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The Bioarchaeology of Care

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Abstract: In archaeology, human skeletal remains are often dealt with separately from their social context. However, by taking a biocultural approach to reconstruct both biological identity and sociocultural context, the discipline of bioarchaeology can be used to diminish this divide concerning the human body and can provide important perspectives on human behaviours. One such behaviour is caregiving, and this paper explores the ability of bioarchaeology to identify evidence of human caregiving from human remains. Tilley's (2012) four-stage "bioarchaeology of care" methodology is reviewed as a framework for future researchers to follow. The capacity of bioarchaeology to interpret caregiving behaviour using theories of biocultural evolution and identity of the body is also explored. Although there still exists some limitations, by modeling Tilley's (2012) methods, drawing upon social theory, and using individual case studies to make inferences about populations, bioarchaeology can provide an interdisciplinary, unique, and critical perspective on human caregiving.

Keywords: Bioarchaeology; Paleopathology; Caregiving; Disability; Biocultural Approach.

The Bioarchaeology of Care

1 Introduction

1.1 Overview of bioarchaeology and care

Bioarchaeology is a branch of biological anthropology within the overarching discipline of anthropology, which is broadly focused on the scientific study of humankind (Martin et al., 2013). Holistic by nature, anthropology generally seeks to explain why humans do what they do, as well as address the impact of human behaviours on their survival (Martin et al., 2013). The practice of bioarchaeology specifically studies ancient and historic human remains, and uses the archaeological record to enhance knowledge of past peoples (Martin et al., 2013). Its goal is to interpret biological data in relation to social and ecological contexts by employing interdisciplinary and cross-cultural research tools (Martin et al., 2013). By reconstructing both biological identity and cultural context, bioarchaeology can be used to address broader social issues and can provide a unique time depth and culturally relative perspective on certain human behaviours in the past (Martin et al., 2013).

One such behaviour is caregiving to individuals from members of their community. The provision of care is a topic of increasing interest to bioarchaeologists, as the perceptions and treatment of individuals with conditions severe enough to require assistance for survival, can reflect the sociocultural and political environment of a community (Roberts, 2000). Furthermore, a caring response of a community to those in need can reflect cultural norms and values, collective knowledge, skills and experience, socioeconomic organization, and access to supporting resources (Tilley, 2012). This paper explores the ability of bioarchaeology to identify evidence of human caregiving from skeletal remains, as well as its capacity to interpret

caregiving behaviour using ideas about biocultural evolution, identity, and the body as theoretical frameworks.

1.2 Terminology

It is important to distinguish between care and compassion. Here, care will be referred to as the act of providing assistance to an individual experiencing illness who would otherwise have been unlikely to survive to their achieved age-of-death (Tilley, 2012). Care can begin as a form of direct support, such as nursing or physical therapy, but if an individual starts to recover from their illness, this care can decrease to forms of simple accommodation strategies that help enable the individual to participate in their community (Tilley, 2012). Conversely, with conditions that start out mildly and gradually worsen, care can begin as accommodation and eventually convert to direct support. On the other hand, compassion is a motivation rather than an action (Tilley, 2011). Although care is often a compassionate act, there can be other more self-centered motivations behind caregiving. An individual could decide to help another individual out of greed, to ultimately gain personal benefits like a monetary reward. Alternatively, an individual could be motivated out of fear of the negative consequences set in place by a society that might occur if one were not to participate in the provision of care.

Other important terms that must be defined are disease, impairment, disability, and deformity. Disease refers to a temporary or permanent pathological condition, while impairment refers to the physical or mental state that can result from a disease, and disability refers to the relationship between society and an individual with an impairment (Shakespeare 1999). Clearly, the nature and degree of disability experienced by an individual will vary depending on cultural and historical context. Factors that can affect what is considered a disability include the degree to which an afflicted individual can be a productive member of society, and the socially perceived

ideas of normality and abnormality (Craig and Craig, 2013). Deformity is a specific physical impairment that results in distortion in physical form, and therefore in abnormal physical appearance (Craig and Craig, 2013). Deformities, especially those involving the face, can be considered more distressing forms of disability and in some cases have greater perception of disability than more easily hidden impairments (Craig and Craig, 2013).

These terms are all associated with the bioarchaeology of care, and will be used throughout this paper. Some are easier to identify in the bioarchaeological record, like disease and deformities. Others are more subjective, like compassion, or culturally-constructed, like disability, and are more challenging to identify using bioarchaeological methods alone. However, these more challenging concepts can be extremely valuable when reconstructing life in the past, and therefore the identification of them using bioarchaeology is worth exploring.

