

*Full Length Research Paper*

# **Time spent by women and men in households on economic and care activities during productive hours in Morogoro District, Tanzania**

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**Using a cross sectional survey, this study investigated variations in time spent between men and women in economic productive and non-economic reproductive activities in a rural environment in Morogoro District in Tanzania. The study investigated 323 married or cohabiting women between the ages of 15 and 49 who lived in six villages across three wards. To determine the time expenditure disparity between men and women, females and their male counterparts were interviewed. A standardized questionnaire and focus group discussions (FGDs) were used to obtain quantitative and supplementary qualitative data, respectively. IBM SPSS V22 was used for data analysis. Content analysis was used to analyse the qualitative data. Women and men spent considerably different amounts of time engaged in productive and reproductive activities. Women spend 2.23 h less daily in economic production than males. Women spend 1.20 and 2.12 more hours daily on family care and child nursing, respectively. Aside from non-productive time, 64.8% of women devote 3 more hours to access maternal and child health services. Women spend more time in non-productive activities due to constrained access to social services and delivery at MCH clinics.**

**Key words:** Time, production, reproduction, women, poverty, Tanzania.

## **INTRODUCTION**

The differential division of labour among men and women is a global concern since it impacts the socio-economic status of men and women. Many studies have been conducted to describe gender differences in terms of time spent on productive and reproductive activities. An important rationale for most studies has been the existing philosophy that women take multiple responsibilities and

spend more time in reproductive work compared to men, which compromise their economic productivity (Cawthorne, 2008). In addition, anti-poverty approaches concerned with women in development have shown existence of increased hours and intensity of work among women (Chant and Sweetman, 2012). Gender disparity in allocation of time in different activities is a characteristic

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of both developing and developed countries. It is argued that 'unpaid' family care, which constitutes most of the reproductive responsibilities, is a global issue affecting women regardless of their education levels and income or the level of development of their countries. In Africa, Tanzania inclusive, gender time allocation in activities takes a similar trend whereby women spend more time in reproductive activities compared to men (Komatsu et al., 2015; Feinstein et al., 2013).

Despite the ambiguities that have existed in categorizing day to day activities, it is generally acceptable that productive or economic, market or paid activities reflect activities associated with payment (Kes and Swaminathan, 2006; Blackden and Wodon, 2006; Antonopoulos, 2008). On the other hand, reproductive, non-economic, or unpaid activities are those that are not associated with any direct payments. Reproductive work in its totality is a set of activities related to the creation and sustaining the family and the household. They include not only biological reproduction but also reproductive physical roles such as care and maintenance of the present and future work force (male partner, infants, school-going and non-working children and other dependent household members), and thus reproductive work reflects household chores in totality (Galtry, 2000; Bibler and Zuckerman, 2013).

Gender time distribution in different activities varies across different regions, cultures and socio-economic classes. It is reported that in Tanzania the burden of unpaid labour is large in households due to undeveloped domestic technology (Leavens et al., 2019). Consequently, women spend significant time for performing domestic tasks, and especially in transport that is related to domestic responsibilities (Leavens et al., 2019). Due to these many responsibilities, time burdens are widely identified as a major constraint on women's enterprise and income improvement. In general, a number of factors influence the amount of time that one spends in performing a particular activity. The factors include the age and gender composition of household members, seasonal and farm systems, ease of access to water and fuel, availability of infrastructure, and distance to key economic and social services such as schools, health center's, financial institutions, and markets (Blackden and Wodon, 2006). Other factors affecting gender time distribution in activities are the level of knowledge about particular activity, access to assets that can simplify performing the tasks, availability of assistance in performing tasks and ability to outsource the activities (Komatsu et al., 2015).

African women must often work long hours performing domestic chores and collecting water and wood, apart from their paid or unpaid work in the fields or other labour market activities (Bardasi and Wodon, 2010). Literature shows that outsourcing activities is not an affordable or realistic option for most women hence their household's daily wellbeing depends on them to carry out these

activities (Ferrant et al., 2014). Previous reports suggest that mothers with children less than five years of age would be working more hours in economic productions if suitable and affordable childcare facilities were available in the community (Kuhhirt and Ludwig, 2012).

Based on the literature above, it is evident that many studies have been conducted concerning gender division of labour and time expenditure in different activities, reporting disproportional expenditure of time between men and women (Cawthorne, 2008; Feinstein et al., 2013; Shirley and Wallace, 2004). Literature shows that the gender gap in allocating time in un-paid activities ranges from two hours to almost five hours per day but in general, around the world, women spend two to ten times more time on unpaid care work than men (Antonopoulos, 2008). This is evidenced by studies conducted in the Netherlands, France, United States, South Africa, Cambodia, India (Antonopoulos, 2008; Cawthorne, 2008; Ferrant et al., 2014; Kuhhirt and Ludwig, 2012; Komatsu et al., 2015).

