

MORTUARY ANALYSIS

The practice of human burial involves both biological and cultural remains that are intentionally placed together in the ground. Burials are a storehouse of information on human activity, organization, and belief. Because burial is intentional, artifacts are usually complete, not discarded when broken or exhausted, and skeletons are intact, not isolated single finds of bone. All aspects of burial information have potential meaning, and archaeologists are very careful in the excavation and recording of graves.

This problem in bioarchaeology involves a group of human burials found in graves, along with the objects and materials interred with them. Mortuary analysis of this evidence provides information on demography, health, activity, social organization, and other aspects of past human behavior. This exercise was developed by Paul Mullins of Indiana University–Purdue University Indianapolis and is used with his permission.

Discovery

A hypothetical Neolithic site somewhere in Eurasia contained at least fifty graves. As far as we can tell, the graves are roughly contemporary, within a 150-year span of time, dating to around 4000 BC. The graves do not appear to have been disturbed by later activities and the excavators believe they found most of the graves at the site. Archaeological analysis follows discovery and it is directed by the questions we are trying to answer. In this case of mortuary analysis, the research questions that define the problem can be listed. Read the description of the project completely before beginning your work.

1. What was the health status of the population?
2. How did people die?
3. What was the life expectancy?
4. Is there evidence for a sexual division of labor?
5. Were there status differences within this society?
6. If status did exist, was it achieved or ascribed, or both?
7. Is health status related to sex or social status?

Burial Data

The list of burials (Table 14.6) contains various kinds of information: burial number, the age and sex of each individual, the provenience of the grave (i.e., location), body posture (i.e., literally how the body was positioned in the grave), and grave goods (i.e., the things buried with the deceased).

Each burial number is a unique, sequential identifier assigned to an individual; the burial numbers were designated as the graves were found and should have no significance in your study except to distinguish the burials. Most of the graves contained a single interment. A few graves with multiple burials are noted parenthetically in the comments in the grave goods column in Table 14.6. For instance, Burial 16 (infant) was found with Burial 15, a 20–24-year-old adult female, and is denoted in the grave goods column as “(w/B15).”

Regarding gender, the table only contains information on adults because sex cannot be determined in the skeletons of infants and children. Sex information is coded as M for males, F for females, and U for unknown. Infants are designated as those less than 1 year old; children range in age from 1 to 14 years old.

TABLE 14.6 Burial data for project.

Burial	Sex	Age	Prov	Post	Pathology	Grave Goods
1	M	20–24	M	F		ChPt, ChKn
2	U	<1	C	E		2CoBr, AmBe, PaCAn, PaCPo
3	F	20–24	M	F		UnCAnFi
4	M	40–44	M	F	Dental decay	2 ChPt, ChKn
5	M	30–34	M	F		ChPt, 2ChKn
6	M	20–24	M	F		ChKn, ChNo
7	M	15–19	M	F	Arthritic big toe	ChPt
8	U	1–4	M	F		None
9	U	1–4	M	I		None
10	U	5–9	M	F	Enamel hypoplasia	UnCBifi
11	F	15–19	M	F		UnCBo
12	M	15–19	M	F	Enamel hypoplasia	ChPt, ChKn, UnCBo
13	F	35–39	C	E	Arthritic big toe, dental decay	CoBr, 12CoBe, AmPe, 3PaCBo, PaAnFi, BuBa (w/B20)
14	M	35–39	C	F		ChPt, ChKn, UnCbBo
15	F	20–24	C	E	Axe wound to skull	CoBr, 4CoBe, CoPe, 4PaCBo, AmFi (w/B16)
16	U	<1	C	E		CoBr, 6CoBe, PaCBo (w/B15)
17	F	15–19	M	F	Point in pelvis, no skull	UnCBifi
18	U	1–4	M	F		None
19	F	20–24	M	F	Dental decay	UnCBo, BuWh
20	F	25–29	C	F		UnCJa
21	M	45–49	M	F	Axe wound to skull; parry fracture	ChKn, 3ChPt, UnCBo (w/B13)
22	M	50–54	M	E		2CoBr, CoPe, 3ObKn, 5PaCJa, BuWh (w/B27)
23	U	5–9	M	F		ChKn
24	U	1–4	M	I	Enamel hypoplasia	None
25	F	15–19	M	F	Harris lines	3UnCBe

Adults are defined as individuals older than 14, and specific age ranges are estimated for each adult burial. Age is reported in Table 14.6 in a range of years (e.g., 10–14) or as U (unknown).

The burials were discovered in one of two locations. A few individuals were found in a *cemetery*, a discrete location specifically for interment of the dead, while the majority of graves were in a *midden* (a refuse area or garbage dump) containing common household refuse as well as mortuary remains. Provenience is coded as M for midden and C for cemetery.

