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## Sex/gender system and social hierarchization in Bell Beaker burials from Iberia

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## Abstract

**Queer theory** has always questioned the uncritical transposition into the past of the categories linked with the heteronormative sex/gender system of the contemporary Western society. The binary and opposed division into two sexes and genders, the heterosexuality as a naturalized ideal or the nuclear family, are just some examples. The Bell Beaker phenomenon, despite being one of the most discussed topics in archaeology, has never been approached from this perspective. Therefore, in this study, 70 individuals with associated Bell Beaker grave-goods buried in 37 tombs from the main territories of Iberia have been analysed. Through an exhaustive statistical analysis of the archaeological and osteological data set, the existence of some clear differences among social adults (>16 years old) can be identified in terms of social ranking and sex/gender markers, within a complex and non-binary structure. Additionally, a fluid or non-existing sex/gender attribution is the most likely for non-adults younger than 15 years old.

**Keywords:** Copper Age; Bell Beakers; burials; grave goods; queer theory; sex/gender system; social hierarchization; Iberia.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## 1. Introduction

### 1.1. *Queer theory and sex/gender system*

**Queer theory** and mainly the work of G. Rubin (1975) and J. Butler (1999, 2004) argue that every society has a certain hegemonic system through which sex and gender categories are understood, according to specific cultural and historical constraints. In the contemporaneous Western society this sex/gender system is called the heterosexual matrix or, more generically, “heteronormativity”. Such system naturalizes a binary division of bodies and desire, assuming that they only have sense and are coherent with a stable sex expressed through a stable gender established by opposition through the mandatory practice of heterosexuality (Butler, 1999).

Thus, the *normality* or *coherence* is linked with the stability of these categories, their understanding through a binary and hierarchical approach (male/female, masculine/feminine, hetero/homosexual) and the heterosexuality as a naturalized ideal linked to monogamy, procreation, and the nuclear family (Geller, 2017b). Given that this *coherence* responds to current Western sex/gender system, is it legitimate to uncritically transfer it to the past or instead should we investigate how those categories were structured in every historical moment?

Furthermore, while the cultural character of gender is widely accepted that is not the case for sex, which has been traditionally relegated to biology and medicine (Fausto-Sterling, 2012). Is it gender to culture what sex is to nature? Or has sex always been gender and, thus, is also a social construction? (Butler, 1999). The distinction between the (two) sexes has different components and dimensions: internal and external sexual organs, hormonal equilibrium, chromosomal combinations. In the contemporaneous Western society, genitals are the main indicator (phenotypic sex) and for that reason they are used in the adscription of sex even before birth. However, there is a part of the population that does not fit with this clear-cut division between women and men. One of every 1500 births or, according to a recent survey, one of every 800-1000 births do not match with this division system (Fausto-Sterling, 2000; Preciado, 2019). This heterogenous group which tend to be classified as intersex, shows different types of variations in sexual organs, chromosomes, and hormonal balance (Geller, 2017a, 2017b; Preciado, 2000). Do these differences show the existence of a linear continuum between women and men and, therefore, the arbitrariness and the possibility of a new type of division or even the inexistence of such divisions in past and maybe future societies?

Some current ethnographic examples show the inability of the heteronormative sex/gender system to conceptualize or perceive an alternative structuring. A clear example can be found in the Two-Spirits category, existing in indigenous communities in North America and Canada, which was oversimplified through 18<sup>th</sup> century Spanish chroniclers as homosexuality (Hollimon, 1997; Hunt, 2006). This category reports a combination of same-sex intimacies, occupational specializations, spiritual sanction, gendered norms (including cross-dressing) and/or personal predilections (Geller, 2017b; Hollimon, 2006; Roscoe, 1998). Furthermore, there are substantial differences in every community, for example the recognition of a female-bodied Two-Spirits or other specific categories, which are difficult to translate and usually have different meanings. Something similar is detected among the Hijras in India and Pakistan, frequently classified as a “third gender” (which already implies a binary point of view). However, according to Nanda (1994) this term includes “*transvestites, emasculated or incomplete men, followers of the mother goddess, ritual specialists at marriages and male births, prostitutes and non-menstruating or infertile women*” (Geller, 2008: 124). One last example, the Chukchi of Siberia, shows the fluency and mutability of such categories. Bogoras (1904) lists nine different genders (two of them restricted for shamans) accepted without stigma, that anyone can adopt during their lifetime regardless their birth sex. These genders show a gradation between the adoption of a certain hair style, dress, type of pronunciation, behaviour, social roles and sexual desire of the opposite sex (Jacobs and Cromwell, 1992).

These case studies reveal that the heteronormative sex/gender system is not the only option. Human behaviour, anatomy and biology have a great plasticity. We have to assume that sex, gender and desire categories that are familiar to us come from the Western and contemporary sex/gender system and may not have any relationship with those of past societies (Voss, 2009). Thus, it is central to critically question them and to prevent its projection to the past to avoid the essentialization of what is *normal*, *abject*, or *deviant* (Dowson, 2000; Weismantel, 2013).

## 1.2. Sex/gender and Bell Beakers

The West European Bell Beakers provides an excellent opportunity to explore the nature of gender and sex in the ancient past, and, given the long history of research on the topic, its study also allows us to trace changing views in archaeology on the nature of gender. The first discoveries of this set of decorated pottery, copper objects, gold and ivory ornaments and other paraphernalia, were interpreted as the result of the dispersal of a new culture or even people, the so called “Beaker folk”. Right from the very beginning, several scholars proposed Iberia as the cradle of these allegedly nomadic populations (Garrido-Pena, 2014: 113), quickly spreading throughout Western Europe during the second half of the III<sup>rd</sup> millennium cal BC. Later models argued in favour of Central Europe as the place of origin of this “culture”, with mixed proposals of an eventual double origin, as the “Reflux theory” of Sangmeister (1963). The earliest more homogeneous style (the so-called Maritime Beakers) would have been evolved in Iberia spreading through a “Flux” movement to the rest of Western Europe and the later, more local, styles in Central Europe, the other way in a rebound movement or “Reflux”. Later proposals as the “Dutch model” (Lanting and Van der Waals, 1976) insisted in Central Europe and the Corded Ware as the key to explain the origin of this “culture”, but recent debate seems to come back to Iberia again (Salanova, 2005). Nevertheless, in the mid 70’s Clarke’s (1976) processual model completely changed our understanding of this phenomenon. He proposed that Bell Beakers were not a “culture” or a folk, but just an elite package of prestige objects spreading through exchange networks. It was the social and economic context of emergent complexity and hierarchisation at that time which explained the extraordinary expansion of these objects and not any mobile population. However, recent genetic discoveries (Olalde et al., 2018, 2019) have again introduced the question of important demographic movements when Bell Beakers appeared and spread. In the case of Iberia, it has also been proposed that this demographic impact on local populations had an important and surprising gender bias and that were men those moving to Iberia. Moreover, this genetic study argues that those incoming males, not the locals, were the ancestors of all later populations in Iberia during the Bronze Age.

Nevertheless, regardless the eventual origin of the people associated with Bell Beakers or the origin of this phenomenon itself, which sure will be subject of debate in the next decades, what it is important to understand is that this package of special material items that we called Bell Beakers is not that characteristic of the whole population of that time. Those objects and the burial rituals in which they were displayed are exclusive of a particular social group, the elite or the rulers of those small-scale social hierarchies. In fact, in the last years several Iberian sites in most of the regions have shown the characteristics of the burial rituals of the rest of the population contemporary with Beakers, where grave goods are scarce and extremely modest. Some examples are Humanejos (Garrido-Pena et al., 2019: 228-230), Camino de las Yeseras (Gómez et al., 2011: 102, 104-105, 110-112), Rebollosillo cave (Díaz del Río et al., 2017: 73) and El Perdido funerary pits (Serio et al., 2018) in the interior of Iberia (Meseta area); Costa de Can Martorell hypogeum (Mercadal, 2003) and Balma de Cal Porta modified cave (Estany and Guerrero, 1992) in the North-East; Los Millares megalithic necropolis (Molina et al., 2020) in the South-East; or Tomb 2 tholos type of Perdigões (Valera et al., 2014), Necropolises 1 and 2 from Marroquíes Bajos (Díaz-Zorita et al., 2018: 994-995) and Calle Trabajadores Nos 14–18 in Valencina de la Concepción (Cintas-Peña et al., 2018: 98-100; García-Sanjuán et al., 2018: 241-244) in the South-West. Bell Beaker burial rituals were, therefore, restricted to the social leaders and their relatives, the only ones that could afford such a display of exotic raw materials (ivory, cinnabar, gold and copper) and highly skilled craft items such as the Bell Beaker pottery or copper weapons<sup>1</sup> and tools.

It is a common assumption that this social elite was mainly composed by males, but Bell Beaker female burials are also very common. Was their burial treatment similar? Or are there clear sex/gender differences also within this restricted social group? Recent systematic studies of this topic are not so frequent. In Britain Parker Pearson et al. (2019: 200) discovered clear differences not only in body position and orientation but also in the selection of grave goods accompanying the bodies: female assemblages were rarely large and their most common grave goods, other than pots or flint tools and flakes, were copper awls and dress ornaments. Men's accompaniments were daggers or knives, flint arrowheads, wrist-guards, spatula and belt rings and also gold and amber ornaments. From 2200 cal BC onwards sex/gender differentiation became less apparent in terms of body position, but strongly continued in the accompanying grave goods. Men still had daggers and also battle-axeheads, occasional maceheads, V-perforated buttons and pig tusks. Bronze knives, ornamental bone points and basic flintwork were shared by both sexes. Nevertheless, metal awls and virtually all beads, pendant and necklaces seem to belong exclusively to females, although larger gold pieces are associated with men.

In Central Europe there is a longer tradition of this sort of analyses, partly because Beaker tombs are mostly individual and grouped in huge cemeteries. In this area strict regulations of the funerary practices according to a binary division of sex complemented with age groups have been detected. Adult burials have in common the presence of pottery (decorated and plain) and, sometimes ornaments made of diverse materials such as copper, gold or amber. Females, who are buried in their **right** side with a body orientation S-N, use to have copper awls and V-perforated buttons (Turek, 2016: 343-344). For Koch (2014) copper awls appearing in the grave goods of non-adult females could have symbolized that they were yet full working members of the community. Males are, however, buried opposite, on their left side, N-S oriented, with copper daggers, flint arrowheads and wrist-guards as grave goods. Non-adult graves gather children over 6 months old which, due to the absence of sexual dimorphism, are usually sexed according to their body position/orientation and grave goods (Turek, 2013).

