EXPLORING THE RELATIONSHIP BETWEEN MULTIDIMENSIONAL POVERTY AND SUBJECTIVE WELL-BEING AMONG YOUNG WOMEN IN THREE SUB-SAHARAN AFRICAN COUNTRIES: A CAPABILITY APPROACH

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ABSTRACT

Background: Poverty is a multidimensional concept that is reflected in individuals' daily lives through, among other things, health, educational opportunities and living conditions. Poverty is particularly concentrated in Sub-Saharan Africa, where over half of the population is multidimensionally poor. Evidence suggests that young women in particular are at risk of multidimensional poverty. Previous studies have shown that income poverty is correlated with lower levels of well-being. However, there is limited knowledge on how multidimensional poverty is correlated with subjective assessment of well-being at the individual level particularly among young women.

Research Objectives: The main objective of this study was to use an individual-level multidimensional poverty measure to investigate the relationship between multidimensional poverty, measured as a deprivation score, and subjective well-being among young women in Eswatini, Mauritania and Mali. In addition, the aim of this study was to explore how well the deprivation score predicted the levels of subjective well-being after controlling for the possible effect of the conversion factors of country, living area, age, marital status and parental status.

Data and Methods: This study used data from the fifth round of the Multiple Indicators Cluster Survey (MICS5). The sample was collected between 2014-2015 and included in total 14 813 women between the ages of 15 and 24 years. This study adapted the global Multidimensional Poverty Index and measured poverty through a deprivation score, which combined the deprivations in ten health-, education- and living standard-related indicators. Subjective well-being was measured by combining the mean scores of life satisfaction, happiness and optimism. Spearman correlation coefficients was used to explore correlations, independent sample t-tests and one-way between group ANOVAs to explore differences among the study variables and hierarchical multiple regression to explore the relationship between multidimensional poverty and subjective well-being, also after controlling for possible effects of socio-demographic variables.

Results: This study found that over 40 percent of the total sample suffered from multidimensional poverty. The incidence and the intensity of multidimensional poverty was highest among married women. The results showed that the deprivation score had a small negative correlation with subjective well-being in the total sample including all three countries, as well as in separate models for Eswatini and Mauritania. However, it explained less than one percent of the variance in the subjective well-being scores after controlling for age, marital status, parental status, living area and country. Besides the deprivation score, current marriage, having children and rural residence were associated with lower subjective well-being.

Conclusion: The results of this study suggest that health promotion interventions should be targeted to reduce multidimensional poverty to increase subjective well-being among young women in Sub-Saharan Africa. Of specific importance are increase in education opportunities and improvements in housing quality. Additionally, efforts to reduce child marriage and facilitate delayed parenthood can further positively influence the subjective well-being of young women, regardless of poverty status.

Keywords: Multidimensional poverty, subjective well-being, the capability approach, Sub-Saharan Africa, the Multidimensional Poverty Index, young women

ACRONYMS

AF - The Alkire-Foster Method

ANOVA - Analysis of variance

COVID-19 - Coronavirus disease 2019

GDP – Gross Domestic Product

GII - Gender Inequality Index

GNI - Gross National Income

HDI - Human Development Index

HIV - Human Immunodeficiency Virus Infection

IHDI - Inequality-adjusted Human Development Index

JMP - Joint Monitoring Programme for Water Supply, Sanitation and Hygiene

LMIC - Low- and middle-income county

MICS - Multiple Indicator Cluster Survey

MPI - The Multidimensional Poverty Index

OPHI - Oxford Poverty & Human Development Initiative

OXFAM - Oxford Committee for Famine Relief

SDG - Sustainable Development Goals

SPSS - Statistical Package for the Social Sciences

SSA - Sub-Saharan Africa

UN - United Nations

UNAIDS - Joint United Nations Programme on HIV/AIDS

UNDP - United Nations Development Program

UNICEF - United Nations International Children's Emergency Fund

1. INTRODUCTION

Background and the context of the study

This thesis explores how multidimensional poverty, measured as a lack of basic capabilities, is associated with subjective well-being of young women in three low-income and lower middle-income countries[1] (LMICs). Poverty has been recognized as one of the most significant global challenges of our time (World Bank, 2020a) and although extreme poverty has reduced over the last two decades (Yoshida et al., 2014), prevailing volatile conditions, such as climate change, violent conflicts and the COVID-19 pandemic, appear to be slowing poverty reduction progress and hampering the achievement of the global poverty goals (World Bank, 2020a). Sumner et al. (2020) estimate that due to the corona pandemic, global poverty could increase for the first time since 1990 and according to the World Bank (2020a), the number of people living in poverty is expected to increase by 150 million by the end of 2021. These estimates are based on the international poverty line ($1.90 a day), but if poverty were evaluated in a multidimensional way, the readings would be even more worrying as will be explained below.

Poverty has conventionally been studied through a single-item measure, usually income. The international poverty line is set at 1.90$ a day, which states that every tenth person is living in poverty (Roser & Ortiz-Ospina, 2019). However, based on a multidimensional evaluation, 1.3 billion people (22% of the global population) live in acute multidimensional poverty (UNDP, 2020). Instead of income, multidimensional poverty measures take into account a broader range of goods, which are assumed to characterize individual well-being (Bader et al., 2016). The use of income as a measure of poverty does not consider the real, multidimensional nature of poverty and thus underestimates the number of poor (Salecker et al., 2020). Poverty is not only reflected in income but in various aspects of life, such as poor housing conditions, malnutrition or poor educational opportunities. Further, income-based poverty indices are generally measured at the household-level, which assume equal distribution within the household (Klasen & Lahoti, 2016). However, several studies have shown that poverty inequalities exist within the household (e.g., Robeyns, 2003; Cantillon & Moran, 2017) and

[1] According to the World Bank, low-income countries are defined as those with a gross national income (GNI) per capita of $1,035 or less, lower middle-income countries as those with a GNI per capita between $1,036 and $4,045, and upper middle-income countries as those with a GNI per capita between $4,046 – $12,535 (World Bank, n.d.). In this study, the term LMIC refers to low-income and lower middle-income countries.

that multidimensional measures capture these inequalities better than traditional monetary measures (Bader et al., 2016).

One of the most promising multidimensional poverty measures is the global Multidimensional Poverty Index (MPI), which identifies multiple deprivations that people face at the same time in education, health and standard of living (OPHI, n.d.). The MPI is widely used and one of its main advantages is that it reflects both the incidence of poverty (a number of people living in multidimensional poverty) and the intensity of the poverty (the average deprivation score experienced by multidimensionally poor people) (OPHI, n.d.). The MPI is based on the concepts of the capability approach, according to which an individual's well-being should be measured through capabilities (achieved functionings) instead of resources, meaning that one should not only consider the amount of resources individuals have, but what they are able to do with those resources (Sen 1979, 1999). The ability of an individual to convert resources into valuable functionings (beings and doings) depends upon personal, social and environmental factors, so-called conversion factors (Robeyns & Byskov, 2020). These factors, together with available resources and freedom to choose, result in an individual either achieving or not the functionings she or he values, which in turn has an impact on the well-being of the individual (Martinetti, 2000). Compared to conventional poverty measures that have mainly focused on resources (such as income), the MPI measures basic functionings, such as being educated, sheltered and well-nourished. However, the capability approach has been used only partly in multidimensional poverty research and only little research has been done on how the multidimensional poverty expressed by these functionings is actually correlated with individuals' well-being.

Geographically, poverty is particularly concentrated in rural areas and in Sub-Saharan Africa[2] (SSA), where up to 40 percent of the population is living below the extreme poverty line and over 55 percent in multidimensional poverty (OPHI, 2019; United Nations, 2019). Due to the covid pandemic, these areas are now even more vulnerable to growing inequalities (Buheji et al., 2020). The focus of this thesis will be on three SSA countries: Eswatini, Mali and Mauritania. According to the MPI the percentage of multidimensionally poor people is 78 in Mali, 51 in Mauritania and 19 in Eswatini (OPHI, 2019). In these countries, both the incidence and intensity of multidimensional poverty are

[2] The use of the term Sub-Saharan Africa has sparked debate over its acceptability, as it has been seen as creating unnecessary borders on the continent and even representing a racist geopolitical signature (e.g., Butty, 2010). However, the term is widely used in scientific literature and poverty studies. North Africa is usually defined as more developed than Africa below the Sahara and according to the MPI, North Africa is the least poor region in Africa (Alkire et al., 2016), which speaks in favor of the terminological separation of these regions.

reflected differently (OPHI, 2019), which allows for better evaluation of the potential impact of poverty on subjective well-being.

Research on the African continent continues to focus on physical health, even though according to the definition of the World Health Organization, health should be seen as a holistic state of physical, mental and social well-being (Constitution of the World Health Organization, 1946). Especially the increasing global burden of mental disorders (Thyloth et al., 2016) calls for studies to understand health and its antecedents from a more holistic perspective, and multidimensional poverty measures can provide a useful tool for this evaluation. In particular, research on youth health in SSA countries has focused mainly on sexual and reproductive health rather than holistic well-being. A third of the population of SSA consists of persons aged 10-24 years and these youth are growing up in a context with withering poverty, high prevalence of HIV, widespread conflict and limited educational opportunities (Kabiru, Izugbara & Beguy, 2013), which will reflect far into their future. Evidence shows that gender differences in poverty exist and that especially the intensity of multidimensional poverty seems to be higher among women compared to multidimensionally poor men (Trani et al., 2016; Emelj et al., 2017). In particular, young women in LMICs are vulnerable in multiple ways: they are often unable to enjoy the benefits of secondary education or formal paid employment, they are often experiencing the threat of violence, they have less decision-making power, and many of them are forced to get married and have children at a young age, which further limits their opportunities (UNAIDS, 2015). The highest gender gaps among adolescents have usually been in health and education indicators (Espinoza-Delgado & Klasen, 2018).

Although attention to multidimensional poverty has increased, the relationship between multidimensional poverty among adolescent girls and young women and their well-being is not fully documented in LMICs. Moreover, the focus of well-being studies has mainly been on objective measures of well-being (Sarracino, 2010). However, objective measures ignore differences between individuals, believing that the well-being of each individual is based on the same factors. Thus, estimates of well-being in this study are based on measures of subjective well-being. Subjective well-being is people's subjective evaluations of their own lives and it is usually measured through three components of happiness, life satisfaction and positive affect (Diener, 1984). Based on this definition, the present study explores subjective well-being using happiness, life satisfaction and optimism as three constructs of subjective well-being. Evidence has shown that although females generally report better life evaluations than males, in SSA females' life evaluations are significantly lower than males (Fortin et al., 2015). Perceived life control has found to be one of the strongest predictors of subjective well-being (Minkov, 2009) and the present study monitors this finding by examining whether the lack

of capabilities, which can be both a consequence and a result of a lack of control, affects the well-being of young women.

Relevance of the study

This study is highly relevant as it deals with a topical and significant phenomenon, multidimensional poverty, that is having substantial implications around the world. This study also complements gaps found in previous studies in multiple ways. First, it addresses poverty and well-being through modern measures instead of traditional measures, which better recognize individual differences and the multidimensional nature of these phenomena. The combined use of these two measures (objective and subjective) provides a good overview of young women's poverty and its overall impact on their well-being. Secondly, unlike most of the previous studies, this study explores multidimensional poverty using the MPI at the individual level rather than national or household level. Without an individual-level examination, we cannot see who is being left behind[3]. Thirdly, compared to previous studies, the capability approach is used as a more comprehensive way to explore the association between the basic functionings and well-being. Further, it focuses on the most vulnerable but (from the perspective of multidimensional poverty and subjective well-being) relatively little researched area and population, young women in SSA countries.

This study is strongly linked to the field of health promotion. Health promotion is defined in the Ottawa Charter for Health Promotion[4] in the following way: *"Health promotion is the process of enabling people to increase control over, and to improve their health"* (World Health Organization, 1986). The capability approach can be viewed to reflect the fundamentals of health promotion, as its purpose is to increase the individual's control over his or her own life and to achieve the functionings that he or she considers important in order to increase their well-being. Furthermore, some aspects of the multidimensional poverty measure presented in this study can also be found within the prerequisites for health (e.g., education, shelter and food), as stated in the Ottawa Charter. This study is also strongly linked to the Sustainable Development Goals[5] (SDGs), especially to goal one (no

[3] The central promise of the 2030 Agenda for Sustainable Development (United Nations, 2019).

[4] The Ottawa Charter of Health Promotion is an agreement that was signed in the first International Conference of Health Promotion, organized by the World Health Organization in 1986, and it identifies the main action areas and basic strategies for health promotion (World Health Organization, 1986).

[5] The Sustainable Development Goals are global goals included in the 2030 Agenda for Sustainable Development, which is adopted by all the United Nations Member States (United Nations, 2019).

poverty) and goal three (good health and well-being), by providing information on how the constructs addressed in the goals relate to each other. Many of the used multidimensional poverty indicators, such as drinking water, sanitation, electricity, education, and nutrition, are also linked to other SDGs (e.g., zero hunger, quality education, clean water and sanitation, affordable and clean energy), giving more insight into how these goals are interdependent. In order to achieve the SDGs, it is important to understand the complex factors behind these phenomena.

This thesis explores how individual multidimensional poverty is correlated with subjective evaluations of well-being among young women in three SSA countries. By doing that, it acknowledges the framework of the capability approach. Exploring poverty in a multidimensional way provides valuable information on which factors contribute most to poverty and where poverty reduction actions should be targeted. In addition, it provides information on the well-being of young women and how it is related to the various aspects of multidimensional poverty, which provides important information for policies and programs designed to improve the health and wellbeing of young women in LMICs.

Outline

This thesis is organized into seven chapters. This introduction chapter is followed by chapter two that presents the theoretical framework – the capability approach – that is used to guide this research project. Chapter three contains a review of existing literature on multidimensional poverty and its dimensions, subjective well-being and the relationship between multidimensional poverty and subjective well-being. The multidimensional poverty measure – the MPI – on which this study is based on is also presented in chapter three. Chapter four presents the research methodology, methods, quality assurance and ethical considerations of this study. The results are reported in chapter five and in the following chapter of discussion, the results are interpreted in relation to relevant literature and the theoretical framework. Also, study limitations and strengths are discussed in this chapter. The final chapter summarizes the main themes of the study and gives recommendations for further research.

2. CONCEPTUAL FRAMEWORK

The capability approach refers to an individual's capability of achieving the kind of life she or he values (Wells, n.d.). It is a broad model that focuses on a person's capabilities to achieve well-being, and it is widely used in different study fields, such as welfare economics, social policy, political sciences and development studies (Robeyns, 2005a; Deneulin & McGregor, 2010). In the health field, the capability approach is most commonly applied to physical activity and diet, patient empowerment, interventions assessment and multidimensional poverty research (Mitchell et al., 2017).

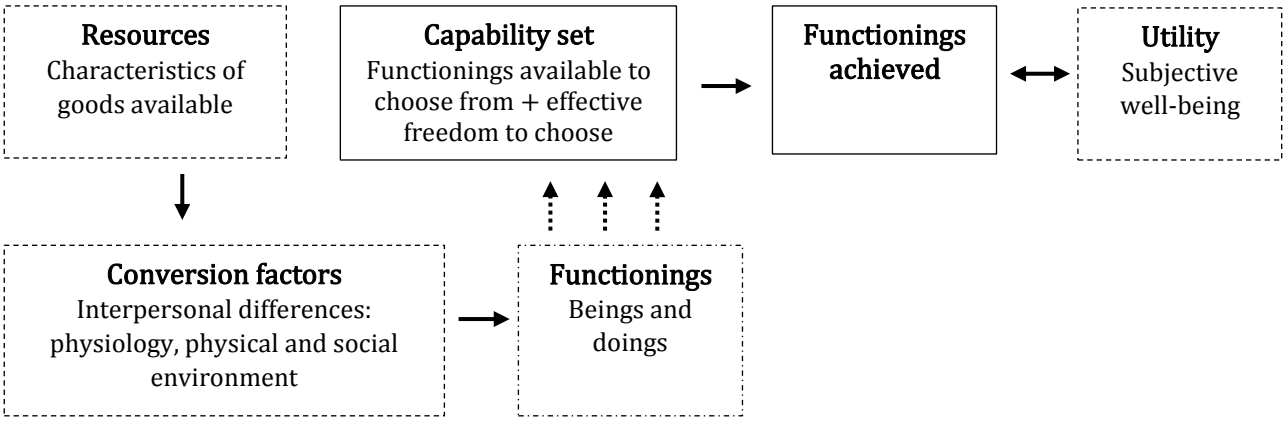
The concept of capability was first introduced by Indian economist and philosopher Amartya Sen (1979). He criticized traditional development economics and its way to define development through income and growth, and brought a new perspective where development was defined through the expansion of capabilities, the real freedoms (Kacanoglu, 2020). He argued that the use of income or growth as a measure of development portrays development too narrowly and does not take account of differences between individual's capabilities, and that the actual definition of development should be based on human freedoms instead (Sen, 1985; Sen, 1999). In this way, the capability approach changed the focus from means (resources and public goods people have) to ends (what they are able to do with those resources) and from the concept of development to the concept of human development (Conconi & Viollaz, 2018; Robeyns & Byskov, 2020).