TABLE 14.6 (continued)

Burial	Sex	Age	Prov	Post	Pathology	Grave Goods
26	U	<1	M	I		None
27	U	<1	M	I		None (w/B21)
28	F	60+	M	F	Arthritic big toe	3UnCBo, ChKn, UnCBe, BuBa
29	F	30-34	M	F		GrSt, BuBa
30	M	25-29	M	E	Parry fracture	4ObBl, CoBr, CoNC, 2PaCJa, 2ObPt, ChPt (w/B49)
31	U	1-4	M	I		UnCBiFi
32	M	15-19	M	F	Dental decay	ChBl
33	F	40-44	M	F	Dental decay, Harris lines	2UnCBo, GrSt, BuBa
34	U	<1	M	F		None (w/B35)
35	U	<1	M	I		None (w/B34)
36	U	<1	M	I		None
37	U	<1	M	F		None
38	U	<1	M	I		None
39	F	25-29	M	F	Harris lines	None
40	F	15-19	C	F	Dental decay	CoPe
41	M	30-34	M	F	Axe wound to skull	ChPt, ChSi, UnCBo
42	M	25-29	M	F	Obsidian point in rib	None
43	U	5-9	C	E		3AmBe, AmBr, PaCBe, BuWh
44	U	10-14	C	E		2CoBr, 2ObKn, PaCBo, BuWh
45	U	<1	M	I		None
46	F	25-29	M	F	Arthritic big toe	UnCBo, BoSi
47	F	20-24	M	F		5UnCBe
48	U	1-4	M	F		None
49	M	60+	M	F	Dental decay	2ChBl, ObPt, UnCBo, UnCJa w/ BuBa (w/B30)
50	F	45-49	M	F	Arthritic big toe	2UnCPo, 8ShBe, ShPe, GrSt, BuBa

Body posture describes how individuals were placed in the grave, in an extended position (laid out flat), or flexed (either partially or fully curled with knees near or at the chest), or uncertain. Coding for burial posture is listed in the table as E for extended, F for flexed, and I for indeterminate.

Information on paleopathology observed on the skeletal remains is also recorded in the data table. A variety of conditions related to health, nutrition, activity, and trauma are reported though cause of death is only occasionally recorded in the skeleton and disease and age-related fatalities usually could not

be determined. Traumatic injuries include axe blows to skull, points in bone, and parry fractures. Parry fractures are usually healed breaks in the ulna caused by a blow to the forearm raised in defense. Nutritional pathologies in the table data include tooth decay as a result of starchy foods in the diet, and Harris lines and enamel hypoplasia, which result from nutritional deficiencies or malnutrition. Arthritis also falls under the pathology category. Arthritis often is caused by heavy use of particular joints. In this table, arthritic big toes are recorded. Such toes have been observed in individuals spending long periods on their knees grinding grain, for example, at Abu Hureyra in Syria.

Grave goods are the material objects buried with the dead. In most egalitarian societies, lacking status differentiation, individuals are generally buried with similar graves and goods. Graves tend to be very simple and the contents are often utilitarian items if anything. In more hierarchical societies with various forms of social inequality, position and status in life are sometimes reflected by the grave and its contents. Mortuary goods were frequently used to symbolize the activities the deceased performed in life. In some prehistoric societies, for example, the deceased might be buried with medicine bundles that reflected their role as a **shaman**, or curer, in life; a craftsperson might be buried with the products of his or her work. Small symbols used in burial ritual or public display are often intended to convey a much larger set of associated concepts known to the members of the society. For example, in our own society largely useless or wasteful status symbols like Hummer SUVs can convey a great deal of information about their owners. Rare or valuable goods are not buried by accident with a human body; scarce objects reflect an intentional statement about the deceased's role in that society.

In more hierarchical societies, positions of power are determined by lineage and inheritance, so there are some children born to positions of ascribed status. This status may be displayed in the grave if these individuals die during infancy or childhood. In a society with achieved status, infants would not typically merit lavish burial rituals.

There are five kinds of grave goods in the cemetery data in Table 14.6. The first is several types of *nonlocal stones*—obsidian, amber, and copper—that were rare and could be acquired only through long-distance trade. The second grave good is a local stone, *chert*, which could be quarried nearby and was available to all members of the group. The stone tools made from both exotic and local materials include “knives,” a multipurpose cutting tool; “points,” archaeological shorthand for projectile points used in hunting and warfare; “sickles,” blade tools designed for cutting vegetation; and “grinding stones,” which are used in the preparation of grains such as barley and wheat. The third grave good category is *undecorated ceramics*, which were produced by local craftspeople and were relatively common. The fourth type of grave good is *painted ceramics*, which were more costly to produce and less common than the undecorated wares. Both painted and unpainted ceramics are found as “bowls” (primarily associated with food preparation), “jars” (primarily associated with storage), “decorative figurines,” and “beads.” A few burials also contain some plant or animal remains, such as barley seeds or pig bones.

