Gender roles in the prehistoric fishing community: A case study from Gilimanuk Site, Bali

Peran gender di komunitas nelayan prasejarah: Studi kasus dari Situs Gilimanuk, Bali

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ABSTRAK

Peran gender adalah konstruksi sosial ketika aktivitas dan status dalam masyarakat dikaitkan dengan satu jenis kelamin tertentu. Artikel ini bertujuan memahami peran gender pada masa prasejarah akhir di Situs Gilimanuk berdasarkan pembagian kerja sesuai jenis kelamin. Penelitian ini menggunakan pendekatan bioarkeologi dengan membandingkan jejak entesis pada perlekatan tulang panjang dari 42 individu laki-laki dan perempuan. Hasil penelitian menunjukkan tidak ada aktivitas fisik yang spesifik dilakukan oleh satu jenis kelamin saja dalam pemenuhan kebutuhan sehari-hari. Hal ini menunjukkan konstruksi gender pada masyarakat nelayan prasejarah di Situs Gilimanuk.

Keywords: Bioarchaeology; gender roles; entheseal changes; prehistoric fishing community; Gilimanuk Site.

ABSTRACT

Gender roles are defined as social construction of activities and statuses associated to specific genders in a society. This article aims to investigate gender roles among prehistoric community in Gilimanuk Sites based on the division of labor by sex. This research uses bioarchaeological approach by comparing entheseal changes on 42 male and female individuals. The result shows there is no specific activity associated to certain sex in daily subsistence. This indicates the gender construction in the prehistoric fishing community in Gilimanuk Sites.

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INTRODUCTION

According to Conkey & Spector (Conkey & Spector, 1984) (1984) the results of any archaeological reconstruction should be able to explain the issue of gender identity in past cultures. Apart from this gender issue, sexuality issues, power relations, isolation and structured violence should be explored deeper by removing white skin and androcentrism views that have been rooted in archeology. As one of the rapidly growing sub-disciplines, bioarcheological studies have begun to focus on gender issues (Agarwal & Glencross, 2011; Martin et al., 2013). In practice, bioarchaeology uses human bones as a medium to state numerous gender phenomena such as sexuality, gender identity, gender relations, to gender roles in archaeological contexts (Geller, 2005; Larsen, 2002). Besides appyling cultural heritage, bioarcheological researchers also applied pathological and non-pathological indicators in bones to state about gender issues within communities in the past (Grauer, 2012). The bioarcheological perspective is starting to be applied to deconstruct the archaeological discourse from gender bias.

Prehistoric discourse is a product of knowledge in archeology that used to be generally produced and interpreted from a male perspective. For example, prehistoric discourse is *man the hunter*, *woman the gatherer* (Adovasio et al., 2007). The male icon depicted as a hunter is closely associated with the presence of meat as the main diet. As a part of fulfilling the necessities of life, men are then in charge in hunting for meat while women are marginalized in their role in gathering static food sources such as grains. This discourse needs to be deconstructed considering that recent research has shown that women also participate in hunting activities (Haas et al., 2020).

In this article, what needs to be emphasized at the beginning is the difference in the understanding of sex and gender. Sex is defined as a biological understanding based on the function of reproduction, chromosomal variation, and hormone production. In this definition, female is living creature that have a vagina, breasts, and produce egg cells. While the other type, namely the male is a living creature that has a penis and produces sperm cells. Biologically, sex is a static entity. On the other hand, gender is a solid entity and depending on the social system of society (Mendenhall et al., 2020). Gender contains an understanding of the cultural construction of sex differences that are established in society. This construction produces rules for individuals, physics, objects, and spaces based on these sexes (Gilchrist, 2001). An example is the consideration that men should be physically strong, should not cry, and be mentally strong. Meanwhile, women must be graceful, soft and have a slender body. This consideration is a gender perception of men and women that is common in patriarchal societies.

From these various issues in gender and archeology, gender role is one of the crucial topics to raise women's standing. Gender role is defined as specific activities related to one gender in a culture (Gilchrist, 2001, p. xv). By highlighting these gender roles, any physical activities labeled identical to a certain sex in a culture can be deconstructed in its meaning (Zihlman, 2013). Then how can bioarchaeology discuss about gender roles? One of them is by studying the pathological and non-pathological indicators of physical activity left in human bones (Grauer, 2012).

