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Reconstructing Life History
New Palaeodemographic Insights into Final Neolithic and Early Bronze Age Populations in Southwest Germany

Abstract

During the third to mid-second millennia BC in Europe, human culture witnessed dramatic changes. Various studies indicate that this sociocultural shift had complex and regionally variable biological impacts. Hence, palaeodemographic analyses of age-at-death and sex from human skeletal remains provide valuable insights into life span and mortality. This study reconstructs the demographic profile of 322 Final Neolithic (Corded Ware culture) and Early Bronze Age (Neckar group) individuals from 17 sites in Baden-Württemberg (Southwest Germany) by using life tables. The results indicate diachronic changes in mortality and life expectancy of infant individuals, and juvenile and adult females accompanied by regional variations. This suggests generally improving living conditions from the Final Neolithic to the Early Bronze Age, except for increased mortality in Early Bronze Age juveniles potentially related to adolescent pregnancies.

Keywords

Southwest Germany / Final Neolithic / Early Bronze Age / palaeodemography / anthropology

Over the past two decades, research in archaeology, genetics and isotopes has made it clear that the third to mid-second millennia BC were highly dynamic regarding population development and social interaction. In Central Europe, the cultural complexes of the Corded Ware (ca. 2900–2100 BC) and the Bell Beaker (ca. 2750–2000 BC) spread during the Final Neolithic. Both constituted a substratum of which several later cultures and regional groups emerged during the Early Bronze Age (ca. 2300–1600 BC). Multiple developments between ca. 2900 and 1600 BC have been identified, which were propelled by pan-European (and, on a more global scale, pan-Eurasian) mobility and spread of new cultural phenomena and ideologies. On a regional scale, new cultural and social influences were assimilated and adapted by lo-

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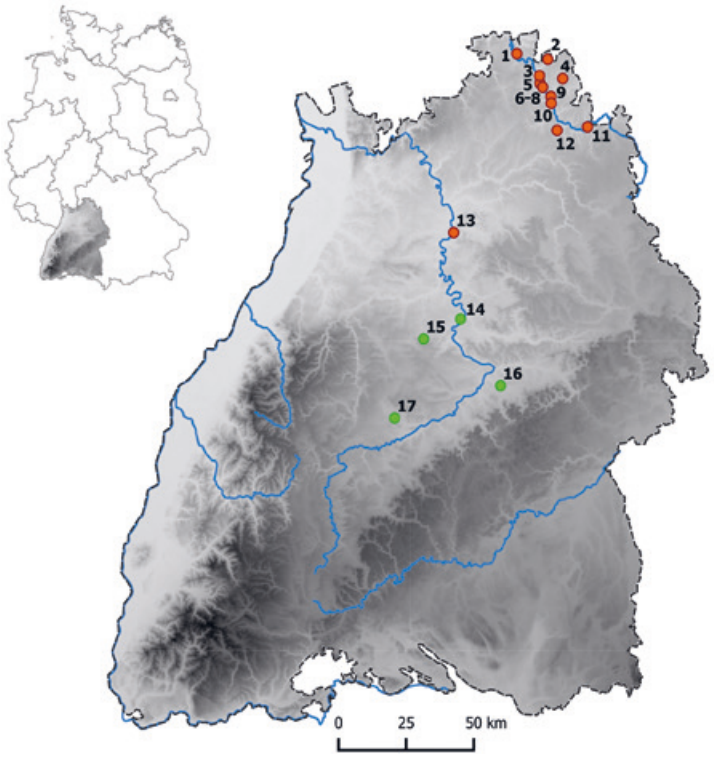

Fig. 1 Map of Baden-Württemberg (Southwest Germany) showing the geographic locations of the human skeletal remains analysed in this study. Final Neolithic sites are indicated in orange, Early Bronze Age sites in green: **1** Wertheim-Reicholzheim. – **2** Werbach-Wenkheim. – **3** Tauberbischofsheim-Impfingen. – **4** Grünsfeld-Krensheim. – **5** Tauberbischofsheim-Dittigheim. – **6-8** Tauberbischofsheim (three sites). – **9** Lauda-Königshofen/Gerlachsheim. – **10** Lauda-Königshofen. – **11** Weikersheim. – **12** Bad Mergentheim-Althausen (1–12 Main-Tauber-Kreis/DE). – **13** Heilbronn (DE). – **14** Remseck-Aldingen (Lkr. Ludwigsburg/DE). – **15** Gerlingen (Lkr. Ludwigsburg/DE). – **16** Kirchheim unter Teck (Lkr. Esslingen/DE). – **17** Ammerbuch-Reusten (Lkr. Tübingen/DE). – (Image A. Spatzier/S. Lismann; map: USGS 30 ARC-second Global Elevation Data, GTOPO30, DOI: 10.5065/A1Z4-EE71; OpenStreetMap contributors, www.openstreetmap.org).

cal communities to different degrees (Furholt 2014; 2021; Furtwängler et al. 2020; Haak et al. 2015; Heyd 2023; Knipper et al. 2017; Vander Linden 2006; Wentink 2020).

One key to comprehending cultural development and social changes is by examining the human bones. To which extent the cultural change was accompanied by variations in the biology of the populations has been investigated by several studies concerning Central Europe (e. g., Allentoft et al. 2015; Sjögren et al. 2016; Hubensack et al. 2018; Nicklisch 2017). Genetic and isotope studies observed different mobility patterns ranging from age- and sex-specific mobility (Knipper et al. 2017; Mittnik et al. 2019; Sjögren et al. 2016) to a local population without individual mobility (Oelze et al. 2012) in Southern Germany. In Central Germany, both varying degrees of genetic origin and composition resulting from rapid DNA changes (Brandt et al. 2013), and rather residential communities with low mobility (Knipper et al. 2016) are indicated. Therefore, even within geographically and chronologically defined groups local differences are discernible.

Palaeodemographic estimates are one approach to describe the life history of past populations and link biological with cultural findings (Boldsen et al. 2022; DeWitte 2018; Eshed et al. 2004; Howell 1982). By constructing life tables, differences among groups in life course can be observed, including variation in age- and sex-specific mortality and life expectancy. This allows us to infer social, economic and health statuses as they relate to life span (Boldsen et al. 2022; Colchero et al. 2016).

The region along the rivers Tauber and Neckar in Baden-Württemberg (Southwest Germany) is characterised by cultural groups of the Corded Ware complex, the Bell Beaker phenomenon and the so-called Neckar group during the Final Neolithic and the Early Bronze Age. The density of respective archaeological sites and micro-regional differences in the clustering of these cultural phenomena make it an interesting research area, particularly with respect to the study of the demographic segmentation of past populations.

Recent studies in Central Germany, Southeast Germany, Denmark and Sweden, the Czech Republic and Slovakia have demonstrated that the palaeoanthropological analysis of human remains can considerably improve the understanding of Final Neolithic and Early Bronze Age societies (Hubensack et al. 2018; Hukelova 2016; Nicklisch 2017; Staskiewicz 2018a; 2018b; Tornberg/Vandkilde 2025). Concerning Southwest Germany, and the Neckar- and Tauber regions specifically, valuable insights in Final Neolithic populations in the region of Tauberbischofsheim (Main-Tauber-Kreis/DE) have been yielded previously by Veit Dresely (2004) and Martin Trautmann (2012). However, systematic diachronic analyses for the Final Neolithic and the Early Bronze Age in this region, and in Southwest Germany generally, are still rare (Rathmann et al. 2023).