These data need, however, to be reviewed. The study by Müller (2001) of around 500 graves with over 100 anthropological reports, **demonstrates that despite these position and orientation rules detected in most of the cases, there are also some exceptions**. Regarding non-ceramic grave goods, not only some major irregularities have been detected (18% of copper daggers and 10% of wrist-

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<sup>1</sup> Throughout the text the term “weapon” is employed, as used by the cited researchers, to refer to objects such as tanged daggers, Palmela points, halberds, flint arrowheads and others (see section 4).

guards were found in female graves and 13% of copper awls in male tombs), but also the general scarcity of these types of objects have been assessed (only present in about 10% of the graves). Thus, he concludes that, while body orientation and position can be connected to sex, non-pottery grave goods should be related to social ranking. In several works, Turek (2013, 2016, 2019) sees these irregularities in grave goods in terms of the existence of female warriors or “amazons”, belonging to the elite. These are all osteologically identified females (Turek pers. com), buried with both wrist-guards and/or copper daggers and V perforated buttons and/or copper awls. This is the case of tomb 77/99 at Tišice (Mělník, Bohemia), 12/34 at Šlapanice II (Brno-venkov, Moravia) and III at Prague-Vršovice (Bohemia). The female grave 77/99 also showed interesting osteological markers associated with archery (Ryan et al. 2018). Turek (2016, 2019) uses the Two-Spirits category as a reference to analyze these tombs. Regarding non-adult graves, the study by Vaňharová and Drozdová (2008) in Hoštice-I (Moravia) is highly relevant. 53 non-adult graves were genetically analyzed obtaining 21 successful sex identifications. These results were compared to those previously obtained through body orientation/position and grave goods. The results were quite surprising: 12 of the 14 individuals archaeologically identified as males, were genetically males and two females, but only 1 female was confirmed among the 7 archaeologically identified as that, while the rest were genetically males. This clearly questions the usual sex assumptions, but also suggests that non-adults could lack a specific sex or would benefit of a rather fluid categorization until a certain age or, perhaps, a particular social act (rite of passage, initiation) (Turek, 2016, 2019).

Apart from Central Europe, Salanova’s study (2016) on social identities in Northern France focused on individual burials, showing a pattern on body position (not orientation) according to sex quite similar to that of Central Europe (females on their right side and males on their left). Non-adults lack non-ceramic grave goods. Within the so-called by her “professional groups”, only “warriors” have a specific sex. They are all males, buried on a N-S axis, with copper daggers as central elements and flint arrowheads and wrist-guards. Their similarities with Central European graves and its eventual origin suggests a supra-regional identity. In the Netherlands gold and copper artifacts are only found in male graves, which are also predominant in larger barrows (Drenth and Hogestijn, 2001: 317).

In the Iberian Peninsula this sort of studies is scarce, dispersed and incomplete. An exception could be the case of Bela Vista 5 (Beja, Portugal), where a female with a Palmela point and a copper awl was recently discovered (Cunha et al., 2018). According to these scholars, this example reconsiders the traditional premise in which weapons belong to males, leaving room to the discussion of the differences between sex and gender, yet to be explored. Other significant works focused on individual or collective female burials, mostly from the Meseta area of central Iberia, although their results should be cautiously considered due to the small size of the sample: Camino de las Yeseras (Blasco and Ríos, 2012); Valle de las Higueras and tomb 322 of Las Mayores (Barroso et al., 2018); and Camino de las Yeseras, La Magdalena and, partially, Humanejos (Liesau et al., 2015). The key results obtained in these studies are: the association of copper awls with females, also observed in non-Bell Beaker Copper Age tombs, which could be eventually related with wool textile activities; the absence of weapons (daggers, Palmela points, wrist-guards, arrowheads) in female graves, with the exception of some daggers; and the absence of a sex-specific position and orientation of the body. Barroso et al. (2018: 332) argue that, despite these tendencies of males/weapons and females/awls, the reality is much more complex and shows a great variability. This would indicate an open gender concept, socially constructed, in which both females and males would somehow get involved in the production, processing or use of every object. Finally, a recent work on non-adult burials has shown interesting data concerning the age-related funerary consideration (Herrero-Corral et al., 2019). Children under 5 years old (early childhood) are only occasionally buried, but always accompanied by adults (both males or females) and with miniaturized objects (never metal). Children between 6-11 years (middle childhood) can be buried in single graves, but still have miniaturized grave goods (no metallic objects). Finally, burials of adolescents and pre-adults between 16 and 19/20 years, already showed similar characteristics than those of adults, with copper and gold objects.



## 2. Material and method

Our sample comprises a total MNI of 70 from 37 sites of the main territories of Iberia with Bell Beaker tombs (Fig. 1). The chronology of these cases ranges from 2568-1702 cal BC, although most of them are included between 2500-2300 cal BC (Table 1). The data, which were compiled from published articles and osteological analyses, was entered in two different databases (Annex 1). Both included only individualized bodies directly associated with Bell Beaker objects. Thus, collective burials in which grave goods are not clearly associated with any individual, which are abundant in Iberia, have been excluded. The main database compiled only sexed individuals ( $n = 46$ ), while the second listed non-adults and individuals of unknown sex ( $n = 24$ ). By no means, this sample reflects the entire population, as the graves with Bell Beaker elements would only belong to a small sector of the group, that is, the elite or the rulers. This work is, therefore, focused just on a specific sector within the Bell Beaker elite.



Figure 1. Map with the location of the sites included in this study. White circle: contexts with osteological sex and age. **Black circle:** contexts without osteological sex or age. Black and white circle: contexts of both types. 1. Carrer París, 2. Can Fatjó dels Aurons, 3. Cova de la Ventosa, **4. Rocallaura**, 5. Bòvila Casals, 6. Cova del Calvari, 7. La Vital, 8. Tres Montes, 9. El Hundido, 10. La Sima, **11. Valdepernales**, 12. La Vaquera, **13. Los Retajones**, 14. Fuente Olmedo, **15. El Pago de la Peña**, **16. Los Pasos**, 17. Pago de Valhondo, **18. Aldeagordillo**, 19. Valdeprados, 20. La Magdalena, 21. Camino de las Yeseras, 22. La Salmedina, 23. Arenero de Soto III/Km 9500, 24. Humanejos, 25. El Juncal, 26. Valle de las Higueras, 27. Las Mayores, 28. Santa María Magdalena, **29. Arenero de Miguel Ruíz**, 30. Juan Francisco Sánchez, **31. Cañada de Carrascal**, **32. Cañada Honda de Gandul G**, 33. Cerro Corominas 2, 34. Paraje de Monte Bajo, **35. Quinta do Castelo 1**, 36. Bela Vista 5, **37. Pedra Branca**. (2-column image)

For the statistical analyses, both archaeological and osteological data were collected. Regarding archaeological variables, firstly the funerary structures were grouped into seven categories, following the work of Clop and Majó (2017: 100) and Clop et al. (in press). A simple pit is a cavity of varying sizes dug into the ground with a single funerary space, in contrast to a compound pit which can include an access shaft and one or several burial chambers or niches. Artificial subterranean cavities of big size, with eventual constructive additions, such as walls, slabs or

megalithic elements, are classified as hypogea. A natural cave also completed with walls, slabs or megalithic elements and sometimes with an access corridor is described as a modified cave. The last three categories are burials in natural caves, under small barrows and within reused megalithic structures.

Site	Radiocarbon date	Other calibration margins	2 sigma calibration
Humanejos (Parla, Madrid)	3941 ± 33 BC (CNA-4023)	2497-2339 cal BC (79.9%)	2568-2302 cal BC
La Vital (Gandía, Valencia)	3920 ± 40 BP (Beta-229791)	2495-2286 cal BC (90.4%)	2566-2239 cal BC
Humanejos (Parla, Madrid)	3918 ± 33 BC (CNA-4025), 3925 ± 25 BC (GrM-15288)	2476-2291 cal BC (93.5%)	2557-2291 cal BC 2476-2298 cal BC
Humanejos (Parla, Madrid)	3917 ± 33 BC (Ua-43524)	2476-2291 cal BC (94.1%)	2555-2291 cal BC
Humanejos (Parla, Madrid)	3910 ± 25 BC (GrM-15291)		2469-2299 cal BC
Humanejos (Parla, Madrid)	3910 ± 25 (GrM-15290)		2469-2299 cal BC
Cova de la Ventosa (Piera, Barcelona)	3905 ± 35 BP (Poz-28213)		2474-2236 cal BC
Humanejos (Parla, Madrid)	3905 ± 20 (GrM-15289)		2466-2302 cal BC
Humanejos (Parla, Madrid)	3895 ± 20 BC (GrM-15426), 3875 ± 31 BC (Ua-423526)		2464-2299 cal BC y 2464-2209 cal BC
Las Mayores (Numancia de la Sagra, Toledo)	3870 ± 30 BP (Beta-471833)	2462-2282 cal BC (87.8%)	2462-2209 cal BC
La Sima III (Miño de Medinaceli, Soria)	3862 ± 28 BP (KIA-18000)		2459-2208 cal BC
La Sima III (Miño de Medinaceli, Soria)	3860 ± 30 BP (KIA-17999)		2460-2206 cal BC
La Vital (Gandía, Valencia)	3830 ± 40 BP (Beta-222443)		2456-2146 cal BC
Bòvila Casals (Riudecols, Tarragona)	3764 ± 45 BP (LTL-13808A)		2341-2031 cal BC
Bela Vista 5 (Beja, Portugal)	3740 ± 30 BP (Beta-330091)		2277-2035 cal BC
Perro Alto (Fuente Olmedo, Valladolid)	3730 ± 65 BP (OxA-2907)		2342-1943 cal BC
Aldeagordillo (Ávila)	3690±50 (Beta-83083)	2205-1937 cal BC (94.4%)	2272-1937 cal BC
Camino de las Yeseras (San Fernando de Henares, Madrid)	3650 ± 40 BP (Beta-184837)		2140-1901 cal BC
Quinta do Castelo 1 (Beja, Portugal)	3550 ± 30 BP (16B0304)	1976-1868 cal BC (63.1 %)	2014-1771 cal BC
Camino de las Yeseras (San Fernando de Henares, Madrid)	3525 ± 40 BP (Ua-35021)	1961-1742 cal BC (94.6%)	2008-1702 cal BC

Table 1. Radiocarbon dates included in this study, calibrated with Oxcal 4.4., IntCal 20 (Reimer *et al.*, 2020).

Graves were then classified as individual, double or collective according to the number of buried individuals. Collective graves are those in which individuals are successively buried during a variable period of time. This definition, therefore, implies the concepts of number, temporality and space, but also the social function fulfilled by the burial (Schmitt and Déderix, 2018: 196, 208). The position (left/right lateral decubitus, ventral/dorsal decubitus **-in all cases with flexed upper or/and lower extremities to one side-** and seated position) and orientation of the body were also considered, distinguishing disarticulated skeletons from those in which the original position was not recorded. It is, however, important to stress the difficult classification of a certain position when the limbs are lateralized, but the body is not. Moreover, the type of infilling (immediate or progressive) may affect the movement of bones during the decomposition altering the original position of the body (Duday *et al.*, 1990: 31-39; Duday, 2009; Knüsel and Robb, 2016: 3-4). For certain sites included in this paper, the existent literature is quite old, and the position of the body is not completely reliable, as pictures or drawings are usually missing. Therefore, in some cases the position of the body was not recorded in our database. Besides, the term “disarticulated skeletons”, frequently used in the consulted works, tends to classify together completely and



partially disarticulated skeletons, without a clear differentiation between those who were intentionally cornered or grouped in a secondary ritual.

Special attention was paid to the grave goods associated with every individual. Both the typology and number of objects was considered, as well as the decorative style for the Bell Beaker ceramics, which were classified, using the traditional classification, as Maritime, Geometric comb decorated, Late regional and **undecorated Bell Beakers**. Other variables such as the presence of cinnabar were also included.