Larsen emphasized that in observing human physical activity in the past,

the bioarcheological approach can see three measurable indicators in bones, namely: a) the degenerative diseases of the joints, b) the biomechanical structure of the bones, and c) the study of entheseal changes (EC). From these three indicators, the study of entheseal changes is generally applied as a parameter to determine the division of labor by sex (Larsen, 1987, 2002). In simple terms, the study of entheseal changes is implemented by observing the morphological changes in the bone surface, especially where muscles, tendons, and ligaments are attached (Hawkey & Merbs, 1995; Mariotti et al., 2004; Niinimäki, 2011). Based on this, it is believed that sometimes any entheseal changes used in studying physical activity are assumed to be able to explain gender roles in a particular culture (Hollimon, 2011).

In studying enthesis, the number of human skeletons is a vital factor. One of the archaeological sites in Indonesia with abundance of human skeletons is Gilimanuk Site. In this metal age site, 220 individuals were found from three excavation stages (Aziz, 1995). This provides some possibilities and potential for researching gender issues in a cultural context. One of these possibilities can be found in the research conducted by Kifli (1998) about grave goods and their relation to gender. The results of Kifli's research stated that there was no specific pattern of laying grave goods based on gender and age of death (Kifli, 1998). As research results always open new opportunity, Kifli's research also provides a great opportunity for research on gender roles in the Gilimanuk Site.

The next important information stated here is the human subsistence strategy supporting the Gilimanuk Site. The humans from Gilimanuk Site are believed to follow a sedentary system, in which apart from carrying out fishing as the primary activity, they also participated in other activities in meeting their daily needs. Ramelan (1986) uses the term fishermen to describe a subsistence strategy of a group of prehistoric humans who occupied the Gilimanuk Site in early centuries CE based on the character of artifacts and ecofacts from the Gilimanuk Site. Considering that there are no other studies discussing the novelty of the human subsistence strategy in the Gilimanuk Site, Ramelan's research can be considered as the most actual knowledge.

In the context of human skeletal research, it is possible to state that resources in this research is quite abundant. Osteological studies on human remains from Gilimanuk Site are as follows: comparisons of epigenetic elements (Suriyanto et al., 2006), cultural modification studies on teeth (Koesbardiati et al., 2015), and osteobiographical studies of individual no. 38 (Prayudi & Suriyanto, 2017). Meanwhile the research related to enthesis was conducted by Arjanto (2017), who examined the physical activity of eight male individuals and their relation to grave goods.

This research aims to observe the distribution of labor based on sex in order to reconstruct gender roles in Gilimanuk Site. In addition, this paper is a development of previous research entitled "*Rekonstruksi aktivitas Fisik berdasarkan Perubahan Entesis pada Rangka Manusia dari Situs Gilimanuk, Bali* (The reconstruction of physical activities based on entheseal changes on human skeletons from Gilimanuk Site, Bali)". In this paper, the distinguishing factor from the previous research is the use of the concept of gender roles from feminist criticis to see the division of labor in humans from Gilimanuk Site which has not been carried out

in the previous research (Wibowo, 2017).

METHODS

This research is qualitative research with the results of previous studies that have been published in the author's thesis as the primary data. The data was collected by obtaining information about the entheseal changes of the Gilimanuk human skeletons from previous studies. The interpretation was aided by consulting the literatures related to the context of physical activity and the distribution of labor based on sex, as well as to gender studies in bioarchaeology

Data for this research consisted of 42 human skeletons found in Gilimanuk Site during the excavations in 1963, 1964, and 1977. The skeletons are being stored in the Laboratory of Bioanthropology and Paleoanthropology, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada. In this study, these 42 individuals were divided into observation groups based on sex. The distribution of Minimum Number of Individu (MNI) for each group of observation were 28 male individuals and 14 female individuals. There were 17 muscle points (Figure 1) whose entheseal changes were observed, from the upper extremity (humerus, radius, and ulna) as well as lower extremity (femur and tibia).

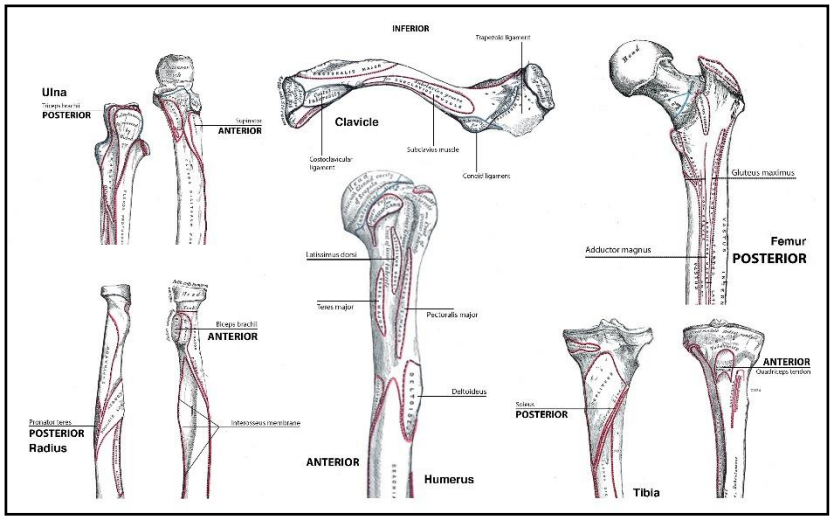

Figure 1. The location of the observed enthesis points
(Source: Wibowo, 2017)