no.	location	site	time period	cultural affiliation	radiocarbon date	sample size[a]
1	Wertheim-Reicholzheim	In der Ecke	Final Neolithic	Corded Ware complex	NA	1 (1/-/-/-)
2	Werbach-Wenkheim	Wertheimer Weg	Final Neolithic	Corded Ware complex	NA	3 (2/-/-/1)
3	Tauberbischofsheim-Impfingen	Rebhuhn	Final Neolithic	Corded Ware complex	2622-1885, 1624 cal BC	42 (8/2/1/25)
4	Grünsfeld-Krensheim	Luxenäcker	Final Neolithic	Corded Ware complex	NA	1 (1/-/-/-)
5	Tauberbischofsheim-Dittigheim	Am Stadtschreiber	Final Neolithic	Corded Ware complex	2557-2393 cal BC	64 (11/7/5/36)
6	Tauberbischofsheim	Burgweg/ Kräutergarten	Final Neolithic	Corded Ware complex	NA	5 (2/1/1/1)
7	Tauberbischofsheim	Gärtnerei Scheuermann	Final Neolithic	Corded Ware complex	3007-2494 cal BC	3 (1/2/-/-)
8	Tauberbischofsheim	Kirchelberg/ Acker Noe West	Final Neolithic	Corded Ware complex	2847-2031 cal BC	9 (2/-/-/7)
9	Lauda-Königshofen/ Gerlachsheim	Flur	Final Neolithic	Corded Ware complex	NA	14 (2/1/1/10)
10	Lauda-Königshofen	Wöllerspfad	Final Neolithic	Corded Ware complex	NA	91 (15/13/3/58)
11	Weikersheim	Katholische Kirche	Final Neolithic	Corded Ware complex	NA	5 (-/-/1/1)
12	Bad Mergentheim-Althausen	Sportplatz neben Schule	Final Neolithic	Corded Ware complex	NA	4 (1/1/-/2)
13	Heilbronn	Kirschengartenstraße	Final Neolithic	Corded Ware complex	2863-2471, 2299 cal BC	24 (5/5/4/10)
14	Remseck-Aldingen	Halden II	Early Bronze Age	Neckar group	2276-1743 cal BC	33 (6/1/6/20)
15	Gerlingen	Seefeld	Early Bronze Age	Neckar group	NA	5 (2/-/-/2)
16	Kirchheim unter Teck	Stuttgarter Straße	Early Bronze Age	Neckar group	NA	1 (1/-/-/-)
17	Ammerbuch-Reusten	Stützbrunnen/ Grüninger	Early Bronze Age	Neckar group	1870-1511 cal BC	34 (3/4/7/20)

Tab. 1 Summary of the skeletal samples used in this study. – [a] In parentheses number of adult males/adult females/adults of unknown sex/subadults. Individuals without age and sex identification are not listed in parentheses and excluded for analyses. – (Table S. Lismann).

In the present study, we analysed the skeletal remains of 322 individuals from 17 different sites from the third to mid-second millennia BC, belonging to the Corded Ware culture and the Neckar group in the Neckar- and Tauber regions of Southwest Germany. Unfortunately, the scarcity of Bell Beaker skeletal remains from this geographical area does not allow for valid conclusions on a demographic level, so they have been excluded from this study. Life tables were calculated on the basis of our reconstructions of age-at-death and biological sex, to infer demographic population structures. We aim to reconstruct the demographic profile and detect potential inter- and intra-population differences through time related to the change from the Final Neolithic to the Early Bronze Age on a regional scale in northeastern and central Baden-Württemberg (Southwest Germany).

Materials and Methods

A total of 339 individuals were excavated at 17 sites in northeastern and central Baden-Württemberg (**fig. 1; tab. 1**). Of these, 322 were suitable for anthropological analysis and were included in our study. They belong to the Corded Ware complex (ca. 2900–2100/1800 BC) of the Final Neolithic and the Neckar group (ca. 2200–1600 BC) of the Early Bronze Age in this region. The Final Neolithic sample totals 250 individuals (99 adults, 151 subadults, of which six are in transition to adulthood), and the Early Bronze Age

sample totals 72 individuals (30 adults, 42 subadults, of which six are in transition to adulthood). The sites are chronologically and geographically separated, with the Final Neolithic sites in the Tauber region, except for Heilbronn, and the Early Bronze Age sites in the middle Neckar region. Summary information for the studied sites is provided in **table 1**.

The Final Neolithic samples originate from 13 different sites, totalling 250 skeletons. Twelve Final Neolithic sites are situated in the Tauber valley, comprising three large and nine small burial sites. Tauberbischofsheim-Impfingen, Tauberwbischofsheim-Dittigheim and Lauda-Königshofen are larger cemeteries while at Bad-Mergentheim-Althausen, Grünsfeld-Krensheim, Lauda-Königshofen/Gerlachsheim, Tauberbischofsheim (three sites), Weikersheim, Werbach-Wenkheim and Wertheim-Reicholzheim only a few graves have been excavated (all Main-Tauber-Kreis/DE; Dresely 2004; Trautmann 2012; Ortolf 2014). In general, the individuals are buried in simple, rectangular tooval grave pits and in crouched positions predominantly oriented along the northeast-southwest axis or along the east-west axis. While the majority was buried according to the typical Corded Ware mortuary practises (e. g., Strahm 2002, 184) with females lying on their left and males on their right body side, the Tauber Valley Corded Ware group is characterised by a high percentage of »inverted« alignments, particularly men having been buried in left-sided position (Dresely 2004, 105–108. 113–114; Trautmann 2012, 276–277. 282–284; Ortolf 2014, 439–442. 446). Interestingly, the common Corded Ware bipolar differentiation according to sex generally seems to be inverted at Heilbronn, located in the northern part of the middle Neckar region: Aligned along the east-west axis facing south, the individuals anthropologically determined as male had been buried in left-sided crouched body posture and those determined as female crouched on their right side, except for two women in left-sided position.

The Early Bronze Age samples come from the two larger cemeteries of Remseck-Aldingen (Lkr. Ludwigsburg/DE) and Ammerbuch-Reusten (Lkr. Tübingen/DE), and two sites where only a few graves are known, Kirchheim unter Teck (Lkr. Esslingen/DE) and Gerlingen (Lkr. Ludwigsburg/DE), totalling 72 skeletons. Remseck-Aldingen (Krause 1987; Keefer/Krause 1992, 42–49), Kirchheim unter Teck (Lau 1950, 212–213) and Gerlingen (Zürn 1975) reflect the typical Early Bronze Age burial customs in the Neckar region. These customs are characterised by bipolar gender differentiation in crouched body posture, with males on the left and females on the right, frequently buried – in addition to simple rectangular to oval pits – with packings, beddings or other constructions made of stone, in some cases suggesting wooden coffins (cf. Krause 1987, 138; Spatzier 2023, 169–170). The inhumations are mostly oriented along the northeast-southwest axis facing southeast, but frequently also aligned east-west facing south and north-south facing east. The latter orientation is particularly prevalent at Remseck-Aldingen, which may indicate a special significance of this cemetery within the region. The cemetery at Ammerbuch-Reusten (Bofinger et al. 2021; 2023), located in the southern part of the middle Neckar area, is of even greater interest: The absence of stone constructions within the graves and the lack of grave goods are unusual. Furthermore, a considerable number of exceptions from the common Early Bronze Age funerary practices described above can be observed with re-

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	59.50	23.80	100.00	0.24	440.50	1914.00	19.14
5-9	45.83	18.33	76.20	0.24	335.17	1473.50	19.34
10-14	22.83	9.13	57.87	0.16	266.50	1138.33	19.67
15-19	16.83	6.73	48.73	0.14	226.83	871.83	17.89
20-24	18.03	7.21	42.00	0.17	191.97	645.00	15.36
25-29	19.86	7.94	34.79	0.23	154.08	453.03	13.02
30-34	20.15	8.06	26.84	0.30	114.08	298.94	11.14
35-39	15.31	6.13	18.79	0.33	78.62	184.87	9.84
40-44	13.73	5.49	12.66	0.43	49.57	106.25	8.39
45-49	7.23	2.89	7.17	0.40	28.61	56.68	7.91
50-54	4.90	1.96	4.28	0.46	16.48	28.07	6.56
55-59	2.90	1.16	2.32	0.50	8.69	11.59	5.00
60+	2.90	1.16	1.16	1.00	2.90	2.90	2.50
Σ	250.00	100.00			1914.00		

Tab. 2 Abridged life table for the combined Final Neolithic sites. – (Table S. Lismann).

spect to body orientation and gender differentiation. In some cases, the prevailing burial customs appear to have been inverted (Spatzier 2023, 169).

For skeletal age-at-death and sex analysis, standard macroscopic techniques were used. Subadult age-at-death was determined using the individuals' dental (AlQahtani et al. 2010; Ubelaker 1989) and skeletal development (Scheuer et al. 2010; Stloukal/Hanáková 1978). Adult age-at-death estimation was based on cranial and maxillary suture closure (Mann et al. 1991; Vallois 1937), pelvic morphological variations in the pubic symphysis and auricular surface (Brooks/Suchey 1990; Buckberry/Chamberlain 2002), sternal rib end morphology (İşcan et al. 1984), and dental attrition (Brothwell 1981). Sex in subadults was estimated using the mandible and ilium (Schutkowski 1993). However, subadult sex estimation is prone to errors and should be interpreted with caution. Adult sex determination was based on cranial and pelvic morphology (Ferembach et al. 1979; Phenice 1969), and pelvic dimensions (Murail et al. 2005). The Final Neolithic data, except for Heilbronn, were adopted from Dresely (2004) and Trautmann (2012): since the ageing and sexing methods in that study were identical to ours, the results are assumed to be comparable.