Non-productive work counteracts women's productivity hence it is associated with poor SES in households. According to Pressman (2003), women and their households are more likely to be poor than men because they spend most of their time in care giving activities for their children and other household work hence low earning since they spend less time in economic productive work. Previous researchers have established that factors that lead to women's poor SES are not confined to women; they can affect other households (Ferreira and Ravallion, 2009; De Weerd, 2010; Quisumbing et al., 2014; Chant and Sweetman, 2012). In addition, women are key players of productions especially in rural households. They play an important role in Tanzania's economy for being more active in agriculture, which accounts for 82% of the labour force (Quisumbing et al., 2014; Mganga et al., 2021) and they constitute majority (54%) of agricultural force (Leavens et al., 2019).

In Tanzania, majority of rural households are poor whereby 80% of rural population is in the three lowest wealth quintiles compared to 12% households of the urban (MoHCDGEC, 2016). With specific to the study area, based on head count ration, 55% of household in Morogoro rural are poor (Lusambo et al., 2016). Women who constitute majority of the work force especially in agriculture (54%) (Leavens et al., 2019) are time constrained. In addition to productive work, they are responsible for household work (MoHCDGEC, 2016). Responsibilities such as preparation of food, washing clothes, looking after children, educating children, forging food for family, child nursing and sitting with a baby and breast-feeding takes away the time that could be used for production since they are carried out during production hours. It is known that women spend much time in such activities. This is not only in other countries, but also in Tanzania (Leavens et al., 2019). However, most of the

studies have report about the length of time that women spend in reproductive work without specifying economic productive hours with specific society. In most of the studies, researchers have either used 24 h' time a day while others the time framework is not clearly stated (Komatsu et al., 2015; Leavens et al., 2019). Therefore, it is not clear to what extent women's economic productive time is lost through performing reproductive work in Morogoro district. In relation to this, it is not well documented concerning the factors determining the amount of time consumed in reproductive activities.

The factors influencing time spent in activities vary broadly depending on the level of development, social economic status and culture of the society. Hence, results and recommendations cannot be generalized across societies.

Therefore, this study intends to compared time spent by men and women for economic productive work, family care and maintenance as well as child nursing care (ii) determine the amount of time spent by women to attend clinic services while pregnant and for their under five children (iii) determine economic productive time lost during pregnancy and after delivery and (iv) identify the available types and extent of access to childcare assistance. While gender division of labour and time expenditure in particular activities and its economic implications in developed countries has been well studied (Cawthorne, 2008; Ferrant et al., 2014; Kuhhirt and Ludwig, 2012), scanty data exist to explain the extent of time lost by women through performing reproductive activities in developing countries particularly in Morogoro district, Tanzania. The factors determining the economic time lost in reproductive work are not clearly known in Morogoro district.

This study is significant because in Tanzania, women constitute majority of the labour force in agriculture (54%), which is the main source of livelihood for the Tanzanian population and provides more than two-thirds of employment and almost half of Tanzania's GDP (Leavens et al., 2019; Palacios-Lopez et al., 2017). Therefore, balancing time for productive and reproductive responsibility for women remains essential. Moreover, the government of Tanzania through its FYDP 2016/2017-2010/2021 considers women economic lost time as a barrier to achievement of economic transformation (MoHCDGEC, 2016). Time poverty has long been recognized as a constraint to development in Sub-Saharan Africa, with women working especially long hours due- in part to, a lack of access to basic infrastructure services such as water and electricity, but also because of their assigned role as the main providers of care and domestic (unpaid) work (Bardasi and Wodon, 2010).

Therefore, results from this study are useful to the government and other women development partners because it will provide insight about the amount of time that women spend in various activities and the pertaining

factors hence an appropriate entry for interventions. Consequently, the study will complement the national and global development efforts intending to improve participation of women in economic production for sustainable development (Sachs, 2012). The study is also important since it points out areas for interventions that aim at maximizing women's potential in economic productivity. This study was guided by the feminist explanations of the Feminization of Poverty theoretical arguments. The theories assert that low earnings among women are due to care-giving responsibilities for their children and their households. These household care responsibilities take away from women the time that could be spent for economic productions (Pressman, 2003).

## METHODOLOGY

### The study area and duration

This study was conducted in Morogoro District, a prototype rural community in Tanzania, from June 2019 to May 2021. The district was selected purposively due to its known prevalence of poverty, whereby 55% of the households are regarded as poor (Lusambo et al., 2016; MoHCDGEC, 2016). This is supported by the national data that 80% of the rural population are in the 3 lowest wealth quintiles (MoHCDGEC, 2016). Three wards in the study district, Gwata, Mkuyuni and Kinole were purposively selected. From the three wards, six villages were randomly selected to participate in the study. The six study villages were Kinonko and Maseyu from Gwata ward, Madamu and Kibwaya from Mkuyuni ward and Tandai and Ludewa from Kinole ward.

### Study design

This study adopted a cross sectional design. The rationale for choosing a cross sectional study design was its suitability and the nature of data to be collected (Bell et al., 2022).