Compared to traditional development economics, the capability approach adopts a more individualistic aspect to measure human development by placing the person as the unit of analysis instead of the broader concepts, such as national economy or household-level measures (Conconi & Viollaz, 2018). This approach better assesses intra-household inequalities, which are common especially in low-income countries (Iversen, 2003; Rodríguez, 2016). However, most empirical poverty measures erroneously assume that resources and the capabilities to use these resources are distributed equally within the household, which might lead to incorrect poverty rates and biased assessments of well-being and policies (Klasen & Lahoti, 2016). In fact, several studies have shown that inequalities exist within the household, especially between the genders, and that so-called "invisible poor" individuals exist also in non-poor households (Robeyns, 2003; Cantillon & Moran, 2017; De Vreyer & Lambert, 2018). This study attempts to reach these individual poverty disparities by making some amendments in the globally used household-level poverty measure.

The core concepts of the capability approach

The core concepts of the capability approach are presented in Figure 1, which illustrates how an individual's resources can be converted into capabilities and achieved functionings, which in turn results in well-being. In the text that follows, practical examples and definitions of how these concepts are understood and used in this thesis are provided.

Figure 1
Sen's Capability Approach



Note. The figure is adapted from Sen's Capability Approach by T. Wells, n.d., Internet Encyclopedia of Philosophy.

Resources. Traditional development economics and welfare analysis have been focusing on measurement of resources, such as income, assets and commodities, whereas the capability approach has shifted the focus to ends (e.g., capability to be well-nourished) instead of resource-based means (e.g., provided foods) (Kimhur, 2020). However, resources are the base of every functioning: schools are needed to be able to be educated, food is needed to be able to be well-nourished, and houses are needed to be able to be sheltered. The focus of the capability approach is on how individuals are able to convert these resources into valuable functionings.

Functionings. The two core concepts of the capability approach are so called functionings and capabilities. The capability approach defines functionings as states of beings and doings, activities that a person can undertake, such as getting married, being well-nourished or being educated. (Robeyns & Byskov, 2020; Sen, 1987; Wells, n.d.). Compared to resources, functionings are the actual achievements and doings instead of an objective measure of goods available. Sen (1984, p. 334) illustrates this difference with the example of riding a bike: a bike itself is just a resource but

riding a bike is the actual functioning, and on the other hand that functioning gives a person the capability of moving in a certain way, which may also give the person utility or happiness.

Capability set. Functionings themselves do not describe a person's abilities or freedom to make the choices, and therefore a broader concept of the capability set (also called *capabilities*) is more often used in the literature and research (Nambiar, 2013). For instance, if we focus on the functioning, such as being undernourished, it does not tell us if it is a result of voluntary fasting (a person has chosen not to eat) or actual starvation (a person does not have access to food) (Sen, 2003). In this example, the latter person does not have the actual freedom of choosing and is therefore missing the capability not to starve (Crocker, 1995). Indeed, the capability set refers to the ability to achieve a set of valuable functionings that a person has access to, but also highlights the act of choosing (Sen, 1987). The capability set can thus be defined as a menu from which an individual can choose different combinations of functionings she or he considers valuable (Leßmann, 2004), which eventually leads to the freedom to live the life one wants. In result, two persons may have the same capability set to choose from, but they end up choosing different bundles of actual functionings based on their desires (Crocker, 1995).

In the literature, the capability set is often broken down to *basic capabilities* and more *advanced capabilities.* Basic capabilities refer to the real opportunity to avoid serious poverty (deprivations) and to meet the minimal threshold of well-being (Sen, 1992, p. 45). Basic capabilities include basic functionings, such as being well-nourished, avoiding premature mortality, being sheltered and having control over one's own body. According to Nussbaum (2000), basic capabilities are necessary for developing the more advanced capabilities. The more advanced capabilities consist of functionings such as being literate, engagement in social interactions and political freedom (Robeyns, 2003; Wells, n.d.). In this thesis the focus will be on basic functionings, such as being educated and being able to avoid unwanted pregnancy.

Conversion factors. Whether someone is able to convert the set of means – resources or public goods – into a functioning depends widely on personal, social and environmental conditions, often called conversion factors (Robeyns & Byskov, 2020). Individuals differ greatly in their abilities to transform the same resources into valuable functionings (Wells, n.d.). For example, if two persons have the same resources, but another has a disability that somehow restricts his or her life (e.g., wheelchair), they are not equal in terms of what they can do with their resources, and therefore only focusing on the amount of resources might be misleading when evaluating individual's capabilities (Sen, 1979; Mitra, 2006). On the other hand, conversion factors also shape the needs of the individuals (Robeyns

& Byskov, 2020). For instance, pregnancy is a conversion factor that places specific nutritional needs on a woman to achieve good health. In this thesis, the impact of multidimensional poverty on well-being is examined through functionings, but also through *a personal conversion factor* (age), *social conversion factors* (marital and parental status) and *environmental conversion factors* (country of residence and living area) (Robeyns & Byskov, 2020). These three conversion factors (personal, social and environmental) either prevent or encourage the transformation of resources into functionings (Nambiar, 2013). It is indispensable to understand the interpersonal differences behind the poverty measures to be able to examine the real capabilities and freedoms of the individual. For instance, people living in rural areas are more often lacking the services and for example education and employment opportunities compared to people living in urban areas (United Nations, 2020a, p. 108), which leads to a more narrowed capability set to choose from.

Achieved functionings. Finally, the achieved functionings are the actual beings and doings that an individual has access to and what he or she decides to choose from the available capability set. The choice of the functionings is based on what the individual values and considers important in his or her life (Alkire, 2015).

Utility. Eventually, the freedom to choose valuable functionings will lead to achieved well-being of an individual (Martinetti, 2000). On the other hand, the capability approach considers utility (subjective well-being) as an interacting and valuable functioning on its own (Wells, n.d.). High subjective well-being can thus be seen as an indication that an individual has achieved the functionings she or he values. However, Sen (1983) notes that people living in deprivation may misevaluate their own well-being by lowering their expectations as a coping mechanism. In this case, even if a deprived person has a greater increase in well-being with fewer resources and functionings, it does not mean that the situation is justifiable in the first place (Robeyns & Byskov, 2020). Therefore, both objective and subjective measures are needed to assess the overall well-being of an individual. In this thesis, this assessment will be done through basic functionings and the subjective measure of well-being.

In summary, capabilities refer to an individual's real opportunities (or freedoms) to achieve functionings whilst functionings refer to what a person actually manages to do or be (Sen, 1999; Schokkaert, 2008). Capability set includes both the set of functionings available and the freedom to choose, whereas achieved functionings are the actual activities and achievements, such as being educated and well-nourished (Sen, 1987, 1999). The opportunity to achieve valuable functionings depends highly on interpersonal differences and available resources. All these concepts are interacting

and crucial in achieving both individual-level well-being and broader health policy goals. The capability approach has been increasingly used in health policy and in particular in assessing health inequalities (e.g., Abel & Frohlich, 2012). According to the capability framework, health equity does not require only access to health services (resources) and achievement of good health (functioning), but also personal capacities and general capabilities to achieve them (conversion factors and freedom to choose) (Sen, 2002). However, public health in many low-income countries is still focusing on preventive health (prevention and treatment of diseases in high-risk groups), or primary health, ignoring non-health outcomes (Greco et al., 2016). According to Lorgelly et al. (2010), *"focusing on health as an outcome measure underestimates the impact of many public health interventions"*. Therefore new, more comprehensive approaches are needed to measure an individual's health, for example in terms of quality of life and subjective well-being. It has been argued that health promotion practices should be supported by well-founded theories, and many articles have shown that the capability approach can be an efficient bridging framework to guide health promotion research (Coast et al., 2008; Frahsa et al., 2021).

From resources to capabilities

As described above, Sen's (1999) main claim is that to be able to evaluate people's well-being we should not only consider the amount of resources they have, but what they are able to do with those resources. If we focus only on the resources available and ignore capabilities and functionings, we will not be able to capture the whole picture of a person's well-being and his or her actual opportunities to achieve it. For example, if we only measure poverty through household income, we assume that only a lack of economic resources is a relevant factor contributing to poverty, which is not the case. Also we assume that individuals with similar household income have the same amount of functionings to choose from and similar psychological, physical and environmental support behind their choices. However, human beings have physical and biological differences, they live in diverse environments and their social context varies considerably, and therefore they have different requirements to meet their needs (Sen, 1999).

According to Deneulin and McGregor (2010), the capability approach has brought a whole new perspective to the social sciences by placing the well-being and the quality of human beings as a primary focus of policy, by encompassing a person's freedom and the ability to make decisions that affects one's life as central to human dignity, and by creating a flexible and adaptable approach instead of a rigid theory. The capability approach is not limited to describing well-being only through

the requirements of a minimally decent life (which is the case, for instance, with the poverty line measures) but deals with the prospects of achieving a holistically meaningful and satisfactory life (Alkire, 2015). It has responded to criticism that traditional well-being measures, such as Gross Domestic Product (GDP), have faced for not being able to measure and describe the existing distribution of well-being or adequately capture the perspective of individuals' daily lives (Nussbaum, 2008).

However, Sen's capability approach has also provoked confusion as well as criticism. The used terminology in the capability approach literature has changed over time, which has led to confusion and difficulties in understanding the main concepts of it, especially differences between capabilities (capability set) and functionings (Robeyns, 2014). In fact, the difference between capability and functioning in practice is often unclear and some authors are skeptical about the possibility of actually capturing a person's capabilities directly (Al-Janabi, 2018). Some scholars have tried to clarify the difference and the relationship between these concepts in practical research and have found that sometimes functionings are not just the result of capabilities but also their precondition, playing a dual role as both instruments and ends (Gandjour, 2008). For instance, good nourishment and physical and mental health are direct requirements for capabilities (Gandjour, 2008). Robeyns (2014) highlights that the use of the terminology depends highly on the study context and normative theory we adopt.

One of the major criticisms is also the under-theorization, since Sen does not offer a universal list of the most important functionings or provide any methodological argument as to how the selection of appropriate functionings could be done (Robeyns, 2005b; Kacanoglu, 2020). Sen (2004) has responded to this criticism by saying that the capability approach is meant to be an adaptable concept, which is dependent on public reasoning, democratic processes and discussion, which he believes are indispensable for the development of the theory. In fact, the capability approach does not give precise guidelines (Robeyns, 2015), but is more like an operable and flexible tool that has been used to construct for instance the MPI (Leon, 2017), the poverty measure that is used also in this thesis. Furthermore, Sen (2004) notes that due to cultural and societal differences, the same list of key functionings would not be relevant in every society. The capability approach defines capabilities as real freedoms to achieve beings and doings that people have reason to value, which highlights the need for adaptation of the functionings (Robeyns & Byskov, 2020). Robeyns (2005a) points out that the capability approach should be adapted separately to different disciplines and epistemological objectives. In addition, data availability and its practical relevance makes the selection of relevant capabilities even more challenging (Robeyns & Byskov, 2020). Despite the challenges some scholars

(see for instance Cummins, 1996; Nussbaum, 1997; Robeyns, 2003) have developed the theory further, also with the suggestions for a final list of key capabilities. These lists include for instance indicators of health, safety, and emotional and material well-being (e.g., Anand et al., 2009; Alkire, 2002; Narayan, 2000).

In conclusion, despite existing criticism towards the theory, the capability approach is a widely accepted framework and tool to measure well-being at the individual level. Despite the underspecified nature of the capability approach, it has a central role in the discussion of individual and societal well-being, and a growing number of empirical studies is showing that measuring capabilities is a feasible and suitable framework to explore the multifaceted nature of poverty and well-being (Chiappero-Martinetti et al., 2012).

The capability approach and multidimensional poverty

According to Kakwani and Silber (2007), the capability approach provides the most comprehensive framework to multidimensional poverty. In fact, it is widely used in multidimensional poverty research and especially in the selection of the poverty dimensions (e.g., Alkire, 2008a; Ataguba et al., 2013). Although there has been a debate if Sen's capability approach can actually be operationalized (Comim, 2001; Robeyns, 2006), at the practical level the capability approach is often associated with multidimensional indexes that comprise multiple population-level indicators into a single entity that is describing poverty or well-being as a whole (Yang, 2018). It has also been used to identify the most deprived sections of the populations (e.g., Laderchi, 1997; Klasen, 2005) to build meaningful poverty measures for policy making (Zeumo et al., 2014), as well as to develop new theoretical frameworks that operationalize the key aspects of the capability approach (e.g., Krishnakumar & Ballon, 2008; Majumdar & Subramanian, 2010; Dagsvik, 2013). Studies adapting the capability approach framework measure poverty usually through deprivations of functionings and capabilities (e.g., Alkire & Foster, 2011), which leans on Sen's (1999) definition that poverty is seen as a deprivation of basic capabilities rather than as low income. There is broad consensus of basic functionings that are vital for human development, such as being able to read and being well-nourished, which are often included in the multidimensional poverty assessments (Beegle et al., 2016, p. 84). However, measuring more advanced functionings, such as social integration and achievement of self-respect, stays still challenging (Beegle et al., 2016). More research and practical implications are needed to understand how different functionings and opportunities affect an individual's well-being.

In this thesis, the focus will be on the adaption of the capability approach in the context of multidimensional poverty analysis. The poverty measure used in this study is based on the MPI, which measures deprivations in basic functionings. Due to data limitations, the focus will be on functionings (education, health and adequate living standards) instead of actual capabilities. However, the possible impacts of conversion factors on functionings and real freedoms to choose (capabilities) will also be evaluated in this study. As described earlier, the capability approach is based on an individual-level assessment, even though most of the global measures of well-being and poverty use household or national level indicators, which, contrary to the foundations of the capability approach, explore individuals solely on the basis of equal resources and ignore the actual individual-level differences. In this study, I seek to meet this challenge by adapting the global poverty measure to the individual level and thus better describe how the different personal, social and environmental conversion factors and the lack or achievement of basic functionings affects an individual's well-being.

3. LITERATURE REVIEW

This chapter presents relevant literature and research findings related to the research topic. First, I discuss how the focus of poverty research and policy has shifted from the income-based measures to the multidimensional concepts, and why a multidimensional perspective is better than traditional money-metrics for measuring poverty and well-being. Next, I discuss the selection of poverty dimensions and the use of the capability approach in poverty measures. This is followed by an introduction of the global multidimensional poverty measure and the concept of subjective well-being, which are used as modified in this study. Finally, I present recent research findings on the relationship between multidimensional poverty and subjective well-being.

From income poverty to multidimensional poverty

Poverty is a complex phenomenon and its definition has changed over time and across disciplines. Economists have usually based their definition of poverty on income and consumption whereas social scientists have viewed poverty as a lack of individual capabilities, such as education or health (Wagle, 2008). Traditionally poverty has been linked to a single dimension – normally income (Ataguba et al., 2013). Despite the agreement that income growth is necessary for poverty reduction in low-income countries, the income based approach have faced criticism for not being able to capture the complex, multidimensional and context-specific nature of poverty and for failing to reflect subjective perceptions of well-being (Greeley, 1994; Gweshengwe, 2019).

Lately research interests have shifted to understand poverty more in a multidimensional way drawing largely on Sen's capability approach (Agatuba et al., 2013). Multidimensional poverty measures treat poverty through multiple deprivations instead of focusing on one-dimensional indicators, such as income. Multidimensional measures concentrate on deprivations that are essentially relevant whereas income measures are only instrumentally important (Sen, 1999; Burchi et al., 2018). Furthermore, resources, such as adequate supply of food items, are important only as long as they enhance an individual's capabilities (e.g., better nutritional status) (Burchi & De Muro, 2016). The shift towards multidimensionality is also reflected in the policy level and in the SDGs, where the old Millennium Development poverty goal (MDG), eradicate *extreme poverty*, was replaced with the new goal to eradicate poverty in *all its forms* (Sengupta, 2018). The new poverty goal aims to strengthen human well-being and capabilities by eradicating severe deprivations individuals encounter on a daily basis

(Burchi et al., 2018; United Nations, 2019). It recognizes poverty beyond a lack of income, including also targets for ensuring equal rights to basic services and for reducing vulnerability to economic, social and environmental disasters (United Nations, 2019). However, it does not explain in more detail what does it mean by the different forms of poverty (but calls to follow national definitions). Thus, depending on the perspective, this new goal either identifies the relative nature of poverty or *"reduce the obligations of signatory states to doing only what is 'nationally appropriate' in order to achieve the goals"* (Sengupta, 2018, p. 14; Pomati & Nandy, 2020). In any case, more research on the multidimensional nature of poverty is needed to provide a basis for creating more effective targets to reduce and alleviate poverty.