To compare demographic inter- and intra-site population variation, life tables were calculated (Acsádi/Nemeskéri 1970) based on the assumption that the skeletal samples reflect the composition of the once-living populations. For this, individuals were attributed to age categories in 5-year intervals. If an individual's age-at-death spanned more than one age category, it was equally distributed (e. g., an individual of 14–16 years was classified as 50 % 10–14 years and 50 % 15–19 years), as frequently practiced (Bocquet-Appel 2002, 638). To increase the sample size in the gender differentiated life tables, adult individuals with fewer diagnostic traits, who could not be assigned to sex securely, were nonetheless included in the respective sex categories (Final Neolithic: five males and four females; Early Bronze Age: one male and three females). Additional skeletal fragments in a grave without clear assignment to the buried individual, and individuals without age estimation (n = 19) were excluded from demographic analyses. Furthermore, life tables were not calculated for sites with low sample sizes. Instead, these individuals were included in the composite life tables for the Final Neolithic and the Early Bronze Age. Statistical comparisons of number of dead, mortality and life expectancy within and between the temporal periods were conducted by utilising Friedman rank sum test (*psych* package [Revelle 2024]) and Wilcoxon rank sum test in RStudio (Posit team 2024). For all analyses, statistical significance was set at $p < 0.05$.

Results

Tables 2 and **3** show the life tables for the combined Final Neolithic and Early Bronze Age sites, respectively. Site-specific life tables for the larger sites of Heilbronn, Lauda-Königshofen, Tauberbischofsheim-Dittigheim, Tauberbischofsheim-Impfingen, Ammerbuch-Reusten and Remseck-Aldingen can be found in the Appendix (**Appendix, tab. A.1-6**). Based on these, **figure 2** shows the number of

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	12.00	16.67	100.00	0.17	458.33	2135.42	21.35
5-9	9.50	13.19	83.33	0.16	383.68	1677.08	20.13
10-14	6.50	9.03	70.14	0.13	328.13	1293.40	18.44
15-19	11.00	15.28	61.11	0.25	267.36	965.28	15.80
20-24	6.46	8.97	45.83	0.20	206.74	697.92	15.23
25-29	4.46	6.19	36.86	0.17	168.84	491.17	13.32
30-34	5.96	8.28	30.67	0.27	132.67	322.34	10.51
35-39	5.96	8.28	22.40	0.37	91.29	189.67	8.47
40-44	4.46	6.19	14.12	0.44	55.12	98.38	6.97
45-49	3.46	4.80	7.93	0.61	27.63	43.26	5.46
50-54	1.13	1.56	3.13	0.50	11.72	15.63	5.00
55-59	1.13	1.56	1.56	1.00	3.91	3.91	2.50
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	72.00	100.00			2135.42		

Tab. 3 Abridged life table for the combined Early Bronze Age sites. – (Table S. Lismann).

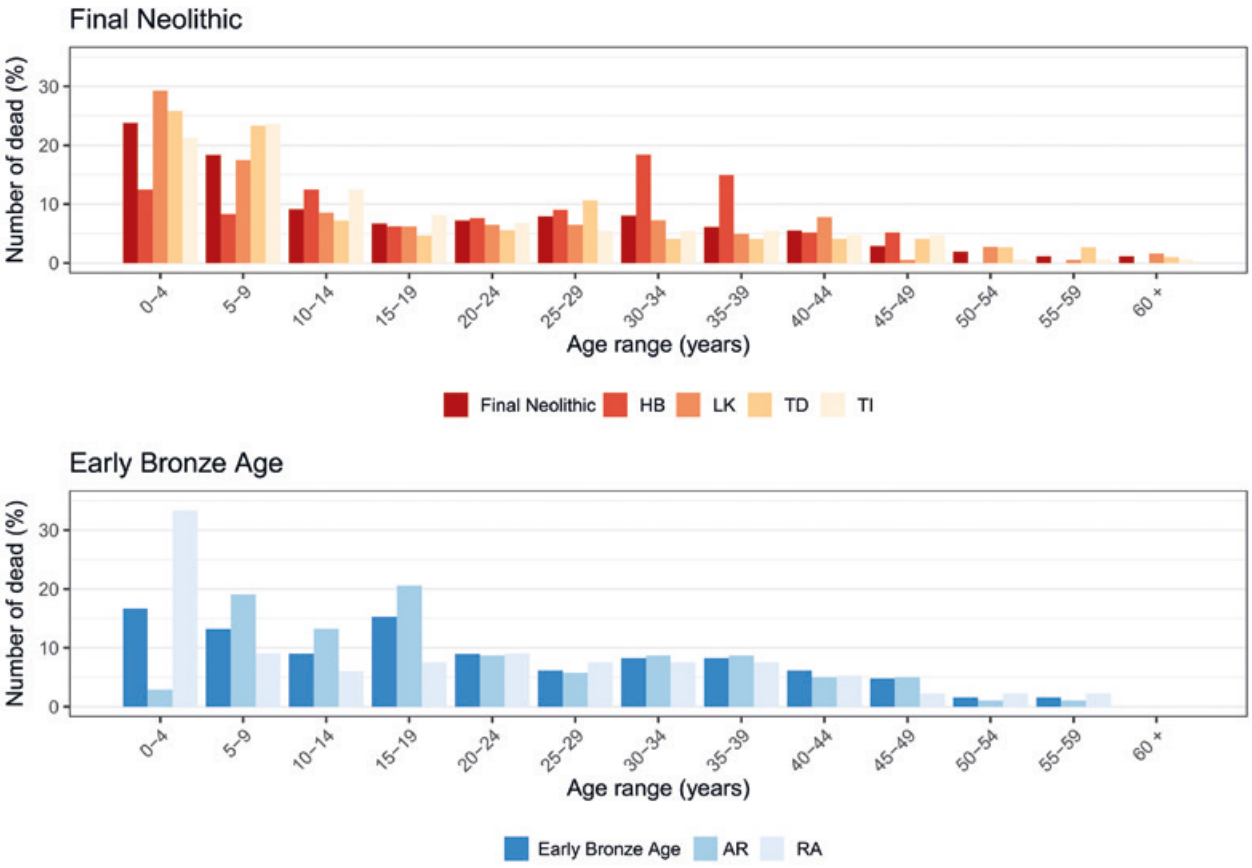

Fig. 2 Comparison of number of dead (d_x) in Final Neolithic and Early Bronze Age composite and single sites. Abbreviations: AR – Ammerbuch-Reusten; HB – Heilbronn; LK – Lauda-Königshofen; RA – Remseck-Aldingen; TD – Tauberbischofsheim-Dittigheim; TI – Tauberbischofsheim-Impfingen. – (Image S. Lismann).

dead (d_x), and **figure 3a-d** the mortality rate (q_x) and life expectancy (e_x) for combined and single sites. The examination of the life tables for the Final Neolithic and the Early Bronze Age demonstrate that, firstly, most of the individuals died before reaching adulthood, peaking at 0–4 years in both periods (**fig. 2**). Secondly, the mortality rate in the Final Neolithic was high during infancy, but subsequently decreased before increasing gradually from 20–24 years onwards (**fig. 3a**). The Early Bronze Age mortality followed a similar trend, but with a slightly lower rate during infancy and early adulthood. However, there is a prominent mortality peak at 15–19 years (**fig. 3c**). Finally, in both periods, life expectancy decreased with age, even though in the Final Neolithic life expectancy remains nearly constant until age 14 (**fig. 3b**) and the Early Bronze Age exhibits a small dip at 15–19 years (**fig. 3d**). Furthermore, the Early Bronze Age life expectancy is lower than in the Final Neolithic for all age categories with the exception of infancy (0–9 years). However, none of these differences are statistically significant. The fluctuating data after ages 40–44, both in mortality and life expectancy, are probably statistical artifacts due to the low number of old individuals in the samples and were not considered for further interpretations.