### Sample size estimation

The current study was designed to have a precision of 0.05 and confidence level of 0.95. The online 'EpiTools' epidemiological calculator  $n = [Z^2 * P (1 - P) / e^2]$ , was used, where 'Z' is the value for standard normal distribution, corresponding to the desired confidence level (Z=1.96 for 95% CI). Poverty level in the study area was reported as 55% (Lusambo et al., 2016), hence the studied parameter 'P' was estimated at 0.55 and 'e' is the desired precision (0.05).

Using this formula, a minimum of 380 participants were required to achieve the desired statistical power. However, based on the fact that completion of a questionnaire required men and women (couples); and it is relatively difficult to get men, a sample size was increased to take care of incomplete questionnaires that would be dropped out. Therefore, total of 627 women were interviewed. This also intended to increase the statistical power of estimating relationships between the study variables (Tanaka, 1987).

### Study population, inclusion criteria and sampling procedure

This study included women aged between 18 and 49 years residing

in the study villages. The chosen age was specified as the reproductive age range by the Tanzania Demographic Health Survey (National Bureau of Statistics (NBS) [Tanzania] and ICF Macro, 2011; 2011). Reproductive age was important to allow obtaining information about both productive and reproductive issues. Male partners of participating women were interviewed to determine the time they spend in productive and reproductive work and child nursing care hence allow establishing potential productive time loss by women. This setup allowed not only capturing information concerning realistic reproductive roles played by women, but also observation of some practices such as child care during production time. Women included in the study were those with at least two children who could provide, among other things, information about childcare services and experience. A list of all eligible participants was established from registers of village residents and this list was used as the sampling frame for selecting participants.

### Study variables and definitions of categories

In the current study, input variables were namely, the time spent (in hours) by men and women in productive and reproductive activities; the time spent by women for attending ANC and MCH clinics; productive time lost during pregnancy and after delivery as well as access to child assistance. The study community was the basis for identifying the roles and categorizing them. Estimation of time for productive and reproductive activities was considered as the potential time for economic production that is between 6.00 am and 6.00 pm as defined by the study community.

Economic productive work included activities which are the main economic activities in the study area, including agriculture, business/trading, mining, bee keeping, fishing, casual labour and animal husbandry. Reproductive or economic work was divided into three categories. Category one included household and family care and maintenance activities such as cooking for children and family, washing clothes and looking after the children. Category two included the time spent on child nursing such as baby-sitting and breast feeding. Category three included activities directly related to biological reproductive responsibilities such as attending ANC and MCH clinics.

It is important to note that the activities performed by women at different stages of their life cycle were identified by the community as follows: Women are responsible for productive activities that mostly include agriculture in totality, business/trading, casual labour, and animal husbandry as the case may be. In addition, women are responsible for reproductive work such as family care and maintenance (Food preparation, washing clothes, looking after children, educating children, fetching some water, cleaning house environment and collection firewood). While pregnant and with under five years children, in addition to the above activities, a woman has to attend Mother and Child Health (MCH), performs child nursing, sitting with a baby and breast-feeding.

### Data collection tools and methods

Data collection involved the use of structured, close ended questionnaire through face to face interviews. The questionnaire used in this study was developed by the investigators; its validity and reliability were also determined. It was first piloted on ten respondents before the actual study and these respondents were excluded during actual data collection and analysis. Validity and reliability were determined by using computer software IBM SPSS Version 22. While the questionnaire was used for collecting quantitative data, a focus group discussion guide was used to guide

the collection of qualitative data through Focus Group Discussions (FGDs). While women responded to all the items, their counterpart men were interviewed specifically about the time that they spend in productive and reproductive work only. For both participating women and their counterpart men, time measurement was done as described by previous scholars (Komatsu et al., 2015); a record was taken for activities conducted consecutively in four days hence the average time was considered as usual time that a person spends for that particular activity.

Three groups each consisting of 6-8 women were involved in FGDs. The group size was based on recommendations of previous scholars that is, between 6-12 individuals per group (Azzarri et al., 2006; Ritchie et al., 2013). Field notes were taken during discussion and important quotes were recorded. Most of the selected group participants were those who had held leadership positions either during the time of study or in the past. The requirement for leadership experience among FGD participants was meant to involve women who had ample information about the study population. Some of the positions held by the participants of the FGDs included leadership in village government, women social and economic groups and school committees. The FGDs intended to complement information obtained from the study participants in the questionnaire-based quantitative information and to clarify some issues that needed more information.

### Data analysis

#### Analysis of quantitative data

Quantitative data collected by questionnaires were analysed using Statistical Product and Service Solutions (IBM SPSS Armonk, NY, and USA) software version 22. Descriptive data of the categorical variables were presented in the form of numbers and percentages organized into Tables. Measures of central tendency (medians and means) were reported as tables and in text. Comparison of time spent by men and women in productive and reproductive activities was performed using students T-test. This test compares the mean values for the two groups to tell if they are different from each other. The students T-test also tells how significant the differences are; and if those differences could have happened by just chance. For each study issue, non-responses were excluded in the analysis.