One of the main arguments for multidimensionality and non-monetary measures is that individuals living in poverty are usually deprived beyond monetary measures (e.g., food, shelter, and health) and therefore lack of income is not the only measure that places a person in a position of extreme poverty and deprivation (Brando & Fragoso, 2020). Studies have shown that especially individuals with low levels of education, poor health and rural dwelling are having higher levels of deprivation (Kim, 2016). Deprivation also tends to accumulate, which means that people who suffer from poverty during childhood and early adulthood are also more likely to be poor as adults (Wagmiller & Adelman, 2009). Therefore, more research is needed on the deprivations causing youth poverty in order to better address them and break the cycle of poverty in the future.

The key determinants contributing to multidimensional poverty have been studied worldwide. According to the study of Battiston et al. (2013) in Latin American countries, access to proper sanitation and education of the household head were the highest contributors to overall multidimensional poverty. Sial et al. (2015) instead conducted a study in Pakistan and found that the contribution of low education and living standards (such as a lack of gas and improved sanitation) has increased over time, explaining almost 60 percent of overall poverty. The case study in China on the other hand identified unsafe housing, health and illiteracy as the biggest contributors for poverty (Wang & Wang, 2016). In the SSA context, lack of schooling has most often found to be the highest contributor to poverty (Batana, 2013). Besides low levels of education, the other major determinants of deprivation in SSA countries include for instance poor health, large family size, rural location and lack of safe water and assets (Adeyemi et al., 2009; Ataguba et al., 2013; Adeoti, 2014). However, very little research on the determinants of multidimensional poverty has been done in Eswatini, Mali or Mauritania. Also in general, more research is needed to identify key determinants contributing to poverty and to target policy actions to reduce deprivation in those functions.

Measuring poverty through income or functionings?

The different outcomes between income and multidimensional poverty measures (functionings) in LMICs have been explored in several studies (e.g., Laderchi, 1997; Laderchi et al., 2003; Artha & Dartanto, 2015; Wang et al., 2016). Usually the results have shown that people who are classified as non-poor using income poverty measurement are often actually suffering from multidimensional poverty. For example, Artha and Dartanto (2015) resulted in their research in Indonesia that over 60 percent of people classified as non-poor using income poverty measurement were actually multidimensionally poor. Similar results were found in China, where Wang et al. (2016) found that almost 70 percent of multidimensionally poor households were not classified as poor in terms of income poverty. In line with these findings were also studies conducted in India and Peru by Laderchi et al. (1999, 2003). They based their multidimensional poverty measure on the capability approach and found that it identified over half of the adults as capability poor even though they were not considered poor in terms of an income-based approach.

Few studies are carried to compare income-based measures and multidimensional poverty in the African context. Salecker et al. (2020) conducted one of the most recent comparative studies in Rwanda and found that monetary measure alone was not able to capture high incidence of multidimensional poverty and the changes of poverty over time. Klasen (2000) explored how the identification of poor differed by using definitions of functionings-poor and expenditure-poor and noted that the functionings-based poverty measure captured intra-household inequalities better than the spending-based measure. His analysis included several basic functionings (e.g., education, housing, nutrition, energy and safety) and conversion factors (e.g., living area and race), and he found that especially rural dwellers and female-headed households were much more functionings-deprived than the monetary measure would have indicated. However, only little research has been conducted in SSA (see for instance Booysen et al., 2008; Sahn & Stifel 2000; Batana, 2013) and more functioning-based research is needed to measure multidimensional poverty especially in this context.

In summary, although there is often some relationship between income-based poverty measures and multidimensional poverty measures (Burchi et al., 2018), they might give a very different result when estimating the incidence of poverty. Some still argue that income-poverty is what really matters since some studies have shown that there is a high correlation between income and other measures of well-being, such as education status and health (White, 2014) and as a result, income would adequately reflect other areas of life as well. Some researchers also argue that the non-monetary indicators used in multidimensional poverty measures are often poor quality (Ataguba et al., 2013). However, even

though some studies (e.g., Ataguba et al., 2013) have found the opposite results where a high number of individuals living under the extreme monetary poverty line were classified as non-poor when using different multidimensional poverty measures, findings result more often that traditional income and consumption based measures simplify poverty and underestimate the number of poor, which makes the use of multidimensional measures more preferable. As discussed earlier, there are multiple good arguments in favor of multidimensionality in poverty measurement: it captures the complexity of poverty, enables assessment of intra-household inequalities, and identifies more sensitively those who lack basic needs but would be overlooked when using traditional poverty measures. Moreover, poor people themselves often value other dimensions as being more important than income (White, 2014), which supports the use of multidimensional poverty measures especially when evaluating an individual's well-being and quality of life. Salecker et al. (2020) also note that relying only on monetary measures in low-income countries might send incorrect signals to policymakers regarding the effectiveness of poverty policies.

There is no unequivocal opinion on which approach is the most optimal for measuring poverty, but it needs to be assessed on a case-by-case basis and in the light of research objectives. This thesis examines how poverty affects the subjective well-being of young women in three LMICs. I assume that many other factors, such as being well-nourished and having access to clean water and education, have a greater impact on the subjective assessment of well-being than income, which is why a multidimensional approach has been chosen as the basis of this study.

Choosing dimensions for multidimensional poverty measures

The capability approach focuses on human diversity and therefore also suggests that several different dimensions should be included in the process of poverty measurement (Zeumo et al., 2014). The critical question, then, is how to ensure that the dimensions and indicators chosen to measure poverty are valid. According to Alkire (2008a), the chosen dimensions should comprise poverty reduction themselves, have instrumental power to effectively contribute to the reduction of other dimensions of poverty or anticipate an intended outcome of a project. Chosen dimensions should also be evaluated as valuable, reflect human ends rather than means and concern more than just a one view of the good life (Alkire, 2002). The most common ways to construct the poverty dimensions are the use of existing data, reliance on convention or public consensus, or the selection of dimensions that people are expected to value (Alkire, 2008a). Multiple sets of dimensions are constructed also through wide literature reviews, and they are often based on the voices of the poor (Narayan et al., 2000), on the

literature of life satisfaction (Cummins, 1996), or different combinations of existing poverty approaches (Kim, 2016).

Several studies (e.g., Townsend 1979; Alkire & Santos, 2010) have given their contribution to the creation of a list of basic poverty dimensions. Although some disagreements exist, the attempts to make comprehensive lists of poverty indicators have eventually led to a growing agreement on the dimensions, and for instance health, nutrition and education are often referred to as the indispensable components of poverty, appearing consistently almost in all developed lists of basic capabilities (Robeyns, 2000; Saith, 2001; Kim, 2016). Longitudinal studies have also shown that the most commonly used dimensions in previous studies demonstrate a consistent influence on poverty over time, which indicates that existing literature on multidimensional poverty has been on a right track (Kim, 2016). However, creating a one authoritative list of central functionings is complex and the use of multiple different lists of dimensions would be a more appropriate way to measure poverty (Alkire, 2008a). Poverty is manifested in different deficiencies depending on the country and the living environment, so the development of a universal poverty measure is questionable in that sense as well. Nevertheless, efforts are being made to continuously develop new universal poverty measures and the choice of appropriate dimensions should therefore be actively discussed.

The capability approach as a basis of poverty measures

At the local and national level, the capability approach has provided the basis for multiple poverty measures, defining poverty for instance through basic capabilities (Clark & Qizilbash, 2005; Krishnakumar & Ballon 2008; Young, 2009), quality of life (Verkerk et al., 2001; Bérenger & Verdier-Chouchane, 2007), well-being (Anand et al., 2005; Kingdon & Knight, 2006; Van Ootegem & Verhofstadt, 2012; Muffels & Headey, 2013; Binder, 2014), social exclusion (Sen 2000; Saunders, 2003) and deprivations (Hick, 2016; Anand et al., 2020), among others. It has also been successfully applied to poverty alleviation programs (Kannan, 1999; Schischka et al., 2008).

According to Kakwani & Silber (2007), at the global level the clear shift towards a multidimensional approach to poverty occurred in 1990, when the UNDP's Human Development Index (HDI) was published for the first time. The HDI is based on the basic need and the capability approaches by instrumentalizing the key capabilities (access to health, education and goods) that individuals need to be able to achieve the desired state of well-being (Stanton, 2007). These key capabilities were chosen based on the assumptions regarding the dimensions that matter to people (Alkire, 2008a) including indicators of life expectancy, years of schooling and gross national income (UNDP, n.d.). However,

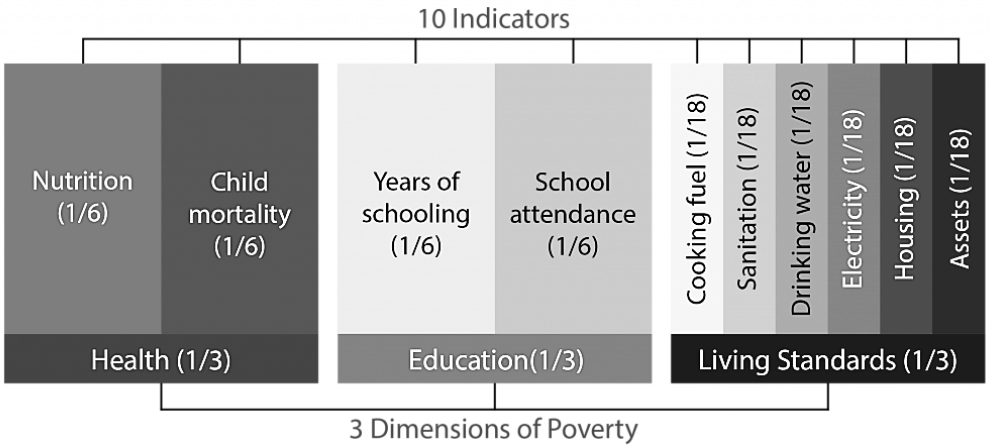
the HDI has faced criticism for using income as a proxy for capabilities, having too few indicators to measure development and therefore giving a too narrow picture of human development and well-being, and for not being able to capture inequalities (Bagolin, 2004; Conceição et al., 2020). This criticism has been met by the creation of new, more complex and comprehensive measures of multidimensional poverty, such as the Inequality-adjusted Human Development Index (IHDI) and the Gender Inequality Index (GII) (Mohanty & Dehury, 2012). One of the most promising multidimensional poverty measures is the MPI, which has shifted the attention from income-based measures towards a more holistic view of poverty (Conceição et al., 2020). This measure is also the basis of this study.

The Multidimensional Poverty Index

The MPI is a global poverty measure, used mainly in LMICs, that captures a set of different deprivations that a person faces simultaneously (Alkire & Santos, 2010). It was developed by the Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme in 2010, and by now its measures cover over 100 LMICs worldwide (OPHI, n.d.). Based on the capability approach, the MPI defines development as an expansion of capabilities (Sen, 1990; Alkire, 2002) and it focuses on measuring achieved functionings in ten indicators included in the education, health and living standards dimensions (Alkire, 2002; Beegle, 2016). These dimensions, indicators and their relative weights are presented in Figure 3.

Figure 3

Dimensions and Indicators of the Multidimensional Poverty Index



Note. Figure is from https://ophi.org.uk/multidimensional-poverty-index/.
Copyright: Oxford Poverty and Human Development Initiative (OPHI).

The MPI uses the cross-dimensional poverty cutoff of one-third, identifying a person multidimensionally poor if her or his weighted sum of deprivations in the indicators is one-third or more (Alkire & Jahan, 2018). It identifies a person deprived in health dimension if a household has undernourished children or any child has died in the family, in education dimension if a person has completed less than six years of schooling or if a school-aged child in the household is not attending school, and in the living standards dimensions if a person is living in inadequate housing, does not have access to electricity, improved sanitation and clean drinking water, is using unclean cooking fuel or is not owning assets that give access to information, mobility and livelihood (Alkire & Jahan 2018). These indicators (or functionings) are weighted differently based on the consensus of the importance of a functioning (Alkire & Santos, 2010).

The construction of the actual, globally comparable Multidimensional Poverty Index follows the Alkire-Foster methodology[6] (AF), which is using the following methodological steps, described by Alkire et al. (2015): First, the multidimensionally poor people are identified by setting the deprivation cutoffs for each of the poverty indicators (defining when a person is deprived and when not in that indicator). After this, the relative weight for each of the indicators measuring poverty is selected. This is followed by creation of a weighted sum of deprivations for each person (deprivation score). After this, the poverty cutoff will be determined, informing the proportion of weighted deprivations a person needs to be considered multidimensionally poor (one-third most commonly used). After the identification of multidimensionally poor persons, the MPI is conducted through the Adjusted Headcount Ratio (M_0), which computes the incidence (the headcount ratio, H) of poverty in the population and the intensity (A) of deprivation (poverty) among the identified poor. In conclusion, the MPI is based on the following calculation formula: $M_0=H\times A$. (Alkire et al., 2015). As an illustrative example, if 40.7 percent of the study sample is identified as multidimensionally poor (H = 0.407) and the average share of deprivations of these poor is 2/3 (A = 0.667), meaning they are deprived on average 75 percent of the indicators, they will get the MPI value of 0.271 (H = 0.407 x A = 0.667). In this way the MPI describes both the incidence and the intensity of poverty in the chosen sample, a higher value indicating more severe poverty.

The MPI has two strong advances compared to other measures: it includes relevant dimensions to poverty measures (based on the capability approach) and it captures both the incidence and intensity of poverty, leaving no one behind (one of the SDG emphasis) (Alkire & Jahan, 2018). However, even though the MPI claims to assess poverty at the individual level (OPHI, n.d.), many of its indicators

[6] The more detailed description of the AF method can be found in Alkire et al. (2015).

are measuring deprivations at the household-level. Moreover, the capability approach is mainly adapted to the dimension selection, but the indicators reflect the actual functioning, and at least capabilities, very poorly (Dotter & Klasen, 2017). The existing research has also been focusing on the choice of the indicators and poverty cutoffs (e.g., Adeoti, 2014; Rogan, 2016; Megbowon, 2018) rather than the actual effects of poverty. With this thesis, I will respond to these weaknesses and fill these gaps by making adaptations for the MPI measure to better reflect the actual functionings at the individual level. Further, I will strengthen the use of the capability approach by exploring whether the achievement of functionings has an impact on an individual's utility, subjective well-being.

Subjective well-being

Psychological health has traditionally been studied through illness and diagnoses, but the trend of positive psychology has gradually shifted attention from negative factors to positive ones and the discovery of what makes life worth living (Proctor et al., 2009). There are differing opinions on the definition and measurement of well-being, but one of the most commonly used divisions is between objective and subjective well-being (Axford et al., 2014). The objective well-being approach explores the objective dimensions of a good life whereas the subjective well-being approach investigates people's subjective evaluation of their own lives (Voukelatou et al., 2020). Traditionally well-being has been measured through objective indicators, such as household income, material living conditions, job opportunities, health, safety and politics, but this approach has faced criticism for not being able to capture well-being satisfactorily (Sarracino, 2010; Voukelatou et al., 2020). As a result, a growing number of researchers have turned their attention to the concept of subjective well-being (Diener et al., 2009).

Subjective well-being is a self-reported measure of well-being that is often understood and measured from the perspective of happiness or life satisfaction (Rojas, 2004). Definitions of subjective well-being used in research vary but the literature has generally focused on happiness, life satisfaction and positive affect as its key concepts (Diener, 1984), although sometimes life satisfaction, happiness and subjective well-being are also used as synonyms (Veenhoven, 2012). Contrary to the objective measures, the determinants of subjective well-being are highly individualized and not limited to material means (Alkire 2008b; Santos, 2012). It is downright impossible to construct an objective measure to describe well-being, as individuals value and gain happiness from various different things. In fact, based on the previous research, subjective well-being is influenced by a large number of individual (e.g. personality and self-esteem), socio-demographic (e.g. culture and marital status),

economic (e.g. employment), situational (such as social relationships and health), and institutional determinants (Frey & Stutzer, 2002; Strotmann & Volkert, 2018). Therefore it should be assumed that in subjective assessments, individuals evaluate what is important to them and how well they have or are able achieve these valuable things in their lives. According to Stutzer & Frey (2003, pp. 5) *"people evaluate their level of subjective well-being with regard to circumstances and comparisons to other persons, past experience and expectations of the future".* In this study, subjective well-being will be measured through three determinants: life satisfaction, happiness and optimism. This choice is based on the definition that sees well-being as the sum of a positive subjective assessment of life satisfaction (past), positive emotions such as happiness (present), and optimism (future) (Lim et al., 2017; Snyder & Lopez, 2002).

Life satisfaction describes how positively a person evaluates the overall quality of his or her life as a whole and how much a person likes the life she/he is living (Veenhoven, 1996, p. 6). *Happiness* on the other hand is usually defined in terms of meaning and purpose of life, harmony, positive emotions and pleasant feelings (Susniene & Jurkauskas, 2009). However, there are several different theories that try to cover the concept of happiness and no common global definition has yet been achieved (Kaczmarek, 2017). Mogilner et al. (2011) also found in their study that the meaning of happiness changes over lifetime: younger people associate happiness more often with excitement, whereas older people with peacefulness. Sometimes happiness and life satisfaction are used as a synonyms for each other but according to Greco et al. (2016), there is an evidence that these are not measuring the same concepts: happiness varies over the days of the week and is usually better at weekends, where life satisfaction is same on all days of the week. They also note that happiness seems to become saturated with a certain income threshold, while this is not the case with life satisfaction. *Optimism* in turn *"reflects the extent to which people hold generalized favorable expectancies for their future"* (Carver et al., 2010). However only a few studies have used all these three concepts to measure subjective well-being. Even less they have been used in the research applying the capability approach.

