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TIME-USE AND WELLBEING IN ONESI, NAMIBIA

By

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ABSTRACT

Men's and women's time-use in relation to wellbeing is well-investigated and understood within the context of the developed world. There has been limited research into the gendered experiences of time-use and three dimensional (3D) wellbeing in rural communities of sub-Saharan Africa and particularly so in semi-arid areas. As a result, failure to appreciate how time-use and wellbeing are experienced by the rural population in semi-arid areas impedes a full understanding of how rural inhabitants spend their time and how this makes them worse off or better off in different aspects of their wellbeing. This subsequently challenges the appropriateness of efforts to improve the lived experience of rural inhabitants. The study aimed to make a contribution to the knowledge gap on time-use and wellbeing by assessing how time-use relates to the experiences of material, subjective and relational aspects of wellbeing in a semi-arid area. It hypothesised that if men and women who are household-heads spend their time-use differently this has implications on their experiences of material, subjective and relational wellbeing.

The study adopted a quantitative approach to primary data collection, analysis and interpretation of results. A questionnaire survey consisting of 93 randomly selected male and female headed households was conducted using stratified sampling techniques. Data was analysed using Microsoft Excel and SPSS software including regression analysis and statistical tests (Mann Witney U test) from which descriptive and statistical results were presented in tables and graphs following regression analysis. The study yielded several findings including the importance of personal care for improved subjective wellbeing despite the trade-off with material wellbeing; the importance of age and social grants for ensuring a better experience of material wellbeing; the importance of social connections particularly for widows and widowers; as well as the significance of time spent on leisure and work-outside for improving relational wellbeing. In addition, women's disproportionately high time spent on domestic work leaves them feeling subjectively worse-off while the persistence of traditional gender role division seems to have a determining effect on the time-use and wellbeing experiences of household-heads in the study area. Overall, the study highlights time-use related opportunities and constraints for improving the wellbeing of rural inhabitants in Onesi, Namibia.

Key words: time-use, wellbeing, gender, rural community, semi-arid areas, women

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ACRONYMS AND ABBREVIATIONS

3D	Three Dimensional
ESRC	Economic and Social Research Council
GGCA	Global Gender and Climate Alliance
IPCC	Intergovernmental Panel on Climate Change
OECD	Organisation for Economic Cooperation and Development
SPSS	Statistical Package for Social Science
WeD	Wellbeing in Developing Countries research group
WEDO	Women and Environment Development Organisation

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1 CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter serves as an introduction to the study and its significance. It provides an apt background to the research study which includes a brief overview concerning the gendered experiences¹ of time-use and the three dimensions of wellbeing within the context of rural semi-arid areas. This is followed by a section outlining the study's research problem, aim, objectives, research questions, and significance.

1.2 Background to the study

A growing literature asserts the significance of links between time-use and wellbeing. In the context of developing countries, it has been noted that women in rural areas experience disproportionate access to resources such as finance and technology, lack of information, as well as limited participation in decision making all owing to pressures on their time (Adem, 2011; WEDO, 2008; Nankhuni, 2003; Harnmeijer and Waters-Bayer, 1993). This has implications for women's individual and household quality of life. Owing to culturally constructed gender divisions of labour, men and women exhibit differences in their time-use as well as varying degrees of day-to-day time pressures (WEDO, 2008; Nankhuni, 2003; Awumbila & Henshall Momsen, 1995). Research into gendered time-use patterns and time pressure evidences that women are more disadvantaged than their male counterparts. Of note, Fox and Nichols (1983) identify that the participation of women in both paid work and household work results in a severe 'time crunch'. The limited available time to pursue all of their culturally constructed activities, roles, and responsibilities essentially contributes to the detriment of their wellbeing (Peterman et al., 2011; Gross & Swirski, 2002; Flemming &

¹ Gender as a construct cannot be accepted uncritically. We cannot aim to understand gendered experiences without making serious consideration of other identities such as race, class, ethnicity, ability, and sexual orientation. However, given the context of the specific rural group which consists this study's purposive sample it is difficult to include these aspects in our focus of gendered experiences. The study area consists largely of an ageing population which is limited in cultural and ethnic diversity. Differentiation in age, sexual orientation, race, class and ethnicity is minimal. Thus, while gender cannot be viewed in isolation of other identities, the scope of this study's sample limited our focus on gendered experiences to differences between men and women; various age groups; marital status; and breadwinner status.

Spelerberg, 1999). However, conceptualising the state of one's being is complex and multifaceted (Mohanty & Tanton, 2012).

The condition and standard of one's living can be measured by wellbeing. However, wellbeing is not a single outcome, instead it is informed by a diversity of contexts and encapsulates what people have to meet their human needs; what they think they can do with what they have in relation to their aspirations and goals; and how they feel about what they have and do (White, 2010; McGregor, 2007; McGregor et al., 2007). The ESRC Wellbeing in Developing Countries research group (WeD) at the University of Bath has developed a framework which operationalises these objective and subjective aspects of wellbeing (Britton & Coulthard, 2013). The framework proposes a three-dimensional (3D) approach which includes material, subjective and relational dimensions for assessing human wellbeing.

The scope of this study similarly adopts "a three dimensional (3D) approach to understanding and measuring social progress and development" which consists of material, subjective, and relational wellbeing indexes (Britton & Coulthard, 2013: 28). This includes the material resources that people possess; access to services; interactions with social institutions and the community; participation in collective action; and self-assessed perceptions of one's quality of life (White, 2010). In essence, the three dimensions of wellbeing highlight the aspects of life that are regarded by people as important for achieving their goals and a good quality of life (White, 2010).

The literature shows that notions of wellbeing are evidenced in people's time allocation choices. In fact, time-use studies have traditionally been used to assess patterns, seasonal fluctuations, and trade-offs in different work type categories. As a result, assessment and understanding of time-use has great bearing on the material assets, perceived quality of life and aspirations, as well as the relationships with others that men and women may experience (Flemming & Spelerberg, 1999). The challenge exists in that, studies of men's and women's time-use in relation to wellbeing largely remain well-investigated and understood within the context of the developed world. Where these studies have been conducted in the developing world they have been limited in their approach to wellbeing – especially within the context of semi-arid areas.

1.3 Research problem statement

While offering great insight, research on time-use and wellbeing has largely focused on analysis of assets, access to resources, and livelihood activities. The limited consideration of additional dimensions of wellbeing including material, subjective, and relational aspects presents a narrowed perspective (Britton & Coulthard, 2013; White, 2010). This impedes a full understanding of how rural inhabitants spend their time and how this makes them worse off or better off in different aspects of their wellbeing. Therefore, this study investigates the time-use and wellbeing aspects of people living in Onesi, which is a rural community in a semi-arid area of Namibia.

A better knowledgebase of this will add to the understanding of gendered differences in people's experiences of time-use and wellbeing in the study area. Specifically, a development of this understanding may highlight opportunities and constraints for improving the lived experience of rural inhabitants in semi-arid areas. This research study could therefore positively inform efforts to uplift the day-to-day living of Onesi's inhabitants.

1.4 Aim

The study aims to make a contribution to the knowledge gap on time-use and wellbeing by assessing how time-use relates to the experiences of material, subjective and relational aspects of wellbeing in Onesi, Namibia.

1.5 Objectives

1. To identify the time-use of male and female household-heads in Onesi, Namibia
2. To identify how the three dimensions of wellbeing are experienced by male and female household-heads in Onesi, Namibia
3. To identify and explain the impact of time-use on the three dimensions of wellbeing experienced by household-heads in Onesi, Namibia

1.6 Hypothesis

If male and female household-heads spend their time-use differently, then this adversely impacts their experiences of material, subjective and relational wellbeing.

1.7 Significance of the study

This study makes a relevant contribution by shedding light on the relationship between household-heads' time-use and their experiences of material, subjective and relational wellbeing. Literary evidence and understanding of this relationship has largely been assessed in the developed world context. In sub-Saharan Africa the literature evidences a focus on material aspects of wellbeing which is a limited approach to explaining how time-use affects wellbeing. This research study provides an analysis and understanding of time-use patterns and three dimensional wellbeing within the context of a rural community located in a semi-arid area. The study may thus prove significant to researchers and decision makers who are concerned with development and wellbeing. In addition, participants in the research study may mutually benefit from an increased awareness of the impacts of their time-use choices on their wellbeing. Thus, potentially highlighting the time related opportunities and constraints for improving the wellbeing of rural inhabitants in Onesi, Namibia.

1.8 Conclusion

This chapter presented a background to the research study and an overview of time-use and its relation to wellbeing. It highlighted the gendered experiences of wellbeing in semi-arid areas and introduced the concept of three dimensional wellbeing. The problem statement, aims, objectives, research questions, as well as significance of the study were also given. The following chapter provides a review of the relevant literature.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature found in the discourses on time use and wellbeing within the context of the developed and developing world. The discussion explores the concepts of time-use and three dimensional wellbeing. Particular attention is given to gender and time-use which is followed by a critical appraisal of the wellbeing literature and concluding remarks emphasising the significance of the study.