Regarding the osteological data, one of the most important variables in this research was the sexual attribution. As this work was based on the anthropological data produced by different scholars, individuals were classified as female (F), likely female (F?), male (M), likely male (M?) or undetermined (U), according to the osteological reports published. However, we want to remark the existing bias when sexing osteological materials, depending on the methodology, the preservation of the sample and the researcher expertise (Cintas-Peña and Herrero-Corral, 2020). Moreover, little attention is generally given to those individuals whose morphological traits do not fit into either of the two main categories. These individuals usually end up being classified as undetermined, making no distinction with those who were not able to be sexed, due to their age, preservation or other factors. Additionally, our research tried to include intersex individuals too, **which are impossible to detect only by osteological traits, but with DNA analyses** (e.g. Ebenesersdóttir et al., 2018). It is important to note that, in some circumstances, intersex individuals could be externally recognized (different sexual organs, lack or presence of hair, short stature, musculature, infertility, etc.) (Geller, 2017b; Higuero, 2015), which may be accompanied by a different social identification or consideration. Our sample includes ten individuals sampled for a genetic study recently published (Olalde et al., 2018) that tried to identify intersex individuals by calculating the ratio of the number of reads aligning to the Y-chromosome compared to the number of reads mapping to both sex chromosomes (Ry), combined with the read depth of sex chromosomes relatives to autosomes. According to the published results, no evidence of intersex individuals was found in our ten cases, however information for the rest of our sample is lacking.

Individuals were also classified according to the age at death. To simplify the heterogeneity of age types described by each researcher, we have classified them into seven age groups, three of non-adults and four of adults. Children were classified into first childhood (1-5 years), second childhood (6-11 years) and juvenile (>12 years), while adults were grouped as young adult (<25 years), adult (25-40 years), old adult (> 40 years) and undetermined adult. In the anthropological analyses of archaeological populations, the biological age at death is equivalent to the osteological age, which means that can be attributed by the observation of certain quantitative or qualitative traits in the skeleton. But age is not only the number of years lived but also a “state” characterized by political, social, economic, or legal criteria (Buchet and Séguy, 2008: 31). Therefore, it must be considered that age, and consequently belonging to a certain age group, does not always match with the social age group, as the inclusion in one of these categories is determined by the collective temporalities of each group (Alduc-Le Bagousse, 1994: 32; Séguy et al., 2018: 6). This is, however, extremely difficult when analysing prehistoric populations, since we do not know the limits of the social consideration defining the age of an individual within the group.

Health markers, as well as activity signs, would have been of great interest for our study. However, this information is missing in most of the cases, and it is not possible to distinguish between individuals without these traits from those who simply were not properly studied. Once both databases were completed, statistical analyses were carried out with SPSS software. Specifically, contingency tables and Chi-Square test were used to test the relationship between sex and the rest of the variables.

### **3. Results and discussion**

#### *3.1. Osteological sex, age at death and population*

The distribution of the sample according to the **osteological sex** is: 20 F, 21 M, 4 F?, 1 M? and 24 U (Fig. 2). Within this last group, 6 were non-adult individuals, 14 adults of unknown sex and 4 individuals of unknown age and sex. In the Meseta area males and likely males are slightly more numerous (42.5%) than females and likely females (35%), while in the rest of the regions, females and likely females (33%) outnumber males and likely males (17%). However, it should be considered the high ratio of individuals of unknown sex (nearly 50% of the sample in these other regions). Thus overall, it seems that there is not a significant disproportion between males and females in our sample.

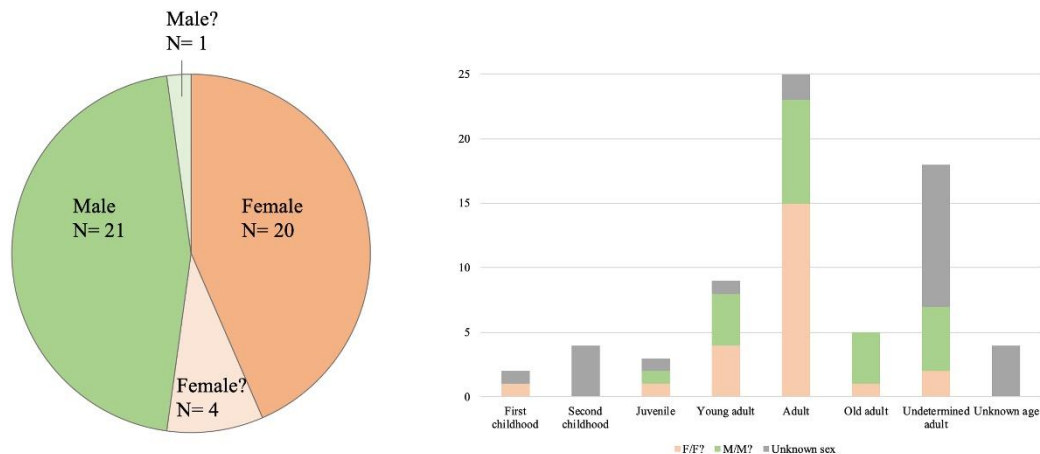


Figure 2. Distribution of the sample according to the osteological sex and the age group. (1.5 column image)

Regarding the **age at death**, 57 individuals were adults (81%), 9 non-adults (13%) and 4 of unknown age (6%). Adults were classified as young adults (n= 9, 16%), adults (n=25, 44%), old adults (n=5, 9%) and undetermined adults (n=18, 31%). The 9 non-adults were classified as first childhood (n=2), second childhood (n=4) and juvenile (n=3). As usual in late prehistory cemeteries, children under 1 year of age are very scarce and Bell Beaker burials are not an exception. Infants between 1-5 years are present in the Bell Beaker funerary record, sometimes with their own grave goods, but always accompanied by adults, and it is only from 5-6 years when they can be buried **alone** (Fig. 3) (Herrero-Corral et al., 2019).

Most of the females (62%) are adults between 25 and 40 years old, 17% are young adults and 4% old adults. As for males, 36% are adults, and 18% are young and old adults, respectively. Despite this difference in old adult frequencies, the total number of individuals and the selection criteria used in this research are clear limitations to establish a different age structure between men and women.

This balance between adult female and male and the low presence of non-adult population, are consistent with previous data reported from Iberia -Meseta area-, although limited (see section 1.2) (Barroso et al., 2018; Blasco et al., 2019). Similar data are present in Bell Beaker burials from other regions of continental Europe (Salanova, 2016). However, regarding the adult female and male balance, Britain and Central Europe data point to higher presence of males (60-65%) (Müller, 2001: fig. 3; Parker Pearson, 2019: 103; Parker Pearson et al., 2019: 170). Then globally or, at least, in Western Europe we can assume that this specific social group of the elite was formed primarily by adults of different sexes and secondarily by non-adults, both sharing a similar exclusive and elitist burial ritual, with Bell Beaker pottery and other grave goods.



Figure 3. Non-adult individual of the tomb 6 (5 years  $\pm$  12 months) of Humanejos (Parla, Madrid) buried with a wrist-guard and a Bell Beaker (Garrido-Pena et al. 2019: 106-107, fig. 160-162). (1.5 column image)

### 3.2. Tomb type, position, and orientation of the body

There is a great diversity of **funerary structures** (Fig. 4). Even though single pits predominate (37%), other types such as hypogea (23%), modified caves (13%) and reused megaliths (13%) are also very common. There is a strong preference for certain structures depending on the geographic region. While single pits are mostly characteristic of central Iberia (50%), they are very scarce in the North-East, where hypogea (56%) and modified caves (44%) are the most frequent structures. There is no statistically significant correlation between the funerary structure and the osteological sex ( $X^2 = 3.787$ ;  $n = 46$ ;  $p = 0.705$ ) or the age at death ( $X^2 = 15.609$ ;  $n = 70$ ;  $p = 0.210$ ). Despite the quite small non-adult sample, it seems that children had also access to complex structures such as hypogea or barrows, but always in collective burials. Adolescents over 16 years old can, however, be buried on their own in those structures, which would possibly indicate their social consideration as adults (Herrero-Corral et al. 2019). Data obtained from the grave goods analysis supports this hypothesis (see section 3.3).

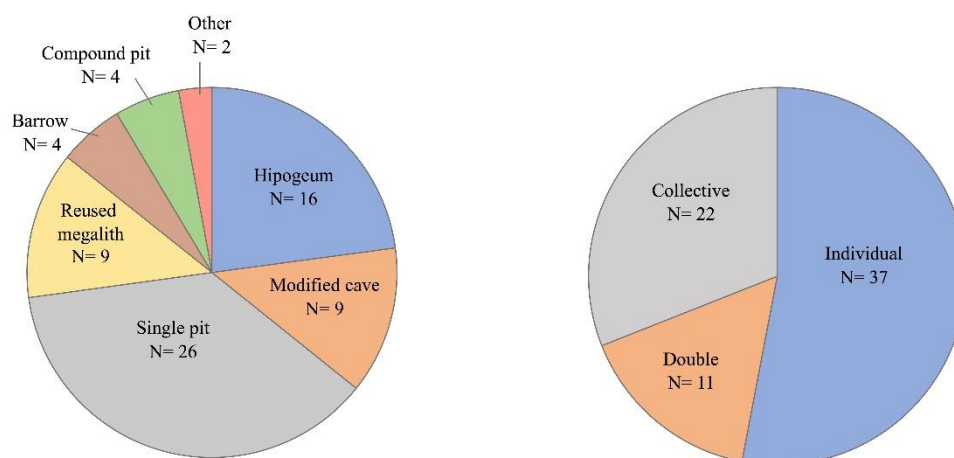


Figure 4. Distribution of the sample according to the funerary structures and the type of tombs. (1.5 column image)

There is not a clear pattern regarding the **type of tomb**, despite most of individuals were buried in individual graves (53%), because there is an important number of collective (31%) and also double burials (16%). Every age group had access to each type of context and there is no statistically significant correlation between this variable and the osteological sex, as individual tombs are the most frequently used by both sexes (50% in females and 68% in males) ( $X^2 = 2.524$ ;  $n = 46$ ;  $p = 0.283$ ). Although females are more frequently buried in collective burials (33%) than males (14%), it is difficult to interpret this data. We should keep in mind that most of collective burials have been excluded from our sample, because it was not possible to distinguish bodies directly associated with their respective Bell Beaker grave goods. Thus, the higher female representation could be hazardous.

What it is interesting to remark is the clear contrast between these data and those of the contemporaneous graves without Bell Beaker objects. Although individual and double ones are also known, collective or multiple tombs predominate in sites as Humanejos, Camino de las Yeseras, El Perdido, El Rebollosillo, Costa de Can Martorell, Balma de Cal Porta, Los Millares, Perdigões, Marroquies Bajos or Valencina de la Concepción (see references above), part of them with contemporary Bell Beaker burials in the same site.