Well-being is also one of the main concepts of the capability approach. According to Sen (1999), the lack of freedom to choose life-enhancing functionings valuable to the individual leads to a low quality of life. Therefore, subjective well-being measures not just indicate low self-assessment of well-being but also a deprivation of the freedom to undertake valuable life activities (Zwierzchowski, & Panek, 2020). Kingdon and Knight (2006) have compared a subjective well-being measure with income and capabilities poverty and found that subjective well-being is related to both approaches, which makes it a good complementary measure for multidimensional poverty research.

Differences in subjective well-being

Factors influencing differences in subjective well-being assessments have been studied extensively between different groups. For instance, Fortin et al. (2015) found that females had higher life evaluations than males in five of the eight global regions using the Cantril ladder scale as a measure, although some opposite results have also been found in national-level studies (e.g., Nicola et al., 2018). Some studies have shown that in fact there is not an actual difference in average subjective well-being between women and men, but women tend to be more often both extremely happy and extremely unhappy and give therefore more extreme ends of well-being scales (Diener et al., 1999). According to the literature review of Ulloa et al. (2013), studies show most often either U-shaped or linear relation between subjective well-being and ageing. Findings of Clark & Oswald (2006) support this and after they controlled the possible effect of other explanatory factors, they found that subjective well-being reached a minimum in the age band 40-49. Previous studies have also shown that married individuals consistently report higher subjective well-being levels than unmarried individuals (Haring-Hidore et al., 1985; Diener et al., 2000). However, the research focus has primarily been on rich western countries (Camfield, 2004), and some studies carried out in LMICs have in fact given the opposite results (e.g., Addai et al., 2015) or have shown that there is no correlation between the marital status and subjective well-being (Strotmann & Volkert, 2018; Aida, 2018). As part of this thesis, I will supplement the existing research by exploring the possible differences in subjective well-being between the socio-demographic factors (age, living area, marital and parental status) in three LMICs.

Relationship between multidimensional poverty and subjective well-being

The main objective of this study is to explore whether there is an association between multidimensional poverty and subjective well-being. Previous research has focused mostly on income poverty measures, and the results have usually shown that income poverty is correlated with lower levels of subjective well-being (e.g., Lever, 2004; Rojas, 2004; Sarracino, 2010; Clark et al., 2013). Only a few studies have been conducted to measure the association between multidimensional measures of poverty and subjective well-being, even though studies have shown that the association between income poverty and subjective well-being is usually confounded by multiple mediating factors (Main, 2014) and that often other factors, such as material deprivation, social exclusion, education and health, have a stronger association with subjective well-being than income (Bellani & D'Ambrosio, 2011; Shams, 2016; Main, 2019).

The existing studies exploring the relationship between multidimensional poverty and subjective well-being have usually concluded parallel results despite the use of different poverty and well-being indicators. Nozaki & Oshio (2016) found significant associations between multidimensional poverty and subjective well-being (measured as perceived happiness) in Japan, China and Korea using income, schooling, health and social protection as indicators of multidimensional poverty. Only a few studies (Nidup, Feeny and de Silva, 2017; Strotmann & Volkert, 2018; Aida, 2018) have used the MPI to measure subjective well-being. Nidup et al. (2017) investigated how subjective well-being (measured as happiness) was correlated with the MPI in Bhutan and found that a higher level of multidimensional poverty was negatively associated with subjective well-being. The research of Strotmann and Volkert (2018) found similar negative correlations between the deprivation in the years of schooling ($r = -.18$, $p = .023$), assets ($r = -.23$, $p < .000$) as well as housing indicators ($r = -.19$, $p = .004$) and subjective well-being (as measured by happiness) in India, but they noted that the correlation was weak for the majority of the indicators. The estimated marginal effects for these three significant variables varied between 3.8% and 5% points, meaning that the probability of not being happy was 3.8-5% points higher for persons who were deprived in these indicators. In the context of SSA, Aida (2018) used the MPI to explore the relationship between multidimensional poverty and subjective well-being (measured as life satisfaction) and found that the deprivations in the MPI indicators significantly exacerbated subjective well-being and that being MPI poor was about 1.5 times more severe than income poverty in terms of subjective well-being. However, he points out that the MPI measure, as well as the income measure, explained only 7 percent of the variation in subjective well-being after controlling for other individual variables.

In summary, even though multidimensional poverty and subjective well-being are popular indices, very few studies have explored the relationship between them. Results have generally shown that there is a negative association between multidimensional poverty and subjective evaluations of well-being, meaning that multidimensional poverty is correlated with lower levels of subjective well-being, although sometimes this correlation is very weak. The MPI is one of the best known measures of multidimensional poverty and has been widely used to assess the incidence and intensity of multidimensional poverty in different countries and regions. However, despite its multiple benefits it has rarely been used to measure the association between poverty and well-being. In addition, as can be seen from the reviewed literature above, subjective well-being has usually been measured through a single-dimension measure, usually happiness, instead of using a multidimensional measure. Further research is also needed especially in the context of SSA.

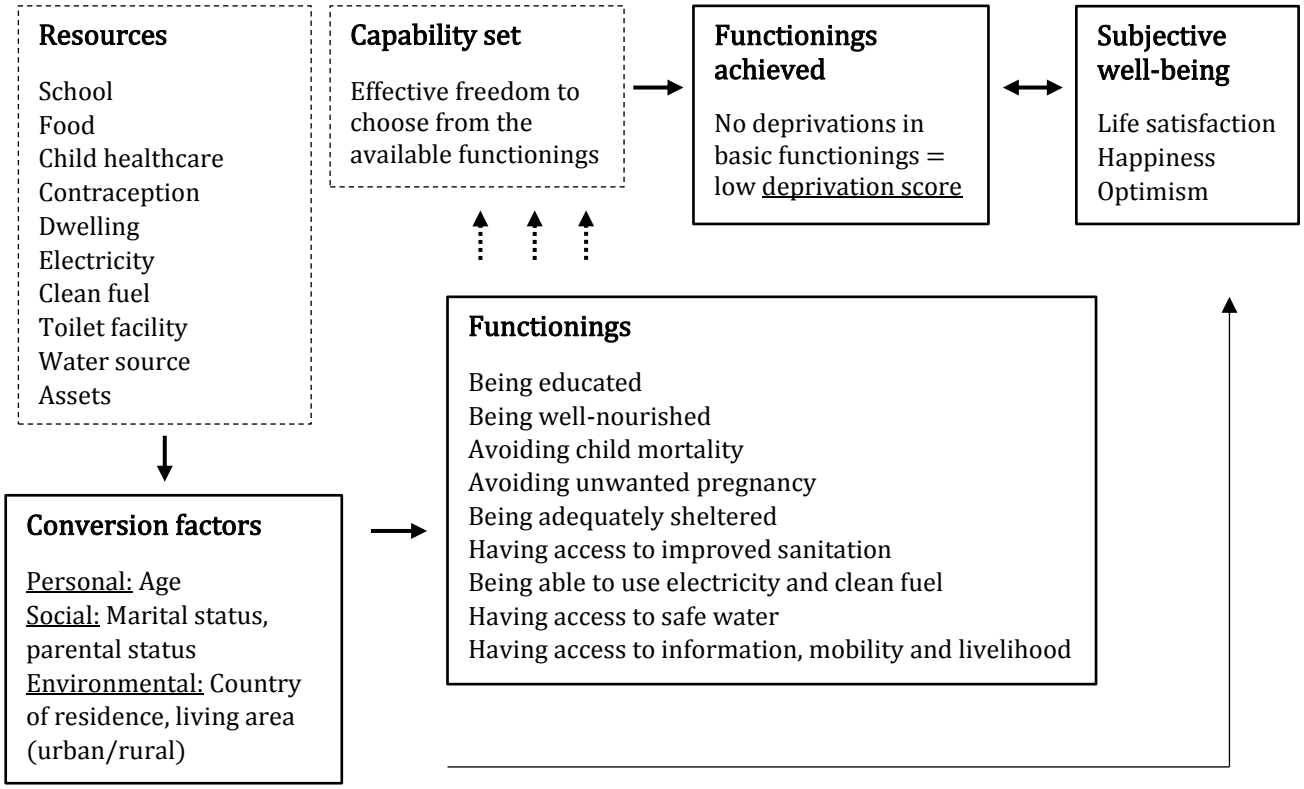
Conclusions and contributions

As can be concluded from this review of the literature, poverty research has focused on the assessment of economic indicators, although the focus has been shifting towards more multidimensional concepts. As studies have shown, the use of income as a measure of poverty excludes many who in fact suffer from acute poverty and thus underestimates the severity of the situation (Laderchi et al., 2003; Ravallion, 2003; Wang et al., 2016). Measuring poverty as a multidimensional phenomenon more comprehensively identifies those suffering from poverty and reflects shortcomings in basic needs, which are for instance more visible in the life of a young person than the household income level alone. One of the most promising measures for multidimensional poverty is the MPI, which adopts the capability approach as foundation and measures poverty through a lack of basic functionings. Of important note here, is that the capability approach is concerned with individual-level conditions, but most studies that have used the MPI, have assessed poverty in broader groups (e.g. households) (Klasen & Lahoti, 2016) rather than focused on individual-level analysis. Also, the existing research based on the MPI has mainly focused on the evaluation of the indicators and different poverty cut-offs instead of exploring whether multidimensional poverty has an impact on an individual's life quality and well-being.

With this thesis I aim to fill the research gaps presented in this literature by using the MPI to evaluate the incidence and intensity of multidimensional poverty and its correlation with subjective well-being in SSA countries among young women and by adapting the capability approach at the individual level. The core concepts of this thesis are presented in Figure 2. Instead of focusing on resources (such as availability of school, contraception or food), the focus will be on the basic functionings (such as being educated, well-nourished and being able to avoid unwanted pregnancy). According to the capability approach, personal, social and environmental conversion factors play a significant role in whether an individual is able to achieve these functionings (Robeyns & Byskov, 2020). I will explore the role of these conversion factors in relation to the achievement of basic functionings (described through a deprivation score), and subjective well-being (measured through three well-being items). Due to the data limitations, effective freedom of the individuals (whether they valued and actively chose these functionings) cannot be evaluated, but these functionings are thought to describe the basic needs of life that individuals, generally, also value and actively pursue. The main focus in this thesis is to explore whether the deprivation score is correlated with subjective well-being, how well it explains the levels of subjective well-being and what the role is of the conversion factors between these two concepts.

Figure 2

The Core Concepts of the Study Based on the Capability Approach



4. STUDY OBJECTIVES

The overall objective of this study was to explore the use of an individual multidimensional poverty measure to investigate the relationship between multidimensional poverty and subjective well-being among young women in Eswatini, Mauritania and Mali, using the multiple Indicator Cluster Survey (MICS) 2014-2015. More specifically, the study aims to answer the following research questions:

1. Do the incidence and intensity of multidimensional poverty differ between the socio-demographic variables of age, marital status, parental status, living area and country?
2. Is there an association between multidimensional poverty, as measured with a deprivation score, and the subjective well-being levels of young women in Eswatini, Mali and Mauritania?
3. How well does the deprivation score predict the levels of subjective well-being after controlling for the possible effect of the conversion factors of country, living area, age, marital status and parental status?
    a. What is the role of these factors in the model?

4.1 Study Area

According to the MPI, almost one third of multidimensionally poor people live in SSA (Alkire et al., 2016). This is a substantial proportion of the region's population and increasing the knowledge around multidimensional poverty and how it relates to well-being in this region is important. Three SSA countries (Eswatini, Mali and Mauritania) were selected for the present study. These countries were selected because of their different poverty profiles and multidimensional poverty indexes in order to better highlight possible differences in the impact of multidimensional poverty on subjective well-being. In addition, data were collected in all these countries at approximately the same time (2014-2015), allowing a comparison of these countries. Although all three countries are located in the SSA region, they are geographically distanced, representing a diverse selection of countries, geographically, culturally and socially. As just stated under the study objectives, the present study focuses on the topic of individual multidimensional poverty and its relationship with subjective well-being among young women. To understand the more general multidimensional poverty contexts of the study countries, I will next briefly present the profile of these countries from the perspective of multidimensional poverty and the MPI.

Eswatini

Eswatini, officially the Kingdom of Eswatini and earlier known as Swaziland, is a landlocked country in South East Africa and one of the smallest countries in Africa with a population of 1.1 million (Masson, 2021). The population of Eswatini is concentrated primarily in rural areas (76%) and despite the country's lower-middle-income status, almost 30 percent of the population is living under the international poverty line of $1.90/person/day (World Bank, 2021). The country's economy has a significant duality of large-scale intensive production and small-scale semi-subsistence activities, which creates a high contrast in incomes and living standards (Masson, 2021). In fact, Eswatini has the 10th highest income inequality in the world (World Food Programme, n.d.). Eswatini has also the highest rate of HIV prevalence in the world from which women suffer relatively more than men (35% vs. 19%, respectively) (World Food Programme, n.d.). In addition to the high prevalence of HIV, high unemployment, high inequality, unfavorable weather patterns and weak economic growth due to the impact of COVID-19 pose challenges to poverty reduction (World Bank, 2021). In 2017, the primary school enrollment rate in Eswatini was 83 percent (World Bank, n.d.), however teenage pregnancy, the inability to pay top up fees and high levels of sexual violence have led to high drop-out rates especially in secondary school (Lusih et al., 2019). Some 15 percent of married women have an unmet need for contraception and the number of unplanned pregnancies and maternal deaths are high (Engström et al., 2020). Further, one-fifth of women ages 15-19 have had children or are currently pregnant (World Bank, n.d.). In terms of living standards, 77 percent of the population has access to electricity, 69 percent to safe drinking water, 58 percent to at least basic sanitation services and 50 percent to clean cooking fuel (Joint Monitoring Programme, n.d.; World Bank, n.d.). Based on the MPI in 2014, the incidence of multidimensional poverty in Eswatini was 19 percent and the intensity of deprivations among the poor 42 percent, resulting in the MPI value of 0.081 (UNDP, 2020). Among the multidimensionally poor, the deprivation level was highest in the cooking fuel (18%), electricity (16%) and sanitation (13%) indicators (UNDP, 2020).

Mali

Mali, a low-income, landlock country in Western Africa, is one of the largest countries in Africa with a relatively small population of 20 million (Clark et al., 2021). Mali has been experiencing conflicts and instability since the 2012 military coup and the occupation of the north by armed groups, which led to over 300 000 refugees (Eozenou et al., 2013). A large proportion of Mali's population (over 40 percent) suffers from extreme poverty, which is mostly concentrated in the densely populated rural areas of the south (World Bank, 2021). Almost 60 percent of the population is living in rural areas

(Clark et al., 2021) and the country's economy is largely based on agriculture, animal husbandry and fishing, which makes economic growth vulnerable to weather conditions and raw material prices on the international market (Dembele, n.d.). In addition, rapid population growth (a fertility rate of 5.88 children per woman) and climate change threaten agriculture and food security, and also the current pandemic and ongoing sociopolitical and security crises have led to a 5 percent increase in poverty in Mali (World Bank, 2021). In 2018, the primary school enrollment rate in Mali was 59 percent, but the country's literacy rate remains one of the lowest in the world (World Bank, n.d.; Clark et al., 2021). Child mortality rates are also among the highest in the world, and the prevalence of chronic malnutrition among children is high: over 40 percent of the households have at least one chronically malnourished child (Eozenou et al., 2013; Clark et al., 2021). Further, one-fifth of married women report an unmet need for contraception and the rate of teenage pregnancies is high (36 percent of women ages 15-19) (World Bank, n.d.). Malian houses are usually built of a mixture of earth and cement and only half of the population have access to electricity (Clark et al., 2021), 78 percent to safe drinking water, 39 percent to at least basic sanitation and only 1 percent to clean cooking fuel (Joint Monitoring Programme, n.d.). Based on the MPI, in 2015 the incidence of multidimensional poverty in Mali was 73 percent and the intensity of deprivations among the poor was 57 percent, leading to the MPI value of 0.417 (UNDP, 2020). Among the multidimensionally poor, the deprivation level was highest in the cooking fuel (73%), housing (61%) and schooling (57%) indicators (UNDP, 2020).