However, when the individual Final Neolithic and Early Bronze Age sites are considered, some variation is detectable. Lauda-Königshofen, Tauberbischofsheim-Dittigheim and Tauberbischofsheim-Impfingen best approximate the Final Neolithic composite sample, despite some minor variations in mortality and life expectancy in Tauberbischofsheim-Dittigheim and Tauberbischofsheim-Impfingen. In contrast, Heilbronn highly deviates from the overall pattern, with a low number of dead during infancy (0–9 years) and an increased number of dead from middle adulthood (30–34 years) onwards, as also visible in elevated mortality and reduced life expectancy. Statistically significant differences are only observable in life expectancy in the site of Heilbronn when paired with Lauda-Königshofen and Tauberbischofsheim-Dittigheim (Friedman chi-squared = 16.238, df = 3, p-value = 0.001013; HB-LK: p-value = 0.03897915 and HB-TD p-value = 0.00831651). The Early Bronze Age sites of Ammerbuch-Reusten

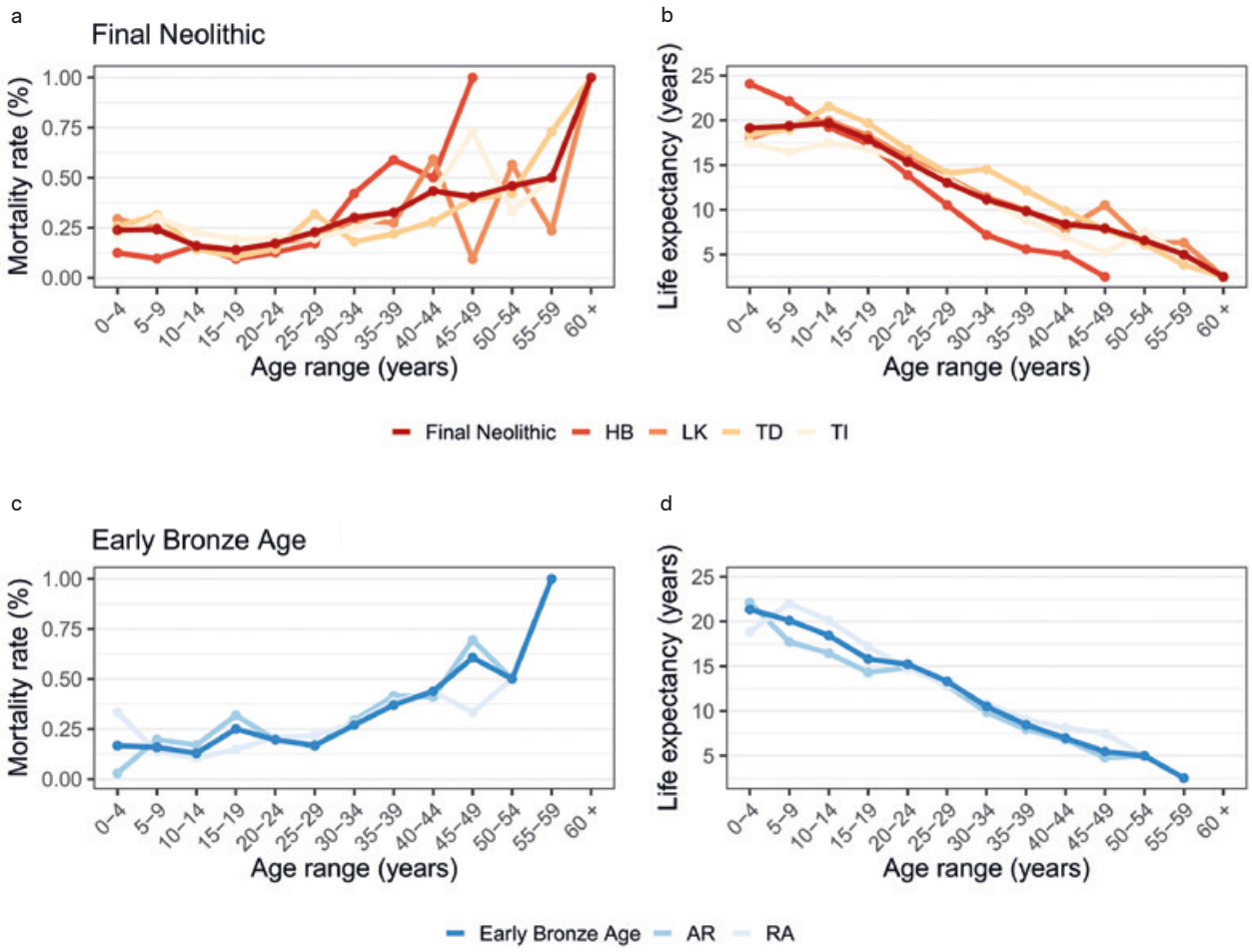

Fig. 3 Comparison of mortality rate (q_x) and life expectancy (e_x) in Final Neolithic (**a–b**) and Early Bronze Age (**c–d**) composite and single sites. Abbreviations: AR – Ammerbuch-Reusten; HB – Heilbronn; LK – Lauda-Königshofen; RA – Remseck-Aldingen; TD – Tauberbischofsheim-Dittigheim; TI – Tauberbischofsheim-Impfingen. – (Image S. Lismann).

and Remseck-Aldingen are nearly identical during adulthood, but opposing in the subadult age categories. In Ammerbuch-Reusten most of the individuals died between 5 and 19 years, whereas in Remseck-Aldingen, the majority died before age 5. This is also reflected in high mortality in 15–19-year-old individuals in Ammerbuch-Reusten, and 0–4-year-old individuals in Remseck-Aldingen. Even though life expectancy is initially higher in Ammerbuch-Reusten, it declines below that of Remseck-Aldingen during 5–19 years. No statistically significant differences are detectable for the Early Bronze Age. To outline possible sex related differences, the distribution of males (Final Neolithic: 93; Early Bronze Age: 25) and females (Final Neolithic: 63; Early Bronze Age: 19) was calculated. The related life tables of the male, female and unsexed Final Neolithic and Early Bronze Age composite sample can be found in the Appendix (**Appendix, tab. A.7-12**). Based on these, **figure 4** shows the number of dead (d_x), and **figure 5a-d** the mortality rate (q_x) and life expectancy (e_x) by sex for the two periods. Sex differentiated life tables reveal that: First, in the Final Neolithic, the number of dead is comparable for both sexes except for higher numbers of females at 0–4 years and 25–29 years, and of males at 5–9 years. Similarly, in the Early Bronze Age, the number of females is highest at 0–4 and 15–19 years, and compared to the females the number of males reaches higher values at 5–9 and 25–34 years. However, the majority of subadults could not be sexed. Second, after initial higher female mortality in the Final Neolithic, mortality rates are nearly equal in both sexes until 15–19 years. Subsequently, the mortality is constantly higher for females than for males. In the Early Bronze Age, female mortality is also higher at 0–4, but reaches a peak between 15 and 24 years. Male mortality is slightly increased during 25–34 years. Third, the Final Neolithic life expectancy for males is nearly constantly higher than for females until 40–44 years, which also yields significant results (V = 0, *p*-value = 0.005889). This also applies to