The **position of the body** was reported in a 67% of the cases ( $n=47$ ), 16% of the individuals were disarticulated ( $n=11$ ) and in the remaining 17% ( $n=12$ ) the information was missing (Fig. 5). Even though there is not a preferred position in the global sample, left decubitus is the most repeated (51% of the articulated bodies), followed by right decubitus (21%) and dorsal decubitus (19%). Ventral decubitus and seated position are scarce (6% and 2%). Unlike what happens in other regions like Central Europe (Müller, 2001: 592, fig. 3; Turek, 2016: 343), Northern France (Salanova, 2016) or Britain (Parker Pearson, 2019: 103-105), in our area no correlation between the osteological sex and the chosen position was detected.

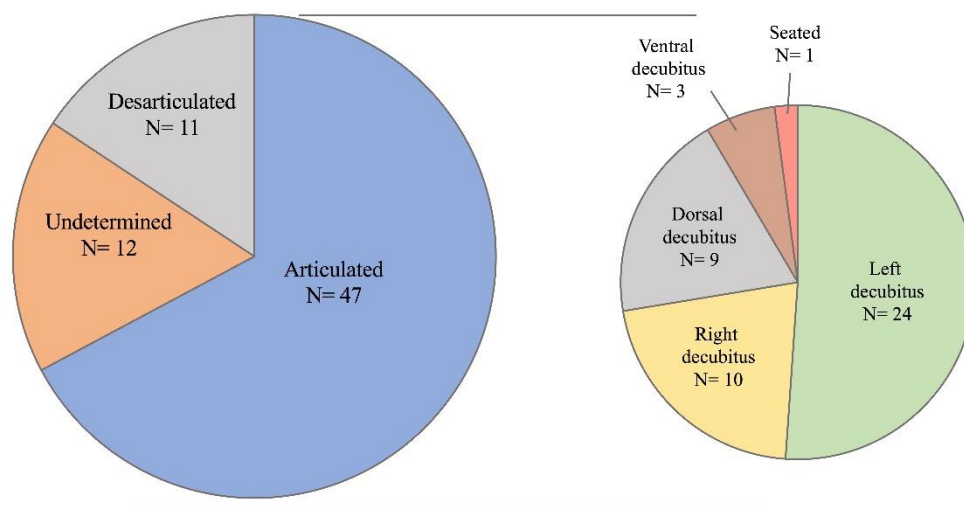


Figure 5. Type of context and position of the body in the sample analysed. (1.5 column image)

Nevertheless, a regional pattern was identified in the Meseta area, where 73% of the sample was buried in left decubitus, 11% in right decubitus and 8% in ventral and dorsal decubitus respectively ( $X^2 = 13.277$ ;  $n = 46$ ;  $p = 0.039$ ). Interestingly the contemporaneous burials of this region without Bell Beaker grave goods do not exhibit any specific pattern (Garrido-Pena et al., 2019: 228-230, figs. 287-292). In other regions, however, there is no clear preference for one

position in Bell Beaker burials. For example, in the North-East, individuals were similarly buried in dorsal decubitus (38%) and right decubitus (31%), while only 23% were in left decubitus.

The **orientation of the body** shows similar frequencies: it was only reported in the 63% of the sample (n=44), while 16% of the individuals were disarticulated (n=11) and 21% (n=15) lack of this information. No correlation with region, age or osteological sex has been found. Again, these data do not match with a female S-N and male N-S body orientation, attested in Central Europe (Müller, 2001: 592, fig. 3; Turek, 2016: 343) or Britain (Parker Pearson, 2019: 103-105).

### 3.3. Grave goods, osteological sex and sex/gender system

Grave goods are one of the most interesting variables of this study, even though most of the analyses did not show statistically significant correlations with the sex/gender variable. Only two exceptions were detected, V-perforated buttons, which are strongly associated with females (Table 2) and copper tanged daggers and Palmela points, more frequent in male tombs. Another important correlation shown in this analysis is linked with age, because metal objects are only found in adult graves.

FUNERARY VARIABLES STATISTICALLY CORRELATED WITH SEX/GENDER		
V-perforated buttons	only associated with females	$X^2 = 8.877$ ; n = 46; p = 0.003

FUNERARY VARIABLES FREQUENTLY ASSOCIATED WITH ONE SEX/GENDER (NOT STATISTICALLY SIGNIFICANT)		
Copper awls	more frequent in females	70% in female and 30% in male tombs $X^2 = 1.627$ ; n = 46; p = 0.202
Bell Beakers	more frequent in males	59% of male tombs, 41% of female tombs $X^2 = 3.424$ ; n = 46; p = 0.064
Tanged daggers	more frequent in males	67% in male and 33% in female tombs $X^2 = 1.592$ ; n = 46; p = 0.207
Palmela points	more frequent in males	80% in male and 20% in female tombs $X^2 = 2.327$ ; n = 46; p = 0.127
Cinnabar	more frequent in females	67% in female and 33% in male tombs $X^2 = 0.961$ ; n = 42; p = 0.327

Table 2. Statistical correlations and frequent associations between sex/gender and funerary variables identified in this study.

Ornaments like **V-perforated buttons** (hemispherical, conical, turtle-type, pyramidal-based and prismatic) show a statistically significant correlation with osteological sex ( $X^2 = 8.877$ ; n = 46; p = 0.003). 100% of the buttons are associated with women tombs, but only 33% of the female graves (n=8) have buttons. There is a clear relationship between buttons and females, not with all females, but only a restricted group of them. Then, buttons could not be interpreted like -only-sex/gender marker, but also as a social differentiation marker and, judging by their raw material (ivory in most of the analysed cases), specially related with the control of exotic materials exchange routes and, probably, with social hierarchy. In fact, Winnicka (2017: 68-69) also found that V-perforated button sets were mainly discovered in high status female graves in Poland. And Müller (2001: 598) claimed that non-ceramic grave goods were scarce in Bell Beaker Central Europe burials and could be related not with sex/gender differentiation, but with social hierarchy, literally with the “*ruling class*”. Therefore, linear or direct relationships between female and buttons proposed, for example, in Central Europe (Perret, 2015-2016; Turek, 2016) may well be revisited.



Other ornaments attested in our sample, like **necklace beads**, all of them of ivory, are only present in three tombs (12.5%) and do not provide any statistically valid correlation. Nevertheless, it is important to note that they all appeared in female tombs.

**Gold** ornaments were found in very scarce contexts, both with males (n=2) and females (n=2) and always in well-furnished burials. The woman of the tomb 4 of Humanejos (Fig. 6) not only wore 15 gold beads, but also 44 ivory beads, three V-perforated buttons and was accompanied by a tanged dagger and a copper awl (Garrido-Pena, 2019: 66-87, figs. 92-121). A gold plate, a tanged dagger and three Palmela points completed the metallic set of the male individual at Valdeprados (Fabian, 2006: 353-360, figs. 179-181). The young male (>18 years old) of Fuente Olmedo had an impressive gold diadem, as well as a Ciempozuelos pottery trio (Bell Beaker, carinated bowl and bowl), 11 Palmela points, a tanged dagger, a wrist-guard and a flint arrowhead (Martín and Delibes, 1974: 11-23, figs. 2-10). Finally, a juvenile (16-18 years old), likely female, from the funerary area 2 of Camino de las Yeseras, was buried with a spectacular assemblage of 22 gold beads and two plates in the head, but without any other metallic element. However, the entire cemetery lacks copper objects and this young woman had 20 ivory beads, three V-perforated buttons and a very fine and special Beaker carinated bowl, decorated with schematic cervid figures (Liesau et al., 2008: 114-116, fig. 17), resulting in the richest grave assemblage in the entire site. Other Iberian Beaker burials with gold items, but with individuals with unknown sex, reinforce this argument. For example, El Pago de la Peña (Delibes, 1977: 73-77), Cañada de Carrascal and Cañada Honda de Gandul G (Lazarich and Sánchez, 2000; Leisner and Leisner, 1943: 206-207, 213-214, figs. 62, 67) contain one gold bead or plate combined with other relevant objects (copper tanged dagger and/or awl, V-perforated button, wrist-guard, flint arrowhead). In the Humanejos cemetery the collective grave 7 yielded very rich grave goods (Beaker vessels, wrist-guards, copper daggers and Palmela points), concentrated in the main chamber where three individuals were found, with their bones mostly mixed, two adults of undetermined sex and a male adolescent. Three small golden plates appeared in the skulls of both adult individuals (Garrido-Pena et al., 2019: 108-113, figs. 163-205). Together all these evidences indicate that gold was an exclusive object within the already exclusive Bell Beaker burial set, more related with social ranking than with the osteological sex. These data match with Central Europe gold objects found both in rich female and male tombs (Heyd, 2007: 15). Interestingly, two of the four burials with gold ornaments analysed in this study are juvenile individuals (Fuente Olmedo and the funerary area 2 of Camino de las Yeseras). As we mentioned before, adolescents over 16 years old would possibly be considered social adults, buried alone on their own funerary structures, and accompanied by other relevant items normally associated with rich adult graves, such as gold ornaments (Herrero-Corral et al., 2019).

**Copper objects** are present similarly both in male (41%) and female (33%) graves. No correlation has been detected between this type of items and the different age categories, with one exception. As it was pointed out in a previous work (Herrero-Corral et al., 2019), children do not have metallic grave goods (copper or gold), only older juveniles could be buried with them. It seems that copper objects are restricted to socially considered adults, from juveniles (>16 years old) onwards. When the different types of copper objects (**awls**, **tanged daggers** and **Palmela points**) are analyzed separately, they show a similar pattern: no statistically significant correlation has been found between each of them and osteological sex. Unlike other regions of Europe, such as Britain (Peaker Pearson et al., 2019: 103) or -with criticism, see Müller, 2011- Central Europe (Turek, 2013), in Iberia awls are not exclusively related with females and tanged daggers with males. However, despite the lack of statistically significant correlation, some clear tendencies can be observed among these three categories.