2.2 Conceptual Framework

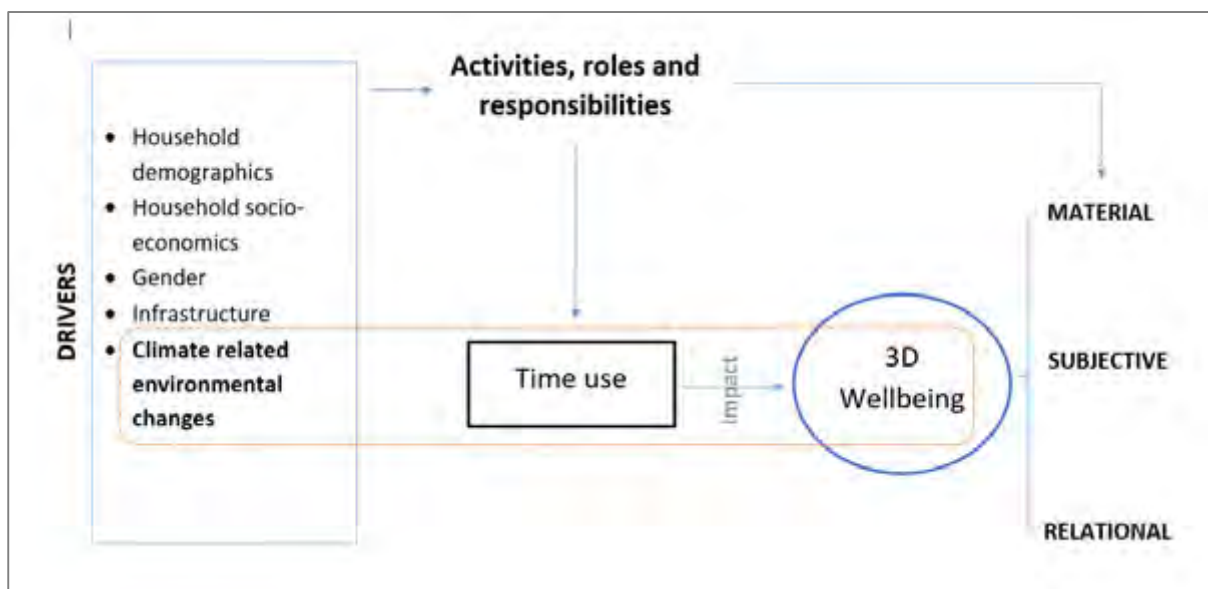


Figure 1: Conceptual Framework Diagram

2.2.1 Activities, roles and responsibilities

‘Activities, roles and responsibilities’ encompasses all paid and unpaid household related work that women and men engage in on a day-to-day basis (Lawson, 2008; Pentland et al., 1999). In the context of rural households, activities, roles and responsibilities are centred around managing the household and meeting the subsistence needs of the family. For instance, activities generally include water and firewood collection, subsistence farming and livestock rearing, small-scale formal and informal trade, as well as domestic duties such as meal preparation, cleaning, washing, and taking care of the elderly and children (WEDO, 2001). The carrying out of these roles and responsibilities has traditionally been informed by the

patriarchal nature of rural society in sub-Saharan Africa (GGCA, 2014; WEDO, 2001). For the scope of this study, activities, roles and responsibilities encompass the paid and unpaid work that people do on a day-to-day basis. The extent to which one participates and/or is expected to participate in these socially constructed activities, roles and responsibilities has a bearing on their time spent conducting them.

2.2.2 Time-use

Time-use studies quantify the hours spent on various activities, roles and responsibilities by an individual. As such, the activities, roles and responsibilities that an individual carries out serve as indicators of how time is allocated on a day-to-day basis. Time-use patterns highlight the trends in how time is spent (Pentland et al., 1999). Generally, trends in time-use allocations are made evident by the differences and similarities in time-use by people from various socioeconomic and demographic backgrounds. As a result, time-use studies have commonly been used to assess quality of life, behavioural patterns, and gender inequalities (Neumayer & Plumper, 2007; Pentland et al., 1999). This includes participation and allocation of time to paid and/or unpaid work activities within and outside of the household. Thus, time-use has a direct bearing on the degree of wellbeing experienced by an individual as it can directly relate to the income and subsequently material wellbeing of an individual. In the context of this study, time-use is conceptualised as the trend in how time is spent by male and female household-heads of various demographic and socioeconomic characteristics.

2.2.3 Wellbeing

Early conceptualisations of wellbeing are found within the context of psychology, health and wellness. The condition and standard of one's living can be measured by wellbeing. However, wellbeing is not a single outcome, instead it is informed by a diversity of contexts and encapsulates what people have to meet their human needs; what they think they can do with what they have in relation to their aspirations and goals; and how they feel about what they have and do (White, 2010; McGregor, 2007; McGregor et al., 2007). Evidently, wellbeing is a complex and multifaceted approach towards conceptualising the state of one's being. While it is underpinned by notions of 'livelihoods' and 'capitals', it goes beyond these objective notions to encompass subjective and relational dimensions which occur concurrent to one another (Mohanty & Tanton, 2012; Knabe et al., 2010).

According to McGregor (2007), “wellbeing must combine the objective circumstances of a person and their subjective perception of their condition”. This is complementary to a growing literature which asserts that wellbeing is not limited to income and consumption-based economic measures but is more all-inclusive and human-centred (De Graaf et al., 2013; Collomb et al., 2012; Knabe et al., 2010; White, 2010; Stiglitz et al., 2009; Jolly, 2002). The Economic and Social Research Council (ESRC) Wellbeing in Developing Countries research group (WeD) at the University of Bath has developed a framework which operationalises these objective and subjective aspects of wellbeing (Britton & Coulthard, 2013).

The framework proposes a three-dimensional (3D) approach which includes material, subjective and relational dimensions for assessing human wellbeing. However, while there are several aspects of wellbeing that can be analysed under the 3D wellbeing approach, the scope of this study limits these to aspects relating to the income, expenditure and food security that people have, and their self-perceived happiness and satisfaction with life. This also includes wellbeing experienced in the form of their social connectedness as measured in their relationships with others such as neighbours or local authorities and participation in community meetings (White, 2010). Importantly, the unity between the three dimensions gives rise to a social process occurring over time and in a geographical context or space.

Despite the dominance of conventional unidimensional measures of wellbeing evidenced in past studies, a multidimensional approach is increasingly becoming popular in development studies. Consequently, the scope of this study adopts “a three dimensional approach to understanding and measuring social progress and development” (Britton & Coulthard, 2013: 28). This includes the material resources that people possess; access to services; interactions with social institutions and the community; participation in collective action; and self-assessed perceptions of one’s quality of life (Britton & Coulthard, 2013; White, 2010). In essence the three dimensions of wellbeing highlight the aspects of life that are regarded by people as important for achieving their goals and a good quality of life (White, 2010). This study adopts the above described understanding of wellbeing in its inquiry and analysis.

Several studies including those conducted by WEDO (2008), Nankhuni (2003) and Harnmeijer and Waters-Bayer (1993) evidence how owing to increased demands on their time, women’s time-use choices give way to disproportionate access to resources, lack of information, and limited participation in decision making (Adem, 2011). Similarly, an earlier study conducted

by Awumbila and Henshall Momsen (1995) evidences a case where women in a rural agrarian community had to resort to spending more time and energy on collecting firewood owing to deforestation. The paper highlights that as a result of women's increased firewood collection time, household members were exposed to more smoke pollution from having to cook indoors; the increased occurrence of cold showers; sudden involvement of men in firewood collection; and the overall deterioration of their living conditions owing to poor ventilation. In this case it is evident how time pressure attributed to women's access to a natural resource subsequently altered the family's quality of life.

2.4 Gender and time-use

Time-use studies have traditionally been used to assess patterns, seasonal fluctuations, and trade-offs in different work type categories such as paid work, domestic work, and farm work. This interest stems from the opinion that time-use is a reliable indicator of differences in workload between men and women particularly in the household (Gross & Swirski, 2002; Awumbila & Henshall Momsen, 1995). Thus far, research into gendered time-use patterns generally asserts that women contribute the largest share of time to unpaid work while men are more active in paid work (Gross & Swirski, 2002; Flemming & Spellerberg, 1999). A review of the literature evidences that the persistence of gendered roles places unjust time burdens on certain members of society, particularly women (Carr & Thompson, 2014; García-Mainar et al., 2011). This suggests that time allocation and experience of time burdens is gender sensitive which is owing to culturally constructed gender divisions of labour (Hui-fen et al., 2012; Carr & Thompson, 2014; García-Mainar et al., 2011; Awumbila & Henshall Momsen, 1995). As a result, women's work burden and time allocation choices are often adversely affected (Berik & Kongar, 2013).

In developed countries, gendered time allocation studies evidence that women are more disadvantaged than men owing to the persistence of gender differences (Berik & Kongar, 2013; García-Mainar et al., 2011). These studies particularly highlight the existence of gender inequalities. For example, Mohapi's (2010) study of gender relations agrees that men often enjoy the benefits of increased earnings while women endure the disadvantages of unremunerated workloads. Research done by Fox and Nichols (1983) identifies that the participation of women in both paid work and household work creates a severe 'time crunch' while Tashiro and Lo (2012) concur by adding that women are inclined to spend less time in

leisure activity as a result of this time pressure. The limited available time to pursue all of these activities essentially – and perhaps incrementally – contributes to the detriment of their wellbeing (Peterman et al., 2011; Gross & Swirski, 2002; Flemming & Spelerberg, 1999).

Women in the rural context of some sub-Saharan African countries also experience the same disadvantages. Research done by Arora-Jonsson (2011) asserts the notion that increases in women's roles and responsibilities are not met with corresponding rewards. It is also evident that despite the influences of the local context, family structure and age on activities, women generally have less resting time, greater work intensity, and more simultaneous activities than men (Peterman, et al., 2011; Pentland, 1999; Awumbila & Henshall Momsen. 1995). In fact, the literature on time-use within the developing world context indicates that women generally experience greater time pressures owing to their dual role of managing the housework and working in the field for subsistence (Gross & Swirski, 2002; Mohapi, 2000). By spending more time in the field the woman forfeits the amount of time that she can spend on carrying out her domestic chores or physically taking care of an elderly person (Lawson, 2008). This is to say that, research on time-use in Sub-Saharan Africa suggests that women are more time poor than men and consequentially experience greater time pressures.

Lawson's 2008 study of time poverty in rural Lesotho contrastingly yielded results showing that 8.2% of men are time poor while only 6.3% of women are time poor. The research attributes this time poverty to household size much like other studies which found that time preferences differ due to the socio-demographics within the household (Tashiro & Lo, 2012; Kim & Zepeda, 2004). This seemingly contrary evidence in the gender and time-use discourse does well to highlight that patterns in time-use are subjective to the local context in which they are experienced. Consequently, the gendered choices in time-use often hinge on the cultural division of labour and socially constructed gender roles and responsibilities of a specific area.

Women living in the rural areas of less economically developed countries generally perform domestic roles such as managing the household, ensuring that subsistence needs are met, generating supplementary income, and taking care of children (Gross & Swirski, 2002; Cassam, 1990; Rico, 1998). While men living in the rural areas have also been evidenced to participate in some of these activities – particularly water and firewood collection – they predominantly engage in formal and informal employment as well as livestock rearing and more strenuous farm work (Aguilar et al., 2015; Hui-fen et al., 2012; World Bank 2012;

Lawson, 2008; Kim & Zepeda, 2004). There is therefore a clear assertion of gender differences in time-use patterns which generally correspond with traditional gender roles and the subsequent experiences of wellbeing emanating from one's time use choices.