2 Identifying Disability and Care

2.1 Paleopathology

The study of disease and abnormal variation in human remains is known as paleopathology, and can be considered another branch of biological anthropology (Roberts and Manchester, 2005). The idea that studying human disease can benefit the understanding of past human populations dates back to the Renaissance, and paleopathology has since developed into a wide-ranging holistic discipline, incorporating biological and cultural data from archaeological sites (Roberts and Manchester, 2005). Although paleopathology has long been a common focus for bioarchaeological studies, the interpretation of pathological conditions in human remains have rarely been used to comment on the degree of care that individuals would have received in the past. Disability, in particular, remains under-studied within biological anthropology and archaeology, as most of the work done on this topic among anthropologists has been

concentrated in sociocultural and medical anthropology (Battles, 2011). Battles (2011) suggested that this is due to lack of awareness and because bodies generally tend to be separated from their context in archaeology.

Yet, several cases have established the importance of the human body in providing primary evidence that individuals once received direct medical or healthcare support in the past. In her book *The Archaeology of Medicine in the Greco-Roman World*, Patricia Baker (2013) described several surgical procedures that have been documented in remains from Greek and Roman sites. For example, a femur with serrated marks from surgical amputation was uncovered at a second-century burial outside of Rome (Renfrew and Bahn, 2012). Furthermore, remains discovered at a Roman burial site in Poundbury, Dorset provided evidence of the surgical extraction of a fetus (Renfrew and Bahn, 2012). In addition, archaeological remains of prosthetic teeth found in Etruscan tombs showed signs of dental surgery at this site (Becker, 2002). Human remains from Andean prehistory found with trepanations are also evidence of past individuals who suffered from conditions, like cranial trauma, that ultimately motivated their fellow community members to care for them by operating on their skulls (Andrushko and Verano, 2008).

Paleopathology also utilizes secondary forms of evidence, such as documents and art contemporary with the period under investigation (Roberts and Manchester, 2005). For example, researchers have also found ceramic representations of trepanation surgery (Marino and Gonzales-Portillo, 2000), and of limb amputations (Urteaga-Ballon, 1991) from Andean prehistory. However, interpreting the past from secondary sources can be misleading, as opinions about what should be represented can affect what is read and seen by the researcher (Roberts and Manchester, 2005). Artistic rules and techniques of the past can also obscure reality, and

imprecise or incomplete representations and documents can transmit incorrect information (Roberts and Manchester, 2005). It is important to remember that the only reliable indication that a once-living person suffered from a health problem is the primary evidence derived from skeletal or mummified remains (Roberts and Manchester, 2005).

In some cases, abnormalities are identified in a human body but there is no clear indication that any healthcare procedure was ever performed on the individual. In these circumstances, bioarchaeologists can attempt to infer the impact of the condition on the individual's life and to reconstruct a model of what kind of care, if any, they most likely received while living. The ability of bioarchaeology to correctly identify and interpret this has been debated, and there are some obvious limitations. The following sub-section will discuss several case studies that have attempted to identify and interpret caregiving in past populations using human remains.

2.2 Examples from the bioarchaeological literature

In the early 1990s, Kathy Dettwyler (1991) published an important piece, arguing that, although paleopathology can identify disease and impairment in human remains, it cannot alone be used to identify disability or to speculate about the attitudes and behaviours towards the people with these conditions in past populations. She examined three case studies that involved remains of individuals with evidence of impairments that would have restricted normal functioning in their societies.

One of these case studies was Shanidar I, a Neandertal from Iraq with a crippled right arm, discovered by Ralph Solecki, who concluded that “the very fact that their lame and wounded (Shanidar Neanderthals I and II) had been cared for in the cave is excellent testimony for communal living and cooperation” (Solecki, 1971:258). One of the other studies was a dwarf

adolescent male, Romito 2, from Upper Paleolithic Italy and diagnosed with acromesomelic dysplasia but his burial suggested he was a high-status individual (Dettwyler, 1991). The authors of this study concluded “Romito 2 received treatment which may also attest to his acceptance by the group despite his severe handicaps and limited ability to contribute to subsistence and other economic activities,” (Frayer et al., 1987:62). The third case studied by Dettwyler (1991) was an Early Archaic boy with spina bifida and numerous other skeletal lesions at the site of Windover in Florida. The authors Dickel and Doran (1989:325) described the boy as “severely handicapped” and according to Dettwyler (1991:379), Doran believed “that the boy’s survival supports an interpretation that the population lived in a relatively rich environment,” since “the community could *afford* to provide food for an unproductive member of the group.”