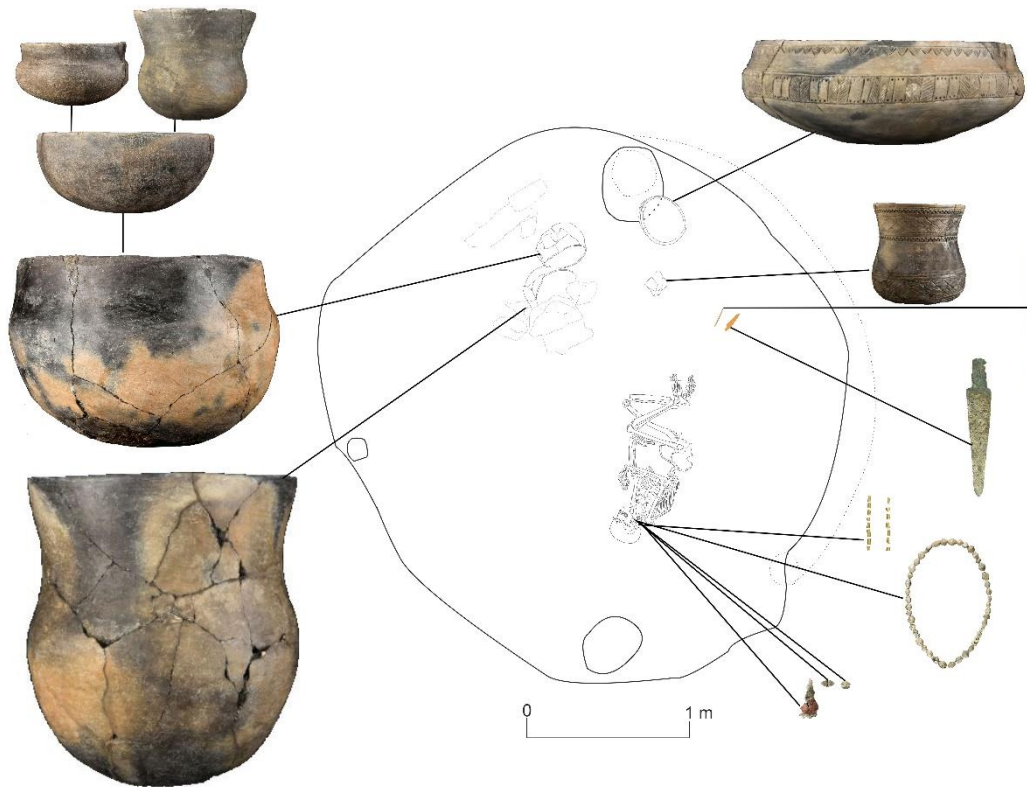


Figure 6. Adult female buried in the tomb 4 of Humanejos (Parla, Madrid), with 15 gold beads, 44 ivory beads, three V-perforated buttons, a tanged dagger, a copper awl, a Bell Beaker and a shouldered bowl and a possible commensality set with 5 plane pots (storage vessel, big shouldered bowl, small shouldered bowl, Bell Beaker, bowl) (Garrido-Pena et al. 2019: 76, fig. 94). (1.5 column image)

**Awls** are clearly more frequent in female than in male graves (70% and 30% respectively). But, as with V-perforated buttons, awls are only found in 29% of female tombs ( $n=7$ ). This points again to a hierarchy marker of a specific sector of females and not just a sex/gender marker, as it has been traditionally assumed. Keeping in mind the importance of V-perforated buttons and awls in female tombs, we had researched the eventual correlation between these two artifacts, including tombs without osteological sex too ( $n=19$ ). A statistically significant correlation has been found in both the entire sample ( $X^2 = 6.132$ ;  $n = 70$ ;  $p = 0.013$ ) and in the sample of osteologically female individuals ( $X^2 = 6.454$ ;  $n = 24$ ;  $p = 0.011$ ). Then, these rich female tombs include copper awls and V-perforated buttons.

It is tempting to infer that these two objects were perhaps related in the same social group or even as part of the same productive process. Some scholars found technological traces related with the use of copper awls to drill button perforations (López, 2011; Mérida, 1997; Pau et al., 2018). Other scholars speculate with the possibility that awls were linked with the production and control of textiles, specifically wool (Barroso et al., 2018), a significant product during the III<sup>rd</sup> and II<sup>nd</sup> millennium Europe (Greenfield, 2010). Additionally, V-perforated buttons at tombs could indicate the original presence of textiles, maybe exclusive for funerary purposes or not, like the cape-type cloth represented at Petit Chasseur stelae (Sion, Switzerland) (Harrison and Heyd, 2007) or Saint-Martin-de-Corléans (Aosta, Italy), richly decorated with geometric decorative motifs clearly related to Bell Beaker pottery decoration (Garrido-Pena and Herrero-Corral, 2015: 95).

Moreover, the only associations of awls with male burials in our sample ( $n=3$ , 14% of all male graves) are not completely clear. In the tomb 1 of Humanejos, the copper awl was found on one of the feet of the man, a quite uncommon location. Furthermore, it should be noted that it is a

double burial in which a female, whose remains were disarticulated, was previously introduced in this grave and, therefore, it is likely that not only her bones, but her grave goods were removed and dispersed. Something similar happened in cave 2 of the funerary area 3 of Camino de las Yeras, where the remains of a female and a male were overlapped. Despite at first the awl was assigned to the male (Blasco et al., 2005: 461-462), later it was argued that it could also have belonged to the female, due to the superposition of the bodies and the lack of the exact location of the object in the excavation (Liesau et al., 2015: 108). Therefore, the only clear association male/awl would be El Hundido tomb 2, a single grave, even though the position of the grave goods was not clear. Only the first of these tombs include other grave goods generally assumed to be masculine (a tanged dagger, 2 Palmela points and the only halberd included in this study). Male tombs with copper awls are very scarce but known outside Iberia. At Central Europe they represent only the 13% of tombs with awl, for example the grave 2071 from Gemeinlebarn (St. Pölten, Austria) or the tomb 9 from Künzig-Bruck (Babaria, Germany) (Müller, 2001: 597). Contrasting with the Iberian examples, these males were accompanied with grave goods generally related with men (tanged daggers, wrist-guards, flint arrowheads). Despite the scarce number of the Iberian cases, it is possible that part of these tombs could belong to a specific social group, apart from other males, and perhaps linked to female tombs with copper awls.

Contrasting with the data from awls, **tanged daggers** and **Palmela points** are more frequently found in male than female burials in our sample (67% and 33%, 80% and 20% respectively). But these two copper objects are also restricted to a specific group of males, since tanged daggers are found in just the 27% of male tombs (n=6) and Palmela points in just the 18% of them (n=4). According to this data, we are dealing again with a possible indication of hierarchy and not just a sex/gender marker. In fact, this data match with a study of almost a thousand Bell Beakers individual tombs across Europe by Lemerrier (2011). This showed that only 24% of the tombs had weaponry items (tanged dagger, Palmela point, flint arrowhead, flint dagger, wrist-guard and others). Concerning sex, only 74 out of the almost 1000 tombs collected were osteologically analysed. Among the sexed individuals, those who had weapons were mostly males (77%). However, not every male tomb had weapons and also some females had access to this type of objects. Tanged daggers and Palmela points had been widely interpreted as weapons assumed to represent a Bell Beaker “warrior” identity (Heyd, 2007: 351; Ryan et al., 2018; Salanova, 2016: 32) (see section 4). With this idea in mind, we compared burials including both tanged daggers and/or Palmela points, with and without osteological sex (n=22). The statistically significant correlation was not found in the general sample ( $X^2 = 0.858$ ;  $n = 70$ ;  $p = 0.354$ ), but in the sexed cases ( $X^2 = 5.828$ ;  $n = 46$ ;  $p = 0.016$ ) and amongst osteological males ( $X^2 = 5.615$ ;  $n = 22$ ;  $p = 0.018$ ). Only the most impressive examples (n=3, tomb 1 of Humanejos, Fuente Olmedo and Valdeprados) include both together, always with two or more Palmela points and with other exclusive items. Los Cabezuelos (Valencina de la Concepción, Sevilla) could have been another of these tombs, with the combination of a tanged dagger and 5 Palmela points, with a young adult male (Arteaga and Cruz-Auñón, 1999; Guijo et al., 1996). But part of the tomb was destroyed during previous construction works, which probably explains the lack of other grave goods like the Bell Beaker pottery. That is the reason why we have excluded it from our sample.

Tanged daggers are present in the 12.5% of female burials (n=3) and Palmela points in the 4% (n=1), most of them in very clear archaeological contexts. In the previously described tomb 4 of Humanejos, a single female inhumation was discovered wearing an impressive set of gold and ivory ornaments, but also with other objects at her feet (a copper awl, a tanged dagger and two Beaker pots) (Garrido-Pena et al., 2019: 66-87). In the tomb 2 of La Salmedina (Flores and Berzosa, 2003), a young female with a V-perforated button attached to her vertebrae, had at her feet a Beaker carinated bowl inside which a tanged dagger and an awl were placed. Less clear is the last case, one of the individuals found in the reused megalithic monument of La Sima. First because the osteological sex identification was just likely female, due to the poor preservation of the skeletons and, moreover, the dagger was not found close to the bodies of the two individuals discovered there, but nearly 1 m away from them (Rojo et al., 2005: 78, fig. 72). The only female tomb with a Palmela point is Bela Vista 5, a single pit in which the weapon was clearly located

with the human remains. This was the only tomb identified in the site, located in the center of two ditch enclosures of almost 30 m of diameter and 84 pits surrounding it (Valera, 2014: 24, 41-45).

A recent systematic study of gender differences in Iberian burials from the Upper Palaeolithic to the Copper Age discovered a clear link between males and the origin of archaeological testimonies of violence and warfare during the Neolithic, with a less clear pattern in the Copper Age (Cintas-Peña, 2020: 234-235). However, violence and warfare are not inherent to male and it is obviously an “*outdated notion that woman are naturally predisposed to peace and nurturing*” (Jordan, 2009: 95). In fact, ethnographic and archaeological references of woman warriors are abundant (Bergnston and O’Gorman, 2017; Hasanov, 2018; Linduff and Rubinson, 2008). Female tombs with weapons in our sample also include other grave goods linked with sex/gender and social differentiation, like V-perforated buttons and copper awls. This pattern is similarly found in Central Europe with the so-called Czech “amazon” graves (see section 1.2), with the presence of tanged daggers (and sometimes wrist-guards) and grave goods such as V-perforated buttons and copper awls (Fig. 7) (Turek, 2016). Similar female burials are documented in other Czech cemeteries, like tomb 48/89 at Záhlinice I, with a tanged dagger, part of a wrist-guard, a board-tusk, 2 looped copper rings and a copper awl, among other grave goods (Dvorak et al., 1992: 217, 234, 18-21, figs. 7 and 8; Müller, 2001: 591), and tomb H86 at Hulín, with a tanged dagger and V-perforated buttons (Peška, 2013: 64), both in Moravia. In Germany, this sort of graves are also known like tomb 7 at Landau-Südost (Isar), with a tanged dagger and 9 V-perforated buttons (among other grave goods), and probably tomb 2 at Oberstimm-Ost (Manching), with a tanged dagger and other grave goods, both in Bavaria (Heyd, 2007: 348). Instead of just adopting the presumed “warrior” identity, these female graves seem to claim a specific and different social identity, with their own characteristics. Very interesting examples from the Native California Two-Spirits show men with specific clothing, ornaments, and occupations which are considered as a separate social group, and not “*as simple men who adopted women’s clothing or work*” (Hollimon, 1997: 188).



Figure 7. Adult female of the tomb 77/99 at Tišice (Mělník, Bohemia), accompanied by two wrist-guards, two perforated plates, a copper dagger, a copper awl, an amber bead and six ceramics (four Beakers pots) (reconstruction model photo by Petr Berounsky, artefact photos by Jan Gloc). All the photos courtesy of Jan Turek. (1.5 column image)



In our sample **Beaker pottery** is equally associated both with males and females and every pottery form. Nevertheless, and despite there is not a statistically significant correlation, Bell Beakers are more frequently found with males (59% of male graves have them) than with females (41% of female graves have them) ( $X^2 = 3.428$ ;  $n = 46$ ;  $p = 0.064$ ). Other types, like bowls and carinated bowls, show closer percentages. The different Beaker decorative styles are not correlated neither with the sex nor with the rest of the grave goods. Although there is a slight tendency of **undecorated** Bell Beaker pot sets to be found in female graves (7 cases against 3 of male tombs), as it is documented in Carrer Paris (Francés et al., 2007: 322-325) and Valle de las Higueras (Barroso et al., 2018: 321).