A research study conducted by Awumbila and Henshall Momsen (1995) asserts that gender roles are increasingly becoming more flexible and that the wellbeing aspects associated with gendered time-use are also changing. Specifically, in rural areas, the research evidences that participation of men in shared livelihood activities has grown (Fazey et al., 2010; Awumbila & Henshall Momsen. 1995). Concurrently, assessment of Organisation for Economic Cooperation and Development countries reveals that gender gaps are narrowing however men are still generally better off than women in some areas of their wellbeing experience (OECD, 2013). In both contexts of the developed and developing world, the propensity towards shared roles and responsibilities transcends traditionally gender differentiated participation in livelihood activities (Carr & Thompson, 2014; Yesimi & Mukhatar, 2009). Nonetheless, the overarching argument within gendered time-use studies shows that women are more disadvantaged than men and additionally that this is inextricably linked to their higher or lower experiences of wellbeing.

2.5 Time-use and wellbeing

Research on time-use budgets in small-scale agriculture is particularly evident in the contexts of Africa and Asia where time is generally considered a major resource for agriculture. Time-use studies have traditionally been used to assess patterns, seasonal fluctuations, and trade-offs in different work type categories and standards of living (Hui-fen et al., 2012; Pentland et al., 1999; Awumbila & Henshall Momsen. 1995). This is particularly owing to the fact that time is the ultimate resource shared equally by men and women; it can be converted into money, goods and patterns as well as spent consuming goods and services (Fleming & Spellerberg, 1999). As a result, an assessment of time-use can be used as a lifestyle indicator and to evidence gendered experiences of wellbeing – particularly the material assets, perceived quality of life and social connections that people may have (OECD, 2013; Hui-fen et al., 2012).

Time-use data has been employed by the OECD to assess work-life balance in relation to wellbeing. Similarly, Nankhuni (2003) and Harnmeijer and Waters-Bayer (1993) depict how women's activities such as collecting water and firewood lead to increased time allocation

burdens and reduce their participation in other activities including leisure activities and community meetings. Sugden et al. (2014) and WEDO (2008) also acknowledge that reduced quality of life may be a result of increased travel distances and greater workloads associated with poor access to water. In these cases, increasing the time spent on domestic work such as firewood and water collection worsens one's quality of life and participation in activities that improve access to information and building of social connections.

This literature shows that aspects of wellbeing can be evidenced in people's time-use allocations. However, while it is qualitatively evident that time-use may present challenges to one's livelihood and quality of life, there is limited understanding of how exactly time-use impacts on the 3D wellbeing of persons living in rural communities of semi-arid areas. To add to this, wellbeing is complex with early conceptualisations of it found in the academic fields of psychology, health and wellness (Mohanty & Tanton, 2012). In fact, the method by which a meaning of wellbeing has been derived and used is influenced by the context in which the definition has been applied (McGregor, 2007). In sub-Saharan Africa, wellbeing has largely been built on the foundations of the livelihoods approach to development and development indicators (Brooks, 2014; Collomb et al., 2012; White, 2010). It is now emerging in development studies that a holistic and self-determined perspective on the priorities of an individual or community should include assessments of income, assets, resource access, social connections, relationships, quality of life and satisfaction with life.

However, researched links between time-use and wellbeing have largely been limited to the material aspects of wellbeing. This research includes time-use in relation to income, poverty, assets, productivity, nutrition, and health (Tashiro & Lo, 2012; Hui-fen et al., 2012; Lawson, 2008; Kim & Zepeda, 2004; REF). Awumbila and Henshall Momsen (1995) specifically evidence that the ability to purchase alternative sources of fuel or transportation for fuelwood and water has the potential to drastically reduce the quantity of time spent collecting firewood and water. This highlights the significant implications that financial security may have on time-use. Similarly, Shackleton et al. (2014) emphasise how gendered roles and responsibilities give rise to female headed households which are income poor and less employment secure than male headed households. This is particularly owing to the time that women spend as both caregiver and breadwinner in their household (Shackleton et al., 2014). Consequently, the time pressure that women experience owing to their multiple roles results in them working for shorter or

more irregular hours thus reducing their levels of productivity in their paid work (Peterman et al., 2011; Fleming & Spellerberg, 1999).

Krueger and Mueller (2012) add that as time spent on work increases or decreases, an individual's participation in leisure activities fluctuates with repercussions on their emotional wellbeing. Evidently, as a result of the flexibility associated with women's social and leisure responsibilities, time-use in these activities is often forgone when pressure on time-use is high (Elson, 2012; Lim 2000; Awumbila & Henshall Momsen, 1995). This is particularly evident in widows as this group of women will tend to engage less in social interactions outside of the household when experience time crunch (Hahn et al. 2011, Utz et al. 2002). Berik and Kongar (2013) similarly assert that the relationship between hours spent on work and hours available to spend on leisure activities shows the existence of a trade-off between the two and that this is gender sensitive. Time balance is therefore essential for determining human wellbeing and happiness and holds intrinsic implications for the subjective and relational aspects of one's wellbeing (De Graaf et al., 2013).

Whilst partly owing to stark gender differences, access to resources is also a function of one's time allocations (Aguilar et al., 2015). Similarly, time spent to develop relationships and social connections often plays a distinct role in the provision of financial assistance, information sharing, and joint action (Deresa et al., 2009). These are all aspects essential in the construct of a person's material wellbeing and relational wellbeing (Britton & Coulthard, 2013). An individual also attaches subjective value to the activities, assets and relationships that they have and this contributes to their life satisfaction and emotional wellbeing (Krueger & Mueller, 2012). Altogether, the material, subjective and relational aspects of one's wellbeing all hinge on and are evidenced in how one spends their time. However, gendered inequality in time-use contributes to the detriment of an individual's wellbeing (Peterman et al., 2011; Gross & Swirski, 2002; Flemming & Spellerberg, 1999). It is therefore important to assess the gendered experiences of time-use and wellbeing as well as how time-use impacts the 3D wellbeing of male and female household-heads.

2.6 The significance of understanding time-use and 3D wellbeing in semi-arid areas

The discourse on time-use and wellbeing continues to offer great insight into gender differentiated experiences of day-to-day life. The majority of the emerging literature on this

topic is found in discourses related to development studies as well as environmental resource degradation. However, this knowledgebase is limited. Research studies in the context of rural sub-Saharan Africa have largely focused on the relationship between time-use and the material aspects of wellbeing such as assets, resource access, and livelihood activities. Consequently, this narrowed approach to wellbeing studies in relation to time-use fails to consider a holistic approach of wellbeing which would include material, subjective, and relational dimensions. In fact, there is limited research into the links existing between time-use and these three dimensions of wellbeing within the context of rural communities in semi-arid areas.

Failure to appreciate how time-use and wellbeing are experienced by rural inhabitants in semi-arid areas subsequently challenges the effectiveness of efforts to improve their way of life. Subsequently, analysis of how time-use impacts on the material, subjective and relational aspects of wellbeing may prove beneficial to people working to improve the way of life in these rural communities. The findings of this research study may help to inform decision makers of how rural people living in a generally low development and semi-arid area spend their time and experience wellbeing as a result. Specifically, the study may highlight the time related opportunities and constraints for improving the quality of life of rural inhabitants in Onesi, Namibia.

2.7 Conclusion

From the literature presented it is evident that time-use has implications on the experiences of wellbeing, however a more holistic and gendered approach to this is needed owing to the knowledge gap. This chapter has given context to the study by providing a discussion of the major themes and research done within the spheres of time-use and wellbeing. Discussion concerning gendered activities, roles and responsibilities in the developed and developing world contexts gives understanding to the time-use patterns that men and women exhibit. Finally, relation of these themes to wellbeing aspects and an assertion of what wellbeing means in the context of this study has been presented. The conceptual links found in this literature review subsequently inform the research methodology and interpretation of collected data.

3. CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter outlines the study area, research plan, methods used in order to meet the objectives of the study. Quantitative data collection and analysis methods were adopted to arrive at a knowledgebase of the time-use and three dimensional wellbeing experience of male and female household-heads in the study area. A description of the three dimensional wellbeing indexes used is also given. Finally, ethical considerations as well as the challenges experienced are described in order to provide a disposition of the study.

3.2 Area of study

This research study was carried out in four villages of Onesi, namely Uuhongo, Omalungu, Omangolowani, and Eenkalashe. Onesi is one of twelve electoral districts/constituencies located in the Omusati Region of Namibia. This area was chosen for its accessibility to the researcher, rural population, and general low development.

3.2.1 Location

Onesi constituency lies near the national boundary with Angola in the north-west of Namibia's Omusati region as depicted in Figure 1 below. This region is generally characterised by a multicultural rural population.

3.2.2 Physical environment

Onesi occupies 600.5 square kilometres of semi-arid land (Namibia Statistics Agency, 2013). The area is generally categorised as being highly vulnerable and prone to the adverse impacts of climate-related extreme weather events. In recent years, the increased prevalence of shifting rainfall patterns has resulted in climatic extremes such as drought and flooding in the area. These climate-related events have already exhibited strains on local food and water security (Hegga et al., 2016). This is especially true in relation to rain-fed subsistence farming occurring in the area (Spear et al., 2015). The study area is also relatively rural with limited access to electricity and piped water. As a result, there are several implications for the social and economic characteristics of the study area.

employment and small-scale trading (Hegga et al., 2016; Spear et al., 2015). According to the 2011 census data, 59% of Onesi's labour force is unemployed many of whom being women (Namibia Statistics Agency, 2013). In fact, the rate of poverty and lower incomes is commonly higher among women than it is among men (Spear et al., 2015). Consequently, majority of women are categorised as homemakers. Additionally, this population depends on wood as a source of energy and streams or unprotected wells as sources of water for performing domestic activities (Spear et al., 2015). The population is also very much dependent on use of natural resources including firewood.

3.3 Research design

The study adopted an explanatory research design in which information on day-to-day time-use activities, wellbeing dynamics, socio-economic characteristics, and vulnerability were collected. This design is cross-sectional and offers an assessment of how time-use patterns impact on several aspects of men's and women's material, subjective, and relational wellbeing in four villages located in Onesi constituency, Namibia. The study's methodological position is informed by Positivism. This research paradigm seeks to discover causal relationships so as to predict and control events (du Plooy-Cilliers, 2014). Consequently, Positivist thinking best satisfies the intentions of this study to identify and explain the relationship between time-use and wellbeing. A questionnaire survey was conducted in the study area in order to collect data. This data was quantitatively analysed using Microsoft Excel and Statistical Package for Social Scientist (SPSS) software.

3.4 Unit of analysis

According to Babbie (1989) the unit of analysis is the 'what' or 'whom' that is to be studied. Within the context of the proposed study, the unit of analysis is male and female household-heads living in villages of Onesi constituency in Namibia. For the context of this study, household-head is defined as the person running the household, looking after dependents, contributing the most in livelihood, and being the primary financial decision maker in their household. These heads of households subsequently provided information on their individual time-use and wellbeing information. The total number of household-heads living in the sampled villages constituted the population of the study.