Mauritania

Mauritania is one of the largest and least densely populated (4 million inhabitants) countries in Africa (World Bank, 2021). It is located in Northwest Africa, bordered on one side by the Atlantic Ocean, and much of its land area comprises part of the Sahara desert (Stewart et al., 2021). Mauritania is more urbanized than Eswatini and Mali: 55 percent of total population was living in urban areas in 2019 (World Bank, n.d.). Mauritania is classified as a lower-middle-income country, and it has huge reserves of different resources, such as fish, iron and oil (Oxfam, n.d.), although many of them (such as fish stocks) are over-exploited (World Food Programme, n.d.). Mauritania has made significant improvements in reducing poverty and has experienced sustained GDP growth from 2008 (World Food Programme, n.d.; World Bank, 2021). Despite that, more than 16 percent of the population is living under the extreme poverty line (Oxfam, n.d.). Major challenges for poverty reduction and development are the high incidence of malnutrition, social inequality and land degradation as well as precarious housing, incoherent policies and bad governance (Oxfam, n.d.; World Food Programme;

World Bank, 2021). In addition, groups that have not benefited from social development (mostly young people and women), are increasingly marginalized (World Bank, 2021). In 2018, the primary school enrollment rate in Mauritania was 80 percent, but less than 60 percent of the young women (ages 15-24) were literate (World Bank, n.d.). Teenage pregnancy rate (16% in the ages of 15-19) in Mauritania is lower than in Eswatini or Mali but over one-third of married women are having an unmet need for contraception, which is the highest rate among these three countries (World Bank, n.d.). In addition, the prevalence of undernourishment in Mauritania is higher (12% of the population) than in Mali (World Bank, n.d.). In terms of living conditions, 45 percent of the population has access to electricity, 71 percent to at least basic drinking water services, 48 percent to at least basic sanitation services and 47 percent to clean cooking fuel (World Bank, n.d.). Based on the MPI, in 2015 the incidence of multidimensional poverty in Mauritania was 51 percent and the intensity of deprivations among the poor 52 percent, resulting in the MPI value of 0.261 (UNDP, 2020). Among the multidimensionally poor, the deprivation level was highest in the indicators of housing, electricity and cooking fuel (43% in each) (UNDP, 2020). See Table 1 for the country characteristics based on the MPI.

Table 1

The Country Characteristics based on the MPI

		Country[a]		
Dimension	**Indicator**	**Eswatini**	**Mali**	**Mauritania**
Multidimensional Poverty	Incidence of poverty (%)	19.2	73.0	50.6
	Intensity of poverty (%)	42.3	57.2	51.5
	The MPI	0.081	0.417	0.261
Health	Nutrition	11.4	43.8	26.7
	Child Mortality	2.9	17.0	4.9
Education	Years of Schooling	6.0	39.3	21.9
	School Attendance	2.7	56.8	29.9
Living Standards				
	Housing	8.8	60.9	43.3
	Electricity	15.6	52.2	43.2
	Cooking Fuel	17.8	72.7	43.2
	Drinking Water	12.9	33.9	31.2
	Sanitation	13.1	55.4	41.8
	Assets	5.6	5.7	16.0

Note. The MPI = Multidimensional Poverty Index. Ten multidimensional poverty indicators are showing the percentage of the population that is multidimensionally poor and deprived in the given indicator. Source: UNDP (2020).
a. Data collected 2014 in Eswatini and 2015 in Mali and Mauritania

5. DATA AND METHODS

In this chapter I will introduce the data, the main variables and the methodological choices used in this thesis. Accordingly, the philosophical foundation, study design, data management issues and ethical considerations, are discussed.

5.1 Philosophical Foundation

Philosophical assumptions do not often play a significant role in the research design, though becoming aware of these assumptions would give a deeper understanding of chosen approaches (Neuman, 2004). The main areas of research philosophy are epistemology, ontology and axiology. *Ontology*, the nature and structure of reality and being, is reflected in research in a way we see and define reality and also includes the question of whether reality is measurable (Rawnsley, 1998). In general, the ontological position of quantitative research relies on the assumption that there is only one objective reality that exists regardless of human perception (Sale et al., 2002). In turn, *epistemology* discusses the idea and nature of knowledge and can be defined as a nature of knowledge within reality (Souza-Posa & Siangchokyoo, 2012). The relationship between the researcher and the subject, the role of values in understanding phenomena, and finding the best methodological approach to the research topic are all part of the research epistemology. Epistemology also determines methodological choices and considers axiological ethics (Carter & Little, 2007). *Axiology* is the science of values and refers to what the researcher thinks is valuable and ethical (Killam 2013, p. 6). All these three assumptions vary in different research philosophies.

Research philosophy in social sciences is generally divided into positivist/post-positivist, interpretative and critical worldviews (Neuman, 2014). This thesis is based on a post-positivist philosophical approach, which balances both positivist and interpretivist approaches (Panhwar et al., 2017). According to a post-positivist ontology, reality exists and is measurable, but absolute truth does not exist, and reality can never be fully understood (Abu-Alhaija, 2019). Post-positivism explores measurable facts and focuses on understanding cause-effect relationships, and through them creates indicators for understanding the social world (Neuman, 2014). This study examines the relationship between different variables and seeks through them to explain the broader social phenomenon, the impact of multidimensional poverty on well-being. The axiology in post-positivist research is seen as value-free but, unlike positivism, post-positivism recognizes that for example hypotheses and the values of researchers might affect research results (Atkinson, 2017). However, in

the current study, data are analyzed as objectively as possible. The use of secondary data supports this endeavor.

5.2 Study Design

Based on the research questions, the most suitable methodology and methods for this study were chosen. Methodology is a contextual framework for research, and it includes the entire research process from context, philosophical assumptions and ethical principles to the justification of used methods (Neuman 2014, p. 2; Punch 2014, p. 15). Methods instead are techniques used to select cases, collect data and report on results (Neuman, 2014). Next, I will present the methodology and methods used in this study in more detail.

5.2.1 Methodology

This study is using a quantitative research approach. Quantitative research quantifies information and uses numerical data and variables to describe complexity of different phenomena (Yilmaz, 2013). There are many advantages for using a quantitative research approach: it enables precise focus and research questions to be set, allows a large number of respondents, decreases likelihood of study bias and ensures the objectivity of measurement and analysis (Mayoux, 2006). This study is cross-sectional, which means that the sample is collected in one time period, describing the characteristics of the population at that time (Neuman, 2014). Cross-sectional studies can be conducted relatively fast and inexpensively but one of the major weaknesses of using cross-sectional research is the difficulty to deduce causalities (Setia, 2016). Cross-sectional studies also generally select a sample from a large and heterogeneous study population, which makes them inclined to sampling bias (Wang & Cheng, 2020). These weaknesses are discussed in more detail in the data management section.

This study is using a correlational study design, which is a type of non-experimental research, designed to explore relationships between naturally occurring variables without being manipulated by the researcher (Punch, 2014) or influenced by any extraneous variables (Price et al., 2015). This can be ensured by using control variables in the data analysis.

5.2.2 Methods

This study is using secondary data analysis as a method. This means that the researcher has not collected data herself but uses already existing data. The use of secondary data has many advantages:

it is time-saving and cost-effective, and it enables the use of high quality datasets with large samples and good representativeness (Johnston, 2014). However, it also has some limitations. The most recognized limitation is that the data are originally collected for other purposes and do not necessarily provide the indispensable information to answer research questions (Johnston, 2014). This limitation was also encountered in the present study as the material was not initially collected to answer the research questions of this study. These limitations will be discussed further in the discussion chapter.

Primarily, data used in the present study are collected through face-to-face surveys, complemented by some anthropometric measurements, such as weight and height. In survey research the variables of interest are measured using self-reports, which means that respondents report directly on their own thoughts and feelings (Price et al., 2015). Data are collected by trained fieldwork teams using structured questionnaires on tablets (Khan & Hancioglu, 2019). Structured interviews ensure that the questions are asked the same way from each respondent. This is important for the comparability of the results. Data and questionnaires used in this study are presented below.

5.3 UNICEF Multiple Indicator Cluster Surveys (MICS)

The current study is using secondary data collected by the Multiple Indicator Cluster Surveys (MICS). The MICS program is developed by UNICEF and it is one of the largest household survey programs that is focusing on children, women and the most vulnerable and marginalized population groups, and it is also one of the major sources of data to measure indicators of the SDGs (UNICEF, 2020a). The used questionnaires cover a wide range of topics, such as fertility and mortality, contraceptive use and unmet need, maternal and newborn health, HIV/AIDS and sexual behavior, literacy and education, and child health and nutrition, among others (Khan & Hancioglu, 2019). The first survey round was conducted in 1995 and since then new rounds have been implemented every five years. By now surveys are carried out in more than 100 countries (UNICEF, 2020a). The surveys are cross-sectional, and they have been conducted so far in five rounds. Currently the programme is in the sixth and the largest round of surveys MICS6 (Khan & Hanciogly, 2019). This study is using data from the latest completed survey round, MICS5, which was implemented in 2012-2015. In the selected countries, data collection took place in 2014-2015. The data collection in Eswatini started in July 2014 and was finished by October 2014, in Mali the data collection started in July 2015 and was finished by October 2015, and in Mauritania data were collected between July and November in 2015.

5.3.1 Sampling and participants

MICS surveys are representative household surveys implemented by government institutions with technical and financial assistance from UNICEF (UNICEF, 2020a). Sample design is implemented by using a multi-stage, stratified cluster sampling approach. Stratification increases the efficiency of the sample design and ensures that the selected sample is covering areas and population properly, clusters instead are used to keep costs at a manageable level (United Nations, 2016). Sample selection in MICS is a multi-stage process and is described in the MICS5 manual in the following way: First, the sample size is estimated by using key indicators and their sample sizes from the previous MICS round. After determining the desired level of households, the number of households are selected per cluster based on a number of considerations, the budget available and the time needed to complete one cluster. Then the total number of households are divided by the number of sample households per cluster. This gives a number of sample clusters that need to be selected nationwide. The households were sequentially numbered from 1 to N and then the households were selected into each cluster from each enumeration area by using random systematic selection procedures. After the selection of the households, face-to-face interviews were conducted in the households which were occupied and the permission for the interviews were given. (UNICEF, n.d.)

In Eswatini 5 205 households were selected for the sample, 4981 of them were occupied and 4 865 of these were successfully interviewed, giving a household response rate of 98 percent (Eswatini Central Statistical Office, 2016). In Mali 12 460 households were selected for the sample, 11 856 of them were occupied and 11 830 successfully interviewed, giving a household response rate of 99.8 percent (Mali National Institute of Statistics, 2015). In Mauritania 11 947 households were selected for the sample, 11 845 were found to be occupied and 11 765 were successfully interviewed, giving a household response rate of 99.3 percent (Mauritania National Statistical Office, 2016). Based on the high response rates, it can be concluded that the samples of each country were representative.

5.3.2 Study Sample

Multiple Indicator Cluster Surveys are using four sets of questionnaires: 1) household questionnaire to collect basic demographic information on all households and household members, 2) a questionnaire for individual women aged 15-49 administered in each household, 3) a questionnaire for individual men aged 15-49 administered in every three households, and 4) an under-five questionnaire administered in each household to caretakers of children under five years old (UNICEF, 2020a). This study uses data from the household questionnaires, the individual questionnaires for

women aged 15-49 and the under-five questionnaires. The response rates for the questionnaires included in this thesis varied from 94.8 to 99.8 percent. This study is interested in the phenomenon of youth well-being and therefore only the people of the age range 15-24 were included in this study. Because previous studies suggest that women are in particular at risk of higher multidimensional poverty and lower subjective well-being in SSA, and also due to the challenges of merging women and men datasets, only women were included in the study. Women's questionnaires also contained significantly more data than men's questionnaires. After these exclusion criteria the sample size of women aged 15-24 was 14 813 in total. The sample of Mali included 7 266 participants, the sample of Mauritania 5 565 participants, and the sample of Eswatini 1 982 participants.

5.4 Study Variables

Study variables can be divided into independent and dependent variables. An Independent variable (also called a predictor variable) is usually seen as the cause in a cause-effect relationship, while a dependent variable (also called an outcome variable) is seen as the effect in a cause-effect relationship (Punch, 2014). In this thesis, the main independent variable (deprivation score) and the main dependent variable (subjective well-being) are compiled from other variables. All of these variables, as well as the sociodemographic variables – which are also used as control/stratification variables – are presented below.

5.4.1 Socio-demographic variables

This thesis includes five socio-demographic variables, which are also used as controlling and stratification variables in the data analysis, and based on the capability approach, described as conversion factors in the discussion chapter. The first socio-demographic variable of this study was age. The age range in the study sample ranged between 15 to 24 years and was originally represented as a continuous variable. For this study, respondents were divided into three age groups: 1= 15-17 years, 2= 18-20 years, and 3= 21-24 years old. Respondents were estimated to be about in similar life situations within their age group. The even distribution of age groups also strengthened the validity of the created categorical age variable. The second socio-demographic variable was a categorical country variable. In this variable, respondents were coded into three categories based on their country of residence. The created country variable had three categories: 1= Eswatini, 2= Mali and 3= Mauritania. The third socio-demographic was a categorical living area variable. Respondents were coded to live either in 0= urban or 1= rural living area based on their residential area. Urban living area is usually defined as a developed region surrounding a city, where most habitants have non-

agricultural jobs, whereas rural living areas are areas with low population density and large amounts of undeveloped land (Rutledge et al., 2011). The last two socio-demographic factors were dichotomous marital status (0= not married, 1=married) and parental status (0= have never had a child, 1= have ever had a child) variables.

5.4.2 Independent variables

The multidimensional poverty measure developed in this thesis included three dimensions: education, health and living standard. These dimensions in turn consisted of a total of ten indicators: years of schooling, nutrition, child mortality, family planning, housing, electricity, cooking fuel, drinking water, sanitation, and assets. Each of these items were coded with zero (0) if a woman was considered non-deprived and with one (1) if a woman was considered deprived in that variable. The deprivation score was calculated for each person by taking a weighted sum of the number of deprivations. These dimensions and indicators were mostly the same as used in the MPI, but a few differences can be found. First, the education dimension includes only the years of schooling indicator, not the school attendance indicator. This is because the school attendance indicator is exploring only school-aged children up to 8th class, and this study sample also includes older age groups. In addition, the years of schooling indicator already reflect the school attendance, since it measures the complement of primary education. Secondly, a new variable, unmet need for contraception, is included in the poverty measure. As discussed in the study area section, many young women are facing unmet need for contraception and it is therefore interesting to examine whether this has an impact on their well-being. Further, the existing health indicators (nutrition and child mortality) are measuring deprivations among women with children and a better measure of health was needed to measure deprivation in the total sample. Table 2 shows the dimensions and the basic functionings that independent study variables are measuring. Next, I will introduce these variables in more detail.

Table 2
Dimensions, Variables and Functionings of the Multidimensional Poverty Measure

DIMENSION	VARIABLE	FUNCTIONING
Education	Years of Schooling	Being educated
Health	Nutrition	Being well-nourished
	Unmet need	Being able to avoid unwanted pregnancy
	Child mortality	Being free from premature mortality
Living standard	Housing	Being adequately sheltered
	Electricity	Ability to use electricity
	Cooking Fuel	Cooking possibility and access to clean fuel
	Drinking water	Ability to use clean drinking water
	Sanitation	Access to private and improved sanitation
	Assets	Access to information, mobility and livelihood

Education dimension

Years of Schooling. In terms of the cutoff point used by this indicator, a person was considered deprived if she had not completed at least six years of schooling. This means that a woman had not completed at least primary education. The duration of primary education was defined based on the world average, although it varies from country to country. As in this study, the duration of primary education is seven years in Eswatini and six years in Mali and Mauritania (World Bank, 2020b). Even though years of schooling is an imperfect measure – also because it is not capturing the quality of education and the level of knowledge attained – it is a widely available indicator that provides the closest approximation to levels of education and other functionings that require education, such as literacy and understanding of information (Alkire & Santos, 2010).

Health dimension

Nutrition. The first health indicator considered a person deprived if any child under the age of five in the household was underweight, stunted or wasted according to the definition of the World Health Organization (WHO). The WHO defines children underweight if their weight-for-age, stunted if their height-for-age, and wasted if their weight-for-height is below minus 2 standard deviations from the median of the WHO Child Growth Standards (World Health Organization, 2010). In the present study, if the household did not have any child under the age of five, a woman was classified as non-deprived but if the household had children under the age of five, but did not give a permission for measurements, data were considered missing for women living in that household.

Unmet need. The second health indicator identified a person as deprived if a woman had unmet needs for contraception. This means that a woman was deprived if she did not want to get pregnant but was not using any contraception because of religious beliefs, side effects, expenses or because the partner refused to use contraception. A woman was also considered deprived if she did not want to get pregnant but was using traditional contraceptive methods, such as periodic abstinence (rhythm) or withdrawal. A woman was also defined as deprived if she was currently pregnant but did not want to get pregnant at that time.

Child Mortality. The third health indicator considered a person deprived if a woman had ever had a child who later died. If a woman had never had a child(ren) then she could not suffer from this deprivation and was thus classified as non-deprived in this indicator. Because the sample consisted

of relatively young women, this indicator was taken into account in the deprivation scores only for the oldest age group (21-24 years).

Living Standard dimension

Housing. In the housing indicator, a person was considered deprived if at least one of the housing materials (roof, floor or walls) were inadequate: the floor was of natural materials and/or the roof and/or the walls were rudimentary materials. Natural materials include for instance earth, sand, dung, palm leaves and sod, and rudimentary materials bamboo, cardboard, asbestos and plywood. See Appendix A for more detailed information. Housing conditions are directly connected to safety, mental health, sleeping quality and energy consumption, among others (Bonnefoy, 2007).