The information on grave goods is coded in the following way: Am = amber, An = animal, Ba = barley, Be = bead, Bi = bird, Bl = blade, Bo = bowl, Br = bracelet, Bu = burned, C = ceramic, Ch = chert, Co = copper, Fi = figurine, Gr = grinding, Ja = jar, Kn = knife, NC = neck collar, No = nodule, Ob = obsidian, Pa = painted, Pe = pendant, Po = pot, Pt = point, Sh = shell, Si = sickle, St = stone,

shaman Specialist in ritual and healing, seers of the future in *hunter-gatherer* and *subsistence farming* societies.

Un = unpainted, Wh = wheat. The presence of more than one object is indicated by the number in front of the code.

Analysis

There are several ways to approach this problem. Keep in mind the questions that are being asked about status and activity differences among age groups and between sexes. Information on a number of different variables (age, sex, posture, provenience, grave goods) is provided. Your job is to find patterns or relationships among these variables that may answer the questions. This takes some time, thought, and effort.

It's a lot of information, both visual and numerical. It would be a good idea to try to condense this information in various ways to make it easier to find patterns. You could change the counts of some of the categories into percentages. Take the number of individuals in each category and divide by the total in all categories. For example, if there are fourteen males, sixteen females, ten children, and ten infants, the percentage of children is $10/50 = 20\%$. You could also use tally charts or bar graphs to indicate the relative amount of each category. For example, Fig. 14.27 shows a simple tally chart for men, women, children, and infants.

It will also be useful to know more about the different kinds of grave goods. Were some of these items highly valued? You might want to tabulate how rare or common the various grave goods were to get a sense of how important they might have been in this society. Again, a tally chart might provide some information. You may also want to group some kinds of grave goods together to see if a pattern emerges (for example, wealth vs. nonwealth, or food preparation vs. nonfood preparation).

To find relationships between the different variables, you need to look at co-occurrence (items found together frequently or rarely). A contingency table is a useful tool for cross-tabulating information such as this burial data. Set up the table with the variables of interest (for example, sex and provenience) and then count the cases where the categories of sex are found in different proveniences (shown in Fig. 14.28). These contingency tables can be constructed for any between-variable pairs. You can also calculate percentages in the table boxes by dividing the tallied number by the row or column total.

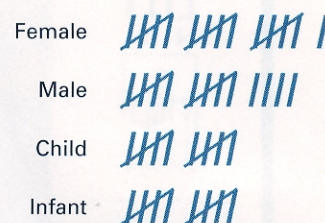


Fig. 14.27 Example of a tally chart.

		Sex		Sum
		Male	Female	
Location	Cemetery	IIII 4 (13.3%)	I 1 (3.3%)	5 (16.7%)
	Midden	IIII IIII II 12 (40%)	IIII IIII III 13 (43.3%)	25 (83.3%)
	Sum	16 (53.3%)	14 (46.7%)	30 (100%)

Fig. 14.28 Example of a contingency table.

Interpretation

Now the analysis is done and it's time for some interpretation. What are your ideas about the information and patterns you have found in the data? Can you provide answers to the research questions that initiated this project? Please answer each of the following questions with a one-paragraph response. Be as specific as possible and provide examples to bolster your argument.

1. What was the health status of the population? What kinds of nutritional or disease indicators appear in the skeletal remains? What is the proportion of individuals with paleopathologies? Is this a normal population?
2. What were causes of death? How did people die? How many individuals exhibit probable-cause-of-death evidence? Was disease a problem in this region?
3. What was the life expectancy for adults? For males? For females? How did you calculate these values? Do these numbers seem comparable to other societies? If there are differences between males and females, what is responsible?
4. Is there evidence for a sexual division of labor? Did males and females undertake the same activities? Were children involved in labor? What kinds of activities are represented in the skeletal remains?
5. Were there status differences within this society? What kinds of evidence provide information on status differences? Is the location of burial (provenience) related to status? How confident are you in your answer to this question?
6. If status did exist, was it achieved or ascribed, or both? What is the evidence to support your answer?
7. Is health related to sex or social status? What are some of the patterns or associations you noted?
8. Do you have any particular observations or comments you would like to add that did not appear in your previous responses?