3.4 Data collection

Data collection occurred in July 2015 over a two-week period. The information collected from male and female household-heads was used to determine their day-to-day activities, roles and responsibilities, time-use patterns, three dimensional wellbeing, and the impacts of time-use on wellbeing. This information subsequently formed the basis from which answers meeting the research study's objectives were generated.

3.4.1 Sampling

A questionnaire survey was carried out in four villages (Uuhongo, Omangolowani, Omalungu and Eenkalashe) located in the Onesi Constituency of the Omusati Region in northern Namibia. These villages were selected based on the counsel of several key representatives from the Onesi Constituency and Traditional Authority offices. In addition, village heads and their secretaries provided lists of all the household-heads living in their village which facilitated identification of male-headed and female-headed households prior to commencement of fieldwork. The household-heads included men and women, aged over 19 years of age, and living within Onesi constituency.

A proportional calculation was then made in order to determine the number of household-heads to be sampled from each village. Stratified sampling of respondents was employed so as to account for gender differentiation (Pascoe, 2014). A simple random sampling ($s, s + k, s + 2k, s + 3k, \dots, s + (n-1)k$) from the stratum of all male-headed households and from the stratum of all female-headed households was used to select the sample whose demographic description is presented in Table 1 below. See Appendix 1 for description of male and female household-head sampling. While the intention was to interview household-heads, these were not in all cases present at their homesteads. In lieu of these, data was collected from the de facto household-head and in the end 81% of the sample were the intended household-heads.

Table 1: Demographic description of respondents in Onesí

Number of household-heads (n= 93)							
Sex		Age		Marital status		Breadwinner status	
Male	32.3%	Mean age	57	Single	43%	Yes	72.0%
Female	67.7%	21-30 years	6.5%	Married	32.3%	No	28.0%
		31-40 years	9.7%	Committed partner	4.3%		
		41-50 years	25.8%	Widow/widower	20.4%		
		51-60 years	12.9%				
		61+ years	45.2%				

Table 1 above shows the demographic description of the sampled respondents in Onesí. In total, 93 household-heads were sampled from the study area with 32.3% of the sample being men while 67.7% were women. The purposive oversampling of women in the sample is due to the fact that the study area consists largely of female headed households. Our purposive sample oversamples women due to sample selection issues encountered in the field including the absence of male household heads during dissemination of questionnaires resulting in more females being interviewed, as these were the de facto. The prevalence of female headed households also contributed and this is as a result of the migration or death of male figure heads in the household, leaving behind de facto female household-heads. With regards to the marital status of sampled respondents, 43.0% are single, 32.3% are married, 20.4 % are a widow or widower, and 4.3% are in a committed partner relationship (not married), while 0% are divorced.

The minimum and maximum ages of respondents were 21 years and 94 years respectively with 57 years being the mean age of those sampled. Close to half of the sampled respondents fall within the 61+ years age category (45.2%) with 6.5% aged between 21-30 years, 9.7% are 31-40 years, 25.8% of respondents being between 41-50 years, and 12.9% of the sample are 51-60 years old. As such, the sample consists largely of mature adults and the elderly with 72.0% of all respondents being their household's primary breadwinner. The study comments only on this specific subset of the population.

3.4.2 Survey questionnaire

Following sample selection, the researcher along with two additional field researcher's conducted door-to-door surveys using a closed ended questionnaire as the data collection instrument. Data captured in the questionnaire served to meet the objectives of the study. Specifically, information regarding the mean time spent on day-to-day activities and wellbeing

information regarding the aspects of income, expenditure, food security, satisfaction with quality life, happiness, and participation in community/group meetings, social networks; and the number of close relationships was collected.

The questionnaire served the purpose of collecting and capturing information to be used for statistical analysis. This provided for insight into the impacts of time-use on individual wellbeing. Advantageously, dissemination of the questionnaire survey as a data collection method allowed for the acquisition of substantial and relevant data from sampled respondents (Du Plooy-Cilliers & Cronje, 2014). The method was relatively not time consuming and could potentially be standardised to apply to the larger village and constituency population, thereby proving informative and useful to community members and decision makers (Du Plooy-Cilliers & Cronje, 2014; Khan, 2014). The questionnaire was administered in a face-to-face interview for approximately 60 minutes in the respondent's household or at a location of their convenience.

3.5 Data analysis and interpretation

Collected data from the fieldwork was captured electronically using SPSS. This statistical analysis software was also employed to identify basic characteristics of the data set including patterns and relationships between time-use and the material, subjective and relational aspects of men and women's wellbeing. Several methods of quantitative analysis including descriptive statistics, non-parametric test, and multiple linear regression analysis were employed in order to arrive at a set of data summaries and results so as to draw findings. Specifically, the Mann Whitney U test was used to analyse differences in time-use for men and women while linear regressions were used to explore relationship between time-use categories and the three dimensions of wellbeing. Thus allowing for the study to either prove or disprove its hypothesis. Arriving at this involved developing indexes for the three dimensions of wellbeing which are described in the ensuing paragraphs.

Information concerning the basic characteristics of the time-use and wellbeing experienced by male and female household-heads is presented in summaries, graphs, and tables in the ensuing chapter. These modes of presentation are used to describe and explain the relationship between time-use categories and the three dimensions of wellbeing. Overall, objective conclusions are drawn from the data analysis. These are compared with assertions found in the literature review

so as to further substantiate the study's findings. As a result, the research findings contribute towards the knowledge gap by highlighting the time related opportunities and constraints for improving the lives of rural inhabitants in the semi-arid area of Onesi, Namibia.

3.5.1 The three dimensional wellbeing index

While the concept of wellbeing is underpinned by notions of 'livelihoods' and 'capitals', its true meaning traverses these objective notions to encompass material, subjective and relational dimensions – all occurring in relation to each other. Each of the three wellbeing indexes assessed in this study comprise of several questions that were employed to determine the individual household-head's level of wellbeing. Compilation of the wellbeing indexes was directly informed by a review of the relevant literature. However, while there are several aspects of wellbeing that can be analysed under the 3D wellbeing approach, the scope of this study limits these to aspects relating to income, expenditure and food security that household-heads have, and their self-perceived happiness and satisfaction with life, as well as their social connectedness afforded by their relationships with others and participation in community group meetings.

The Material Wellbeing Index is a mean score of the income, expenditure and food security that household-heads experience. Similarly, the Subjective Wellbeing Index consists of self-perceived happiness and satisfaction with life while the Relational Wellbeing Index attributes social connectedness to one's number of close relationships and social networks, as well as participation in community group meetings. Final Wellbeing is the mean of the material, subjective and relational wellbeing indexes. See Table 2 below for a detailed summary of the wellbeing indexes.

This three dimensional wellbeing approach was chosen because despite the dominance of conventional unidimensional measures of wellbeing, a multidimensional approach is increasingly becoming popular and relevant in development studies. As discussed in the literature review chapter, research studies in the context of rural sub-Saharan Africa have largely focused on the relationship between time-use and the material aspects of wellbeing such as assets, resource access, and livelihood activities. Resultantly, there is limited research into

the links existing between time-use and the three dimensions of wellbeing within the context of rural communities in semi-arid areas.

Table 2: Summary of material, subjective, and relational wellbeing index indicators

Index	Description	Minimum	Maximum	Mean	Standard deviation
Material Wellbeing					
<i>Income</i> – What is your household's total monthly income? (n = 93)	1 = (NAD 0-299)	1	8	3.52	1.88
	2= (NAD 300-599)	0	8000	876	1077.78
	3= (NAD 600- 899)				
	4 = (NAD 900-1199)				
	5= (NAD 1200-1499)				
	6= (NAD 1500-1799)				
	7= (NAD 1800-2099)				
	8 = (NAD 2100+)				
<i>Expenditure</i> – Considering your household's total monthly income, would you say that this is enough? (n = 93)	1 = not adequate	1	2	1	0.18
	2= just adequate				
	3 = more than adequate				
<i>Food security</i> – Do you have a sufficient amount of food in your household? (n = 93)	1= always enough	1	4	3	0.79
	2= most of the time enough				
	3= often not enough				
	4 = never enough				
Subjective Wellbeing					
<i>Life satisfaction</i> – Overall, how satisfied are you with your life as a whole these days? (n = 93)	1= very unsatisfied	1	5	1.81	1.22
	2= moderately unsatisfied				
	3= neither satisfied nor unsatisfied				
	4= moderately satisfied				
	5= very satisfied				
<i>Happiness</i> – Using a scale of 1 to 10, how happy did you feel yesterday? (n = 93)	1= not happy	1	10	5.47	2.73
	2= not happy				
	3= not happy				
	4= moderately not happy				
	5= happy				
	6= happy				
	7= moderately happy				
	8= very happy				
	9= very happy				
	10= very happy				
Relational Wellbeing					
<i>Community participation</i> – To what extent do you participate in community decision-making? (n = 93)	1= very little	1	4	2	1.13
	2= somewhat				
	3= moderately				
	4= a lot				
<i>Number of organisations</i> – How many informal networks, community organisations or clubs do you belong to? (n = 93)	1= 0	1	4	1.29	0.58
	2= 1	0	3	0.29	0.58
	3= 2				
	4= 3				
<i>Number of close friends and relatives</i> - How many close friends and relatives do you have living in this village? (n = 93)	1= 0-9	1	7	2.16	1.84
	2= 10-19	0	60	14.42	17.67
	3= 20-29				
	4= 30-39				
	5= 40-49				
	6= 50-59				
	7= 60+				

The above operationalisation of three dimensional wellbeing includes objective and subjective aspects that are important for the wellbeing experience of household-heads in the study area.

3.6 Ethical considerations

Permission to conduct the proposed study was obtained from the University of Cape Town, the Onesi constituency office, and village headmen of Omalungu, Uuhongo, Eenkalashe, and Omangolowani prior to the commencement of fieldwork. The purely academic and non-political nature of the proposed study facilitated the building of initial rapport with the community and potential respondents. Respondents were informed that they were voluntarily taking part in an academic research study. Specifically, they were informed of the research's purpose and the nature of information that would be asked of them. Disclosure regarding why the research was being conducted as well as how it could possibly benefit them was given to respondents in the form of an Explanatory Statement.

Throughout the research study, the respondents' confidentiality was maintained. Specifically, private data that may aid in identifying the respondents was not disclosed and written consent was obtained from all respondents before conducting the questionnaire interview. Moreover, ethical clearance to conduct the study was obtained from the University of Cape Town's Faculty of Science Research Ethics Committee. This served to ensure that the research design complies with the correct ethical implementation and conduct as stated by the Faculty of Science Research Ethics Committee.

