associated with adiposity in later life are not consistent, rapid weight gain in children may be an alternative ex-

planation to this controversy.

Some studies have shown that exclusive breastfeeding longer than 6 months and delayed exposure to food formula may protect from increased adiposity throughout adolescence (Cordero et al., 2014). A cohort of Australian children showed that formula-fed children had more accelerated BMI growth trajectories compared to those who were breastfed (Oddy et al., 2014). In the present study, breastfeeding duration was not associated with BAZ or with skinfold thickness values, and the adjustment for breastfeeding did not alter the findings. Lack of information on food consumption patterns before or during breastfeeding (e.g., introduction of formula milk or other weaning foods) may explain the inconsistent findings from previous studies.

Health care in the first years of life provides a foundation for good health in later life, especially the period of the first 1000 days from conception to two years of age. In the context of an ecological model, maternal conditions before and during pregnancy and nutrition in early childhood are crucial to mitigate the burden of diseases in adulthood (Darnton-Hill et al., 2004). It is unclear which period of childhood is most critical for the development of obesity in children with RWG (Ong and Loos, 2006). Although evidence has suggested that the first two years are the period of greatest risk for the development of overweight (Zheng et al., 2018; Li et al., 2020), the age between 2 and 5 years was also indicated (Matos et al.,

2011). Thus, this set of studies reinforces the need for careful monitoring of postnatal weight gain in these groups and referral to health professionals responsible for specific assessment and intervention. A comprehensive understanding of the importance of predictors of obesity in children is essential for the development and refinement of strategies aimed at improving maternal and child health care in childhood and other life cycles.

It is noteworthy that our findings are from a large, nationally representative sample of Portuguese children and include multiple measures objectively collected of subcutaneous adipose tissue. Although these measures are correlated, they indicate different aspects of adiposity (e.g., BAZ representing overall adiposity and skinfold thickness, which is a proxy for fat mass). Limitations include the cross-sectional design that does not allow us to assess temporality nor the possibility of exploring trajectories of the anthropometric measures measured. Thus, future investigations using longitudinal data are necessary.

## Conclusion

RWG in the early years of life was associated with increased levels of adiposity in children aged 3 to 5 years, especially at the upper end of distributions, independent of prenatal and childhood factors. These results highlight the importance of monitoring the child's weight growth from early years as a potential

preventive action for childhood obesity in primary care, as well as, to promote healthy child development and growth, and adulthood.

## Acknowledgment

This work was supported by the [Fundação para a Ciência e a Tecnologia] under Grant [number FCOMP-01-0124-FEDER-007483]. Gustavo Velasquez-Melendez was supported by Fundação de Amparo à Pesquisa do Estado de Minas Gerais – Fapemig (Finance Code APQ-01777-23).

## Disclosure statement

There are no conflicts of interests.

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# N O R M A S   P A R A   P U B L I C A Ç Ã O

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A revista *Antropologia Portuguesa* publica artigos inéditos, entrevistas e recensões em português, inglês e espanhol nos domínios da Antropologia Biológica, Cultural e/ou Social. Os artigos submetidos para publicação, depois de analisados pelo conselho editorial, **somente serão remetidos aos revisores (pelo menos dois; escolhidos em função da temática e natureza do texto) se observarem o seguinte plano:**

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- Douglas, M. 1984. *Implicit meanings: essays in anthropology*. London, Routledge and Kegan Paul.
- McElroy, A.; Townsend, P. K. 2004. *Medical anthropology in ecological perspective*. 4<sup>th</sup> edition. Boulder, Westview Press.

## Obra colectiva

- Swedlund, A. C.; Herring, D. A. (eds.). 2003. *Human biologists in the archives: demography, health, nutrition and genetics in historical populations*. Cambridge, Cambridge University Press.

## Artigo numa obra colectiva

- Carlesworth, H. R.; Kreutzer, M. A. 1973. Facial expressions of infants and children. In: Ekman, P. (ed.). *Darwin and facial expressions: a century of research in review*. London, Academic Press: 91-168.

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Kjellström, A. *in press*. Possible cases of leprosy and tuberculosis in medieval Sigtuna, Sweden. *International Journal of Osteoarchaeology*. [Publicado online: 7-9-2010]. DOI: 10.1002/oa.1204.

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## Journal article

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