In the previous studies, the entheseal changes data was adapted from the method proposed by Hawkey and Merbs (1995) and Mariotti, Facchini, and Belcastro (2004). The results of this entheseal changes are later used in the analysis in this article. The data synthesis process to draw conclusions is implemented by making a matrix between muscle activity patterns, entheseal changes data, archaeological evidence indicating physical activity and physical activity references. On the interpretation stage, the results of the synthesis will be reviewed through a gender perspective to show the gender roles in the prehistoric fishing community from Gilimanuk Site, Bali. The limitations of this study are in identifying physical activity based on enthesis. To differentiate one type of physical activity from another, it is still necessary to analyze the objects (artifacts

or ecofacts) that support these activities. This material aspect depends on the character of the site and archaeological findings during excavations in Gilimanuk Site. Eventually, the research model adopted in the Gilimanuk case may not be possible to be simulated in other cases.

RESEARCH RESULTS

Entheseal Changes in Gilimanuk's Early Fishing Community

The results of the observation and calculation of the entheseal changes of each observed group are explained based on several aspects, namely the pattern of activity, the type of active muscle, and the production of movement based on the active muscle. The pattern of activity was observed by looking at the working groups of muscles which were divided based on their enthesis position on the bone. For example, the upper arm muscle group is used to describe the muscle with its enthesis existence in the humerus and clavicle. The types of active muscle were observed by looking at the muscles with high scores compared to the other 17 entheses.

Male group

Based on the aspect of the pattern of muscle group activity, the male group shows active application of the upper arm, forearm, and leg muscle groups. The types of active muscles in the male group are s*upinator, biceps brachii, deltoid, pectoralis major, latissimus dorsi, and adductor magnus*. Based on the type of muscle used in movement, the male group often performs activities that produce flexion-extension, supination-pronation, medial rotation and lateral rotation of the upper arm, forearm, and leg. In terms of the intensity, the male group tends to be evenly distributed, because there are a low, medium, and high intensity found.

Female group

The calculation of enthesis in the female group can be described by looking at the Table 1. Based on the aspect of the pattern of muscle group activity, the female group shows a high activity pattern in the forearm muscle group. The types of active muscles in the female group are *supinator*, *biceps brachii, and deltoid*. Based on the type of muscle, the female group tends to perform physical activities related to flexion-extension, supination-pronation, and rotation of the forearm. The intensity of this activity is relatively low to moderate.

Based on the results of the enthesis calculation analysis, women and men have different levels of muscle use. From the results of the muscle activity calculation (Table 1), there is a tendency that men use the upper arm muscles more, while women show higher use of the forearm muscle groups. Temporalily conclusion from the results of this initial observation is that the difference in the enthesis score indicates a difference in the intensity of muscle use. The intensity also needs to be emphasized in terms of how high or low the muscle is used.

Table 1. Muscle activity chart

Male Entheses	Chart	Female Entheses
Supinator	1	*Supinator*

Deltoideus	2	*Deltoideus*
Pectoralis major	3	*Biceps brachii*
Gastrocnemius	4	*Pectoralis major*
Adductor magnus	5	*Gastrocnemius*
Biceps brachii	6	*Triceps brachii*
Latissimus dorsi	7	*Teres major*
Triceps brachii	8	*Latissimus dorsi*
Gluteus maximus	9	*Gluteus maximus*
Interosseus membrane	10	*Interosseus membrane*
Pronator teres	11	*Pronator teres*
Soleus	12	*Soleus*
Conoid ligament	13	*Quadriceps tendon*
Trapezoid	14	*Conoid ligament*
Quadriceps tendon	15	*Costovicular ligament*
Subclavius	16	*Subclavius*
Costoclavicular ligament	17	*Trapezoid*

Source: Wibowo, 2017

Identification of Physical Activity in Gilimanuk's Early Fishing Community

Based on Table 1, the pattern of muscle activity in the Gilimanuk simple fishing community can be stated as follows: 1) men did more physical activity than women, 2) men's activity load was higher in the activities using the upper and lower arm muscles, while women's activity load was only in the activities using muscles of the forearm, and 3) based on the production of movement, men and women performed physical activities with the same movement, it is possible that the physical activities they did were similar. Here is a comparison chart of muscle use to see how it compares in use (ordered from the highest to lowest).