#### Analysis of qualitative data

Content analysis was adopted whereby a systematic process for analysis was followed which involved reviewing the field notes and preparing summary for information from individual focus groups. This approach has also been used by others (Krueger et al., 2014). Themes allied to the guiding questions were identified and recorded indicating distinct opinions about the research issues. Few quotes were used to illustrate important points.

### Ethical issues

Permissions from all relevant authorities were obtained to conduct this study. The study was approved by Sokoine University of Agriculture, and then introduced to local leaders at the district, wards and villages before involving study participants. Sensitization meetings were held to raise awareness of the study participants concerning the study. Participation was voluntary and participants were informed that refusal had no harm. The process of data collection allowed confidentiality whereby each respondent was interviewed at a time and in privacy.

**Table 1.** Demographic and household characteristics of study participants (n=323).

Characteristics	Frequency	Percent
<b>Education level</b>		
No formal education	140	43.3
Primary	172	53.3
Secondary or higher	11	3.4
<b>Marital status</b>		
Married	299	92.6
Cohabiting	24	7.4
<b>Household size</b>		
<4	7	2.2
4 - 6	228	70.6
>6	88	27.2
Median (IQR) number of HH members	6 (4 - 7)	
<b>Age groups in households (years)</b>		
<5	274	15.8
5 - 14	616	35.6
≥15	841	48.6
Average household density	5.4	

IQR=Interquartile range; HH = Household.  
Source: Authors

**Table 2.** Time spent by men and women for economic and care activities (n=323).

Mean time spent on different activities <sup>†</sup>	n	Mean	SD	Mean diff.	95% CI	p-value
Economic productive work						
Women	323	6.31	2.16	-2.23	-1.51, 0.95	<0.001
Men	323	7.54	2.44			
Reproductive (family care and maintenance) work						
Women	251	3.02	1.77	1.20	0.93, 1.47	<0.001
Men	251	1.82	1.94			
Child nursing care						
Women	275	3.89	3.73	2.12	1.69, 2.55	<0.001
Men	275	1.78	1.63			

<sup>†</sup>Average time in hours spent in 12 hours of daytime for four consecutive days of a week.  
Source: Authors

## RESULTS AND DISCUSSION

### Demographic characteristics of study participants

Demographic characteristics of study participants are presented in Table 1. Out of 323 women involved in the study, 53.3% had attained primary school education and about a half (43.3%) had not received any formal school education. About one fifth (15.8%) had children who were below five years old, and more than one third (35.6%) of the women had children of between 5-14 years of age.

### Time spent by men and women in different activities

The time spent by men and women in economic productive activities, reproductive and child nursing care activities during 12 h of daytime were analysed for comparison purposes (Table 2). Results show that, on average, women spend 2.23 h less per day in economic production activities compared to men. On the other hand, the study found that women spend 2.8 more hours per day compared to men, in reproductive activities particularly family care and maintenance work as well as

**Table 3.** Amount of productive time lost during pregnancy and after delivery.

Variable	Time (months)	Frequency	Percent
Unable to work at all during first pregnancy (n=279)	<1	69	24.7
	1 - 2	154	55.2
	>2	56	20.1
Unable to work at all during last pregnancy (n=278)	<1	67	24.1
	1 - 2	152	54.7
	>2	59	21.2
Unable to work at all after delivery of last born (n=277)	<1	18	6.55
	1 - 2	100	36.1
	>2	159	57.4

Source: Authors

**Table 4.** The time spent to attend ANC and MCH services.

Variable	Response	Frequency	Percent
Time spent on MCH* clinics (hours) (n=321)	Mean (SD**, Range)	1.7 (0.5, 1 - 2)	
	<3	113	35.2
	≥3	208	64.8
Number of ANC*** visits when pregnant (n=320):	Mean (SD, Range)	5.4 (1.2, 2 - 8)	
	<4	16	5.0
	≥4	304	95.0
Maximum age of taking child to MCH clinic (years) (n=321)	Mean (SD, Range)	4.8 (0.8, 1 - 6)	
	<5	17	5.3
	≥5	304	94.7

\*MCH= Maternal and Child Health service; \*\*SD= Standard deviation \*\*\*ANC= Antenatal Clinic.

Source: Authors

child nursing care. In all cases, the mean time spent by men and women for the three types of activities (economic production, family care and maintenance as well as child nursing care) was statistically different ( $p < 0.01$ ).

FGDs results revealed that time spent in household work was lengthened by poor availability of social services in the area particularly lack of assistants for child-care and poor access to important services such as clean water.