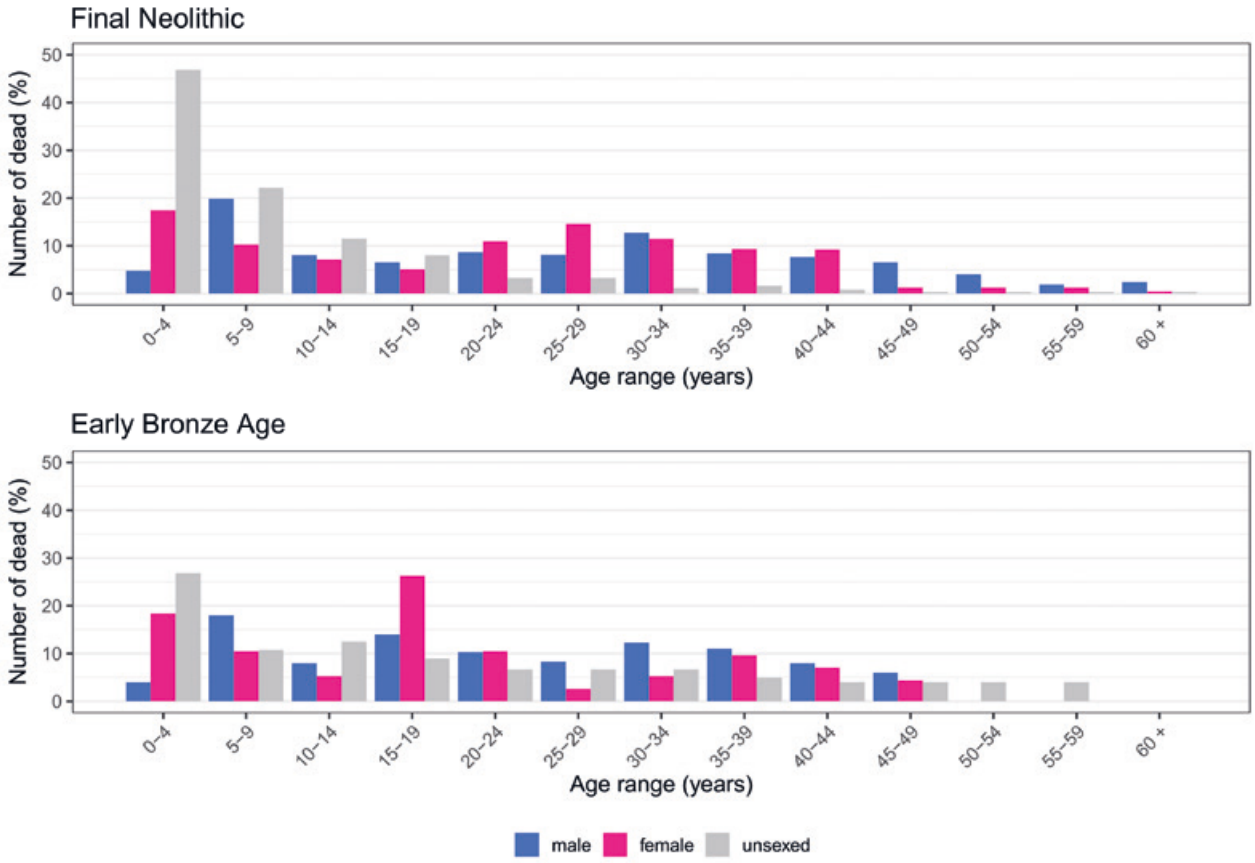

Fig. 4 Comparison of sex-specific number of dead (d_x) in the Final Neolithic and Early Bronze Age composite sample. – (Image S. Lismann).

the Early Bronze Age until 20–24 years, after which age males and females show similar mortality levels. Further statistically significant results are also observable when male mortality and life expectancy are compared for both periods (V = 0, *p*-value = 0.034511 and V = 55, *p*-value = 0.005889, respectively). Nevertheless, the sex-specific life tables should be viewed cautiously, as only 62.4 % of the Final Neolithic and 61.1 % of the Early Bronze Age skeletons could be assigned to sex.

Discussion

Our study compares the demographic traits of age-at-death, mortality and life expectancy distributions through life tables in the Final Neolithic and the Early Bronze Age (ca. 2900–1600 BC) in Southwest Germany. The results indicate diachronic trends accompanied by local variations.

The composite samples differ mainly in the subadult age categories with varying mortality and life expectancy for infants in both periods and for older juveniles in the Early Bronze Age. However, the larger Early Bronze Age cemeteries of Ammerbuch-Reusten and Remseck-Aldingen greatly diverge in the number of dead in the subadult age categories, specifically at 0–4 years, making it difficult to draw secure conclusions based on the composite sample. The different sample sizes of the Early Bronze Age infants probably introduce a bias that erroneously leads to lower values in the composite sample. Reasons for this could be the preservation of archaeological features and fragile skeletal remains, or burial practices that do not manifest in the archaeological record (Grosskopf 2023; Tornberg/Vandkilde 2025, 9. 13). This may particularly apply to the site of Ammerbuch-Reusten, because the integrity of the cemetery has been severely compromised by farming, potentially resulting in the near absence of 0–4-year-olds. In contrast, for Remseck-Aldingen the number of 0–4-year-olds approximates or even exceeds the values of the Final Neolithic sites and, therefore, can be considered as representative. Nevertheless, the demographic pattern of subadults in Remseck-Aldingen needs further consideration.

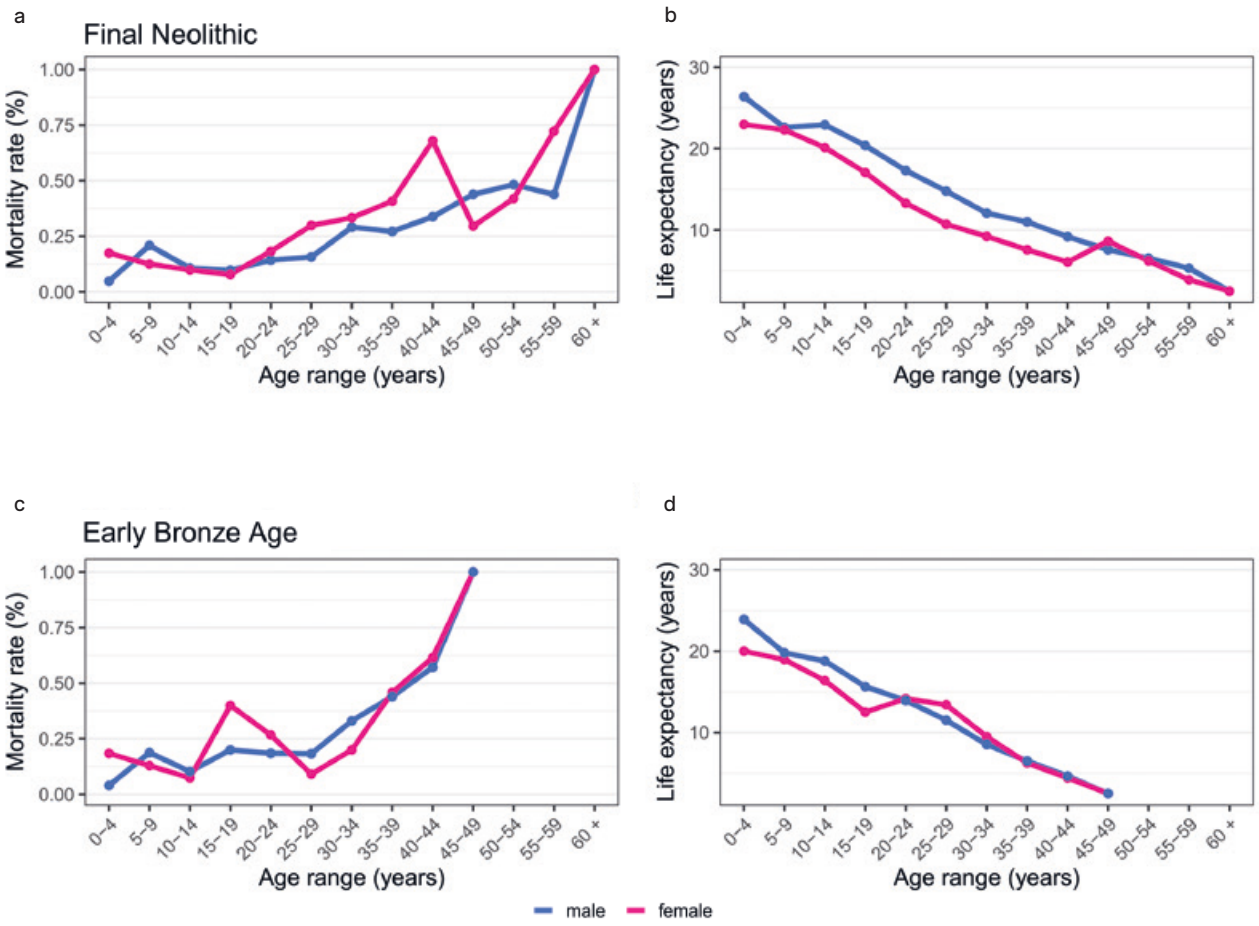

Fig. 5 Comparison of sex-specific mortality rate (q_x) and life expectancy (e_x) in the Final Neolithic (**a–b**) and Early Bronze Age (**c–d**) composite sample. – (Image S. Lismann).