Referring to Figure 2, there has not been any discourse to discuss gender roles that is possible to state clearly yet. Based on the results of the use of each muscle, the point that needs to be identified is the type of physical activity. The graph of the use of the same muscles in the male and female groups shows a significant difference. This is identified from the results of calculations which show that male muscle use is classified as high-medium, while women is classified as moderate-low. Nevertheless, there is a pattern towards the use of the same muscle type, in the top 10 rankings. All these muscles are anatomically located in the upper arm, forearm, and leg.

Identification of the labor distribution needs to be made based on the variant of physical activity on its muscle function (Table 1). In both groups, physical activities performed using *supinator, deltoid, pectoralis major, gastrocnemius, biceps brachii, latissimus dorsi, tricep brachii, gluteus maximus, teres major, interosseus membrane*, and *pronator teres muscles* were physical activities that involve the upper and lower extremities. This means that in performing these activities there is a simultaneous use of muscles in the upper and lower extremities.

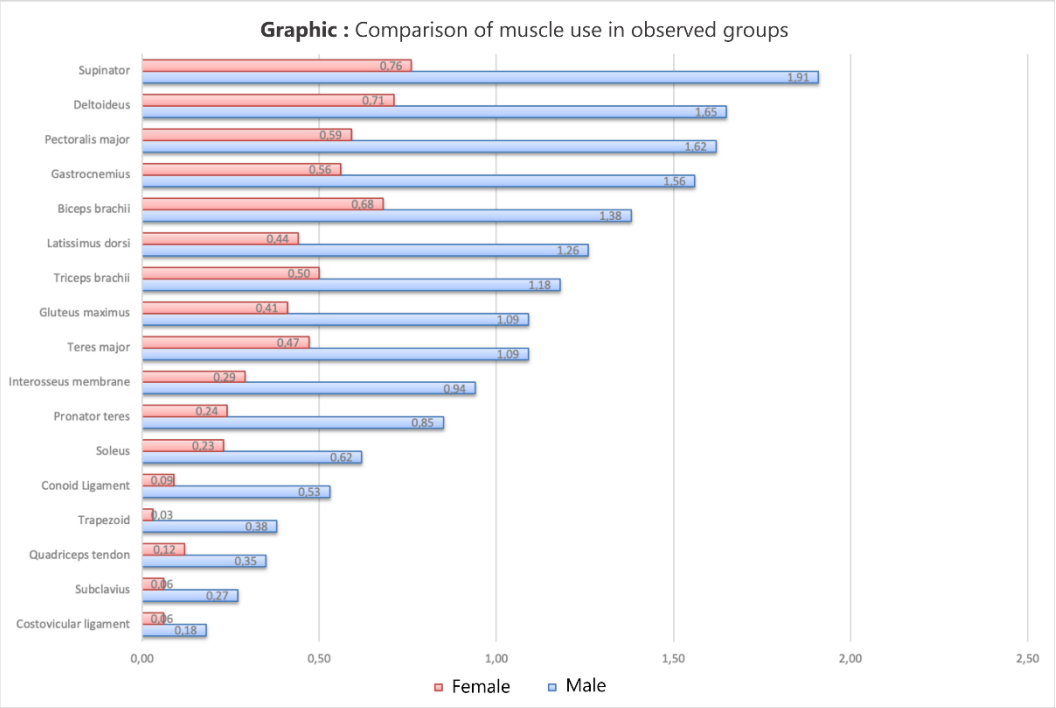

Figure 2. Comparison chart of muscle use
(Source: Wibowo, 2017)

To identify the variety of physical activities in the simple fishing community from Gilimanuk, of course, it is necessary to describe the variety of artifacts and ecofacts that are related to their subsistence strategy. Based on Soejono's research, the Gilimanuk Site is often stated as a site from the *perundagian* period (metal age). In the context of Indonesian cultural history, the word *undagi* is a term in Balinese to refer to the experts. According to Soejono, Gilimanuk is classified as a site from the *perundagian* period based on the variety of complex archeological findings, instead of only showing the character of people who grow and havest crops and go to sea. According to him, there are numerous "experts" in the daily life of people who support the Gilimanuk Site itself (Soejono, 1977). This is proven by the findings of various kinds of metal artifacts which indicate that the community was familiar with metal technology. Based on Prasetyo's research, it was proven that the existence of metal artifacts had both profane (daily) and sacred (religious) functions. Several metal artifacts were used for everyday purpose use such as hooks, spikes, daggers, spearheads, and arrowheads. Several other discoveries in the form of stone tools were also found, such as *mano, metate* and fishing weights proved that the human activities supporting the Gilimanuk Site were varied (Prasetyo, 1993).