Electricity. In the electricity indicator, a woman was classified as deprived if the household she was living in did not have electricity. Electricity is essential for a number of activities: it allows lighting and people's independence during the night time, it enables a wide range of work and leisure activities and is also directly linked to the ability to communicate with other people (Alkire & Santos, 2010).

Cooking fuel. The third living standard indicator, cooking fuel, considered a person deprived if the household cooked with unclean cooking fuel or if no food was cooked in the household. Unclean cooking fuel includes the use of solid fuel, such as dung, wood, charcoal or coal. See Appendix A for more detailed information. Exposure to household air pollution (HAP) is associated with many diseases, including lung cancer and strokes, and up to 4 million deaths in each year are caused by traditional cooking methods (United Nations, 2018). The use of unclean cooking fuel is a particular risk for women in LMICs as they are often responsible for cooking (Isara & Aigbokhaode, 2014).

Drinking water. In the terms of the cutoff point used by the drinking water indicator, a person was considered deprived if the main source of drinking water was unimproved or safe drinking water source was at least a 30 minute walk from home, round trip. This indicator was defined by using the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) guidelines, which are also used to monitor the Sustainable Development Goal targets. Unimproved water sources included unprotected wells and springs, tanker-trucks and surface water. See Appendix A for more detailed information. According to UNICEF (2017), women and girls are responsible for water collection in 8 out of 10 households in LMICs and therefore limited drinking water services will have a strong gender impact.

Sanitation. A person was considered deprived in the sanitation indicator, if the toilet facility she used was unimproved or shared with other households. This indicator was also defined based on the JMP guidelines. According to these guidelines, improved sanitation facilities are those designed to hygienically separate excreta from human contact and therefore unimproved facilities include use of bucket latrines, hanging latrines and pit latrines without a slab or platform as well as disposal of human faeces in fields, bushes, forests, beaches, open bodies of water and other open spaces, or with solid waste (World Health Organization, 2017). See Appendix A for more detailed information. Studies have shown that the quality of the toilet facilities decreases with an increase in the number of households sharing and due to challenges of maintenance shared toilet facilities increase the risk of disease transmission – therefore shared toilet facilities were also classified as unimproved (Simiyu et al., 2017).

Assets. The final living standard indicator, assets, explored the ownership of assets related to information, mobility and livelihood. In this indicator, a person was considered deprived if the household did not own more than one of the following assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike or refrigerator and did not own a car or truck.

Deprivation Score

The main independent variable in this study, a deprivation score, reflects the number of deprivations in functionings a woman experiences at the same time. The lower score indicates that a woman has achieved more basic functionings. The score is a sum of the weighted deprivations in the poverty indicators listed above. The total score can range from 0 (not deprived in any of the indicators) to 1 (deprived in each of the indicators). Each dimension and each indicator within the dimension are weighed equally following the convention of HDI and previous MPI studies. Each indicator is taken into account for the oldest age group (21-24 years), but for the younger age groups (15-17 and 18-20 years) child mortality indicator is disregarded, giving them greater weight in the indicators of nutrition and unmet need for contraception. See Table 3 for variable weights by the age groups.

Table 3

The Weights of the Poverty Indicators by Age Group

			Weight of the indicator by age group		
Dimension	Weight	**Indicator**	**15-17**	**18-20**	**21-24**
Health	(1/3)	Nutrition	1/6	1/6	1/9
		Unmet Need	1/6	1/6	1/9
		Child Mortality	-	-	1/9
Education	(1/3)	Years of Schooling	1/3	1/3	1/3
Living Standards	(1/3)	Housing	1/18	1/18	1/18
		Electricity	1/18	1/18	1/18
		Cooking Fuel	1/18	1/18	1/18
		Drinking Water	1/18	1/18	1/18
		Sanitation	1/18	1/18	1/18
		Assets	1/18	1/18	1/18

5.4.3 Poverty assessment

The identification of multidimensionally poor and the evaluation of the poverty intensity followed the AF method presented in the literature review. First the poverty indicators and their deprivation cutoffs were chosen (presented earlier in this chapter). Also, the relative weights of the dimensions and indicators were decided. This study followed the similar weighting procedure that is used in the MPI, giving the equal weight for each of the dimensions. As a result, individual poverty indicators received different weights (presented in the table above), summing together to one. After this, the weighted sum of deprivations for each person (a deprivation score) was created. The deprivation score is used as the main dependent variable when the multidimensional poverty is evaluated at the individual level. However, I also wanted to explore the incidence and intensity of multidimensional poverty between the socio-demographic variables, and therefore also a multidimensional poverty index was calculated for each of these groups. After the creation of individual deprivation scores, the poverty cutoff (a deprivation score that a person needs to be considered multidimensionally poor) was determined. This study is using the same poverty cutoff than the MPI, considering a person poor if her sum of weighted deprivations was 33 percent or more (deprivation score .33 or higher). Next, the proportion of women who were considered multidimensionally poor in each of the socio-demographic variables was computed. This indicated the incidence of multidimensional poverty in that population. Then the average share of weighted indicators in which poor people were deprived

was computed. This informed us about the intensity of poverty the multidimensionally poor people experience in that sample. Finally, the MPI was calculated for each of the groups by multiplying the incidence and intensity of poverty in the chosen population.

5.4.4 Dependent variables

The objective of this study is to explore how multidimensional poverty (an independent variable) is correlated with subjective well-being (a dependent variable). Subjective well-being was measured through three well-being items: life satisfaction, happiness and optimism.

Life satisfaction. Life satisfaction was measured through the following question: "How satisfied are you with your life overall?". There were five possible responses for the question: 1= very satisfied, 2= somewhat satisfied, 3= neither satisfied nor unsatisfied, 4= somewhat unsatisfied and 5= very unsatisfied. This scale was reversed before the analysis and as a result higher satisfaction received higher scores. The MICS life satisfaction questionnaire includes originally a total of nine separate questions but only one item, the overall life satisfaction, was included into this study. Previous studies have shown that the single-item measures of life satisfaction are equally valid and strongly associated with the multi-item scales (e.g. Jovanović & Lazić, 2020).

Happiness. Happiness was assessed through one question: "Taking all the things together, would you say you are very happy, somewhat happy, neither happy nor unhappy, somewhat unhappy or very unhappy?". These answers were coded into a 5 point rating scale where higher scores meant greater happiness. Nor-Azzatunnisak et al. (2017) reviewed previous studies and instruments used to measure happiness and found that the single-item scales gave as relevant results as the use of multi-item scales when measuring happiness.

Optimism. Optimism was captured by the question "In one year from now, do you expect that your life will be better, will be more or less the same, or will be worse, overall?". For analysis, the answer options were coded into a three-item scale, then again to a five-item scale to facilitate comparability with the life satisfaction and happiness scores.

Subjective Well-Being

Subjective well-being measure is the main dependent variable of this study. It was created by combining the scores of life satisfaction, happiness and optimism, and dividing it by three. The total scores ranged between 1 and 5, higher score indicating higher subjective well-being.

5.5 Data analysis

Statistical analyses were performed using the IBM SPSS Statistics version 25. At first, after ensuring that the main variables were coded consistently in each of the datafiles, all the needed datafiles (the household, the individual women aged 15-49 and the children under-five datafiles) from each country were merged together by using the key variables. Next, the merged datafile was cleaned and only the relevant variables for the study were included in the final data file. In addition, women outside the age range of the interest (15-24) were excluded from the data file. Further, each of the indicators were screened for possible errors (values falling outside the possible ranges) and codes such as "inconsistent" or "do not know" were coded as missing values. After ensuring the correctness of each indicator, the main study variables were created as described above. The creation of poverty indicators required the combination of several different indicators. The unit of the analysis was an individual, even though some of the poverty indicators were based on data from the household surveys.

For the preliminary analyses, data were inspected for missing values, normality and outliers. Also, the total scores for multidimensional poverty and subjective well-being were calculated, and the new scales were subsequently assessed for reliability. The subjective well-being scale was reversed so that a higher value indicated greater well-being. The procedures with the missing data depended on the definition of the variable, as stated in the introduction of the study variables (for instance in which case the response was classified as missing instead of non-deprived). Analyses were run excluding cases pairwise with no replacement for missing data. This excluded a person only if she was missing the data required for the specific analysis (Pallant, 2016). Normality of the distribution of the continuous independent and dependent variables was assessed by obtaining skewness and kurtosis values as well as exploring the histograms, normality plots, outliers and Kolmogorov-Smirnov statistics. Normality analyses revealed some violation of the assumption of normality, especially in the three subjective well-being variables (life satisfaction, happiness, optimism). However, more normal distribution was detected when the normality of the total subjective well-being variable was explored. In any case, the normality assessments were taken into account in the selection of analytical tests for the main analysis. A statistical significance level of .05 was used for each statistical analysis. The main analyses of this study were run in the following steps:

1) *Basic descriptive statistics* were run for all variables, including frequencies and percentages for all variables and also means, ranges (minimum and maximum values), standard deviations, skewness

and kurtosis for continuous variables. Further, the incidence and intensity of multidimensional poverty, as well as the MPI values, among the socio-demographic groups were calculated using the AF-method presented earlier.

2) *Bivariate* correlations between the socio-demographic variables, the main independent variable, and the dependent variables were explored using Spearman's Rank Order Correlation (rho). The non-parametric measure was used because the preliminary analysis revealed violation of the assumptions of normality, linearity and homoscedasticity. In addition, the differences between the socio-demographic variables, the main independent variable and the dependent variables were investigated using independent samples t-tests (for dichotomous variables) and one-way between-group ANOVAs (for categorical variables). In the correlation coefficients, the strength of the relationship between two variables was interpreted using the following guidelines: r =.10 to .29 small, r = .30 to .49 medium, and r = .50 to 1.0 large (Cohen, 1988, p. 79-81). For the t-tests and ANOVAs, eta squared was used to measure effect size and the values were interpreted using the following guidelines: .01 = small effect, .06 moderate effect and .14 = large effect (Cohen 1988, p. 284-7).

3) *Hierarchical multiple regression* was used to explore the ability of deprivation score to predict the levels of subjective well-being, after controlling for socio-demographic factors. Multiple regression provides information about the model as a whole, as well as the relative contribution of each of the variables that are included in the model (Krasikova et al., 2011). The variables were entered in the model in steps to see how much of the variance different socio-demographic variables (or conversion factors) added to the model (examined through the R square changed -values), after controlling for others and to eventually explore how much the deprivation score predicted the levels of well-being after controlling for all these socio-demographic factors. Age (a personal conversion factor) was entered in the model at Step 1, marital and parental status (social conversion factors) at Step 2, living area and country (environmental conversion factors) at Step 3, and finally the deprivation score at Step 4. The model as a whole and each contribution of each of the variables to the final equation (by exploring standardized beta coefficients) were evaluated. To examine the predictors of subjective well-being at the country level, three additional regression models were conducted after using country as a stratification variable. In these models, age was entered at Step 1, marital and parental status at Step 2, living area at Step 3 and the deprivation score at Step 4. Despite the use of the term ´predict´, these models explored only correlations and due to the cross-sectional nature of the data no causal inferences could be deduced.

5.6 Data quality assurance

MICS Programme seeks to ensure the data quality in several ways: interviewers are extensively trained prior to fieldwork, supervisors of the interviewer teams revisit households for quality control, data quality is checked weekly, enabling responsive actions if data quality deficiencies are identified and countries are required to produce a set of data-quality tables, which give information of how well the survey performed[7] (Khan & Hancioglu, 2019). This suggests that the MICS data are of high quality. However, this thesis is based on the measures for which the original surveys were not designed and therefore additional assessments of the reliability, validity and generalizability of this study is provided.

5.6.1 Reliability

Reliability refers to a consistency of the study measures and can be evaluated through *internal consistency* (all the items in a scale are measuring the same construct), *stability* (consistency from one testing occasion to another) *and equivalence* (consistency among responses of multiple users of an instrument) (Heale & Twycross, 2015). Due to scale adaptations and the cross-sectional nature of this study, only internal consistency could be evaluated. One way to assess internal consistency is to calculate Cronbach's alpha (α) scores for the study measures. In this thesis, the Cronbach alpha coefficient was .55 for the subjective well-being scale and .63 for the multidimensional poverty scale, indicating that the both scales had moderate internal consistency, which is somewhat lower than is usually required (> .70) (Tavakol & Dennik, 2011). However, according to the review of Taber (2017), these values are still at an acceptable level. The mean inter-item correlation for the subjective well-being scale was .29, with values ranging from .14 to .53. The quite low internal consistency result was likely due to a weak correlation of optimism with life satisfaction and happiness. Also, the use of a scale with only a small number of items usually results in low Cronbach's alpha values (Sijtsma, 2009). For the multidimensional poverty scale, the mean inter-item correlation was .34, with values ranging from .029 to .788. However, the used poverty measure was not unidimensional but included three different dimensions, which had an impact on Cronbach's alpha value. Some reliability measures for multidimensional scales exist (see Widhiarso, 2010), but because the education dimension included only one item, these measures could not be used in this study. Closer examination showed that the internal consistency was high between the living standard indicators but very low between the health indicators. These weaknesses of the MPI have been recognized in previous studies

[7] Data quality tables can be found from the appendices of the country reports: https://mics.unicef.org/surveys

(e.g. Nájera & Gordon, 2020). However, it has been pointed out that poverty is a multidimensional phenomenon and Cronbach's alpha is not adequate to evaluate the reliability of a set of variables of a multidimensional scale since it assumes that unidimensionality exists among the scale items (Kamata et al., 2003; Widhiarso, 2010; Tavakol & Dennik, 2011). Further, in spite of its limitations, the MPI includes dimensions that have become widely accepted (e.g. in the HDI) and can thus be estimated to reflect reliability at some level (Santos & Villatoro, 2020). According to Dotter and Klasen (2017), the data used to calculate multidimensional global poverty are somewhat more reliable than the data used to measure income poverty, where the comparability of survey tools across countries and over time is much less certain.

5.6.2 Validity

Validity of the research refers to a degree to which the study scales measures what they are supposed to measure (Roberts & Priest, 2006), and it can be evaluated through *content validity* (whether research instruments measure accurately all aspects of a construct), *construct validity* (whether research instruments measure the intended construct) and *criterion validity* (whether research instruments are related to other instruments that are measuring the same variables) (Heale & Twycross, 2015). Construct validity can be assessed by using factor analysis. Principal Component Analysis (PCA) was used to explore the dimensions of the study scales and it suggested one component for the subjective well-being measure and three components for the multidimensional poverty measure, which was expected due to multidimensionality of the measure. However, I decided to use all these components as one instead for keeping the results comparable to previous studies. The items of the multidimensional poverty scale were also positively correlated, which indicates that they were measuring the same phenomenon at least at some level. Validity of this study is additionally ensured by having appropriate methods for poverty and well-being measures and by using appropriate sample size and sampling methods (Abowitz & Toole, 2010). The MPI is one of the most widely used measures for multidimensional poverty, which can be considered partly as a factor supporting the validity of the measure.

5.6.3 Generalizability

Generalizability refers to the inferences that can be made about the findings and their applicability to the larger population (Duff, 2006). This thesis had a large sample size and it was collected systematically from the heterogeneous population. Also, the response rate was high. Therefore it can

be concluded that the sample of this study is representative for young women aged 15-24 in Eswatini, Mali and Mauritania. The data used in the present study provides valuable and representative information about multidimensional poverty and subjective well-being of young women in the chosen countries.

5.7 Ethical considerations

Ethical principles must be taken into account in every research design. Prudence is needed especially if the topic is sensitive or might cause some harm to the participants (McCosker et al., 2001). Participants' anonymity must be protected, and they should be comprehensively informed about the content and the purpose of the study (Ross et al., 2018). Even though this research was dealing with the sensitive topics (poverty and well-being), there were no ethical dilemmas or need of additional approval, because the secondary data were used. The used data were open-access, anonymized and available online. In addition, the ethical principles had been taken into account in the primary data collection. The UNICEF (2015, pp. 40) has published ethical standards and guidelines for MICS research and has created minimal standards for the conduct of ethical research: *"the right to privacy, the need for informed consent and responsibilities that arise when potential health problems are uncovered are several of the key issues that were identified in MICS1 and that, to this day, are implemented in the surveys".* According to UNICEF (2015a), all participants were clearly informed of the objectives and content of the survey and they gave informed consent prior to participating in the interviews. In addition, information provided in the interviews was always confidential and data files did not include names or other identifiable information of participants. Interviewers were also not allowed to discuss interview results with each other. Ethical clearance had been obtained by UNICEF and its implementing partners within countries by the time of the surveys' implementation.

6. RESULTS

This chapter presents the results of the univariate, bivariate and linear regression analysis. First, descriptive statistics are presented, including frequencies of the independent and the dependent variables. This is followed by the results of bivariate analyses, which explore the correlations between the main study variables and differences in main study variables depending on socio-demographic groups. Finally, the results of the hierarchical multiple regression are presented.