Other grave goods like **wrist-guards** and **flint arrowheads** are usually linked with weaponry, warfare and the “warrior” identity, as the “archery pack” (Lemerrier, 2011: 121-124; Salanova, 2016: 32), but in our sample there are not enough cases, with osteological sex identified, to find strong statistical correlations ( $n=3$  and  $n=4$  respectively). From the three wrist-guards of our sample just one was found with a possible female in La Sima, but again the sex of this skeleton is not secure and, moreover, this individual was not wearing it, because the piece was placed beside one of the Beaker pots at the feet of this individual (Rojo et al., 2005: 78, fig. 72: 130-131). The other two are located in male tombs.

### 3.4. *Cinnabar*

The use of **cinnabar** powder (a mercury sulfide) is characteristic of several Beaker tombs of our sample, whether it was a simple colorant, as ochre, or something linked with the preservation of the bodies. Cinnabar is not found in the entire Iberian sample, but in certain regions, as the statistical analysis has clearly identified ( $X^2 = 8.164$ ;  $n = 66$ ;  $p = 0.017$ ). It was found in the graves of only 13 individuals (19% of the sample), 12 of whom belonged to the Meseta and just one to the North-East. Two more individuals of the North-East had possible cinnabar remains (individual 1 and 5 of Can Fatjó dels Aurons), but they have not been analysed. There is no other correlation between cinnabar and the other variables: grave goods, age, osteological sex, orientation and position of the body. The only significant statistical correlation ( $X^2 = 8.515$ ;  $n = 66$ ;  $p = 0.004$ ) is with **copper awls**, because half the tombs with these items have also cinnabar and 46% of the tombs with cinnabar have these copper awls. But considering that the 70% of copper awls are found in female burials, it seems clear that a certain correlation exists between cinnabar and rich women graves.

Nevertheless, cinnabar was also used previously in megalithic tombs of the interior of Iberia, both in the northern (Delibes, 2000) and the southern Meseta (Bueno-Ramírez et al., 2019). The best-known Iberian source of this mineral is the Almadén mining district (Ciudad Real) in the southern Meseta, exploited at least since the VI<sup>th</sup> millennium BC (Hunt-Ortiz et al., 2011). A recent analysis of cinnabar samples of the collective Beaker tomb 7 of Humanejos (not included in our sample) confirms their origin in Almadén (Rodríguez et al., 2020). The source of the cinnabar remains discovered in the Beaker tomb of Carrer Paris (North-East) is still unknown (Gómez-Merino et al., 2011).

## 4. Conclusions

The Bell Beaker phenomenon evolves inside the European Copper Age communities during the second half of the III<sup>rd</sup> millennium cal BC, as a consequence of the emergence of incipient elites or leaders controlling exotic materials and highly standardized skilled craftworks (decorated pottery, metal items, ivory ornaments, etc.). Our study deals, therefore, with the analysis of the burials of a privileged social group, gathering all the current evidence, with the systematic application of a statistical methodology and, for the first time in Iberia, understanding their sex/gender system internal variability. Our sample comprises a total MNI of 70 from 37 burials of the main regions of Iberia. The data obtained suggest the existence of clear differences in terms of social ranking and age, sex/gender markers, within a complex, fluid and non-binary structure.



**Adult burials** have a balanced distribution of women and men, including older juveniles or adolescents (>16 years). As we have pointed out (see section 3.2 and 3.3), biologically adolescents would possibly be considered social adults, as they appear buried alone on their own funerary structures and accompanied by other relevant items normally associated with rich adult graves, like copper and gold objects. We have identified three groups within the adult burials, considering osteological sex and the different composition of grave goods deposited with them: **tombs with weapons, tombs without weapons and tombs with only ceramic grave goods**. They are not homogeneous groups, but several internal differences could be easily recognized. It is tempting to infer from them different social ranks inside the social structure, given that there is a clear association of tombs with copper weapons with other valuable grave goods such as gold, probably at the top of the Bell Beaker social hierarchy.

The first of these groups includes tombs with weapons. These had traditionally been identified as the identity of the Beaker “warrior” (Heyd, 2007: 351; Ryan et al., 2018; Salanova, 2016: 32), but it is a far more complex question, in fact. Firstly, are copper daggers and Palmela points truly weapons or pluri-functional tools? The so-called “archery equipment” (flint arrowheads and stone wrist-guards) is only linked with interpersonal violence or was it also used for hunting? This is a very complex debate which will deserve a specific study, using evidence from physical anthropology (non-accidental traumas, lethal and healed wounds, musculoskeletal stress markers), the archaeofaunistic record, architectonic traits (defensive structures, destruction layers) or rock-art manifestations (Lull et al., 2006; Vencel 2004). For this reason, we had maintained the term “weapon” throughout our study, despite all the complexity behind this label, yet to be discussed in future research.

The group of Iberian Beaker tombs with copper weapons has more men (n=6) than women (n=4). Female burials only have one weapon: a copper tanged dagger or a single Palmela point. These objects are accompanied by other items such as copper awls or V-perforated buttons which are - but not exclusively- female sex/gender markers. Other objects occasionally recorded are ivory beads, gold ornaments and stone wrist-guards. On the other hand, several male burials have more than one weapon: a copper tanged dagger and two or more Palmela points combined, sometimes with gold jewelry or other weapons (a halberd, flint arrowheads and stone wrist-guards). However, other male graves have only one weapon: a dagger or a Palmela point (rarely combined) and occasionally, flint arrowheads.

Copper weapons are the distinguishing element in the graves of men, perhaps linked with their social identity, sometimes combined with other objects such as flint arrowheads and stone wrist-guards. Those graves with more than one weapon are also those with the richest and more abundant content, perhaps suggesting the existence of a certain gradation in the number of metallic items deposited with those men. Regarding the female graves, they display a specific and quite different identity, with their own characteristics. They share with those of men the occasional presence of copper weapons, but also adding other objects shared with the other female social elite, whether exclusively (V-perforated buttons) or predominantly (copper awls). They were not “masculinized” women **(or “amazons”)**.

It seems that certain individuals (men and women) and/or kinship groups linked with them are controlling the exchange systems through which these valuable items (Beaker decorated pottery, copper weapons and tools, wool textiles -perhaps linked with copper awls-) and exotic raw materials (ivory, gold) circulated, enjoying the exclusive consumption of them in their lives and displaying them in their grave and in those of their **biological and social** relatives.

The second group of burials, lacking weapons, has more women (n=7) than men (n=1 or 3 depending on the certainty of the contexts). Most of the women appear accompanied by V-perforated buttons and sometimes by a copper awl. Two special cases differ from this general

pattern, one with an exceptional set of gold jewelry and no copper awl and another with an awl, but no sign of the V-perforated buttons. Both have important sets of ivory necklace beads, the same raw material of most of V-perforated buttons. The burials of those women exhibit those items which are -but not exclusively- sex/gender markers such as V-perforated buttons and copper awls. Thus, the construction of their sex/gender identity and social position, partially shared with the women with weapons, could be reinforced by or partially based on the display of those elements.

The still scarce or not completely clear burials of men with copper awls are clearly differentiated of those of men with copper weapons and they seem to show certain similarities with those of women in this group of tombs. But the current lack of evidence makes it impossible to explore this question any further. It seems that these women, and maybe some few men too, and their kinship groups were linked with the control of the circulation and consumption of exotic raw materials as ivory and perhaps wool textiles and gold.

In the third group of burials are those women and men only with ceramic grave goods. Nevertheless, it is important to make clear that decorated Beaker pottery is itself a highly skilled and specialized craftwork and, therefore, also restricted to the social elite, clearly distinguished from the usual contemporary burial rituals of the rest of the population. Regarding only the Meseta tombs, it is also interesting to remark that the presence of cinnabar, which is characteristic in the two previous groups of tombs, is scarce in these ones (nearly 80% of them lack this material). It seems that the use of this colorant in the burial rituals is restricted to the richest Bell Beaker graves of this region, especially, but not exclusively, in female tombs.

To sum up, these differences, identified in the osteological sex of the individuals and the composition of the grave goods of the Beaker burials of Iberia, could be linked with differences in the social life of those people, sometimes difficult to detect archaeologically. Several aspects such as their daily activities, clothing, political functions, access/management of resources, etc. could be potentially affected by their eventual belonging to one of those groups. This could even influence their sexual behavior and desires, as shown by many ethnographical researches (Jacobs and Cromwell, 1992: 59; Voss, 2009: 34). We do not know if those divisions were voluntary or imposed or which degree of stability or fluidity could they have. Moreover, other aspects, very difficult to identify, such as fertility, motherhood, intersexuality, (dis)ability, etc. (Moral, 2016: 805) could, perhaps, have a role in the explanation of part of those differences identified through osteological sex and grave goods. Regarding intersexuality, we must emphasize that only ten of the individuals included in our study were sampled for intersex identification (in none of them was detected). On the other hand, how could we interpret the third group of Beaker burials, only with ceramic grave goods? Could they reflect a sex/gender structuration with less clear-cut divisions and a certain fluidity between them or even without clear divisions? Or, by contrast, and as it has been argued for the Bronze Age in the Iberian Southeast (Argar Group) (Lull et al., 2016: 50), only a restricted social sector of the elite could enjoy such a privilege? More analyses are needed in these tombs and in those contemporaneous, but without Bell Beaker grave goods, to further investigate these questions.

Regarding the **children and young juvenile individuals** (1-15 years old), our data from other Iberian tombs outside the Meseta area, although scarce (n=3), supports a previous study focused in that area (Herrero-Corral et al., 2019). All of them are **older than** 6 years old and already had the right to be buried individually. Additionally, no metal objects (copper and gold) were documented and only in one tomb of a 10-12 years-old from Can Fatjó dels Aurons a V-perforated button was found. Taking in consideration all the children burials included in our research (n=6), the absence of grave goods with sex/gender or social differentiation marker content are relevant.

How can we interpret this data? Firstly, although they had the right to be buried individually with some grave goods (with high probability inherited), children were not considered as adults and

therefore would not have the same rights and duties. Secondly, it is not possible to include them in any of the exposed groups. Thirdly, nor can they be included or considered in a sex/gender group. This last possibility has been proposed in Central Europe, where DNA in children (Vaňharová and Drozdová, 2008) shows no correlation between genetic sex and attributes related with sex/gender difference like body position and orientation or grave goods. Turek (2013: 82; 2019: 214) draws attention to traditional consideration, active in some European regions until early 20<sup>th</sup> century, to treat children as genderless or as a girl, for example dressing them with unisex clothing. Only after a specific age or the celebration of a social initiation (rite of passage) children would start to be considered as males or females. Native American data points in the same direction, with only a strong sex/gender differentiation after a particular milestone, generally between adolescence and adulthood. In relation with Two-Spirits, these individuals were identified for the community through their interest or aptitude in activities considered appropriate for the opposite sex/gender, generally occurring before puberty (Hollimon, 2006: 436-440). Then, it opens the possibility for a non-existence or fluid sex/gender consideration for <15 years old children.