The results of research by Permana (1989) and Ramelan (1986) indicate of the use of the neighbouring environment. This is based on the discovery of animal bones that is characterized in either shallow marine ecosystems or open savannah. This evidence indicates an existence of activity in gathering food from the sea and hunting in the open field. For example, to meet the need for clean water, it is predicted that humans supporting the Gilimanuk Site used limestone wells that are commonly found around the Gilimanuk Site, considering that there were no

other fresh water sources around the site that could be used to fulfill the need for water for human body.

Based on these studies, the variants of physical activity applying the upper and lower extremities simultaneously on archaeological evidence, enthesis evidence, and activity references from Wibowo (2017) in humans supporting the Gilimanuk Site can be detailed as follows:

Table 2. Types of physical activity identified in the Gilimanuk fishing community based on artifacts and ecofacts

Types of Activity	Archaeological Evidence	Reference
Hoeing	Trowel	Prasetyo,1993; Sudarti, 1995
Fishing by net	Net ballast	Prasetyo, 1993
Fishing	Hooks, Scrombidae bone remains found in archaeological strata	Soejono, 1997; Permana, 1989
Grinding	*Mano, metate*	Ramelan; 1986
Gathering water	Pots, limestone wells	Ramelan, 1986
Spearing	Spearhead	Sudarti, 1995
Arrowing	Arrowhead	Sudarti, 1995

Source : Wibowo, 2017

Referring to Table 2, the types of physical activity identified in the Gilimanuk fishing community based on their artifacts and ecofac findings can be divided into at least six parts. Whenever there are assumptions of other physical activities such as looking for clay, forging metal, spinning baskets, or any activities that are relevant to the subsistence character of the Gilimanuk simple fishing community, they will not be traced since the presence of artifacts that indicate these activities have not been found during excavation. The distribution of these six physical activities will be monitored into two groups of observations. This is implemented as an initial attempt to see the gender roles in economic activity. Economic activity in this context needs to be clarified as an activity to fulfill daily needs in the household, not a large-scale economic activity involving the production, distribution, and consumption of a product. Thus, economic activity in the perspective of this research needs to be agreed as an activity to meet household needs such as foraging for food.

The six physical activities will be identified using enthesopathies. Enthesopathies are conditions of enthesis that have experienced morphological changes due to intense activity at the point of muscle attachment. Enthesopathies are also often referred to as Musculoskeletal Stress Markers (MSM), Occupational Markers (OM), or Markers Of Occupational Stress (MOS) (Aufderheide & Rodríguez-Martín, 2006; D.White et al., 2012). These enthesopathies then become the basis for identifying the physical activity carried out by each group of observations although one form of enthesopathies may result different diagnoses (Capasso et al., 1998). Therefore, any enthesopathies wounds also need to be supported by the presence of artifacts and echofacs related to physical activities.

Determining enthesopathies can also be implemented by observing the key muscles that become the core of a movement. This key muscle concept is considered similar with the concept of "*atribut kunci*" (key attribute) in archeology.

The key attribute is defined as the attribute or feature that has the highest value in a group of artifacts. The classification of attribute levels is made by dividing them into three groups; weak attributes (*inessential attributes*), strong attributes (*essential attributes*), and key attributes (Clarke, 2015). In muscle, a key refers to the muscles that are anatomically involved in producing movement are always involved from the stance stage until the movement is produced. An example of a spearing movement can be seen in the illustration in Figure 3.

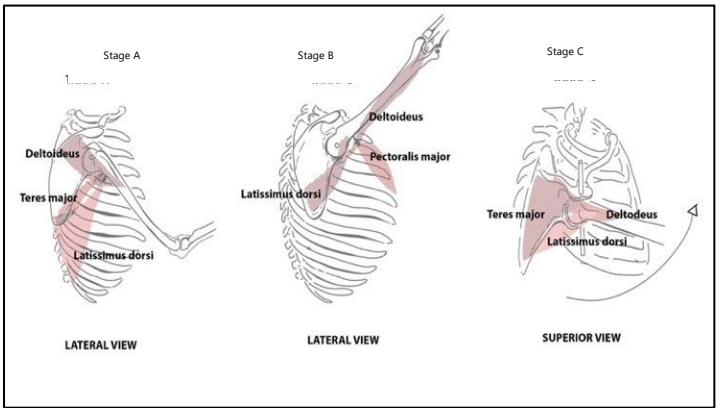

Figure 3. An example of a production of spearing movement.
(Source: Kingston, 2005; Wibowo, 2017)