### Economic productive time lost by women during pregnancy and after delivery

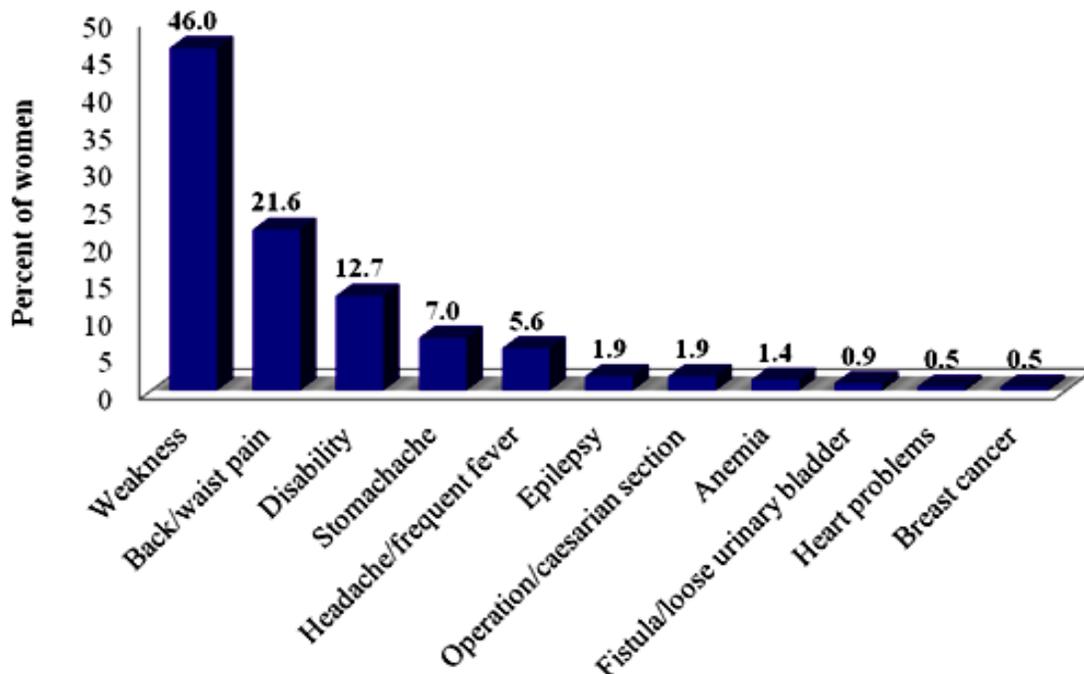
Results in Table 3 show that based on the first and last pregnancy, only about one fifth (20.1 or 21.2%) of the study participants could not work at all for more than two months when pregnant. Nevertheless, after delivery, majority of the women (57.4%) were unable to work for more than two months.

### Time spent to attend ANC and MCH services

Results presented in Table 4 show that majority of the women spend 3 hours or more for a single visit to the ANC during pregnancy and MCH clinics for up to five years after delivery. Factors that extend the time that women spend for attending clinics were the insufficient health workers at the clinic centers and inadequate commitment of care providers to attend to their clients (FGDs). When pregnant, women attend ANC and MCH clinics more than five times on average (5.4) and make about sixty visits (once every month) until the child is about five years old (4.8 years).

### Common health problems experienced by women after delivery

Participating women were asked to explain their knowledge and experiences regarding their health status after delivery. Results show that after delivery, many



**Figure 1.** Health problems experienced by women after delivery.  
Source: Authors

women encounter health problems that hinder their engagement in production. The main health problems experienced by women (and related percentages) are shown in Figure 1. Most of the women are affected by general body weakness (46%) and back/waist pain (21.6%). Other health problems affect less than 13% of the study participants.

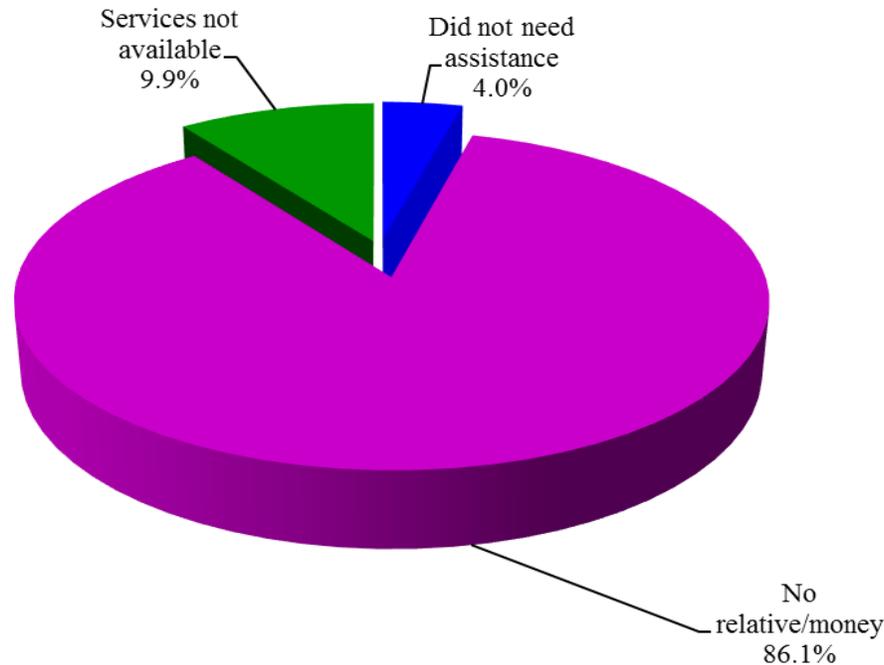
#### **Women's access to childcare assistance and services**