3.7 Challenges experienced

It was anticipated that communication would be strained owing to a language barrier. To overcome this barrier, data collection was conducted with the assistance of research students from the University of Namibia. In addition, two local residents were engaged to aid with the translation and overall administration of questionnaires. Despite the lack of financial incentive for participation in the study, prior engagement of the local constituency office and village headmen facilitated the sampling of respondents and aided their willingness to participate in the study. There was also the added advantage of conducting fieldwork during the off-peak

farming season which subsequently encouraged local smallholder farmers to take part in the study.

3.8 Conclusion

The quantitative approach outlined above has been used to answer the objectives of the study. Ethical considerations as well as anticipated challenges of the study were outlined. In summation, a closed-ended survey questionnaire was employed to collect information on the activities, time-use, as well as material, subjective and relational wellbeing aspects of household-heads living in Onesi, Namibia. A wellbeing index was created and together with collected information, this was subsequently analysed quantitatively using Microsoft Excel and SPSS software. It yielded statistical results which are presented in summaries, graphs and tables in the following chapter.

4 CHAPTER FOUR: RESULTS AND DISCUSSION

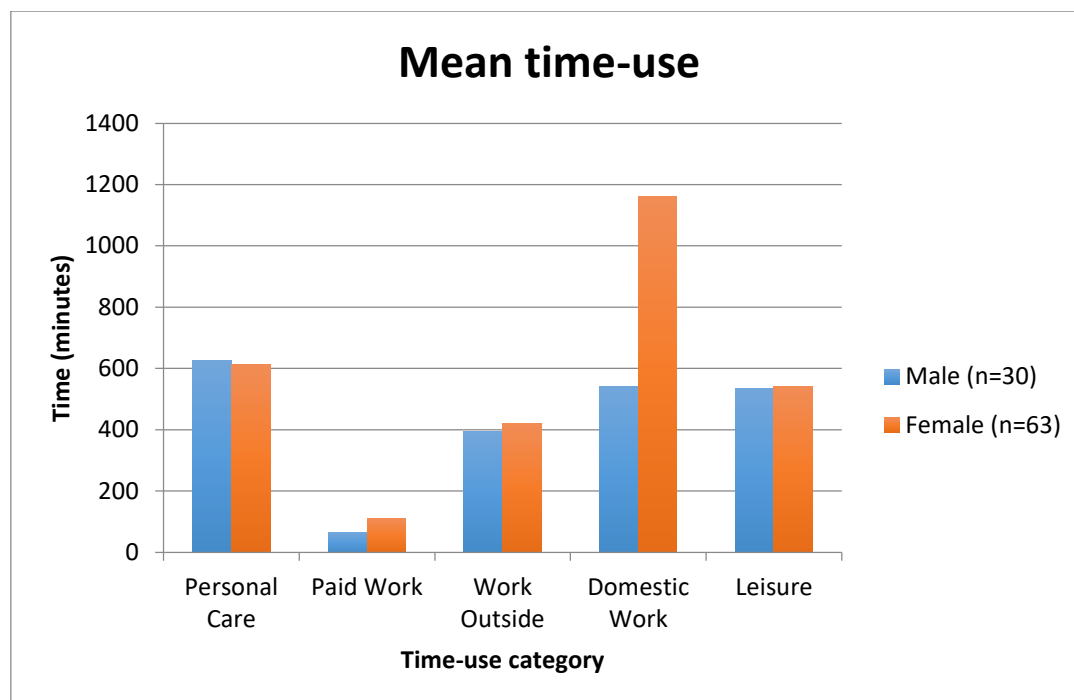
4.1 Introduction

In relation to the study's aim, objectives and research questions, this chapter evidences and discusses findings emanating from field work. The gendered time-use and its impact on the three dimensions of wellbeing are discussed with the aid of descriptive statistics, tables, and graphs. A discussion of men's and women's time-use results is given as well as the impacts of time-use on wellbeing. This includes analysis of household-head's wellbeing experience and the relationship of each time-use category with the three dimensions of wellbeing. Analysis and discussion of the quantitative results is made within the context of the reviewed literature so as to arrive at defensible conclusions.

4.2 The time-use of male and female household-heads

The time-use patterns of male and female household-heads is not uniform. It was quite evident during the questionnaire interviews that each individual allocates their time-use uniquely. The literature review evidences that time allocation is influenced by several factors including gender, agency, day-to-day needs, and access to resources. However, the analysis and results of time-use presented in this study are limited to differences in time-use with regards to gender. It finds that women face greater time-use burdens than males and that this may be owing to traditionally gendered role division. Figure 3 below gives a graphical representation of the mean time-use of sampled male and female household-heads. See Appendix 2 for a detailed description of the time-use categories.

Figure 3: Sampled household-head's' mean time-use in Onesí (see Appendix 2 for description of the time-use categories)



The graph does well to visually highlight the differences in how men and women use their time. See Appendix 3 for details of mean time spent on each time-use category by gender. These differences are quite small in four of the five time-use categories. In fact, women spend more time in paid work, work outside, domestic work, and leisure time-use although they spend less time in personal care than men. These differences in time-use for men and women are not statistically significant except for the domestic work time-use category (Mann-Witney $U=424.0$ $p=.000$). See Appendix 4 for the significance in time-use category for males and females. This is indicative that women are worse off than men in terms of their time allocation and work burdens as they spend more minutes in strenuous time-use categories while subsequently experiencing greater time pressures. It also supports the assertions made by Carr & Thompson (2014) and García-Mainar et al. (2011) that the persistence of gendered roles places unjust time burdens on women.

As stated above, women spend more time each day in domestic work than men. The domestic work time-use category is the total time spent on activities including the collection of water, firewood, plants and herbs, food preparation, domestic chores, purchasing household goods, and caring for children and the elderly in the household. Appendix 4 shows the significance of differences in time spent by males and females in each time-use category, specifically the U

statistic and the asymptotic significance (2-tailed) p-value. Importantly, the non-parametric test highlights that there is a very strong difference in men's and women's domestic work time-use. This difference is statistically significant at the 1% level (Mann-Witney $U=424.0$, $p=.000$, $\text{sig} \leq .05$, 2-tailed). Thus, women's significantly greater participation in domestic work suggests that time-use is determined by traditional gender role division in the household and that this contributes towards women's experience of greater time-use burdens than men.

Research conducted by Awumbila and Henshall Momsen (1995) asserts that gender roles are increasingly becoming more flexible thus the wellbeing aspects associated with gendered time-use are also changing. However, the results of this study show that male and female household-heads are still steeped in traditionally gendered roles. From the above results it is apparent that women's participation in domestic work puts them at a disadvantage as they have higher time-use burdens and greater day-to-day time pressures compared to men who do not spend as much time in domestic work. This finding concurs with research showing that culturally constructed gender divisions of labour result in different experiences of time pressure for men and women (Hui-fen et al., 2012; Carr & Thompson, 2014; García-Mainar et al., 2011; Awumbila & Henshall Momsen, 1995). It also supports research showing that the participation of women in both paid work and household work results in a severe 'time crunch' for them (Fox and Nichols, 1983).

There is a small gendered difference in the time spent on leisure as women spend slightly more time in this time-use category than men. This is contrary to the research asserting that women are inclined to spend less time in leisure activity and social duties as a result of higher demands on their time-use (Elson, 2012; Tashiro & Lo, 2012; Lim 2000; Awumbila & Henshall Momsen, 1995). It is also more apparent that women spend more time in strenuous time-use categories such as work outside and domestic work than men. This finding is concurrent with studies of gender relations which evidence that women contribute the largest share of time to unpaid work and endure the disadvantages of unremunerated workloads (Mohapi, 2010; Gross & Swirski, 2002; Flemming & Spellerberg, 1999). In addition, women's greater participation in paid work challenges the discourse on gendered time-use patterns which generally asserts that men are more active in paid work and enjoy the benefits of increased earnings (Mohapi, 2010; Gross & Swirski, 2002; Flemming & Spellerberg, 1999). In fact, the results of this study show that women spend more time on paid work than men on a day-to-day basis (females= 111 minutes; males= 64 minutes). Overall, the time-use results of this study are concurrent

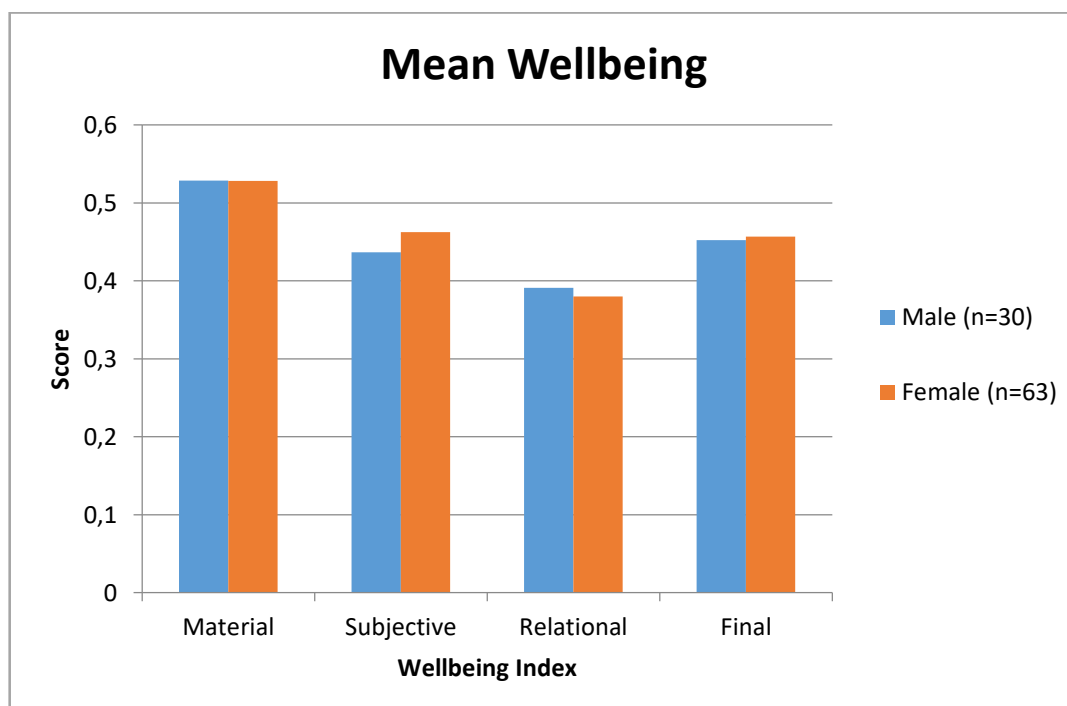
with Arora-Jonsson's (2011) assertions that increases in women's roles and responsibilities are not met with corresponding rewards and that this has implications for their wellbeing experience.