In general, increased subadult mortality in the Corded Ware culture sites and the Early Bronze Age site of Ammerbuch-Reusten could indicate increased fertility and birth rates, and subsequent population growth (Boldsen et al. 2022, 134), as also suggested in Scandinavian Corded Ware cultures (Tornberg/Vandkilde 2025, 10 fig. 5; 13–14). However, this population growth trend does not apply to Remseck-Aldingen, since a concomitant higher number of older children and juveniles is not observable (cf. Chamberlain 2006, 64–65). Furthermore, the youngest age category (0–4 years) encompasses two critical stages of early life: birth and weaning. Since neonates (0–1 year) are not overly represented in Remseck-Aldingen (8.3 %; Final Neolithic 25.2 %), the increased mortality is based on high numbers of 2–4-year-olds, probably due to infectious diseases or stress during and after weaning. Even though the weaning behaviour did not change essentially throughout the Neolithic and the Early Bronze Age in Central Germany (Münster et al. 2018, 23), regional differences are observed (Münster et al. 2018, 24), which may apply to Remseck-Aldingen. Preliminary examinations of linear enamel hypoplasia indicate an earlier occurrence of weaning in this site than in the other samples under study, presumably suggesting a higher stress level and mortality in infants. However, palaeopathological analyses are needed to test this hypothesis, which is currently conducted by us. Interestingly, Rathmann et al. (2023, 7. 9 fig. 6) found less biological variation in Remseck-Aldingen than in the other samples studied, and concluded that this site may represent an isolated population, which coincides with the »uncommon« orientation of the burials within the Neckar group. Their presumed isolation may have encouraged distinct cultural behaviours that, in combination with potential environmental factors (e. g., early weaning, limited access to nutritious weaning foods, disease, living conditions), had deleterious effects on child rearing, eventually distinguishing the Remseck-Aldingen population from those of other sites under study.

Moreover, late adolescence seems to offer more dangers for the people of the Early Bronze Age than for those of the Final Neolithic. Considering biological sex, it becomes evident that this spike mirrors increased female mortality emerging at 15–19 years during the Early Bronze Age. Combined with the

generally high female mortality rate in the subsequent age category at 20–24 years in both periods, this probably reflects more severe hazards of pregnancy and parturition for Early Bronze Age women. Interestingly, this trend only prevails in the site of Ammerbuch-Reusten, which is temporally and micro-regionally distinct from Remseck-Aldingen. Even though adolescent pregnancies seem to be more frequent in European Bronze Age societies (Pany-Kucera et al. 2020, 45; Rebay-Salisbury 2017, 174–176. 184; Rebay-Salisbury et al. 2018, 100–106), this is not a general trend. Peak female mortality presumably related to reproduction is reached in the Early Bronze Age between 30 and 40 years in Central Germany and between 20 and 30 years in Southeast Germany (Nicklisch 2017, 107 fig. 1.7; 108; Staskiewicz 2018a, 478 fig. 268; 480; 2018b, 514 fig. 293; 515). However, increased female mortality in late adolescence has also been discovered in Corded Ware cultures in Scandinavia (Tornberg/Vandkilde 2025, 10 fig. 5; 11). This could imply that the transition to womanhood was differently perceived, resulting in chronologically and regionally different marital ages and first pregnancies. However, as the development of parturition scars is highly variable and dependent on several conditions (Pany-Kucera et al. 2022a; 2022b; Waltenberger et al. 2022), biologically identifying pregnancies is not straightforward, especially in juveniles. Still, one inhumation of a possibly female juvenile individual at Ammerbuch-Reusten contained neonate skeletal remains, constituting a potential subadult pregnancy and mother-child burial. The lack of further such burials and the generally low number of very young subadults in Ammerbuch-Reusten could be related to the afore mentioned reasons.

Furthermore, both time periods are characterised by more potentially female individuals in the youngest age category. Since diseases are largely sex-independent, it is possible that males were culturally more acknowledged, ultimately leading to higher parental investment in male offspring, with neglect or infanticide of female children (Trautmann 2012, 331. 334. 341. 344; Rebay-Salisbury et al. 2020, 265). Archaeological findings, however, do not indicate a preferred sex through burial traditions in the sites included in our analysis. Moreover, missing signs of sharp or blunt force trauma do not indicate violent acts against subadults. Having said this, it must be mentioned that the poor preservation, especially of cranial bones, hampers interpretations, and other causes of violent death that leave no skeletal traces cannot be excluded. Active or passive infanticide was also hypothesised by Trautmann (2012, 330–331). Another option is that the male birth rate declined due to the poor living conditions of the mothers (Song 2012). Even though preliminary observations indicate high frequencies of pathological conditions, more detailed analyses are necessary to test this hypothesis. Nevertheless, the high number of unsexed subadults could introduce a data bias, as subadult morphological sexing techniques are error-prone (e. g., Leskovar et al. 2023; Vlak et al. 2008). We therefore caution to interpret these results with care.

Interestingly, Final Neolithic women consistently exhibit higher mortality rates and lower life expectancy than males, while in the Early Bronze Age they are equal for both sexes after the probable reproductive phase of females. This indicates ameliorating conditions for women from the Final Neolithic to the Early Bronze Age with cultural and social changes positively affecting female life circumstances. The results of Macintosh et al. (2014; 2016) support this hypothesis, demonstrating a stress-related reduction in body size, particularly among Final Neolithic women, and changes in female behaviour and labour division in the Early Bronze Age. Interestingly, this sexual dimorphic trend is not observable in Final Neolithic and Early Bronze Age Central Germany (Nicklisch 2017, 107 tab. 1.5), accentuating regional differences. It should be noted that the validity of this observation is limited due to the small number of sexed individuals in the Early Bronze Age samples under study.

The site of Heilbronn stands out with respect to the relative demographic uniformity of all other Final Neolithic sites. Keeping in mind that the small sample size compared to the other Final Neolithic sites could also introduce some error, a distinct pattern can be observed. The low number of infants and the high frequencies of individuals in middle adulthood preclude an attritional cemetery, which would reflect a pattern with high mortality during infancy, that decreases afterwards and again increases from adulthood onwards. Natural disasters or epidemics are also unlikely since these factors largely act independent of age, which contradicts the high number of middle-aged adults. Rather, this could indicate warfare or conflicts (Meyer et al. 2018; Fernández-Crespo et al. 2023; Fibiger et al. 2023). However, since both sexes are equally affected and evidence for trauma is lacking, this hypothesis also has limited plausibility. Even though the small number of infants could be explained by the reasons mentioned above, the pattern for adult individuals still remains to be explained in a satisfactory manner. Nevertheless, most intriguingly this observation coincides with the fact that individuals anthropologically determined as male had been buried on their left side and those determined as female almost exclusively

on their right side, seemingly reversing the common bipolar differentiation practises of the Corded Ware. An explanation might be mutually adoptive processes between Corded Ware and Bell Beaker that are visible in pottery styles and burial customs from 2480 cal BC onwards (Großmann 2016). However, of the four radiocarbon-dated graves from Heilbronn that exhibit the »inverted« gender scheme, three most probably fall into an earlier period, while only one dates after 2480 cal BC. In any case, the Heilbronn cemetery is certainly of particular importance to understand the multi-faceted manner of the complex social and cultural processes that occurred in Southwest Germany during the third millennium BC.

Finally, even though several studies have demonstrated the value of age and sex analyses to detect palaeodemographic trends in historic and prehistoric populations (e. g., Alesan et al. 1999; Eshed et al. 2004; Howell 1982; Nagaoka et al. 2006; Nicklisch 2017), it is an ongoing debate to which extend palaeodemographic analyses actually reflect the once-living population (Bocquet-Appel/Masset 1982; DeWitte/Stojanowski 2015; Wood et al. 1992; Wright/Yoder 2003). Insufficient sample size and inaccuracy in age and sex determination are particularly criticised (Boldsen et al. 2022; DeWitte 2018). To circumvent these issues, we pooled sites of the same cultural complexes, as frequently practiced and suggested (Milner/Boldsen 2017, 33; Nicklisch 2017; Brewis et al. 1990). However, by simultaneously considering single-site samples, we are able to account for local conditions, and acknowledge the reduced statistical validity of these results. In addition, we have used various well-established ageing methods and therefore assume that the patterns in the age categories beyond 45 years in the present data reflect populations with reduced life expectancy (Alesan et al. 1999). Furthermore, the small number of Early Bronze Age sexed individuals and especially methodological limitations in sexing subadults cause biases; results are therefore only indicative. Despite these limitations, we believe that our analyses adequately represent demographic structures and they generally agree with studies in Austria, Scandinavia and Southeast Europe (Pany-Kucera et al. 2020; Rebay-Salisbury 2017; Rebay-Salisbury et al. 2018; Macintosh et al. 2014; 2016; Tornberg/Vandkilde 2025). To increase statistical validity and refine chronological and geographical coverage, future research should include additional sites and cultural complexes.

Conclusion

Our demographic analysis provides new valuable insights into the structure of Final Neolithic and Early Bronze Age populations in Southwest Germany. Cultural and social development during these periods affected the demographic profile of past populations in differing extents, and strict chronological conclusions are not generally valid, indicated by local deviations.