Finally, another very interesting matter is which sort of familiar structure do these Bell Beaker elites had. The presence of children and young juveniles, with probably some kind of property transfer system like inheritance, suggests the existence of kinship links, but not necessarily of consanguinity. The DNA data from Camino de las Yeseras and Humanejos (Madrid) show the complexity of this eventual familiar relationships. In the first one an adult woman and a female infantile buried together are not mother and daughter, as it could be presumed at first sight (Blasco et al., 2019: 265). In the second site from a total number of six individuals sampled for DNA five different lineages are documented, even though several of them share the same tomb. Only two individuals are genetically related in second degree (Garrido-Pena et al., 2019: 233). Thus, it is clear that we cannot take for granted the existence of the heteronormative nuclear family, expanding the eventual interpretations of the kinship links which existed between the member of the Bell Beaker elite. Besides, recent studies show the high cross-cultural variability in kinship systems, arguing for a more social and cultural concept of kinship ties and questioning excessive biogenetics determination and androcentric interpretations (Brück, 2021 and related debate).

The social categories of gender in funerary archaeology cannot be only based neither on the osteological sex of the individuals nor in the lack of certain objects attributed to a masculine or feminine “identity” in their graves. It is important to consider the attribution of gender and social belonging given to the dead individually by the living, based on their age, richness and social function at the moment of death (Bélar, 2017: 258-259). Given that women and men are not two uniform social entities the sex/gender system approach offers a much more fluid and realistic analysis of burials and their eventual categorization within those societies.

In fact, the data obtained in our study question the paradigm, commonly assumed, of a heteronormative, binary, opposed and hierarchical sex/gender system in past societies. It is necessary to critically analyze this naturalized ideal (Geller, 2017b: 70) contrasting it with the available evidence. As Hollimon (2006: 436) remarks “*absence of evidence for these [non-binary] genders in some groups should not be read as evidence of absence*”.

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Figure 1

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Figure 2

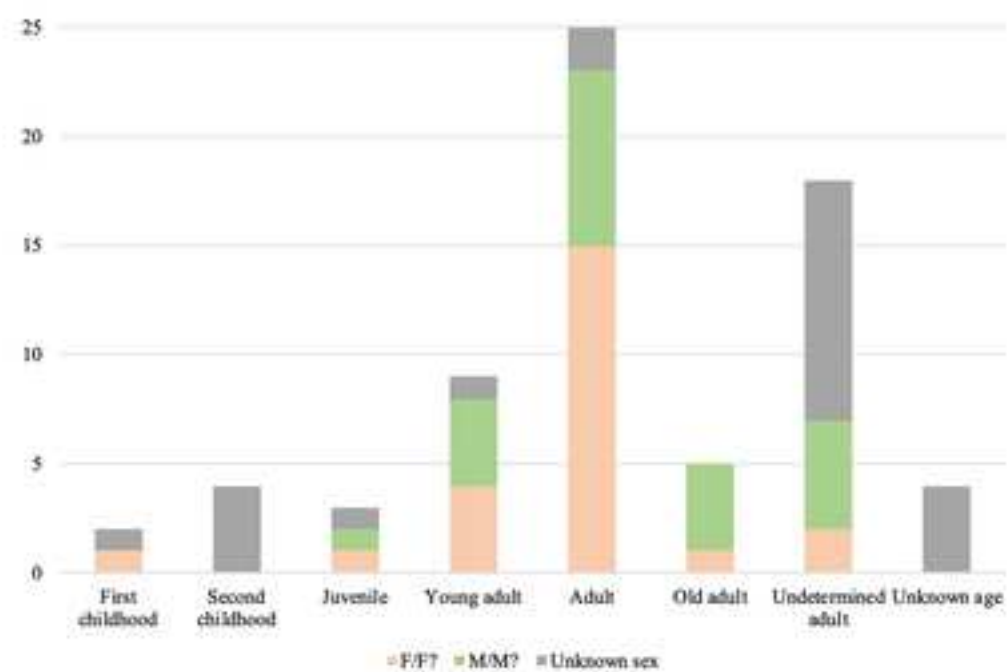
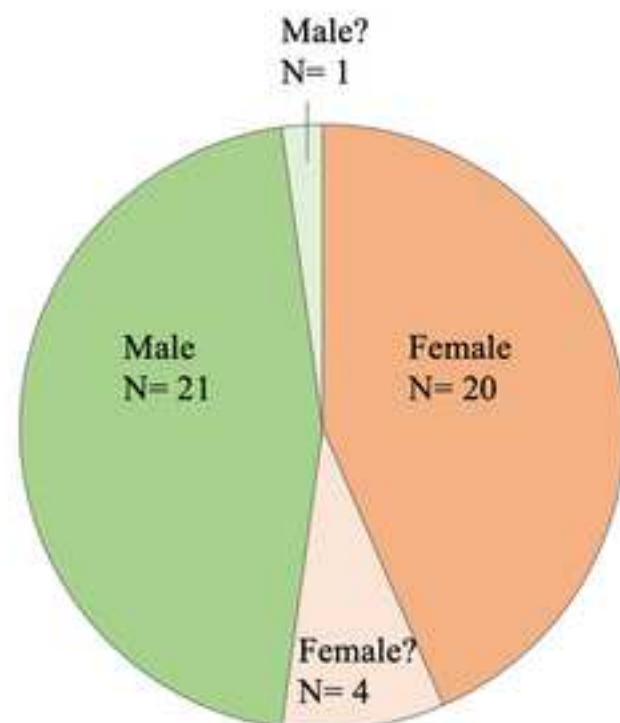


Figure 3

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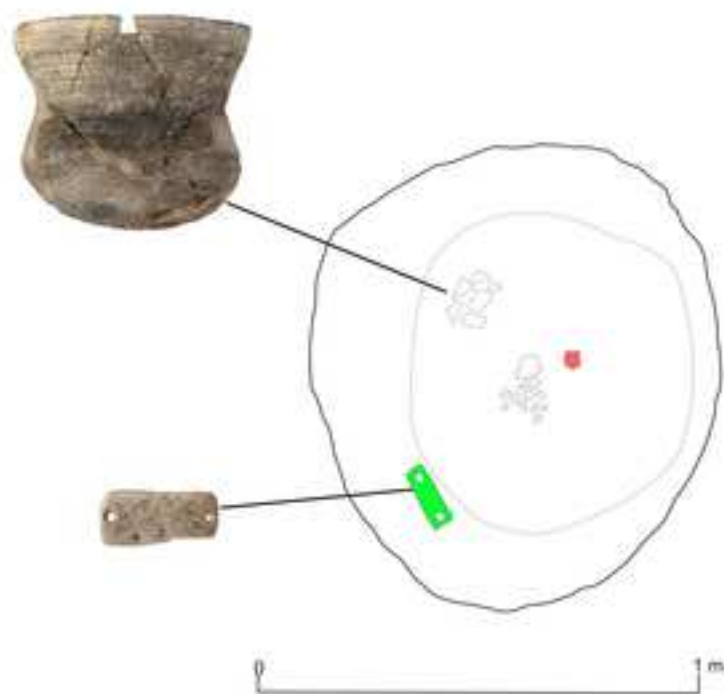


Figure 4

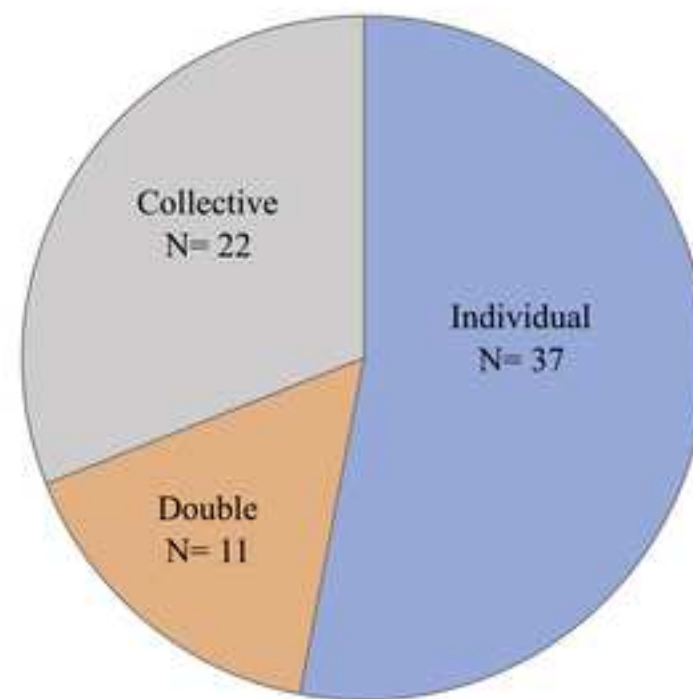
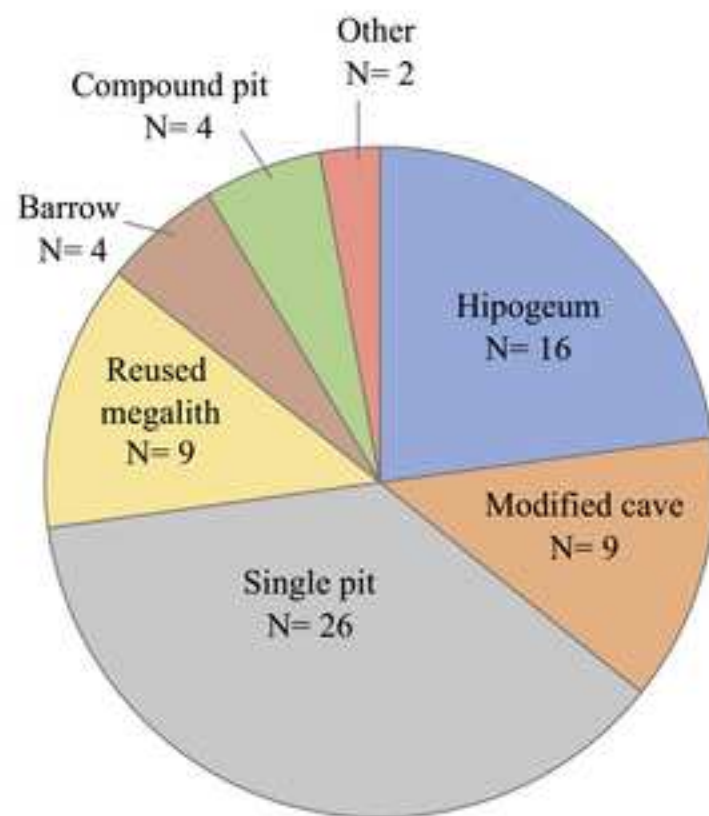