4.3 Time-use and wellbeing of male and female household-heads

4.3.1 Household-head's' wellbeing experience

From the wellbeing indexes described in the methods chapter, it was possible to assess the wellbeing experiences of male and female household-heads. Analysis of male and female household-heads experience of material, subjective, and relational wellbeing yields several results. Figure 4 below shows a graphical representation of the wellbeing index means as they are experienced by sampled male and female household-heads. See Appendix 5 for details of the mean score for each wellbeing index by gender.

Figure 4: Sampled household-head's' mean experience of wellbeing in Onesi (see Table 2 for description of the wellbeing indexes)



While male household-heads experience a higher level of material wellbeing than female household-heads, this difference is not statistically significant. This may be attributable to the influence of social grants and drought relief aid which directly affect the income, expenditure

and food security of a household. To be exact, 73% of sampled men and 51% of sampled women receive a monthly pension while relief aid is uniformly received by all household-heads during times of drought and extremely low rainfall. Men also experience a higher level of relational wellbeing than women however women have a higher level of subjective wellbeing than men. Overall, for the final wellbeing score which is the mean of the three wellbeing indexes, women are slightly better off than men. However, statistical comparison of the means between male and female groups shows that the gendered difference in the wellbeing indexes is not statistically significant at the 1%, 5%, or 10% levels (Mann-Witney $U=938.5$, $p=.957$, $\text{sig} \leq .05$, 2-tailed). Refer to Appendix 6 for the test statistics.

It is a commonly asserted notion that female headed households are more inclined to be income poor and less employment secure owing to the dual role that women play as caregiver and breadwinner (Shackleton et al., 2014). This suggests that women generally experience a lower level of material wellbeing than men. However, the results above indicate that the difference in experience of material wellbeing which encompasses income, expenditure and food security, is slight. To this end, it must be noted that while sampling might offer an explanation, 45.2% of the household-heads receive a monthly pension of NAD 600.00 and food aid in time of drought irrespective of gender. Thus, these influences on income and food security could explain the lack of significant difference in male and female household-head's' experience of material wellbeing. The importance of social grants on the level of material wellbeing experienced by household-heads is a topic that could be investigated further in future research studies.

4.4.2 The impact of time-use on wellbeing

As previously asserted in the review of the literature, aspects of wellbeing can be evidenced in people's time-use allocations. Regression analysis of the relationship between three dimensional wellbeing and various time-use categories shown in Table 3 reveals that there are significant relationships, particularly at the gendered level. However, the relatively small sample size of males ($n=30$) posed limitations on the ability to draw statistically significant results for this group on its own. It subsequently presented challenges for making direct comparisons between the sampled men and women. See Table 3 below for the results showing how household-heads time-use impacts on their experience of three dimensional wellbeing for

both the pooled sample containing males and females (columns 1, 4, 8, & 12) and for females only (columns 2, 5,9, &13). The demographic characteristics of household-heads were also considered in this analysis and are discussed in the ensuing paragraphs.

Personal care and wellbeing

The personal care time-use category refers to time spent sleeping, maintaining personal hygiene, and eating. Generally, female household-heads (612 minutes) spend less minutes in personal care than male household-heads (627 minutes). We also found that while personal care has a negative relationship with material wellbeing this is only statistically significant for female household-heads at the 5% level ($p=.009$). Time spent on personal care however improves subjective wellbeing for both the pooled sample and females at the 10% ($p=.052$) and 5% ($p=.049$) levels respectively. Thus, based on the time-use results and regression, while women generally spend less minutes on personal care than men, spending an additional minute in personal care results in an inherent trade-off between their material wellbeing and subjective wellbeing for them. Overall considering the size of the coefficients, the positive relationship with female subjective well-being does seem to be greater than the negative relationship with their material wellbeing.

Paid work and wellbeing

The paid work time-use category encompasses wage employment and self-employment. In the context of rural Onesi, Namibia this time-use category includes activities such as teaching, piece jobs, basket weaving, and operating small informal businesses as advised by interviewed respondents. We found that female household-heads spend more minutes in this time use category than males (females= 111 minutes; males= 64 minutes). However, paid work time-use has no significant relationship with the wellbeing (final, material, subjective, and relational) experienced by household-heads.

Work outside and wellbeing

With regards to work outside, women generally spend more minutes in this time use category than males on a day-to-day basis (females= 419 minutes; males= 394 minutes). This includes spending time on livestock rearing and tending to the field, garden and crops. Although, these activities are widely practiced without gender bias in the study area, we found that this time-

Table 3: Relationship of male and female household-heads time-use with three dimensional wellbeing

Time-use category	Wellbeing Indexes							
	Final Wellbeing		Material Wellbeing		Subjective Wellbeing		Relational Wellbeing	
	All	Female	All	Female	All	Female	All	Female
Personal Care	.0000812 (.0000727)	.0000948 (.0000958)	-.0000709 (.000056)	-.0001868** (.000069)	.0003263* (.000165)	.000431** (.0002137)	-.0000118 (.0001055)	.0000403 (.0001383)
Paid Work	.0000659 (.000053)	-.0000634 (.0000707)	.0000374 (.0000413)	0.00000387 (.0000509)	.0001174 (.0001217)	-.0001206 (.0001577)	.0000428 (.0000778)	-.0000658 (.000102)
Work Outside	.0000665 (.000042)	.00011* (.0000601)	-0.00000587 (.0000324)	0.00000876 (.0000433)	.0001132 (.0000955)	.0001655 (.0001341)	.0000922 (.000061)	.0001557* (.0000868)
Domestic work	-.0000192 (.0000189)	-.0000373 (.0000223)	0.00000686 (.0000146)	.0000188 (.000016)	-.000062 (.0000429)	-.0000943* (.0000497)	-0.00000247 (.0000274)	-.0000364 (.0000322)
Leisure	.0000291 (.000034)	.0000584 (.0000401)	-.0000429* (.0000262)	-.0000491* (.0000288)	.0000468 (.0000772)	.000122 (.0000894)	.0000835* (.0000494)	.0001024* (.0000578)
Age								
31-40 years	-.001402 (.0533215)	-.0159408 (.0644076)	.0137816 (.0410918)	-.038353 (.0463565)	-.0254218 (.1210885)	.0089414 (.143634)	.0074342 (.0774159)	-.018411 (.0929374)
41-50 years	.0548261 (.0449851)	.028341 (.0509202)	.0324414 (.0346674)	.0052693 (.0366491)	.0879909 (.1021574)	.0962016 (.1135561)	.044046 (.0653126)	-.0164479 (.0734758)
51-60 years	.0479281 (.0512722)	-.0130257 (.070536)	.069661* (.0395125)	-.0120735 (.0507673)	.0977124 (.1164349)	.0678584 (.1573008)	-.023589 (.0744407)	-.0948619 (.1017805)
61+ years	.0726865 (.0464564)	.0424097 (.0555708)	.1072287** (.0358012)	.0734968* (.0399963)	.1255138 (.1054985)	.134671 (.1239272)	-.014683 (.0674487)	-.0809387 (.0801863)
Marital status								
Married	-.0020792 (.0264778)	.0522489 (.0362812)	.0037094 (.0204049)	.0048571 (.0261129)	-.0188208 (.0601287)	.082408 (.0809098)	.0088738 (.0384423)	.0694816 (.0523522)
Committed Partner	.0359484 (.0562094)	.2816374** (.1277724)	.0410366 (.0433173)	.1872377** (.0919624)	.0886517 (.1276468)	.6015322* (.2849423)	-.0218432 (.0816088)	.0561422 (.1843701)
Widow/ widowed	-.0164721 (.0323229)	-.0195308 (.0356804)	-.0284851 (.0249094)	-.0179675 (.0256805)	-.1243407 (.0734025)	-.1322929 (.0795701)	.1034096** (.0469286)	.091668* (.0514853)
Not Breadwinner	-.0145256 (.0287964)	-.077823** (.034458)	.054434** (.0221917)	.0558813** (.0248007)	-.0505475 (.0653942)	-.1541383* (.0768441)	-.0474631 (.0418087)	-.1352139** (.0497215)
Number of household members	-.0072835 (.0136487)	.00978 (.0161489)	.0156487 (.0105182)	.0106888 (.011623)	-.0430139 (.030995)	.0036117 (.0360133)	.0055146 (.0198161)	.0150395 (.0233022)
Number of observations	93	63	93	63	93	63	93	63
F	0.80	1.60	2.35	2.88	0.85	1.54	1.21	1.74
Prob > F	0.6753	0.1140	0.0079	0.0032	0.6167	0.1338	0.2799	0.0784
R-squared	0.1347	0.3180	0.3139	0.4568	0.1426	0.3096	0.1913	0.3365

Notes: Standard errors are shown in parentheses. ***, **, * significant at the 1%, 5% and 10% level, respectively. Sig., statistical significance.

use category significantly improves females' final wellbeing ($p=.074$) and it would seem that this is mainly due to the positive relationship of outside work on women's relational wellbeing ($p=.079$). These relationships are significant at the 10% level respectively, however we found no significance for the pooled sample. Thus, time spent on work outside is significantly related to the final wellbeing and relational wellbeing of female household-heads only.

Domestic work and wellbeing

Importantly we found that spending an additional minute on domestic work time-use significantly decreases females' subjective wellbeing and this is significant at the 10% level ($p=.064$). This suggests that an additional minute spent on the domestic work time-use category which consists of activities such as water, firewood and herb collection, food preparation, household chores, purchasing goods and caring for children and the elderly, has a negative relationship with the subjective wellbeing experienced by female household-heads. It is concurrent with studies asserting that domestic work such as firewood and water collection increases time allocation burdens, reduces time spent on leisure activities and socialising, as well as negatively impacts on one's quality of life (Sugden et al., 2014; WEDO, 2008; Nankhuni, 2003; Harnmeijer & Waters-Bayer, 1993). Thus, while female household-heads spend significantly more time in domestic work time-use than men this has a negative relationship on subjective wellbeing.