Dettwyler (1991) ultimately felt that these authors had unreasonably overstepped the limitations of paleopathology, and that their interpretations were based upon five inappropriate assumptions. These assumptions were 1) the majority of a population were productive members and non-productive members were rare, 2) the individuals whose remains did not show signs of impairment were not disabled, 3) a physically impaired person was non-productive in every way, 4) the survival of a disabled individual indicated compassion from nondisabled members, and 5) helping a disabled individual survive was always the compassionate thing to do (Dettwyler, 1991). She disagreed with the conclusions of these case studies, and determined that whether an individual was “handicapped” and treated with any specific care cannot be established from archaeological evidence alone (Dettwyler, 1991).

One weakness of Dettwyler’s (1991) article was that she failed to acknowledge the potential of archaeology to identify the functional impact of a disease using other lines of evidence. This is where the biocultural approach of social bioarchaeology can come in. Since

Dettwyler's (1991) article, several papers have gone beyond simply using paleopathological and osteological analyses to infer disability and care in the bioarchaeological record. Sources, such as clinical literature, ethnographies, historical documents, and mortuary evidence, are being integrated into interpretations of abnormalities seen in remains.

For example, Hawkey (1998) provided an example of a study published after Dettwyler's (1991) article, which attempted to determine the degree of impairment of an adult human male who suffered from juvenile chronic arthritis within his community of Gran Quivira Pueblo, New Mexico. Hawkey (1998) established a progression of the disease using musculoskeletal markers and concluded that the male might not have been able to perform common activities in his community but was well cared for. Keenleyside (2003) described an unreduced dislocated mandible of an adult male skeleton from Point Hope, Alaska. It was concluded that this individual might have received assistance during the first few weeks after his injury but that he might have adapted to function with little to no assistance from others over time (Keenleyside, 2003). More recently, Craig and Craig (2013) diagnosed and contextualized a mandible abnormality of child from a mid-seventh to mid-ninth century Anglo-Saxon cemetery at Spofforth, North Yorkshire and concluded that the funerary treatment did not suggest any form of social exclusion of the child.

Tilley and Oxenham's (2011) paper explored the functional impact of a Neolithic adult male's severe pathological lesions and the way his community responded to the demands of his condition by developing and following a detailed methodological framework. Their results indicated that for this individual's survival, the community would have needed to be stable, cohesive, experienced in nursing the sick, capable of assessing the likely demands and costs of permanent caregiving, and able and willing to develop and maintain a set of procedures over

many years (Tilley and Oxenham, 2011). It was also suggested that the caregivers were compassionate, respectful, affectionate and placed high value of individual life, while the impaired individual likely had a strong will to live, a robust psychological adaptation, a self-esteem capable of overcoming the complete loss of independence, and a personality capable of inspiring others to care for him (Tilley and Oxenham, 2011:40).

Based on this work, Tilley (2012) coined the term “bioarchaeology of care” and has argued that bioarchaeologists should be applying this methodology to their case studies because it provides a structured, systematic, and transparent framework for analysis, which enables interpretation to reproduce the complexity of the past. She also believed that the study of caregiving in the past provides a new perspective for looking at caregiving in the present (Tilley, 2012). While many limitations still exist, this approach takes into account the context of the remains and adds more legitimacy to inferences of caregiving. However, going forward it is still crucial to not take for granted the assumptions outlined by Dettwyler (1991). The following subsection will outline how Tilley’s work is a step in the right direction for the discipline and can be a helpful general methodology for bioarchaeologists to follow.

2.3 Bioarchaeology of care methodology

Methodology in biological anthropology has long been a crucial aspect to the discipline. According to Buikstra (2008:xxxiii), one of the main themes “in physical anthropology’s methodological heritage is visual observation”, while the other is direct measurement of the human body. Buikstra (2008:xxxiv) also explained that, “although many of the questions addressed by those studying ancient skeletal material have nineteenth-century roots, the pace of methodological advancement has increased markedly in recent years.” Zuckerman and

Armelagos (2011) explained that paleopathology and bioarchaeology are increasingly using bioculturally-oriented methods.