Figure 5

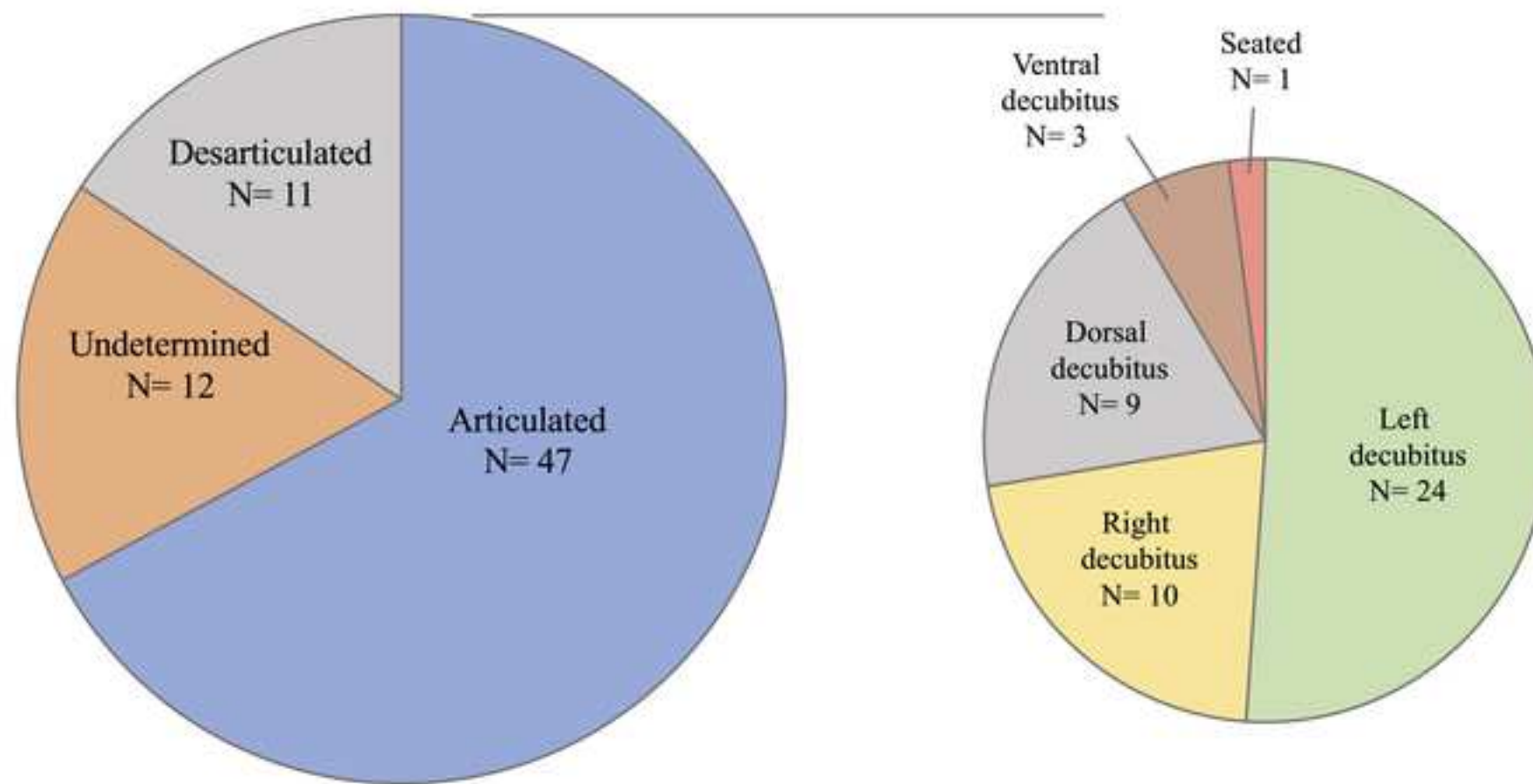




Figure 6

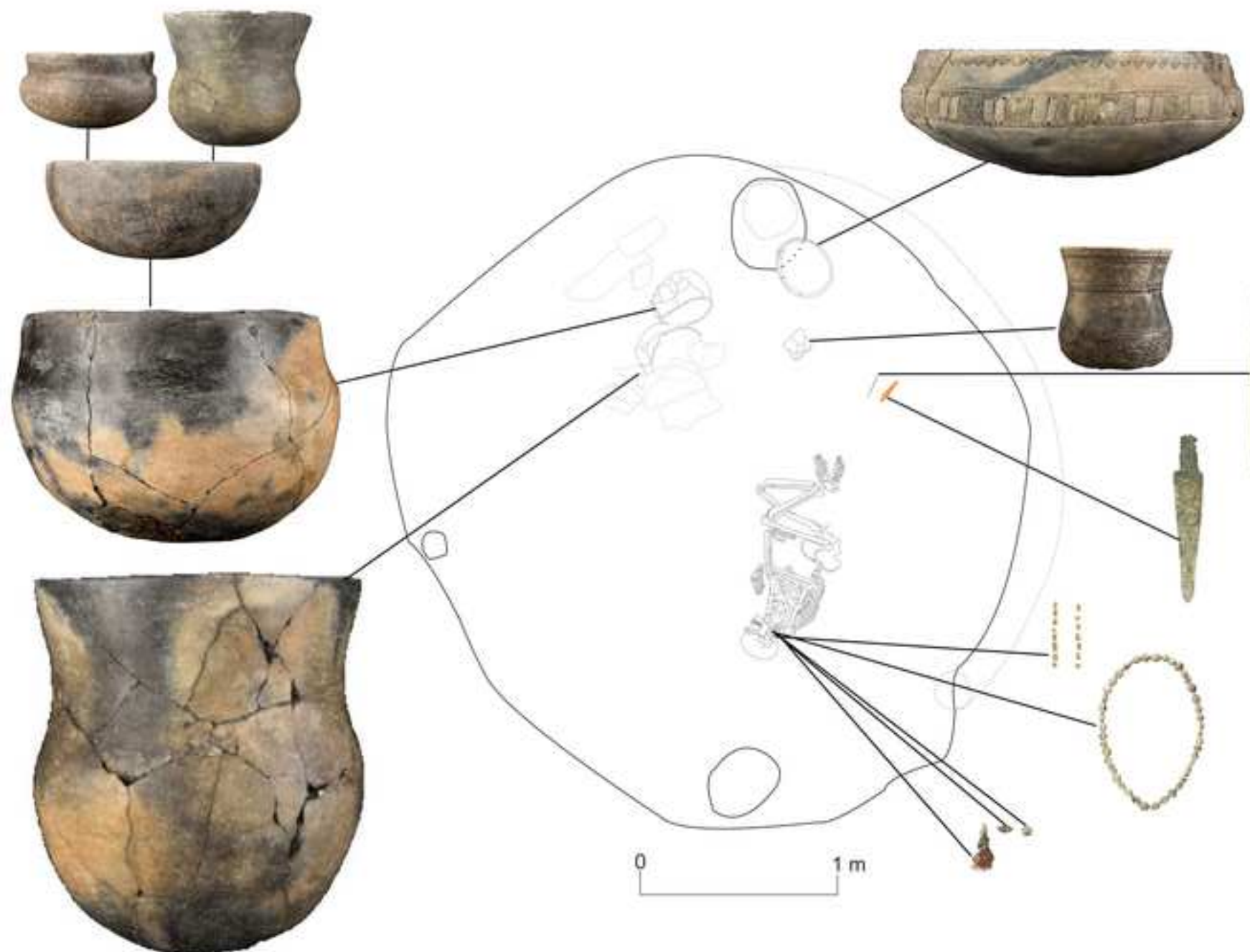


Figure 7

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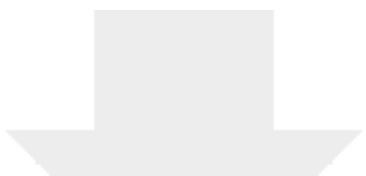
Site	Radiocarbon date	Other calibration margins	2 sigma calibration
Humanejos (Parla, Madrid)	3941 ± 33 BC (CNA-4023)	2497-2339 cal BC (79.9%)	2568-2302 cal BC
La Vital (Gandía, Valencia)	3920 ± 40 BP (Beta-229791)	2495-2286 cal BC (90.4%)	2566-2239 cal BC
Humanejos (Parla, Madrid)	3918 ± 33 BC (CNA-4025), 3925 ± 25 BC (GrM-15288)	2476-2291 cal BC (93.5%)	2557-2291 cal BC 2476-2298 cal BC
Humanejos (Parla, Madrid)	3917 ± 33 BC (Ua-43524)	2476-2291 cal BC (94.1%)	2555-2291 cal BC
Humanejos (Parla, Madrid)	3910 ± 25 BC (GrM-15291)		2469-2299 cal BC
Humanejos (Parla, Madrid)	3910 ± 25 (GrM-15290)		2469-2299 cal BC
Cova de la Ventosa (Piera, Barcelona)	3905 ± 35 BP (Poz-28213)		2474-2236 cal BC
Humanejos (Parla, Madrid)	3905 ± 20 (GrM-15289)		2466-2302 cal BC
Humanejos (Parla, Madrid)	3895 ± 20 BC (GrM-15426), 3875 ± 31 BC (Ua-423526)		2464-2299 cal BC y 2464-2209 cal BC
Las Mayores (Numancia de la Sagra, Toledo)	3870 ± 30 BP (Beta-471833)	2462-2282 cal BC (87.8%)	2462-2209 cal BC
La Sima III (Miño de Medinaceli, Soria)	3862 ± 28 BP (KIA-18000)		2459-2208 cal BC
La Sima III (Miño de Medinaceli, Soria)	3860 ± 30 BP (KIA-17999)		2460-2206 cal BC
La Vital (Gandía, Valencia)	3830 ± 40 BP (Beta-222443)		2456-2146 cal BC
Bòvila Casals (Riudecols, Tarragona)	3764 ± 45 BP (LTL-13808A)		2341-2031 cal BC
Bela Vista 5 (Beja, Portugal)	3740 ± 30 BP (Beta-330091)		2277-2035 cal BC
Perro Alto (Fuente Olmedo, Valladolid)	3730 ± 65 BP (OxA-2907)		2342-1943 cal BC
Aldeagordillo (Ávila)	3690±50 (Beta-83083)	2205-1937 cal BC (94.4%)	2272-1937 cal BC
Camino de las Yeseras (San Fernando de Henares, Madrid)	3650 ± 40 BP (Beta-184837)		2140-1901 cal BC
Quinta do Castelo 1 (Beja, Portugal)	3550 ± 30 BP (16B0304)	1976-1868 cal BC (63.1 %)	2014-1771 cal BC
Camino de las Yeseras (San Fernando de Henares, Madrid)	3525 ± 40 BP (Ua-35021)	1961-1742 cal BC (94.6%)	2008-1702 cal BC

FUNERARY VARIABLES STATISTICALLY CORRELATED WITH SEX/GENDER		
V-perforated bottoms	only associated with females	$X^2 = 8.877$ ; n = 46; p = 0.003

FUNERARY VARIABLES FREQUENTLY ASSOCIATED WITH ONE SEX/GENDER (NOT STATISTICALLY SIGNIFICANT)		
Copper awls	more frequent in females	70% in female and 30% in male tombs $X^2 = 1.627$ ; n = 46; p = 0.202
Bell Beakers	more frequent in males	59% of male tombs, 41% of female tombs $X^2 = 3.424$ ; n = 46; p = 0.064
Tanged daggers	more frequent in males	67% in male and 33% in female tombs $X^2 = 1.592$ ; n = 46; p = 0.207
Palmela points	more frequent in males	80% in male and 20% in female tombs $X^2 = 2.327$ ; n = 46; p = 0.127
Cinnabar	more frequent in females	67% in female and 33% in male tombs $X^2 = 0.961$ ; n = 42; p = 0.327

**Ignacio Soriano:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – Original Draft, Review & Editing, Visualization. **Ana Mercedes Herrero-Corral:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – Original Draft, Review & Editing, Visualization. **Rafael Garrido-Pena:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – Original Draft, Review & Editing, Visualization. **Tona Majó:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – Original Draft, Review & Editing, Visualization.





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