Leisure and wellbeing

The leisure time-use category encompasses time spent socialising, and participating in leisure and religious activities. In general, women spend slightly more minutes in this time-use category than men (females= 542 minutes; males= 533 minutes). This is contrary to research asserting that as women face greater time-use pressures, their participation in leisure activities fluctuates with repercussions on their emotional wellbeing (Krueger and Mueller, 2012). In fact, time spent on leisure time-use has a negative relationship on material wellbeing for both our overall sample and specifically also for females. In the case of females this relationship is significant at the 10% level ($p=.095$) while it comes very close to being significant for the pooled sample at the 10% level ($p=.106$). Spending time on leisure also has a significantly positive relationship on the relational wellbeing of both the pooled sample ($p=.095$) and

females only ($p=.083$) at the 10% level. Therefore, spending an additional minute in leisure time-use presents a trade-off between material wellbeing and relational wellbeing for both the pooled sample and females only, however when considering the size of the estimates, it would seem that to some extent the relational effect outweighs the material effect.

Age and wellbeing

Apart from the influence of different time-use categories on wellbeing, age has a significantly positive relationship on material wellbeing for both the pooled sample and female household-heads. We found that older household-heads specifically those in the 51-60 years and 61+ years age groups experience a significantly higher level of material wellbeing than younger household-heads. This relationship is significant at the 10% and 5% level respectively for the two age groups (51-60 years $p=.082$; 61+ years $p=.004$). The significant relationship of age on one's material wellbeing highlights the importance of social grants for material wellbeing as these two age groups generally receive monthly pensions.

Marital status and wellbeing

We found that marital status also has some significant relationship with wellbeing. Being in a committed partner relationship (in comparison to being in a married relationship) has a significantly positive relationship on final wellbeing ($p=.032$), material wellbeing ($p=.047$), and subjective wellbeing ($p=.040$) of female household-heads at the 5% level respectively. Being a widow or widower improves one's relational wellbeing significantly at the 5% level and 10% level respectively for the pooled sample and females only. This highlights the importance of social connections for widows and widowers in the rural community and is consistent with findings that widows generally spend more time in social participation than married women, particularly in informal social participation (Hahn et al. 2011, Utz et al. 2002).

Breadwinner status and wellbeing

Not being the Breadwinner has a negative and significant relationship with final wellbeing for women and this is significant at the 5% level ($p=.028$). Contrary to expectation we found that not being the breadwinner for both the pooled sample ($p=.016$) and females only ($p=.029$) significantly improves material wellbeing at the 5% level. Interestingly however, for female household-heads, not being the breadwinner has a significant negative relationship with both subjective ($p=.051$) and relational wellbeing ($p=.009$) with these findings being significant at the

10% level and 5% level respectively. While not being the household breadwinner for women has a significantly positive relationship with their material wellbeing, it also leaves women feeling subjectively worse-off and with poorer social connections or relational wellbeing as indicated by the regression results.

Number of household members and wellbeing

We found that the number of people living in the household does not significantly affect the level of wellbeing experienced by both the pooled sample and females only. This is contrary to literature asserting that for rural contexts, the more people there are in a household the less materially well-off that household becomes (Tashiro & Lo, 2012; Lawson, 2008; Kim & Zepeda, 2004).

4.5 Main Findings

The results evidence that women face greater time-use burdens than men and that this may be owing to traditionally gendered role division. Specifically, women spend more time in strenuous time-use categories (paid work, work outside, and domestic work) than men and therefore face greater time burdens. The significantly greater participation of women in domestic work time-use leads us to believe that household-head's day-to-day time-use is informed by traditionally constructed gender roles. Consequently, this makes women's subjective wellbeing worse off although females generally experience a higher level of subjective wellbeing than males. This finding largely agrees with literature arguing that gendered inequality in time-use resultantly contributes to the detriment of an individual's wellbeing (Awumbila & Henshall Momsen, 1995; Peterman et al., 2011; Gross & Swirski, 2002; Flemming & Spelerberg, 1999).

In order to counter this effect, women should spend more time on personal care as this time-use category has a significant bearing on the household-head's level of subjective wellbeing. This comes at the expense of improving females' material wellbeing which is slightly lower than that of males – although elderly women may be exempt from this trade-off as they rely on the receipt of a monthly pension which significantly improves their material wellbeing. In fact, pension remittances generally assist Namibia's rural inhabitants to meet their needs and protect

them from a poverty status, thereby reducing their vulnerability against shocks including drought (Adongo and Deen-Swararay 2006, Devereux 2001).

This importance of social grants on material wellbeing is also highlighted by the fact that not being the household's breadwinner for women significantly improves their material wellbeing. However, this simultaneously leaves women subjectively worse-off and with poorer social connections where men generally experience a higher level of relational wellbeing than women sampled in the study area. This greatly disadvantages women who are widowed as they significantly depend on social connections for improved relational wellbeing. In this case, the results suggest that increasing the time spent on work outside could improve women's level of relational wellbeing as this has a significantly positive impact on both the relational and final wellbeing of female household-heads. Similarly, the results also imply that spending more time in leisure may improve their relational wellbeing although this would be at the expense of improving their material wellbeing. In fact, women generally experience a lower level of relational wellbeing than men however, spending more time on work outside (livestock rearing; and tending to the garden, field and crops) as well as leisure (socialising; community group meetings; religious activities; and leisure activities) could significantly improve their three dimensional wellbeing.

With regards to marital status, the results suggest that being in a committed partner relationship (in comparison to being in a married relationship) for female household-heads, significantly improves final wellbeing, material wellbeing, and subjective wellbeing. Therefore, women who are in a non-marital relationship are generally better off than women who are widowed or married. However, the results also imply that in order to improve the three dimensional wellbeing experience of female household-heads living in rural Onesi, it would be necessary for female household-heads to harness the social capital within their households and increase role sharing in the domestic work time-use category. This has the potential to relieve their time and work burdens which would subsequently improve their overall happiness and satisfaction with the quality of their lives. This agrees with research evidencing that participation of men in shared livelihood activities has important implications on women's wellbeing (Fazey et al., 2010; Awumbila & Henshall Momsen. 1995).

The analysis of time-use and three dimensional wellbeing highlights several points including the importance of personal care for improved subjective wellbeing albeit the trade-off with material wellbeing; the importance of age and social grants for ensuring a better experience of material wellbeing; the importance of social connections particularly for widows and widowers; as well as the significance of time spent on leisure and work-outside for improving relational wellbeing. Notably, the number of people living in a household and the paid work time-use category do not yield any statistically significant relationships with the three dimensions of wellbeing. And women's disproportionately high time spent on domestic work leaves them feeling subjectively worse-off. Despite this, women who are in committed partner relationships are generally better off than those who are married or widowed. All in all, the persistence of traditional gender role division seems to have a determining effect on the time-use and wellbeing experiences of household-heads in the study area.

4.6 Conclusion

This chapter has presented a discussion of the results found in the study's data analysis. It discussed the time-use, three dimensional wellbeing experience, and the impacts of time-use on wellbeing within the context of four rural villages located in Ones, Namibia. The analysis and interpretation of the relationship of time-use with three dimensional wellbeing were grouped into categories of personal care, paid work, work outside, domestic work, and leisure so as to present a logical discussion. In doing so, the study does not purport causality between variables but places emphasis that there are positive and negative relationships between variables with some having statistical significance. Reference to the literature review aids that objective conclusions can be derived from the research study. A summary of the study's major findings and final conclusions are presented in the following chapter.

5 CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Several major findings emanate from analysis of the collected data. This chapter presents a summary of the major findings and subsequent recommendations for future research study. To recap, the study assessed the impact of time-use on the material, subjective and relational aspects of wellbeing so as to inform how time-use relates to the gendered experiences of wellbeing a rural community setting located in the semi-arid area of Onesi, Namibia. It set out to fulfil the following objectives:

1. To identify the time-use of male and female household-heads in Onesi, Namibia
2. To identify how the three dimensions of wellbeing are experienced by male and female household-heads in Onesi, Namibia
3. To identify and explain the impact of time-use on the three dimensions of wellbeing experienced by household-heads in Onesi, Namibia

Consequentially, it highlights the time-related opportunities and constraints for improving the lived experience of household-heads living in the semi-arid area of Onesi, Namibia. This research study could therefore positively inform efforts to improve the day-to-day living of Onesi's rural inhabitants by adding to the knowledge gap on time-use and wellbeing in a rural semi-arid area.

5.2 Summary of key findings

Every household-head's time-use allocation and wellbeing experience is unique. The data evidences that men and women use their time differently despite the slight differences in four of the five time-use categories. The overarching argument within gendered time-use studies shows that women are more disadvantaged than men and additionally that this is inextricably linked to their experiences of wellbeing. This study confirms that the material, subjective and relational aspects of one's wellbeing are influenced by their time-use. In fact, the higher time pressures and work burdens associated with female household-head's time-use contributes to the detriment of their wellbeing (Peterman et al., 2011; Gross & Swirski, 2002; Flemming & Spelerberg, 1999). However, from the results of this study it can be concluded that while

women face greater time-use burdens than men this does not subsequently disadvantage them in all aspects of their three dimensional wellbeing.

- *Persistence of traditional gender role division disadvantages females*

The statistically significant difference in time allocated to domestic work is implicit of traditional division of gender roles at the household level. The study evidences that this persistence of traditional gendered role division in the household has a determining effect on time-use and wellbeing experiences of household-heads in the study area. In fact, women's disproportionately high participation in domestic work time-use activities results in their subjective wellbeing becoming worse-off. We find that men's and women's time-use is informed by traditionally constructed gender roles. As a result, women experience greater time-use and work burdens.

- *Women face greater time-pressure and work burdens than men*

Following discussion with respondents it was apparent that women have resorted to taking part in paid work activities particularly those of self-employment nature such as basket weaving and operating tuck shops in order to earn an income for the household in the absence of male figure heads. This gravely disadvantages them as they face added time-use pressure and work burdens. The data shows that women spend more time in paid work, work outside, domestic work, and leisure activities and spend less time in personal care than men. This suggests that women face greater time-use pressures as well as greater work burdens than men owing to the strenuous nature of these time-use categories, whereas men spend more time in personal care which includes activities such as sleeping, eating, and personal hygiene.

- *Personal care is important for improving subjective wellbeing*

The personal care time-use category generally has a significant relationship with wellbeing. It significantly improves women's subjective wellbeing however this is at the cost of improving material wellbeing. Nonetheless, the positive impact on women's subjective well-being does seem to be greater than the negative impact on their material wellbeing. Thus, while men generally spend more time in this category than women, it would be beneficial for women if role sharing in other time-use categories increased such that they could spend more time in personal care so as to significantly improve their happiness and overall satisfaction with life.