Referring to Figure 3, the mechanism in spearing can be divided into three stages, with all movements were produced at the shoulder. By monitoring muscle's role in spearing, it is clearly seen that the muscles that always work at each stage are *deltoideus* (three stages), *latissimus dorsi* (three stages), *teres major* (two stages), and *pectoralis major* (one stage). From this process it is possible to state that in the spearing movement, the muscles that can be used as key muscles are *deltoideus* and *latissimus dorsi* because these two muscles work from the beginning to the end of the spearing movement (Milner, 2008). Details of other key muscle activities can be seen in Table 3.

Based on Table 3, the findings of the enthesopathies become the basis for determining gender roles in the Gilimanuk simple fishing community. Based on the key muscles that play role in the production of physical activity movements, it is possible to conclude that the number of individuals who experience changes in enthesis due to certain physical activities in each group can be detailed as follows. In the hoeing activity, the main locomotion in the hoeing activity has the main locomotion of flexion and extension in the upper arm group and flexion in the lower extremity. So the key muscles that play role from the production of the initial movement until the hoeing movement is produced are *pectoralis major, gluteus maximus,* and *linea aspera* (Kingston, 2005). From all these three muscles, all of them show an indication entheseal changes in women (n=8), on the other hand, there was no indication of entheseal changes in the male group (n=0).

Table 3. Matrix of physical activity, key muscles, evidence of enthesopathies, and number of respondents

Physical Activity	Key Muscles	Evidence of Enthesopathies	Number of Individuals	
			Male	Female
Hoeing	*Pectoralis major* *Gluteus maximus*	*Pectoralis major enthesopathy* *Gluteus maximus enthesopathy*	0	8

	Linea aspera	*Linea aspera enthesopathy*		
Fishing by net	*Biceps brachii* *Supinator*	*Bilateral biceps enthesopathy* *Supinator crest enthesopathy*	14	8
Fishing	*Costoclavicular ligament* *Supinator*	*Costal syndesmosis* *Supinator crest enthesopathy*	6	4
Pounding	*Deltoideus* *Teres major*	*Deltoideus enthesopathy* *Teres major enthesopathy*	17	8
Gathering water	*Deltoideus* *Costoclavicular ligament*	*Deltoideus enthesopathy* *Costoclavicular sulcus*	4	2
Spearing	*Deltoideus* *Latissimus dorsi*	*Deltoideus enthesopathy* *Latissimus dorsi enthesopathy*	17	8
Arrowing	*Costoclavicular ligament* *Biceps brachii*	*Costoclavicular sulcus* *Unilateral biceps enthesopathy*	8	7

Source: (Capasso et al., 1998; Wibowo, 2017)

In physical activity such as net fishing, main movements that are continually produced are supination and extension-flexion of the lower and upper forearm. Nevertheless, in this process forearm portion performs a bigger role because the pressure to pull the net is heavier on the forearm. So the key muscles that perform its action in fishing activity are *Biceps brachii* and *supinator* (Kingston, 2005). The indication of changes in enthesis related to fishing activity were found in the male group (n=14) and female group (n=8). Another activity is fishing which produces supination and elevation movements of the forearm and wrist. The key muscles that produce this movement in fishing are the ligament and *costoclavicular ligament* and *supinator* (Milner, 2008). Symptoms of entheseal changes of these two muscles were found in the male group (n=6) as well as in the female group (n=4).

Another activity that needs to be observed is the pounding activity. In this activity, the movements produced are elevation and rotation of the upper arm and shoulder. The key muscles that perform important role in performing repetitive movements in this activity are *deltoid* and *teres major* (Milner, 2008). In this activity, symptoms entheseal changes were found in both groups, the male group (n=14) and the female group (n=8).

Drawing water from the well has similar movement to pounding activity, only with higher portion of balancing and holding load on the shoulders. The key muscles that perform important role in performing this activity are *deltoid* and *teres major* (Kingston, 2005). Entheseal changes on the two muscles were found on the male group (n=4) as well as the female group (n=2).

Another physical activity is spearing. In this activity, the production of movement is focused on the wrist, shoulder, and upper arm. In the shoulder, the movement produced is an extension-flexion movement. While in the upper arm, the movement produced is rotational movement. The two muscles that are the key muscles for performing these repetitive movements are *latissimus dorsi* and *deltoideus* (Capasso et al., 1998). The indicaton in the entheseal changes were found in the male (n=17) and female (n=8) groups. The other activity is arrowing, which movement production is on the wrist, shoulder, and forearm. The movements produced are elevation, flexion-extension, and supination (Milner, 2008). In the observed group, the symptoms of entheseal changes could be found in the male

group (n=8) and the female group (n=7).