Among the 323 respondents, 310 (96.0%) answered to the question on whether they were assisted to care for their children for the last two young children. Of these, only 11 (3.4%) acknowledged to have received reliable assistance for care of the last two children. Of the 11 respondents who received assistance, all of them reported to have received assistance from relatives. When asked if the assistance was timely, 8 (72.7%) agreed on the timeliness of the assistance. The major reason for not getting assistance was reported to be financial constraints to pay for the service; other reasons are shown in Figure 2. Respondents who got assistance were asked if a male or female extended the assistance. Out of the 11 respondents, 7 (63.7%) responded to the question. Of these 5 (71.4%) were assisted by a female with mean (SD, range) age of 35.6 (33.6, 5-80) years while 2 (28.6%) were assisted by a male with mean (SD, range) age of 11.5 (2.1, 10-13) years.

#### **DISCUSSION**

The purpose of this study is to explore differential gender expenditure of time in productive and reproductive activities in a rural setting in Morogoro District in Tanzania. Results show that four out of ten interviewed women did not attain primary school education. The findings were within the recorded data by the Tanzania. Based on the National Bureau of Statistics (NBS) (Tanzania) and ICF Macro, 2011) (National Bureau of Statistics (NBS) [Tanzania] and ICF Macro, 2011, 2011), it is acknowledged that the level of education differs significantly across Tanzanian regions. Finding from this study shows a considerable illiteracy rate among women in the study area. Gender discrimination, in which females were not provided with the basic opportunity and support to achieve primary school education as boys were, was the main explanation for the observed high illiteracy rate as revealed in focus groups. Previous research suggests that education is crucial in exposing people to a wide range of experiences, opinions, creativity, and inventive thinking when it comes to organizing daily activities (Thiessen and Nickerson, 1999; Bynner and Parsons, 2002). According to this theory, the study area's claimed illiteracy is likely to have a detrimental impact on the research community's time management.

Contrarily to the hypothesis in this study that time spent by men and women in productive and reproductive activities in rural areas is not significantly different, this



**Figure 2.** Major constraints for not getting child care assistance.  
Source: Authors

study found statistically difference in the time expenditure between men and women in economic productive, family care and child nursing activities. Although the interview showed both men and women to perform all three types of activities, it was clearly evident that women spent more time in family and child nursing care activities ( $p$ -value < 0.01) in both cases. Men spent more time in economic productive activities ( $p$ -value < 0.01). This observation was not surprising since in many African and Asian communities, family maintenance and child care activities are regarded as, by large, a female responsibility (Blair and Lichter, 1991; Hundley, 2000). Similar findings were previously reported in Bangladesh, Cambodia, Ghana, Mozambique and Nepal (Komatsu et al., 2015). Literature shows the involvement of women in reproductive activities especially domestic at young age, with consequences that impede women's overall processes of development. For example, it has been reported that women leave studies to undertake domestic labour, while men do so to enter paid labour (Godoy, 2004).

Findings from FGDs showed that the amount of time spent by women in performing household activities was lengthened by a number of factors most of which are related to poor social services. Scarcity of nearby sources of water for domestic use, absence of electricity, lack of reliable assistance for child care, lack of technologically improved cooking stoves and scarcity of cheap alternative sources of domestic power (firewood) were among the factors that contributed to intensive time expenditure on family care activities among women. Findings from this study are in line with previous findings

by other scholars that gender time distribution in activities is affected by factors that include the status of access to social services such as availability of water, fuel and to improved domestic technology (Harvey and Taylor, 2000; Bittman et al., 2004; Johnston et al., 2015; Blackden and Wodon, 2006).

Findings from this study show that women spent more time in family and child care but not in economic production partly because childcare assistance services were un-available in the study area. Majority of women were undertaking productive work in parallel with child care. During FGDs, a woman from Maseyu village pointed out that...*"Women usually take care their children while working..."*. This finding has also been reported in other parts of the world (Belanger and Stone, 2008). Our study has shown that the large majority of participants either could not afford hiring a maid or having a relative to assist with childcare. The ideology that childcare is a woman's responsibility is deeply rooted in the study area perhaps because majority of rural women do not have formal employment. They are mainly engaged in agricultural activities making it easy to manipulate their time to accommodate both childcare and economic productive activities simultaneously. However, the consequences of this are affecting both the mother's work efficiency and the child's health and education. An important challenge remains to enable women spend more time in productive activities in rural Tanzanian where more than a half (54%) of the labour force relies on women.