Tilley's (2012) methodological approach is comprised of four stages of analysis. She compared this design to Christopher Hawkes' (1954) famous "Ladder of Inference" concept, which ranked the inferences that archaeologists could make about a past society according to the difficulty with which the inferences could be made using archaeological evidence. Tilley's (2012) bottom rung on her ladder, or first stage in her approach, focuses on description and measurement, and each following stage builds upon the previous one, with the last being the most difficult and involving interpretation of the findings. It should be noted that when undergoing an investigation, sometimes following a step-by-step approach is unrealistic, since analyses do not always follow a structured systematic path. Yet, the idea that interpretation of data should be saved until researchers have gathered all the details possible in a study is commendable.

When a bioarchaeologist comes across human remains showing evidence of living with a serious abnormality, the first stage of Tilley's (2012) method is to record every aspect of the remains, along with the recovery context and the details of contemporary lifeways at the site. This should include a detailed description of the pathological indicators (Tilley, 2012). This aligns with Roberts and Manchester's (2005) suggestion for future development in paleopathology, to aim at standardizing the recording of pathological changes with detailed descriptions of lesions being made even before differential diagnoses are made. Roberts and Manchester (2005) explained that standardized documentation would allow for re-evaluation of data and possible re-diagnosis by future researchers. Differential diagnosis for the abnormalities should then be attempted (Tilley, 2012). This means considering all potential disease or

traumatic processes that could have caused the lesion and/or the distribution pattern of the lesions (Roberts and Manchester, 2005). By process of elimination, a most likely diagnosis can usually be made (Roberts and Manchester, 2005).

Of course, many limitations of using the skeletal record to identify potentially disabling conditions exist. Several of these problems relate to the “osteological paradox”, outlined in Wood et al. (1992). It is important to consider that variation in risk, symptoms, and potential to adapt both mentally and physically to disease and disability existed among individuals in the past, just as it exists today (Wood et al., 1992; Roberts, 2000). For example, those with strong immune responses to a disease could have limited bone damage, and those with the most severe symptoms, like pain, are not always the ones with the most affected bone (Roberts, 2000). Additionally, many illnesses in antiquity were infectious and acute, and often killed the person before bone change had time to develop (Roberts and Manchester, 2005). This would mean that the condition would not be identifiable from the skeletal record, and these bones would look like they belonged to a healthy individual (Wood et al., 1992).

Another major drawback is that many diseases, including the most disabling conditions, only affect the soft tissues of a body and would not appear on the skeleton (Lindemann, 1981; Roberts and Manchester, 2005). However, some severe conditions have successfully been identified using the skeletal record, including osteomyelitis, leprosy, tuberculosis, some cancer and tumours, fractures and dislocations, cleft lip and palate, achondroplasia, spina bifida, rickets, osteoporosis, anaemia, osteoarthritis, and rheumatoid arthritis (Roberts, 2000). Joint, infectious, and traumatic conditions are probably most commonly identified archaeologically (Roberts, 2000).

Tilley's (2012) second stage is the identification of clinical and functional impact of the disease to determine if care was needed. By looking at likely demands, obstacles, and opportunities in the contemporary lifeways of the particular site's environment, the probable effects of the disease on the subject's ability to undertake daily tasks or to participate in their community can be evaluated (Tilley, 2012). It can then be established whether the afflicted individual experienced a disability that would have required direct support or accommodation from others to survive (Tilley, 2012). If so, it can be inferred that care must have been given to the individual for them to achieve a given age-at-death (Tilley, 2012). It is important at this stage for bioarchaeologists not to over-interpret the data, and make assumptions based on personal, modern, and ethnocentric ideas (Roberts, 2000). Cultural relativity and the biocultural approach should always be kept in mind, as everyone experiences disease and disability in their own way, and each condition and its associated disability is perceived differently in different parts of the world over time (Roberts, 2000).

The third stage of Tilley's (2012) bioarchaeology of care methodology is to produce a model of what the minimum care likely comprised. This is based on contemporary context and considers how many people would have been involved in caregiving, as well as the duration of the care provision (Tilley, 2012). Although not all details will always be accessible, the main practical components of the treatment can usually be determined (Tilley, 2012). Roberts (2000) noted that researchers should take caution not to make sweeping generalizations of the past. She also suggested that it is important to incorporate secondary lines of evidence, such as historical, iconographic, and ethnographic material. Cultural information can be used to shed light on what was likely available in this area at this time (Roberts, 2000).