We found diachronic changes in mortality and life expectancy for infant individuals, as well as for juvenile and adult females. The higher mortality among Early Bronze Age female juveniles could potentially indicate adolescent pregnancies, probably as a consequence of changes in marital ages and social recognition of women. Nevertheless, Final Neolithic female individuals exhibit a constantly lower life expectancy than males, contrary to equal life expectancies of both sexes from middle adulthood onwards in the Early Bronze Age. This may signal improving living conditions in the later period. Furthermore, even though female infanticide has been suggested in similar studies, DNA or peptide-based analyses are needed to corroborate the potential higher mortality in female infants. Finally, unusual mortality patterns and burial practices in the Corded Ware cemetery of Heilbronn still require detailed palaeopathological and archaeological analyses. Our findings demonstrate that even culturally and temporally defined groups are highly variable, and that analyses of individual sites are essential to detect and understand such variability. Ultimately, the results refine our knowledge of demographic development during the Final Neolithic and the Early Bronze Age and emphasize the importance of studies conducted at regional to micro-regional scales for these periods.

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Zusammenfassung
Résumé

Lebensgeschichte rekonstruieren. Neue paläodemografische Einblicke in endneolithische und frühbronzezeitliche Populationen Südwestdeutschlands

Während des dritten bis mittleren zweiten Jahrtausends v. Chr. erlebte die menschliche Kultur in Europa einen dramatischen Wandel. Verschiedene Studien zeigen, dass der soziokulturelle Wandel komplexe und regional unterschiedliche biologische Auswirkungen hatte. Daher liefern paläodemografische Analysen des Sterbealters und Geschlechts von menschlichen Skeletten wertvolle Einblicke in die Lebenserwartung und Sterblichkeit. In dieser Studie wird das demografische Profil von 322 Individuen des Endneolithikums (Schnurkeramik) und der Frühbronzezeit (Neckargruppe) aus 17 Fundstellen in Baden-Württemberg (Südwestdeutschland) anhand von Sterbetafeln rekonstruiert. Die Ergebnisse deuten auf diachrone Veränderungen der Sterblichkeit und Lebenserwartung von Kleinkindern sowie weiblichen Jugendlichen und erwachsenen Frauen, begleitet von regionalen Unterschieden. Dies weist auf generell verbesserte Lebensumstände vom Endneolithikum zur Frühbronzezeit, mit Ausnahme von erhöhter Sterblichkeit frühbronzezeitlicher junger Frauen, die möglicherweise auf Jugendschwangerschaften zurückzuführen ist.

Reconstruire l'histoire de la vie. Nouvelles perspectives paléodémographiques sur les populations du Néolithique final et de l'âge du Bronze ancien en Allemagne du Sud-Ouest

Au cours du troisième et du milieu du deuxième millénaire av. J.-C., la culture humaine en Europe a connu des changements spectaculaires. Plusieurs études montrent que ces changements socioculturels ont eu des répercussions biologiques complexes et différentes selon les régions. Par conséquent, les analyses paléodémographiques de l'âge au décès et du sexe des squelettes humains fournissent des informations précieuses sur l'espérance de vie et la mortalité. Dans cette étude, le profil démographique de 322 individus du Néolithique final (Céramique cordée) et du Bronze ancien (Groupe du Neckar) provenant de 17 sites du Bade-Wurtemberg, dans le sud-ouest de l'Allemagne, est reconstitué à partir de tables de mortalité. Les résultats indiquent des changements diachroniques de la mortalité et de l'espérance de vie des jeunes enfants, des adolescentes et des femmes adultes, accompagnés de différences régionales. Cela indique une amélioration générale des conditions de vie entre le Néolithique final et le Bronze ancien, à l'exception de la mortalité accrue des jeunes femmes du Bronze ancien, qui pourrait être due à des grossesses adolescentes.

Schlüsselwörter
Mots-clés

Südwestdeutschland / Endneolithikum / Frühbronzezeit / Paläodemografie / Anthropologie
Sud-Ouest de l'Allemagne / Néolithique final / Bronze ancient / paléodémographie / anthropologie

Appendix: Supplementary Life Tables

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	3.00	12.50	100.00	0.13	468.75	2406.25	24.06
5-9	2.00	8.33	87.50	0.10	416.67	1937.50	22.14
10-14	3.00	12.50	79.17	0.16	364.58	1520.83	19.21
15-19	1.50	6.25	66.67	0.09	317.71	1156.25	17.34
20-24	1.83	7.64	60.42	0.13	282.99	838.54	13.88
25-29	2.17	9.03	52.78	0.17	241.32	555.56	10.53
30-34	4.42	18.40	43.75	0.42	172.74	314.24	7.18
35-39	3.58	14.93	25.35	0.59	89.41	141.49	5.58
40-44	1.25	5.21	10.42	0.50	39.06	52.08	5.00
45-49	1.25	5.21	5.21	1.00	13.02	13.02	2.50
50-54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55-59	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	24.00	100.00			2406.25		

Tab. A.1 Abridged life table for Heilbronn. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	26.08	29.31	100.00	0.29	426.73	1797.75	17.98
5-9	15.58	17.51	70.69	0.25	309.69	1371.02	19.39
10-14	7.58	8.52	53.18	0.16	244.62	1061.33	19.96
15-19	5.55	6.24	44.66	0.14	207.72	816.71	18.29
20-24	5.80	6.52	38.43	0.17	175.84	608.99	15.85
25-29	5.80	6.52	31.91	0.20	143.26	433.15	13.57
30-34	6.44	7.24	25.39	0.29	108.87	289.89	11.42
35-39	4.44	4.99	18.15	0.27	78.29	181.02	9.97
40-44	6.94	7.80	13.16	0.59	46.31	102.73	7.80
45-49	0.44	0.50	5.36	0.09	25.56	56.42	10.52
50-54	2.44	2.74	4.86	0.56	17.46	30.86	6.34
55-59	0.44	0.50	2.12	0.23	9.35	13.40	6.33
60+	1.44	1.62	1.62	1.00	4.05	4.05	2.50
Σ	89.00	100.00			1797.75		

Tab. A.2 Abridged life table for Lauda-Königshofen. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	15.25	25.85	100.00	0.26	435.38	1843.22	18.43
5-9	13.75	23.31	74.15	0.31	312.50	1407.84	18.99
10-14	4.25	7.20	50.85	0.14	236.23	1095.34	21.54
15-19	2.75	4.66	43.64	0.11	206.57	859.11	19.68
20-24	3.28	5.56	38.98	0.14	181.03	652.54	16.74
25-29	6.28	10.64	33.43	0.32	140.54	471.52	14.11
30-34	2.42	4.10	22.79	0.18	103.68	330.98	14.52
35-39	2.42	4.10	18.68	0.22	83.17	227.30	12.17
40-44	2.42	4.10	14.58	0.28	62.65	144.14	9.88
45-49	2.42	4.10	10.48	0.39	42.14	81.48	7.78
50-54	1.59	2.69	6.38	0.42	25.15	39.35	6.17
55-59	1.59	2.69	3.69	0.73	11.70	14.19	3.85
60+	0.59	1.00	1.00	1.00	2.49	2.49	2.50
Σ	59.00	100.00			1843.22		

Tab. A.3 Abridged life table for Tauberbischofsheim-Dittigheim. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	7.67	21.30	100.00	0.21	446.76	1743.06	17.43
5-9	8.50	23.61	78.70	0.30	334.49	1296.30	16.47
10-14	4.50	12.50	55.09	0.23	244.21	961.81	17.46
15-19	2.93	8.15	42.59	0.19	192.59	717.59	16.85
20-24	2.46	6.84	34.44	0.20	155.13	525.00	15.24
25-29	1.96	5.45	27.61	0.20	124.42	369.87	13.40
30-34	1.96	5.45	22.16	0.25	97.18	245.45	11.08
35-39	1.96	5.45	16.71	0.33	69.95	148.26	8.87
40-44	1.71	4.75	11.27	0.42	44.44	78.32	6.95
45-49	1.71	4.75	6.51	0.73	20.68	33.87	5.20
50-54	0.21	0.59	1.76	0.33	7.33	13.19	7.50
55-59	0.21	0.59	1.17	0.50	4.40	5.86	5.00
60+	0.21	0.59	0.59	1.00	1.47	1.47	2.50
Σ	36.00	100.00			1743.06		