Attending antenatal care (ANC) and maternal and child

health (MCH) clinics was found to be among the factors that contribute to loss of productive time among women. During pregnancy, women reported to lose time for economic productivity by attending ANC. The findings show that productive time among women is lost again after delivery due to MCH attendance, childcare, and a range of maternal post-delivery health problems. This study found that, almost all women (> 95%) had to make more than 4 ANC visits and about 60 (57.7 visits on average) to MCH clinics until the child is about 5 years old (4.8 years), which is in line with the recommended time to attend ANCs between 4 and 10 visits and up to 60 MCH visits until the child is 5 years old (Simkhada et al., 2008). In the present study, majority of the women (64.8%) spend three (3) or more hours for each ANC/MCH visit. The implication for this is that, for any single pregnancy and child care to the age of 5 years, a woman spends a significant amount of time to obtain ANC and MCH services. This time is deducted from productive work since such services are offered during work hours.

Although the ANC and MCH services are unarguably indispensable, the concern remains whether there are factors which unnecessarily extend the time spent in acquiring these services. In the FGDs, participants were in the opinion that the small number of care providers in ANC and MCH clinics and poor commitment of the health service providers at the MCH facilities contribute to unnecessary increase in the time that women spend at ANC and MCH centers. *"We stay long at the MCH clinic because most of the time service providers at the clinic are busy with personal issues..."* reported the woman from Kibwaya during FGDs. In addition, post-delivery health issues including body weakness and back/waist pain were also among the contributors to productive time loss among women.

After delivery, more than a half of the participants (52.2-54.7%) stayed for about 1-2 months without working at all during their first and last pregnancy, respectively. Moreover, almost similar proportion (57.4%) could not work all after delivery due to, among other things, poor health problems that include body weakness, back/waist pain, abdominal pains, headache and frequent fever. Moreover, majority of the women are not assisted in taking care of their children due to lack of money and unavailability of the service. This is not strange since it is common for a woman's ability to function physically to decrease during pregnancy. Literature shows that physical function can decline from a mean score of 95.2 prior to pregnancy to 58.1 during the third trimester (Haas, 2005). The prevalence of depressive symptoms rose from 11.7% prior to pregnancy to 25.2% during the third trimester, and then declined to 14.2% during the postpartum period. It can therefore be noted that the process of childbirth consists of non-productive periods of time for a woman. The main concern in this study is the productive time lost thus reduces unnecessary loss of

time that can be spent for production.

## Conclusion

The study reveals that during economic productive hours, women and men spend considerably different amounts of time in productive and care activities; women spend less time in economic output and more time in care activities.

Because insufficient social services lengthened the time spent by women in care activities, the study advises the government and non-governmental development organizations to undertake interventions aimed at reducing the time spent by women in care activities. Improved access to social services such as clean water, energy, and affordable technology, particularly for cooking, can help achieve this. Cooking technology advancements could include the development of more efficient stoves that save time and lower the amount of firewood required per meal.

In addition, the study found that mothers devote a significant amount of time to obtain ANC and MCH services for themselves when they are pregnant and their children under the age of five. Given the importance of such services, the Ministry of Health is advised to develop interventions aimed at shortening the time it takes to obtain them. This can be accomplished by ensuring that rural women have simple access to MCH clinics and that clinic employees perform well, reducing the time it takes to acquire care. Furthermore, the study found that child care providers were sparse in the study area, leading to the overlapping of child care productive activities.

## Recommendations

It is recommended that women should be economically empowered so that they or their households can afford to hire assistants when they are needed.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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## REFERENCES