- *Leisure and work outside are significant for improving relational wellbeing*

Time spent on leisure significantly improves relational wellbeing however this is at the cost of improving material wellbeing. However, when considering the size of the estimates, it would seem that to some extent the relational effect outweighs the material effect. This finding is concurrent with the literature. Specifically, time spent on the leisure time-use category significantly improves relational wellbeing and this is particularly true for widows as they generally experience better relational wellbeing than other women. Social connections are thus an integral component for improving the relational wellbeing of widows and widowers. Similarly, time spent on work outside including livestock rearing as well as tending to the field, garden and crops significantly improves women's relational wellbeing.

- *Marital status has significant bearing on females' experience of wellbeing*

Despite the persistence of traditionally gendered role division, women who are in committed partner relationships are better off than those who are married or widowed. This marital status has significant bearing on the level of material, subjective and final wellbeing experienced by female household-heads. Similarly, being a widow (or widower) significantly improves one's relational wellbeing thereby highlighting the importance of social connections for widows and widowers in the rural community.

- *Social grants and social capital are important for material wellbeing*

Age and the subsequent receipt of pension significantly improves the wellbeing of household-heads as the elderly household-heads were better-off than younger household-heads with regards to their material wellbeing. Thus, social grants are very important for material wellbeing and especially so as this does not limit the differences in experience of material wellbeing to men and women, but includes the influence of age on wellbeing. The significant implications that age can have for wellbeing is an area deserving of further research. In addition, not being the breadwinner also improves material wellbeing significantly despite leaving women feeling subjectively worse-off and with poorer social connections or relational wellbeing. The positive relationship between not being the breadwinner and material wellbeing is suggestive of the importance of social grant income for improving material wellbeing.

5.3 Recommendations

This research study into the time-use and wellbeing experiences of household-heads living in the semi-arid area of Onesi, Namibia has found that there is need to add to the knowledge gap. The results found in relation to the literature evidence that there is a justification to investigate and explain the links between time-use and wellbeing further, particularly so for the sake of improving the wellbeing of rural inhabitants in Onesi, Namibia. Several recommendations are made towards this end:

Development workers

- Persistence of traditional gender roles has a largely negative effect on the time-use and wellbeing experiences of household-heads, particularly female household-heads in the study area. As such, harnessing household capital through the increased sharing of roles and responsibilities should be encouraged. Specific emphasis for this should be within domestic work time-use as women are to a large extent burdened with responsibilities and activities in this category for which their subjective wellbeing significantly becomes worse-off.
- The experience of time pressure and work burdens may also be relieved by increasing ease of access to resources such as water and energy for day-to-day use through the development of infrastructure within the Onesi constituency.
- Social grants and relief aid are very important for ensuring material wellbeing especially in times of scarcity, therefore measures to facilitate the equal distribution and reliable access to these should be strengthened and perhaps this assistance should be increased.
- There needs to be improvement in the strengthening of social connections as these may be vital avenues of support and improved relational wellbeing within the community. Subsequently, time spent on leisure and work outside should increase particularly for widows and widowers as this time-use significantly improves their social connections.

Researchers

- The significant implications of age on material wellbeing found in this research study warrant further investigation and research, particularly so as this may have bearing on the adaptive capacity of the elderly and youth in semi-arid areas.

- There needs to be more research into the trade-offs in wellbeing associated with increases and decreases in certain day-to-day time-use allocations. There is limited understanding and appreciation for this in the developing world context and especially in rural communities of semi-arid areas in sub-Saharan Africa.

5.4 Conclusion

This research study has assessed how time-use relates to the experiences of material, subjective and relational aspects of wellbeing in the semi-arid area of Onesi, Namibia. There is some agreement with the reviewed literature, however the found differences also make valuable contributions to the knowledge gap on time-use and wellbeing experiences in semi-arid areas. The findings of the study give answer to the study's research questions concerning time-use and wellbeing in semi-arid areas. Subsequently, recommendations have been made to both development practitioners and the research community. Overall, the research objectives of the study have been achieved.

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APPENDICES

APPENDIX 1: DESCRIPTION OF MALE AND FEMALE HOUSEHOLD-HEADS SAMPLING

Villages	Total number of households	Sample frame	Sampled	%	Sex	
					Male	Female
Omalungu	14	10	9	9.7	2	7
Uuhongo	67	40	27	29.0	15	12
Eenkalashe	57	30	31	33.3	8	23
Omangolowani	64	40	26	28.0	5	21
Total	202	120	93	100.0	30	63

APPENIX 2: DESCRIPTION OF TIME-USE CATEGORIES

Time-use Category (minutes)	Minimum	Maximum	Mean	Standard deviation
Personal Care				
<i>Sleep</i> – How many minutes per day do you spend sleeping? (<i>n</i> = 93)	180	960	528	140.84
<i>Eat</i> – How many minutes per day do you spend eating? (<i>n</i> = 93)	5	180	51	46.76
<i>Personal hygiene</i> – How many minutes per day do you spend on personal hygiene activities? (<i>n</i> = 93)	0	180	38	28.21
Paid Work				
<i>Self-employment</i> – How many minutes per day do you spend on self-employment? (<i>n</i> = 93)	0	720	82	189.67
<i>Wage employment</i> – How many minutes per day do you spend on wage employment? (<i>n</i> = 93)	0	480	14	75.12
Work Outside				
<i>Tending to the field, garden and crops</i> – How many minutes per day do you spend tending to the field, garden and crops? (<i>n</i> = 93)	0	720	329	194.62
<i>Livestock rearing</i> – How many minutes per day do you spend rearing livestock? (<i>n</i> = 93)	0	600	88	158.86
Domestic Work				
<i>Water collection</i> – How many minutes per day do you spend collecting water? (<i>n</i> = 93)	0	240	47	53.55
<i>Firewood collection</i> – How many minutes per day do you spend collecting firewood? (<i>n</i> = 93)	0	240	51	56.70
<i>Plants/herbs collection</i> – How many minutes per day do you spend collecting plants and herbs? (<i>n</i> = 93)	0	360	7	40.66
<i>Food preparation</i> – How many minutes per day do you spend preparing food? (<i>n</i> = 93)	0	300	58	60.50
<i>Domestic chores</i> - How many minutes per day do you spend on domestic activities like cleaning and washing? (<i>n</i> = 93)	0	540	97	94.07
<i>Purchasing goods</i> – How many minutes per day do you spend purchasing household goods like food and clothes? (<i>n</i> = 93)	0	720	144	146.83
<i>Child care</i> – How many minutes per day do you spend taking care of babies and children? (<i>n</i> = 93)	0	1440	484	530.78
<i>Elderly care</i> – How many minutes per day do you spend taking care of the elderly or disabled in your household? (<i>n</i> = 93)	0	1440	72	271.81
Leisure				
<i>Socialising</i> – How many minutes per day do you spend socialising? (<i>n</i> = 93)	0	1440	148	201.42
<i>Community meetings</i> – How many minutes per day do you spend attending community and group meetings? (<i>n</i> = 93)	0	360	165	81.45
<i>Religious</i> – How many minutes per day do you spend on religious activities? (<i>n</i> = 93)	0	720	160	127.08
<i>Leisure and relaxing</i> – How many minutes per day do you spend on leisure activities like reading, sports and relaxing? (<i>n</i> = 93)	0	1020	66	163.63

APPENDIX 3: MEAN TIME SPENT ON EACH TIME-USE CATEGORY BY GENDER

Mean household-head time-use			
	Males	Females	All
Time-Use Category (minutes)			
Personal Care	627 (115)	612 (115)	617 (154)
Paid Work	64 (159)	111 (240)	96 (218)
Work Outside	394 (305)	419 (243)	411 (263)
Domestic Work	540 (509)	1162 (676)	962 (690)
Leisure	533 (297)	542 (315)	539 (308)
n	30	63	93

Notes: standard deviations are shown in parentheses.

The above table details the mean time spent by males and females in each time-use category. From these results it is evident that females spend below the combined mean of 617 minutes in personal care (612 minutes) compared to males who spend above the combined mean (627 minutes). However, females spend above the combined mean time in paid work (111 minutes), work outside (419 minutes), domestic work (1162 minutes) and leisure (542 minutes). Conversely, males spend below the combined mean time in paid work (64 minutes), work outside (394 minutes), domestic work (540 minutes) and leisure (533 minutes).

APPENDIX 4: MANN-WITNEY U TEST SHOWING THE SIGNIFICANCE IN TIME-USE CATEGORY DIFFERENCES FOR MALES AND FEMALES

Test Statistics					
	Time Use Category				
	Personal Care	Paid Work	Work Outside	Domestic Work	Leisure
Mann-Whitney U	942.000	892.500	887.000	424.000	926.000
Z	-.025	-.626	-.480	-4.282	-.156
p-value	.980	.531	.631	.000 ***	.876

Notes: Grouping variable is sex of the respondents; *** significant at the 1% level.

APPENDIX 5: MEAN SCORE FOR THREE DIMENSIONAL WELLBEING INDEXES BY GENDER

Mean household-head's wellbeing score			
	Males	Females	All
Wellbeing Index			
Material	0.53 (0.08)	0.53 (0.08)	0.53 (0.08)
Subjective	0.44 (0.19)	0.46 (0.23)	0.45 (0.22)
Relational	0.39 (0.13)	0.38 (0.15)	0.38 (0.14)
Final	0.45 (0.08)	0.46 (0.10)	0.46 (0.08)
n	30	63	93

Notes: standard deviations are shown in parentheses.

The above table details the mean score for three dimensional wellbeing indexes by gender for sampled household-heads. Despite the seemingly similar level in the experience of material wellbeing, males experience a slightly higher mean level (.529) than females (.528). However, with regards to subjective wellbeing, males show a lower mean than females who experience above the combined mean level of subjective wellbeing (males .44; females .46). For relational wellbeing males experience above the combined mean level of .38 with a score of .39 while females experience a mean level of .38. In terms of the final wellbeing score which is the mean of the three wellbeing indexes, the gendered difference in final wellbeing is slight with females having an above combined mean score of .46 while males experience a below the combined mean score of 45.

APPENDIX 6: MANN-WITNEY U TEST SHOWING THE SIGNIFICANCE IN WELLBEING INDEX DIFFERENCES BETWEEN MALES AND FEMALES

Test statistic	Wellbeing Index			
	Material	Subjective	Relational	Final
Mann-Whitney U	940.500	906.500	884.000	938.500
Z	-.038	-.317	-.506	-.053
p-value	.970	.751	.613	.957

Notes: Grouping variable is sex of the respondents