The last stage of Tilley's (2012) framework combines information gathered in the other three stages to say something about caregiving in that population. It interprets the evidence to provide answers to questions about their social practice and relations like why these caregiving options were adopted, what the ability to provide this care suggests about group organization, practice, and history, and what this suggests about general societal norms and values (Tilley, 2012). This last stage also attempts to infer broad personality traits that the care-recipient might have possessed (Tilley, 2012). This type of analysis of bioarchaeological data requires a theoretical framework to anchor the study and to expand the interpretive power of the findings (Martin et al., 2013). Introducing theory into the interpretation of disability and care in bioarchaeology is discussed in the following section.

3 Interpreting Disability and Care

In bioarchaeology, many different theories have been used to provide a framework for interpreting data derived from human remains (Martin et al., 2013). Some of these theories overlap and can be combined (Martin et al., 2013). Two theories that are particularly relevant to the bioarchaeology of care are the evolutionary theory of human behaviour, and the theory of the human body and identity.

3.1 Biocultural evolution as a theoretical framework

Evolutionary theory was originally the primary theory of early physical anthropologists, but by the twentieth century, it was believed by most anthropologists that evolution could not explain complex human behaviour or culture (Martin et al., 2013). Today, it is generally accepted that humans have some biological predispositions, but that behaviours are not genetically determined (Martin et al., 2013). Martin et al. (2013:68) explained, "given that humans have possessed complex brains capable of producing cultural innovations that have

allowed us to modify the environment to meet our needs for at least two million years, it is more accurate to say that humans are the product of ‘biocultural’ evolution.” A growing number of bioarchaeologists have been using biocultural evolution as a theoretical framework to better understand topics like nutrition and disease (Zuckerman et al., 2012), and behaviours such as violence among humans (Martin et al., 2012).

By examining the origins of caregiving, bioarchaeologists can take into consideration a longer time span, which can help bioarchaeologists gain greater insights into human caregiving. According to Hublin (2009), fossil evidence of extreme pathological lesions in individuals has sparked debates on the level of altruism and compassion reached by ancient hominins. Hublin (2009:6429) suggested that “often underlying these debates is the notion that, in this respect, their behaviour was similar to our own and different from that of apes.”

Stephen Gould (1988:18) is a researcher who assumed that care of the disabled is unique to *Homo sapiens*, and argued that the survival of the Romito 2 dwarf “offers our oldest evidence for the nurturing and protection – presumably at some expense to the group – of a handicapped individual who was profoundly different from his peers and physically disadvantaged from birth.” Tilley (2012:39) is another example, as she asserted that, “looking after those who are unable to look after themselves is a behaviour that defines what it is to be human,” and that “evidence suggests health-related care has been practiced within the human family at least the last 100,000 years, and some biologists even claim caregiving was essential to human evolution.” However, Silk (1992) explained that the evolutionary origins of such care are evident much further back in time than the Upper Paleolithic, and that caregiving behaviour actually predates the origins of the hominid lineage.

Fashing and Nguyen (2011) noted that by adopting a comparative evolutionary approach toward caregiving and compassion among nonhuman primates and other animals, the timing and the number of occasions the behaviours evolved independently can be estimated. Recent accounts have focused on animal behaviours towards the dying, diseased, or disabled, including studies done on African elephants (Douglas-Hamilton et al., 2006), river otters (Davenport, 2010), captive chimpanzees (Anderson et al., 2010), wild geladas (Fashing et al., 2011), and wild chimpanzees (Stewart et al., 2012). Some compassionate behaviour was reported among the elephants, the river otters, and the captive chimpanzees, but not among the wild primates (Fashing and Nguyen, 2011). Fashing and Nguyen (2011) suggested that these results raised the puzzling possibility that wild primates display lower levels of compassion than captive chimpanzees or the other animals less closely related to humans.

Altruism observed in non-human animals has primarily been interpreted as having more self-centered motivations, and is usually classified as either a form of inclusive fitness (directed at kin and those who carry the same genes) or as reciprocal altruism that helps oneself indirectly (Hublin, 2009). This has been in contrast to the observation of humans helping strangers or non-family members, even when the helper receives no immediate benefit (Hublin, 2009). However, recent accounts in primatological literature, this split between apes and humans might not be as great as it once seemed. For example, Boesch and Boesch-Achermann (2000) reported about a wild adult male chimpanzee who adopted and took care of an unrelated orphan. Additionally, Fedigan and Fedigan (1977) described an infant macaque, Wania 6672, born with gross locomotor and visual impairments who was given extra care from his mother and other group members, including embracing, huddling, playing, and grooming from his peers (Silk, 1992). Hublin (2009:6430) explained that, “this incipient altruism seen in chimpanzees seems to

disintegrate in competitive situations or when food sharing is involved,” and suggested that the increase in food sharing in early *Homo*, along with a longer dependency time on mothers for infant survival, were two reasons why humans had to increase altruistic behaviours that likely preexisted in apes.