- Antonopoulos R (2008). The unpaid care work-paid work connection. Levy Economics Institute, Working Papers Series
- Azzarri C, Carletto G, Davis B, Zezza A (2006). Monitoring poverty without consumption data: an application using the Albania panel survey. *Eastern European Economics* 44(1):59-82.
- Bardasi E, Wodon Q (2010). Working long hours and having no choice: Time poverty in Guinea. *Feminist Economics* 16(3):45-78.
- Belanger K, Stone W (2008). The Social Service Divide. *Child welfare*, 87(4):101-124.
- Bell E, Harley B, Bryman A (2022). *Business research methods*. Oxford University Press.
- Bibler S, Zuckerman E (2013). The care connection: The World Bank and women's unpaid care work in select sub-Saharan African countries. WIDER Working Paper.
- Bittman M, Rice JM, Wajcman J (2004). Appliances and their impact: the ownership of domestic technology and time spent on household work. *The British Journal of Sociology* 55(3):401-423.
- Blackden CM, Wodon Q (2006). *Gender, time use, and poverty in sub-Saharan Africa*, 73 edition. World Bank Publications.
- Blair SL, Lichter DT (1991). Measuring the division of household labor: Gender segregation of housework among American couples. *Journal of Family Issues* 12(1):91-113.
- Bynner J, Parsons S (2002). Social exclusion and the transition from school to work: The case of young people not in education, employment, or training (NEET). *Journal of Vocational Behaviour* 60(2):289-309.
- Cawthorne A (2008). The straight facts on women in poverty. *Center for American Progress* 8:1-3.
- Chant S, Sweetman C (2012). Fixing women or fixing the world? 'Smart economics', efficiency approaches, and gender equality in development. *Gender and Development* 20(3):517-529.
- De Weerd J (2010). Moving out of poverty in Tanzania: Evidence from Kagera. *The Journal of Development Studies* 46(2):331-349.
- Feinstein L, Dimomfu BL, Mupenda B, Duvall S, Chalachala JL, Edmonds A, Behets F (2013). Antenatal and delivery services in Kinshasa, Democratic Republic of Congo: care-seeking and experiences reported by women in a household-based survey. *Tropical Medicine and International Health* 18(10):1211-1221.
- Ferrant GI, Pesando LM, Nowacka K (2014). *Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes*. Boulogne Billancourt: OECD Development Center.
- Ferreira F, Ravallion M (2009). *Poverty and inequality: The global context*. The Oxford Handbook of Economic Inequality, Oxford: Oxford University Press.
- Galtry J (2000). Extending the "bright line" feminism, breastfeeding, and the workplace in the United States. *Gender & Society* 14(2):295-317.
- Godoy L (2004). *Understanding poverty from a gender perspective*, 52 edition. United Nations Publications.
- Harvey AS, Taylor ME (2000). Time use. *Designing Household Survey Questionnaires for Developing Countries: Lessons from* 15:249-272.
- Hundley G (2000). Male/female earnings differences in self-employment: The effects of marriage, children, and the household division of labor. *ILR Review* 54(1):95-114.
- Johnston D, Stevano S, Malapit HJ, Hull E, Kadiyala S (2015). Agriculture, gendered time use, and nutritional outcomes: a systematic review.
- Kuhhirt M, Ludwig V (2012). Domestic work and the wage penalty for motherhood in West Germany. *Journal of Marriage and Family* 74(1):186-200.
- Kes A, Swaminathan H (2006). Gender and time poverty in sub-Saharan Africa. *Gender, time use, and poverty in sub-Saharan Africa* 13.
- Komatsu H, Malapit HJ, Theis S (2015). How does women's time in reproductive work and agriculture affect maternal and child nutrition? Evidence from Bangladesh, Cambodia, Ghana, Mozambique, and Nepal.
- Krueger DC, Mellat Parast M, Adams S (2014). Six Sigma implementation: a qualitative case study using grounded theory. *Production Planning and Control* 25(10):873-889.
- Leavens MK, Gugerty MK, Anderson CL (2019). Gender and agriculture in Tanzania. *Gates Open Research* 3:1348.
- Lusambo LP, Lupala ZJ, Midtgaard F, Ngaga YM, Kessy JF (2016). Increased biomass for carbon stock in participatory forest managed Miombo Woodlands of Tanzania. *Journal of Ecosystem and Ecography* 6(2):182.
- Mganga AE, Renju J, Todd J, Mahande MJ, Vyas S (2021). Development of a womenGÇOs empowerment index for Tanzania from the demographic and health surveys of 2004-5, 2010, and 2015-16. *Emerging Themes in Epidemiology* 18(1):1-11.
- MoHCDGEC, Tanzania and MoH Zanzibar (2016). *Tanzania National Bureau of Statistics, Zanzibar Office of Chief Government Statistician, and ICF. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016*.
- National Bureau of Statistics (NBS) and Tanzania and ICF Macro (2011). *Tanzania Demographic and Health Survey 2010*. Dar es Salaam, Tanzania.
- Palacios-Lopez A, Christiaensen L, Kilic T (2017). How much of the labor in African agriculture is provided by women? *Food Policy* 67:52-63.
- Pressman S (2003). Feminist explanations for the feminization of poverty. *Journal of Economic Issues* 37(2):353-361.
- Quisumbing AR, Meinzen-Dick R, Raney TL, Croppenstedt A, Behrman JA, Peterman A (2014). *Gender in agriculture*. Springer 102072:444.
- Ritchie J, Lewis J, Nicholls CM, Ormston R (2013). *Qualitative research practice: A guide for social science students and researchers*. Sage.
- Sachs JD (2012). From millennium development goals to sustainable development goals. *The Lancet* 379(9832):2206-2211.
- Shirley C, Wallace M (2004). Domestic work, family characteristics, and earnings: re-examining gender and class differences. *The Sociological Quarterly* 45(4):663-690.
- Simkhada B, Teijlingen ER, Porter M, Simkhada P (2008). Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature. *Journal of Advanced Nursing* 61(3):244-260.
- Tanaka JS (1987). How big is big enough?: Sample size and goodness of fit in structural equation models with latent variables. *Child Development* pp. 134-146.
- Thiessen V, Nickerson C (1999). *Canadian gender trends in education and work*. Applied Research Branch, Human Resources Development Canada.