6.1 Univariate Analysis

Descriptive statistics were conducted to provide an overview of the study sample and the main study variables. First, descriptive characteristics of the sample are presented for the total samples, as well as by socio-demographic variables. Next, the frequencies of each of the variables that compose the main independent variable – the deprivation score – (also differentiated by sociodemographic variables) are presented. This is followed by an assessment of the incidence and intensity of multidimensional poverty and the calculation of the multidimensional poverty index by socio-demographic variables. Finally, the descriptive statistics of the continuous dependent variables with frequencies, means, standard deviations and ranges are shown.

6.1.1 Descriptive socio-demographic characteristics of the sample

The final study sample consisted of 14773 respondents. Almost half of the respondents, 48.9 percent (n = 7226), were from Mali, 37.7 percent (n = 5565) from Mauritania, and 13.4 percent (n = 1982) from Eswatini. Over 60 percent (n = 9368, 63.4%) of the sample lived in rural areas, and 36.6 percent (n = 5405) in urban areas. At the country level, some urban rural distribution differences were observed. In Eswatini the majority (n = 1621, 81.8%), in Mali almost 70 percent (n = 4995, 69.1%), and in Mauritania around half (n = 2752, 49.5%) of respondents lived in rural areas. The mean age of the sample was 19.2 years (SD = 2.82) with the distribution of the women ranging from 15 to 24 years old. For later analysis, the sample was divided into three age groups: 15-17, 18-20 and 21-24 years. The age groups were almost evenly distributed: 32.8 percent (n = 4850) of the sample were 15-17 years old, 33.7 percent (n = 4973) 18-20 years old, and 33.5 percent (n = 4950) 21-24 years old. Over 40 percent of the respondents were married (n = 6062, 41%) and correspondingly, more than 40 percent (n = 5918, 40.1%) had ever had a child. The percentage of married women was highest in Mali, where over 50 percent (n = 3854, 53.3%) of women were currently married. In Mauritania the

corresponding figure was 36.9 percent (n = 2056) and in Eswatini 7.7 percent (n = 152). The marriage rate was higher in rural living areas (48%, n = 4496) than in urban living areas (29%, n = 1566). The marriage rate increased with age and was higher among the women with children (77.9%, n = 4613) compared to the childless women (16.4%, n = 1449). Almost half of the women living in Mali (48.3%, n = 3490) had children whereas in Eswatini the percent was 35.6 (n = 705) and in Mauritania 31 (n = 1723). The proportion of women with children was higher in rural living areas (46.3%, n = 4337) than in urban living areas (29.3%, n = 1581) and the proportion of women with children increased with age: in the youngest age group 11 percent of women had children whereas amongst the oldest age group 66 percent reported to have children. See Appendix B for a table of descriptive statistics of socio-demographic variables in the total sample.

6.1.2 Independent variables

The main measure of multidimensional poverty in the current study is a deprivation score, which describes the intensity of the deprivation in ten basic functionings. Next, I will present descriptive statistics of these variables to describe the shortcomings in the basic functionings and their role in the overall measure of poverty.

Education

More than a third (n = 5227, 35.4%) of respondents were deprived in education, meaning they had completed less than six years of schooling. The highest level of deprivation was in Mali, where over half of the respondents (n = 3878, 53.7%) were deprived in education. In contrast, the deprivation level was 24.1 percent (n = 1340) in Mauritania, and only 0.5 percent (n = 9) in Eswatini. Respondents living in rural areas were more deprived in this indicator: over 40 percent (n = 4206, 44.9%) had completed less than six years of schooling, while the level of deprivation in urban areas was 18.9 percent (n = 1021). By age, the deprivation level was comparatively higher in the age groups 21-24 (n = 1915, 38.7%) and 18-20 (n = 1908, 38.4%), compared with the youngest age group of 15-17 (n = 1404, 28.9%). Also respondents who were married (n = 3313, 54.7%) or had ever had a child (n = 2884, 48.7%) were more deprived in education compared to unmarried (n = 1914, 22%) and childless (n = 2343, 26.5%) ones.

Health

Almost one-fifth of respondents (n = 2843, 19.5%) were deprived in the nutrition indicator, meaning that in the same household, there was a child under the age of five who was underweight, stunted or wasted. Mali had the highest level of deprivation with 26.5 percent (n = 1889), while in Mauritania 14.1 percent (n = 774), and in Eswatini 9.1 percent (n = 179) of respondents were defined as deprived in this indicator. Rural areas suffered more from malnutrition: 24.2 percent of respondents (n = 2229) living in rural areas were deprived in the nutrition indicator, while the percentage of those living in urban areas was less than half of that (n = 613, 11.5%). Deprivation level was highest among the oldest age group, where a quarter of respondents (n = 1171, 24.1%) were deprived. Over twenty percent of respondents aged 18 to 20 (n = 1009, 20.6%), and over ten percent of respondents aged 15 to 17 (n = 662, 13.8%) were deprived in this indicator. Married respondents (n = 1786, 29.5%) and parents (n = 1888, 31.9%) also reported higher deprivation levels than unmarried (n = 1056, 12.1%) and childless (n = 954, 10.8%) counterparts.

Less than three percent (n = 429, 2.9%) of respondents had an unmet need for contraception, meaning they wished to avoid pregnancy but were not using any contraception, were using traditional methods, or were pregnant but did not want to get pregnant at that time. The highest deprivation level was in Eswatini, where 6.4 percent (n =127) of respondents had an unmet need for contraception. In Mali the number was 2.4 percent (n = 177), and in Mauritania 2.2 percent (n = 125). Respondents living in rural areas were also more deprived in this indicator: 3.5 percent (n = 327) faced an unmet need for contraception, whereas only 1.9 percent of respondents (n = 102) living in urban areas faced an unmet need. The oldest age group had a higher deprivation level (n = 207, 4.2%) than the age group of 18-20 (n = 151, 3%), or 15-17 (n = 71, 1.5%). Respondents who were married (n = 273, 4.5%) or had ever had a child (n = 282, 4.8%) reported higher deprivation levels than unmarried (n = 156, 1.8%) and childless (n =147, 1.7%) respondents.

Less than five percent of the sample was deprived in the child mortality indicator. In total, 4.8 percent of respondents (n = 703) had ever had a child who later died. The deprivation level was highest in Mali (n = 487, 6.7%) and lowest in Eswatini (n = 41, 2.1%). In Mauritania 175 respondents (3.1%) were deprived in this indicator. Child mortality was higher in rural areas, where 6.2 percent (n = 579) of respondents had experienced the death of their own child. By contrast, the deprivation level was 2.3 percent (n = 124) in urban living areas. Understandably, the highest deprivation level was among the oldest (n = 419, 8.5%). Only 0.9 percent (n = 42) of the respondents aged 15-17, and 4.9 percent

(n = 242) of the respondents aged 18-20 were deprived in this indicator. In addition, deprivation levels were higher among the married respondents (n = 615, 10.1%) compared to unmarried ones (n = 88, 1%)

Living Standards

Almost 60 percent of respondents (n = 8548, 57.9%) lived in a household where the roof, floors or walls were built of inadequate materials. The highest deprivation level was in Mali, where 69.3 percent (n = 5005) of respondents lived in poor housing conditions. In Mauritania, the corresponding figure was 57.1 percent (n = 3178), and in Eswatini 18.4 percent (n = 365). The deprivation level was higher in rural areas (n = 6948, 74.2%) than in urban areas (n = 1600, 29.6%). The age groups were almost evenly deprived in this indicator: 57.5 percent (n = 2789) of women aged 15 to 17, 59.6 percent (n = 2963) of women aged 18 to 20, and 56.5 percent (n = 2796) of women aged 21 to 24 lived in inadequate housing conditions. However, respondents who were married (n = 4397, 72.5%) or who had ever had a child (n = 3937, 66.5%) reported higher deprivation levels in the housing indicator than unmarried (n = 4151, 47.7%) and childless (n = 4611, 52.1%) respondents.

Half of the respondents (n = 7671, 51.9%) lived in a household with no electricity. In Mauritania 57.2 percent (n = 3283), in Mali 50.8 percent (n = 3671), and in Eswatini 41.3 percent (n = 818) of respondents lived without electricity. The deprivation level was higher in rural areas, where 71.8 percent (n = 6727) lived in a household with no electricity. In contrast, in urban areas, 17.5 percent (n = 944) of respondents had no electricity in their household. Among the respondents between the ages of 18 and 20, 53.6 percent (n = 2668) lived in a household with no electricity, while the deprivation level among the respondents aged 15-17 was 52.2 percent (n = 2533), and 49.9 percent (n = 2470) for respondents aged 21-24. Married respondents (n = 3671, 60.6%) and respondents with children (n = 3472, 58.7%) lived more often without electricity than unmarried (n = 4000, 45.9%) and childless (n = 4199, 47.4%) respondents.

The majority of the respondents (n = 11649, 78.9%) used unclean cooking fuel, like dung, charcoal or wood. Almost every respondent from Mali (n = 7161, 99.1%) was deprived in this indicator. In Eswatini 71.2 percent (n = 1412), and in Mauritania 55.3 percent (n = 3076) used unclean fuel for cooking. The use of unclean cooking fuel was more common in rural areas (n = 8480, 90.5%) than in urban areas (n = 3169, 58.6%). Over 80 percent of respondents aged 15 to 17 (n = 3924, 80.9%) and 18 to 20 (n = 3984, 80.1%) used unclean cooking fuel. Among the oldest age group, the deprivation

level was 75.6 percent (n = 3741). Married respondents (n = 5224, 86.2%) and respondents who had or had ever had a child (n = 5038, 85.1%) cooked more often with unclean cooking fuel than their unmarried (n = 6425, 73.8%) and childless (n = 6611, 74.7%) counterparts.

Over one-third of the respondents (n = 5248, 35.6%) lived in a household where the sanitation facility was not improved, or it was shared with other households. Over 40 percent of respondents in Eswatini (n = 834, 42.1%) and Mauritania (n = 2329, 41.9%) were deprived according to this indicator. In Mali 28.9 percent of respondents (n = 2085) did not have access to improved toilet facilities. In rural living areas the deprivation level was a bit higher (n = 3859, 41.2%) than in urban living areas (n = 1389, 25.7%). There were no big differences between the age groups: 35.8 percent (n = 1734) of women aged 15-17, 34.9 percent (n = 1735) of women aged 18-20, and 36 percent (n = 1779) of women aged 21-24 did not have access to improved toilet facilities. Deprivation levels in sanitation were almost the same between the married (n = 2229, 36.8%) and unmarried (n = 3019, 34.7%) respondents as well as between the respondents with (n = 2233, 37.7%) and without (n = 3015, 34%) children.

Almost 40 percent of the respondents (n = 5834, 39.5%) were deprived according to the drinking water indicator, meaning that their main source of drinking water was unimproved, or a safe drinking water source was at least a 30-minute walk from home, round trip. The deprivation level was 41.7 percent (n = 826) in Eswatini, 35.6 percent (n = 2575) in Mali, and 43.7 percent (n = 2433) in Mauritania. In rural living areas over half of the respondents (n = 4693, 50.1%) were deprived, whereas the deprivation level in urban living areas was around 20 percent (n = 1141, 21.1%). Over 40 percent of participants aged 15-17 (n = 1939, 40%) and 18-20 (n = 2004, 40.3%) did not have access to safe drinking water or the safe water sources were relatively far from home. The deprivation level was a bit lower for the oldest age group (n = 1891, 38.2%). Married respondents (n = 2654, 43.8%) and respondents who had children (n = 2536, 42.9%) were slightly more deprived in this indicator than unmarried (n = 3180, 36.5%) and childless (n = 3298, 37.2%) ones.

Over ten percent of the respondents (n = 1905, 12.9%) were deprived according to the assets indicator, meaning that their household did not own a car or a truck, or more than one of the listed assets. The deprivation level was higher in Eswatini (n = 398, 20.1%) and Mauritania (n = 1043, 18.7%) than in Mali (n = 464, 6.4%). Also, respondents living in rural areas reported more deprivation (n = 1561, 16.7%) than respondents living in urban areas (n = 344, 6.4%). There were no differences between the age groups: 12.8 percent (n = 621) of respondents aged 15 to 17, 12.9 percent (n = 641) of respondents aged 18 to 20, and 13% (n = 643) of respondents aged 21 to 24 were defined as deprived

according to this indicator. Also, married (n = 747, 12.3%) and unmarried (n = 1158, 13.3%), as well as childless respondents (n = 1084, 12.2%) and respondents who had or had ever had a child (n = 821, 13.9%) reported almost similar deprivation levels.

Table 4 shows the proportion of individuals deprived in the independent variables listed above by living area. See Appendix C for the deprivation levels of the variables depending on country, age group, and marital and parental status.

Table 4

Descriptive Statistics of Respondents Deprivation Level Depending on Living Area

	Living area			Missing	
	Urban	Rural	Total	n	(%)
Education					
Years of Schooling	18.9	44.9	35.4		
Health					
Nutrition	11.5	24.2	19.5	206	(1.4)
Unmet Need	1.9	3.5	2.9		
Child Mortality	2.3	6.2	4.8		
Standard of Living					
Housing	29.6	74.2	57.9		
Electricity	17.5	71.8	51.9		
Cooking Fuel	58.6	90.5	78.9	1	(0.0)
Drinking water	21.1	50.1	39.5		
Sanitation	25.7	41.2	35.6	14	(0.1)
Assets	6.4	16.7	12.9	3	(0.0)

Deprivation Score

The main poverty measure, the deprivation score, was calculated for each respondent by summarizing their weighted deprivations in the independent variables described above and listed in Table 4. The deprivation score can range from 0 to 1, and higher deprivation score indicates that a respondent is deprived of a larger number of independent variables. In this sample, the total deprivation score ranged from 0 to .94 with the mean of .30 (SD = .23). In Eswatini the deprivation score ranged from 0 to .77 with the mean score of .15 (SD = .12), in Mali the range varied from 0 to .94 with the mean score of .38 (SD = .23), and in Mauritania the score ranged between 0 and .94 with the mean score of .26 (SD = .21). The mean deprivation score for respondents living in urban areas was .17 (SD = .17) with the range between 0 and .83. In contrast, the mean deprivation score for respondents living in rural areas was .38 (SD = .22) with the range between 0 and .94. Among the respondents aged 15-17,

the deprivation score ranged from 0 to .88 with the mean of .27 (SD = .21). The respondents aged 18-20 and 21-24 had the same results. Their mean deprivation score was .32 (SD = .23) and it ranged from 0 to .94. The deprivation score ranged between 0 and .94 with the mean of .41 (SD = .23) among the married and between 0 and .86 with the mean of .23 (SD = .20) among the unmarried respondents. The mean deprivation score for respondents who were parents was .39 (SD = .23) with the range between 0 and .94, while the mean deprivation score for childless respondents was .17 (SD = .21) with the range between 0 and .89.

6.1.3 Assessing multidimensional poverty

To answer the first research question, I explored the incidence of multidimensionally poor people (using the 33% cut-off) and the intensity of poverty across the socio-demographic variables. Further, I conducted multidimensional poverty indexes for all the socio-demographic groups based on the calculation process introduced at the literature review.

In the total study sample, 43 percent of the respondents were classified as multidimensionally poor, using the poverty cutoff of 33%. This means that they were deprived at least in all the indicators of a single dimension or in different combinations across dimensions, exceeding the deprivation score of .33. The highest incidences of poverty were among the married women (63.2%), women living in Mali (58.7%), women with children (58.6%), and women living in rural areas (54.8%). The incidence of poverty was lowest in Eswatini (9.9%), urban living areas (21.8%) and among the unmarried women (28.5%). Ones who were identified as multidimensionally poor, were deprived on average 54 percent of the weighted poverty indicators. The highest intensity of deprivation was among married women (55.8%), women with children (55.7%), and women living in Mali (55.7%), and lowest among women living in Eswatini (39.4%) and urban living areas (46.2%). The MPI, combining the poverty incidence and intensity, was highest among married women (0.353) and lowest among women living in Eswatini (0.039). Table 5 shows the incidence and intensity of multidimensional poverty amongst the socio-demographic variables, as well as the calculated Multidimensional Poverty Indexes.

Table 5

Poverty Incidence, Intensity and the Multidimensional Poverty Indexes among the Socio-demographic Characteristics

Socio-demographic Characteristic	*H* (Incidence) k ≥ 33.3%	*A* (Intensity)	MPI (*H* x *A*)	**N**
Country				
Eswatini	0.099	0.394	0.039	196
Mali	0.587	0.557	0.327	4241
Mauritania	0.337	0.513	0.173	1876
Living Area				
Urban	0.218	0.462	0.101	1176
Rural	0.548	0.556	0.305	5137
Age Group				
15-17	0.362	0.522	0.189	1758
18-20	0.462	0.544	0.251	2300
21-24	0.456	0.546	0.249	2255
Marital Status				
Married	0.632	0.558	0.353	3832
Not married	0.285	0.508	0.145	2481
Parental Status				
Children	0.586	0.557	0.326	3469
No Children	0.321	0.516	0.166	2844
Total Sample	**0.427**	**0.539**	**0.230**	**6313**

Note. MPI = Multidimensional Poverty Index, k = poverty cutoff.