By collaborating with behavioural and evolutionary biologists and primatologists, bioarchaeologists can contribute to the overall understanding of caregiving as a behaviour. Hublin (2009:6430) suggested that “rather than considering ancient human altruism as proof of the moral values of our predecessors, one should instead see it as merely part of the spectrum of adaptations that have made humans such a prolific and successful species.”

3.2 The human body and identity as a theoretical framework

As mentioned earlier, the human body is often separated from its social context in archaeology (Battles, 2011:110). In fact, as Sofaer (2006:1-2) explained in her book *The Body as Material Culture*, the archaeological study of the body sits between two conflicting traditions within the discipline: the science-based osteological approach concerning sexing, ageing, diet, paleopathology, genetic distance and metric studies of normal variation; and the social theory approach that views the body as a social construction and culturally specific. Yet, with the development of the biocultural approach and bioarchaeology as a discipline, this divide concerning the human body is becoming increasingly insignificant.

The human body can represent a number of different identities. Scheper-Hughes and Lock (1987) determined that an individual possesses three bodies: the biological body, the cultural body, and the political body. According to Martin et al. (2013), the biological body of an individual can be determined by bioarchaeologists through the assessment of age, sex, stature, health status, and other biological variables of skeletal remains. Bioarchaeologists can assess the

cultural body or cultural identity of an individual by examining the archaeological site location, layout, and size, as well as the burial location and type of grave goods (Martin et al., 2013). This context can help suggest the person's social status or position. Finally, the political body of an individual, which can reveal information about their quality of life, can be observed by bioarchaeologists as indications of trauma and poor health in the skeletal remains from the effects of political oppression or structural violence (Martin et al., 2013).

These perspectives of the human body can all be related to the bioarchaeology of care. Martin et al. (2013:72) stated that, "interrogating the 'three bodies' through skeletal analyses is likely to produce a much more multidimensional interpretation of the data." It is clear that rather than just describing evidence of disability and care in human remains, to move the discipline forward bioarchaeologists should continue to draw upon social theory and present this data in more complex ways.

4 Discussion

4.1 Implications for Bioarchaeology

The methodology and theoretical frameworks utilized while studying the bioarchaeology of care go from looking at an individual with a disability to considering the broader and more complex behaviour of caregiving at a community and population level (Martin et al., 2013). According to Martin et al. (2013), this type of research that explores the relationships between the individual burial and the population and combines the two perspectives, provides the most comprehensive and useful conclusions in bioarchaeology, and is especially valuable in revealing information about human adaptation and resilience.

Studying care in bioarchaeology also contributes to a new direction to build a holistic field of social bioarchaeology. Social bioarchaeology aims to develop a greater contextualization

of human skeletal remains in a biocultural framework to keep bioarchaeology socially relevant (Agarwal and Glencross, 2011). This will expand our understanding of social processes and life in the past, as well as increase our knowledge of connections between biological and sociocultural effects on disability and caregiving in ancient societies. Furthermore, the biocultural approach used in the bioarchaeology of care helps to integrate archaeology, bioarchaeology, and biological anthropology into the broader discipline of anthropology, and allows researchers to build connections across it (Zuckerman and Armelagos, 2011). No one person can do it all, so by connecting the ideas of different researchers in specialities like archaeology, paleopathology, and disability studies, diverse teams can be developed for collaborative research. This will ultimately create a richer reconstruction of the past.

4.2 Concluding Remarks

Identifying and interpreting evidence of disability and caregiving in human remains is a challenging but valuable area of study in bioarchaeology. It is a relatively recent theme in published literature, and bioarchaeologists have only barely begun to scratch the surface of the topic. Tilley's (2012) four-stage methodology provides a good framework for bioarchaeologists to follow, and future researchers should continue to use this as a starting point. It is necessary to first describe pathological conditions identified in skeletal remains, but by integrating cultural context, secondary lines of evidence, and social theories such as, evolutionary theory and theory regarding the human body and identity, the focus of studies can be narrowed and the interpretive power of the findings can be broadened. Although there still exists many limitations, by combining individual case-studies, population-level, and biocultural approaches, the bioarchaeology of care can epitomize one of the ultimate goals of bioarchaeology, which is to provide an interdisciplinary, unique, and critical perspective on human behaviour.

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