Gender Roles in the Community of Gilimanuk Site

Gender role is a label attached to an activity and status associated with a specific gender (Gilchrist, 2001; Lindsey, 2016). In this paper, what will be discusses is the physical activities of the people from Gilimanuk Site. Based on the explanation of the results of the entheseal changes analysis, it can be shown that the character of the physical activity observed shows a strong indication of the physical activity carried out on land. From the results of the enthesis findings, it can also be seen that the muscle injuries found are the indications of the character in the farming/agricultural community. This may be in line with Ramelan's research that states people of Gilimanuk Site had a sedentary economic system. This means that in addition to doing their main activities as fishermen, humans of Gilimanuk Site also carried outside activities to support the main economic system. However, of the various physical activities that were tracked, any physical activities related to fishing was only activity in shallow seas (Ramelan, 1986).

The analysis on 42 humans supporting the Gilimanuk Site produced an output in the form of the number of individuals suffering from muscle injuries related to a particular physical activity (Table 2). This then becomes the basis for obtaining information on the division of labor by gender in the prehistoric fishing community to discuss gender roles at the Gilimanuk Site.

Table 4. Matrix analysis of the relationship between physical activity and MNI entheseal changes

Physiscal Activity	Natufian Physical Activity Gender Stereotype*		Number of case (N= 42)		Gilimanuk Site Case Study
	Masculine	Feminine	Male	Female	
Hoeing	Neutral	Neutral	0	8	Feminine
Net fishing	Masculine	X	14	8	Neutral
Fishing	Masculine	X	6	4	Neutral
Grinding	x	Feminine	17	8	Neutral
Draw water from well	Masculine	x	4	2	Neutral
Spearing	Masculine	x	17	8	Neutral
Arrowing	Masculine	x	8	7	Neutral

*Sources: *(Eshed et al., 2004); Wibowo 2021*

Based on Table 4, the gender stereotypes in the physical activity can then be identified. Referring to the activity stereotype column, masculine activities are physical activities in a culture that are generally performed by men, while feminine activities are the opposite, which are carried out by women. The reference to this stereotype of physical activity is taken from a study (Eshed et al., 2004) that observed the agricultural community in the Natufian community. This comparison reference was chosen because the character of the subsistence strategy of the Natufian community is similar to the subsistence strategy of the Gilimanuk simple fisherman group, they both adhere to a sedentary economic system.

From Table 4 we can see that in the comparison model of the Natufian community has several activities with neutral, feminine, and masculine labels. In the comparison model, the neutral activity is hoeing. The results of the analysis of the Gilimanuk case show many differences. Based on the entheseal changes

(Figure 4) and the number of cases, hoeing is an activity carried out by women, while men do not show any indication of doing this activity.

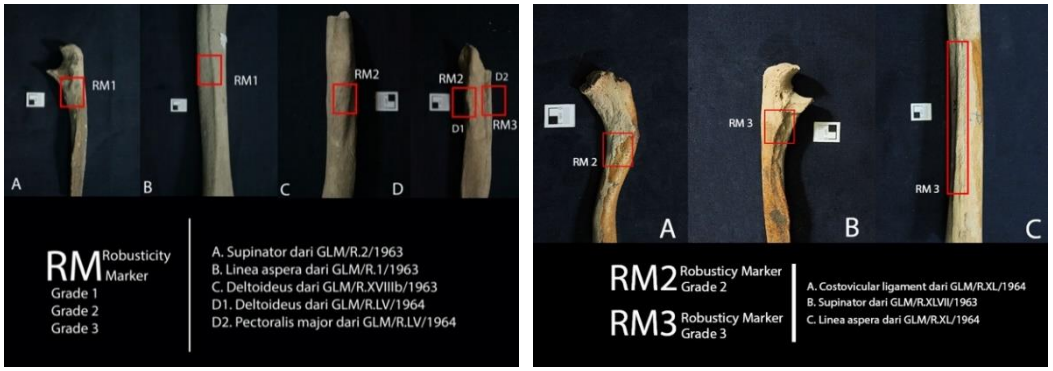

Figure 4. The entheseal changes on the female group (left) and the male group (right).
(Source: Wibowo, 2017)

The activities of drawing water, spearing, arrowing, fishing, and net fishing were closely related to masculine activities in the Natufian community, while in the Gilimanuk case, both genders actually performed both activities. We can conclude that the label of masculine fishing and net fishing could not be fully applied to the simple fishing community from Gilimanuk. Another different point is that the physical activity of pounding was characterized as a feminine activity in the Natufian group but had the opposite result in the Gilimanuk case, where both genders performed this physical activity.