Tab. A.4 Abridged life table for Tauberbischofsheim-Impfingen. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	1.00	2.94	100.00	0.03	492.65	2213.24	22.13
5-9	6.50	19.12	97.06	0.20	437.50	1720.59	17.73
10-14	4.50	13.24	77.94	0.17	356.62	1283.09	16.46
15-19	7.00	20.59	64.71	0.32	272.06	926.47	14.32
20-24	2.96	8.70	44.12	0.20	198.84	654.41	14.83
25-29	1.96	5.76	35.42	0.16	162.68	455.58	12.86
30-34	2.96	8.70	29.66	0.29	126.53	292.89	9.88
35-39	2.96	8.70	20.96	0.42	83.03	166.36	7.94
40-44	1.71	5.02	12.25	0.41	48.71	83.33	6.80
45-49	1.71	5.02	7.23	0.69	23.59	34.62	4.79
50-54	0.38	1.10	2.21	0.50	8.27	11.03	5.00
55-59	0.38	1.10	1.10	1.00	2.76	2.76	2.50
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	34.00	100.00			2213.24		

Tab. A.5 Abridged life table for Ammerbuch-Reusten. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	11.00	33.33	100.00	0.33	416.67	1886.36	18.86
5-9	3.00	9.09	66.67	0.14	310.61	1469.70	22.05
10-14	2.00	6.06	57.58	0.11	272.73	1159.09	20.13
15-19	2.50	7.58	51.52	0.15	238.64	886.36	17.21
20-24	3.00	9.09	43.94	0.21	196.97	647.73	14.74
25-29	2.50	7.58	34.85	0.22	155.30	450.76	12.93
30-34	2.50	7.58	27.27	0.28	117.42	295.45	10.83
35-39	2.50	7.58	19.70	0.38	79.55	178.03	9.04
40-44	1.75	5.30	12.12	0.44	47.35	98.48	8.12
45-49	0.75	2.27	6.82	0.33	28.41	51.14	7.50
50-54	0.75	2.27	4.55	0.50	17.05	22.73	5.00
55-59	0.75	2.27	2.27	1.00	5.68	5.68	2.50
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	33.00	100.00			1886.36		

Tab. A.6 Abridged life table for Remseck-Aldingen. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	4.50	4.84	100.00	0.05	487.90	2639.78	26.40
5-9	18.50	19.89	95.16	0.21	426.08	2151.88	22.61
10-14	7.50	8.06	75.27	0.11	356.18	1725.81	22.93
15-19	6.10	6.56	67.20	0.10	319.62	1369.62	20.38
20-24	8.07	8.68	60.65	0.14	281.53	1050.00	17.31
25-29	7.57	8.14	51.97	0.16	239.47	768.47	14.79
30-34	11.86	12.75	43.82	0.29	187.24	529.00	12.07
35-39	7.86	8.45	31.07	0.27	134.24	341.76	11.00
40-44	7.11	7.64	22.62	0.34	94.01	207.52	9.17
45-49	6.11	6.57	14.98	0.44	58.48	113.51	7.58
50-54	3.77	4.06	8.41	0.48	31.92	55.03	6.54
55-59	1.77	1.91	4.35	0.44	17.00	23.11	5.31
60+	2.27	2.45	2.45	1.00	6.11	6.11	2.50
Σ	93.00	100.00			2639.78		

Tab. A.7 Abridged life table for Final Neolithic males. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	11.00	17.46	100.00	0.17	456.35	2297.62	22.98
5-9	6.50	10.32	82.54	0.13	386.90	1841.27	22.31
10-14	4.50	7.14	72.22	0.10	343.25	1454.37	20.14
15-19	3.20	5.08	65.08	0.08	312.70	1111.11	17.07
20-24	6.89	10.94	60.00	0.18	272.64	798.41	13.31
25-29	9.23	14.65	49.06	0.30	208.66	525.77	10.72
30-34	7.23	11.47	34.41	0.33	143.36	317.11	9.22
35-39	5.89	9.36	22.94	0.41	91.29	173.74	7.57
40-44	5.81	9.22	13.58	0.68	44.84	82.45	6.07
45-49	0.81	1.29	4.36	0.30	18.56	37.61	8.63
50-54	0.81	1.29	3.07	0.42	12.13	19.05	6.21
55-59	0.81	1.29	1.78	0.72	5.69	6.92	3.89
60+	0.31	0.49	0.49	1.00	1.23	1.23	2.50
Σ	63.00	100.00			2297.62		

Tab. A.8 Abridged life table for Final Neolithic females. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	44.00	46.81	100.00	0.47	382.98	938.83	9.39
5-9	20.83	22.16	53.19	0.42	210.55	555.85	10.45
10-14	10.83	11.52	31.03	0.37	126.33	345.30	11.13
15-19	7.53	8.01	19.50	0.41	77.48	218.97	11.23
20-24	3.06	3.26	11.49	0.28	49.31	141.49	12.31
25-29	3.06	3.26	8.23	0.40	33.02	92.18	11.20
30-34	1.06	1.13	4.98	0.23	22.06	59.16	11.89
35-39	1.56	1.66	3.85	0.43	15.09	37.10	9.64
40-44	0.81	0.86	2.19	0.39	8.78	22.02	10.07
45-49	0.31	0.33	1.32	0.25	5.79	13.24	10.00
50-54	0.31	0.33	0.99	0.33	4.14	7.45	7.50
55-59	0.31	0.33	0.66	0.50	2.48	3.31	5.00
60+	0.31	0.33	0.33	1.00	0.83	0.83	2.50
Σ	94.00	100.00			938.83		

Tab. A.9 Abridged life table for Final Neolithic unsexed individuals. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	1.00	4.00	100.00	0.04	490.00	2390.00	23.90
5-9	4.50	18.00	96.00	0.19	435.00	1900.00	19.79
10-14	2.00	8.00	78.00	0.10	370.00	1465.00	18.78
15-19	3.50	14.00	70.00	0.20	315.00	1095.00	15.64
20-24	2.58	10.33	56.00	0.18	254.17	780.00	13.93
25-29	2.08	8.33	45.67	0.18	207.50	525.83	11.51
30-34	3.08	12.33	37.33	0.33	155.83	318.33	8.53
35-39	2.75	11.00	25.00	0.44	97.50	162.50	6.50
40-44	2.00	8.00	14.00	0.57	50.00	65.00	4.64
45-49	1.50	6.00	6.00	1.00	15.00	15.00	2.50
50-54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55-59	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	25.00	100.00			2390.00		

Tab. A.10 Abridged life table for Early Bronze Age males. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	3.50	18.42	100.00	0.18	453.95	2000.00	20.00
5-9	2.00	10.53	81.58	0.13	381.58	1546.05	18.95
10-14	1.00	5.26	71.05	0.07	342.11	1164.47	16.39
15-19	5.00	26.32	65.79	0.40	263.16	822.37	12.50
20-24	2.00	10.53	39.47	0.27	171.05	559.21	14.17
25-29	0.50	2.63	28.95	0.09	138.16	388.16	13.41
30-34	1.00	5.26	26.32	0.20	118.42	250.00	9.50
35-39	1.83	9.65	21.05	0.46	81.14	131.58	6.25
40-44	1.33	7.02	11.40	0.62	39.47	50.44	4.42
45-49	0.83	4.39	4.39	1.00	10.96	10.96	2.50
50-54	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55-59	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	19.00	100.00			2000.00		

Tab. A.11 Abridged life table for Early Bronze Age females. – (Table S. Lismann).

x	D_x	d_x	l_x	q_x	L_x	T_x	e_x
0-4	7.50	26.79	100.00	0.27	433.04	2000.00	20.00
5-9	3.00	10.71	73.21	0.15	339.29	1566.96	21.40
10-14	3.50	12.50	62.50	0.20	281.25	1227.68	19.64
15-19	2.50	8.93	50.00	0.18	227.68	946.43	18.93
20-24	1.88	6.70	41.07	0.16	188.62	718.75	17.50
25-29	1.88	6.70	34.38	0.19	155.13	530.13	15.42
30-34	1.88	6.70	27.68	0.24	121.65	375.00	13.55
35-39	1.38	4.91	20.98	0.23	92.63	253.35	12.07
40-44	1.13	4.02	16.07	0.25	70.31	160.71	10.00
45-49	1.13	4.02	12.05	0.33	50.22	90.40	7.50
50-54	1.13	4.02	8.04	0.50	30.13	40.18	5.00
55-59	1.13	4.02	4.02	1.00	10.04	10.04	2.50
60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Σ	28.00	100.00			2000.00		

Tab. A.12 Abridged life table for Early Bronze Age unsexed individuals. – (Table S. Lismann).