Based on the gender approach, sex is a biological reality while gender is an entity constructed by social systems. The preliminary results of the discussion on gender roles in the Gilimanuk simple fishing community show an equal role in economic activity. This equality is shown by the absence of discrimination against a physical activity related to the fulfillment of daily needs. Both men and women were participating in the same physical activity.

However, based on data on the muscle use (Table 1), it is known that the share of muscle used by women shows a low number. This low amount of number certainly indicates that these muscles tend to be used less often than the male group. This low rate of muscle use can indicate the intensity of physical activity that is more often performed by men than women, even though the physical activity is the same. This initial result is also the basis for explaining gender roles in the case of the Gilimanuk Site.

DISCUSSION

Negating the Gender Label on Physical Activity

The distribution of labor based on sex emerges from the power and domination of the stronger sex over the weak one. Thus, women are influenced by their moral development to become weaker, which result to a smaller brain volume, and has a high sense of dependency on men. As a result, women psychologically are formed only to do minor work. This causes economic

interdependence sex, where women must have men who can fill each other's needs in economic fulfillment. In the context of a simple society, what is meant by the economy is only seen as the fulfillment of daily needs to survive (Malinowski, 1913). In archeology, it is very difficult to reconstruct and identify the roots of male dominance. The possible thing to do is to identify whether the division of labor based on gender will causes discriminatory behavior such as differences in access to food, restrictions on mobility to nutrition, health, and disease (Brown, 1970; Schimdt & Voss, 2000).

The purpose of eliminating gender labeling on physical activity is to remove imaginary barriers between male and female activities that lead to discrimination. However, gender labeling appears in complex cultures. This will cause limitations if the concept is used in analyzing prehistoric human behavior (Geller, 2009; Zihlman, 2013). Considering the character of prehistoric people, their lives were very simple and only to fulfill their primary needs. In this article, the division of labor based on gender can be shown through the types of physical activities such as hunting, farming, fishing, fishing by net, looking for raw materials, and looking for clay. Public activities such as hunting, farming, and fishing are often labeled as male (masculine) activities. Meanwhile, physical activities that are said to be domestic can be characterized as preparing food, gathering seeds, cooking, knitting mats, making pottery, and making baskets are labeled as female (feminine) activities. The distinction between the concept of public and domestic activity in prehistory itself is taken from ethnoarcheological and ethnographic studies of the Indian tribes, namely Hidatsa (Spector, 1983). These labels of masculine and feminine activities need to be deconstructed based on the results of the research in this article. The variety of activities must be seen as activities that can be carried out by men, women, or children in order to meet the needs of life (Sutton & Anderson, 2010).

The results imply that some physical activities that are often labeled as masculine activity show the opposite. Some of these physical activities are carried out by women, for example in spearheading, arrowing, and fishing. It can be concluded that gender roles in the simple fishing community of the Gilimanuk Site show their own construction. In this community, women participated in physical activities such as hunting, spearing, fishing, and even carving. This is indicated by the finding of entheseal changes that are similar to those in males. On the other hand, male individuals also participated in physical activities that were closely related to female activities. This will cause to no gender labeling in physical activity in a simple fishing community from the Gilimanuk Site.

This result is in line with the character of the society that adheres to a sedentary economic system, where women also play an important role in the main economic activities to fulfill daily needs. This is based on Lewin who found several facts on ethnic groups that ran a sedentary economic system. In example in those who have the main subsistence of agriculture and as a side trader. In this community, women play a role in physical activities such as managing the fields and farm activities, as well as taking care of livestock. Even in the Copper Eskimo group, it was also reported that women also went hunting for seals and went to sea (Lewin, 2006). By analyzing the entheseal changes, cultural objects, and physical activity, it states that gender roles in the simple fishing community at the

Gilimanuk Site did not indicate discrimination against women's roles.

CONCLUSION

Based on research conducted on prehistoric fishing communities at Gilimanuk Site, it can be stated that women in this community played an important role in economic activity and did not experience discrimination to perform various physical activities. From the evidence of muscle use, it is stated that women and men performed the same physical activity. Of course, this needs to be seen as an alternative to looking for a narrative or other point of view, not justifying that the results of previous research as a mistake. The results of this study also open the potential for gender archeology to develop its narrative in subsequent archaeological studies, especially in Indonesia.

AUTHORS DECLARATION

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