6.1.4 Dependent variables

The main dependent variable of this study was the subjective well-being measure, which consisted of the items of life satisfaction, happiness and optimism. Descriptive statistics of these dimensions and the final subjective well-being variable are presented below.

Life Satisfaction

Respondents were mainly satisfied with their life overall. Over half of the respondents (n = 2537, 52.3%) answered that they were very satisfied with life overall. Also, 35.8 percent (n = 1735) of respondents were somewhat satisfied, and 8.9 percent (n = 40) neither satisfied nor unsatisfied. Only 1.9 percent (n = 92) of respondents were somewhat unsatisfied and 0.9% (n = 42) very unsatisfied with their life. Life satisfaction measure was coded into numerical data, and based on that, life satisfaction scores were calculated for each respondent. Life satisfaction scores ranged from 1 to 5,

where higher scores indicated higher life satisfaction. The mean score of life satisfaction for the total sample was 4.33 (SD = .81).

Happiness

Over half of the respondents (n = 7993, 54.1%) considered themselves to be very happy, 34.2 percent (n = 5054) happy, 8.7 percent (n =1290) neither happy nor unhappy, 1.9 percent somewhat unhappy, and 0.8 percent (n = 113) very unhappy. Created happiness score ranged from 1 to 5 with a mean score of 4.39 (SD = .79).

Optimism

Over 85 percent of respondents (n = 12626, 85.5%) were optimistic about the future and expected their life to be better in a year. Over ten percent (n = 1709, 11.6%) expected their life to be more or less the same in a year, and just a minority (n = 129, 0.9%) expected their life to be worse in a year. Created optimism score ranged from 1 to 5 and the mean score of the total sample was 4.73 (SD = .74).

Subjective Well-Being

Total subjective well-being scores were calculated by combining the scores of life satisfaction, happiness and optimism, and dividing them by three. Subjective well-being scores ranged from 1 to 5 with a mean score of 4.48 (SD = .57). See Table 6 for descriptive statistics of the continuous variables, including the dependent variables listed above.

Table 6

Descriptive Statistics of Continuous Variables

		Missing				Standard	Skewness		Kurtosis	
	N	N (%)	Min	Max	Mean	Deviation	Statistic	S.E.	Statistic	S.E.
Age	14773	0	15	24	19.18	2.815	.13	0.02	-1.15	0.04
Life Satisfaction	14725	48 (0.3)	1	5	4.33	.806	-1.34	0.02	2.13	0.04
Happiness	14729	44 (0.3)	1	5	4.39	.787	-1.43	0.02	2.34	0.04
Optimism	14464	309 (2.1)	1	5	4.73	.736	-2.65	0.02	6.49	0.04
SWB	14439	334 (2.3)	1	5	4.48	.565	-1.27	0.02	1.92	0.04
Deprivation score	14773	0	0	1	0.30	.228	.44	0.02	-1.06	0.04

Note. SWB = Subjective Well-Being

6.2 Bivariate Analysis

Bivariate analyses were conducted to explore correlations between the main study variables and the differences between the socio-demographic groups. Correlations between the study variables were studied by using Spearman Rank Order correlation (rho). After this, independent sample t-tests were used to explore differences between the living areas, marital and parental status, and one-way between group analyses of variance (ANOVA) to explore differences between the countries and age groups. The bivariate analyses were performed to obtain an answer to the second research question and to find out how to proceed with further analyses.

6.2.1 Spearman Rank Order Correlation

Preliminary analyses revealed violation of the assumptions of normality, linearity and homoscedasticity, and therefore relationships between the main study variables were investigated using Spearman Rank Order Correlation (rho) instead of Pearson's product-moment correlation coefficient. Preliminary analysis contained all independent variables (see Appendix D.1), but for the main analysis, only the deprivation score was included. Further, all the dependent variables were included in order to assess the relationship of individual well-being indicators to the overall subjective well-being measure. Table 7 reports Spearman rho between the main independent and all the dependent study variables. See also Appendix D.2 for the correlations between the socio-demographic variables and the main study variables.

Table 7

Spearman Rank Order Correlation (rho) Between the Main Variables

	1	2	3	4	5
(1) Subjective Well-Being	1				
(2) Happiness	.80**	1			
(3) Life Satisfaction	.82**	.59**	1		
(4) Optimism	.50**	.14**	.17**	1	
(5) Deprivation Score	-.14**	-.08**	-.15**	-.10**	1

Note: ** = correlation is significant at the 0.01 level (2-tailed)

The measure of subjective well-being was formed from the scores of life satisfaction, happiness and optimism, and therefore these variables were understandably correlated with subjective well-being. Subjective well-being had a strong (r >.50), positive correlation with life satisfaction (r = .82, p <

.01), happiness ($r = .80$, $p < .01$) and optimism ($r = .50$, $p < .01$), meaning higher levels of life satisfaction, happiness and optimism associated with higher levels of subjective well-being. Subjective well-being was almost similarly associated with life satisfaction, happiness and optimism between the background variables. The only difference was in Eswatini, where optimism had only a medium positive correlation ($r = .36$, $p < .01$) with subjective well-being. See Appendix D.3 for more information.

There was a strong, positive correlation between happiness and life satisfaction ($r =.59$, $p < .01$). Happiness also had a medium positive correlation with optimism ($r = .14$, $p < .01$). Life satisfaction and optimism also had a medium positive correlation ($r = .17$, $p < .01$). These correlations were almost the same between the background variables. Eswatini was an exception here as well. In Eswatini, happiness had only a medium positive correlation with life satisfaction ($r = .31$, $p < .01$), and did not have a significant correlation with optimism ($r = .03$). Life satisfaction scores also did not correlate with optimism scores in Eswatini ($r = .02$).

The deprivation score had a small, negative correlation with subjective well-being ($r = -.14$, $p < .01$), life satisfaction ($r = -.15$, $p < .01$) and optimism ($r = -.10$, $p < .01$), meaning that lower deprivation score was associated with higher level of subjective well-being, life satisfaction and optimism. It also had a weak, but not significant, negative correlation with happiness ($r = -.08$, $p < .01$). The deprivation score was more strongly associated with subjective well-being in urban living areas ($r = -.22$, $p < .01$) than in rural living areas ($r = -.09$, $p < .01$). In urban living areas, deprivation score had also stronger negative correlations with happiness (urban: $r = -.17$, $p < .01$, rural: $r = -.03$, $p < .05$) and life satisfaction (urban: $r = -.21$, $p < .01$, rural: $r = -.11$, $p < .01$). See Appendix D.4 for more detailed results. The deprivation score and subjective well-being had a small, but significant, negative correlation in Eswatini ($r = -.10$, $p < .01$) and Mauritania ($r = -.08$, $p < .01$), but not in Mali ($r = -.01$). The deprivation score had also a small, but significant, negative correlation with life satisfaction in Eswatini ($r = -.07$, $p < .01$) and Mauritania ($r = -.08$, $p < .01$), but not in Mali ($r = -.00$). Correlations were quite similar with each other between the age groups and the respondents with different marital and parental status.

6.2.2 Independent-sample t-tests of dichotomous variables

Independent samples t-tests were conducted to compare the mean scores of subjective well-being and the deprivation score for dichotomous background variables (living area, marital status and parental status). See Appendix E for the t-tests and descriptive statistics for all dependent variables.

Living area

There was a significant difference in the subjective well-being scores of those living in rural areas (M = 4.46 , SD = .57), and urban areas (M = 4.52, SD = .55; t (11473.49) = 6.69, p = .000, two-tailed). But, the magnitude of the differences in the means (mean difference = .06, 95% CI: .05 to .08) was very small (eta squared = .003). There was also a significant difference in the deprivation scores of those living in rural areas (M = .38 , SD = .22) and urban areas (M = .17, SD = .17; t (13393.96) = -64.53, p = .000, two-tailed) and the magnitude of the differences in the means (mean difference = -.21, 95% CI: -.22 to -.20) was large (eta squared = .219). See Appendix E.1 for more details.

Marital Status

There was a significant difference in the subjective well-being scores of those married (M = 4.46 , SD = .56), and unmarried (M = 4.50, SD = .57; t (11473) = 4.52, p = .000, two-tailed). But, the magnitude of the differences in the means (mean difference = .04, 95% CI: .02 to .06) was very small (eta squared = .001). There was also a significant difference in the deprivation scores of married (M = .41, SD = .22) and unmarried respondents (M = .23, SD = .17; t (11903,82) = -48.01, p = .000, two-tailed) and the magnitude of the differences in the means (mean difference = -.17, 95% CI: -.18 to -.17) was moderate (eta squared = .135). See Appendix E.2 for more details.

Parental Status

There was also a significant difference in the subjective well-being scores of those having children (M = 4.42, SD = .58), and childless ones (M = 4.52, SD = .58; t (14437) = 11.26, p = .000, two-tailed). The magnitude of the differences in the means (mean difference = .11, 95% CI: .09 to .13) was moderate (eta squared = .009). Finally, there was a significant difference in the deprivation scores of those who had ever had a child (M = .39, SD = .23) and childless respondents (M = .25, SD = .21; t (11774.03) = -37.09, p = .000, two-tailed). The magnitude of the differences in the means (mean

difference = -.14, 95% CI: -.15 to -.13) was also moderate (eta squared = .085). See Appendix E.3 for more information.

6.2.3 One-way between-groups ANOVA of categorical variables

One-way between-groups analysis of variance (ANOVA) was conducted to explore differences in the mean scores of subjective well-being and the deprivation score, between the countries and age groups. There were three categories for countries (Group 1: Eswatini, Group 2: Mali, Group 3: Mauritania). Participants were also divided into three groups according to their age (Group 1: 15-17yrs; Group 2: 18-20yrs; Group 3: 21-24yrs). See Appendix F for the one-way between-groups ANOVAs and descriptive statistics for all dependent variables.

Subjective Well-Being

Country

Levene's test for homogeneity of variances indicated a violation of the assumption of homogeneity of variance ($p < .05$). A Welch F test was consulted, and there was a statistically significant difference at the $p < .05$: $F (2, 14436) = 1232.46$, $p = .000$. The effect size, calculated using eta squared, was .15, which indicates large effect and significant differences in mean scores between the countries. Post-hoc comparisons using the Tukey HSD test indicated that the mean scores of Group 1 (Eswatini: M = 4.43, SD = .55), Group 2 (Mali: M = 4.29, SD = .58) and Group 3 (Mauritania: M = 4.76, SD = .42) differed significantly from one another.

Age Group

Levene's test for homogeneity of variances indicated a violation of the assumption of homogeneity of variance ($p < .05$). A Welch F test was consulted, and there was a statistically significant difference between the groups: $F (2, 14436) = 7.53$, $p = .001$. Despite the statistical significance, the actual difference in mean scores between the groups was small. The effect size, calculated using eta squared, was .00. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 (15-17 years: M = 4.51, SD = .56), was significantly different from Group 2 (18-20 years: M = 4.46, SD = .57) and Group 3 (21-24 years: M = 4.48, SD = .57). Group 2 and 3 did not differ significantly from each other.

Deprivation Score

Country

Levene's test for homogeneity of variances indicated a violation of the assumption of homogeneity of variance ($p < .05$). A Welch F test was consulted, and there was a statistically significant difference at the $p < .05$: $F (2, 14770) = 1163.13$, $p = .000$. The effect size, calculated using eta squared, was .14, which indicates large effect and significant differences in mean scores between the countries. Post-hoc comparisons using the Tukey HSD test indicated that the mean scores of Group 1 (Eswatini: M = .15, SD = .12), Group 2 (Mali: M = .38, SD = .23) and Group 3 (Mauritania: M = .26, SD = .21) differed significantly from one another.

Age Group

Levene's test for homogeneity of variances indicated a violation of the assumption of homogeneity of variance ($p < .05$). A Welch F test was consulted, and there was a statistically significant difference between the groups: $F (2, 14770) = 62.05$, $p = .000$. Despite the statistical significance, the actual difference in mean scores between the groups was small. The effect size, calculated using eta squared, was .008. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 (15-17 years: M = .28, SD = .21), was significantly different from Group 2 (18-20 years: M = .32, SD = .23) and Group 3 (21-24 years: M = .32, SD = .23). This means that the age group of 17-19 years was statistically less deprived than the older age groups. Group 2 and 3 did not differ significantly from each other.

6.3 Hierarchical Multiple Regression

Hierarchical Multiple regression was used to answer the third research question: to see how well the deprivation score predicted the levels of subjective well-being alone and after controlling for the possible effect of the socio-demographic factors of age, marital status, parental status, living area and country. These socio-demographic factors were used in the equation because of their statistically significant results in the correlations and group difference analyses. For the regression analysis, subjective well-being was measured as a total score of well-being (the combination of life satisfaction, happiness and optimism scores) to evaluate how multidimensional poverty and the individual, social and environmental conversion factors predict the total levels of individual's well-being.

In the first model, deprivation score was entered into the model alone, explaining 1.7% of the variance in subjective well-being scores. The second model included the deprivation score and the control variables. The variables were entered into the model in steps to see how well the different conversion factors predicted well-being and finally how well the deprivation score predicted well-being after controlling for a personal conversion factor (age), social conversion factors (marital and parental status) and environmental conversion factors (living area and country of residence). Age was entered at Step 1, explaining 0.1% of the variance in subjective well-being ($p = .002$). After entry of marital and parental status at Step 2 the total variance explained by the model as a whole was 0.9%, $F (3, 14435) = 47.13$, $p < .001$. The two social control measures explained an additional 0.9% of the variance in subjective well-being after controlling age, R squared change = .009, F change $(2, 14435) = 65.70$, $p < .001$. Living area and countries were entered at Step 3, after which the total variance explained by the model as a whole was 14.9%, $F (6, 14432) = 422.45$, $p < .001$. The two environmental control measures explained an additional 14% of the variance in subjective well-being after controlling age and the marital and parental status, R squared change = .140, F change $(3, 14432) = 790.03$, $p < .001$. Finally, the deprivation score was entered at Step 4, after which the total variance explained by the model as a whole was 15.3%, $F (7, 14431) = 372.38$, $p < .001$. The deprivation score explained an additional 0.4% of the variance in subjective well-being after controlling age, marital status, parental status, living area and country, R squared change = .004, F change $(1, 14431) = 61.37$, $p < .001$. In the final model, only the six measures were statistically significant, with Mauritania recording a higher beta value (beta = .39, $p < .001$) than the deprivation score (beta = -.08, $p < .001$), Eswatini (beta = .07, $p <.001$), marital status (beta = .06, $p <.001$) living area (beta = .05, $p < .001$) and parental status (beta = -.05, $p <.001$). Age and living in Mali did not make unique contributions to subjective well-being. See Table 8 for model summary and Table 9 for Model's coefficients.

Table 8

Model's Summary of Hierarchical Multiple Regression of Subjective Well-being[e]

					Change Statistics				
Model	R	R^2	Adjusted R^2	Std.Error of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	.026[a]	.001	.001	.565	.001	9.92	1	14437	.002
2	.098[b]	.010	.009	.562	.009	65.70	2	14435	.000
3	.387[c]	.149	.149	.521	.140	790.03	3	14432	.000
4	.391[d]	.153	.153	.520	.004	61.37	1	14431	.000

a. Predictors: (Constant), Age
b. Predictors: (Constant), Age, Marital Status, Parental Status
c. Predictors: (Constant), Age, Marital Status, Parental Status, Living Area, Eswatini, Mauritania
d. Predictors: (Constant), Age, Marital Status, Parental Status, Living area, Eswatini, Mauritania, Deprivation score
e. Dependent variable: Subjective well-being

Table 9

Coefficients of Hierarchical Multiple Regression of Subjective Well-being[a] *(N = 14438)*

Model		Understandardized Coefficients B	Std.Error	Standardized Coefficients Beta	t	Sig
1	(Constant)	4.582	.032		141.55	.000
	Age	-.005	.002	-.026	-3.15	.002
2	(Constant)	4.438	.035		127.15	.000
	Age	.004	.002	.022	2.39	.019
	Marital status	.033	.012	.029	2.75	.006
	Parental status	-.141	.013	-.122	-10.87	.000
3	(Constant)	4.327	.034		128.39	.000
	Age	-.003	.002	-.014	-1.60	.110
	Marital status	.059	.012	.051	4.91	.000
	Parental status	-.069	.012	-.060	-5.69	.000
	Living area	.026	.010	.022	2.69	.007
	Eswatini	.155	.014	.093	10.79	.000
	Mauritania	.468	.010	.402	48.26	.000
4[b]	(Constant)	4.366	.034		128.41	.000
	Age	-.003	.002	-.015	-1.71	.087
	Marital status	.071	.012	.061	5.83	.000
	Parental status	-.059	.012	-.051	-4.81	.000
	Living area	.063	.011	.054	5.91	.000
	Eswatini	.113	.015	.068	7.39	.000
	Mauritania	.455	.010	.390	46.28	.000
	Deprivation score	-.189	.024	-.076	-7.83	.000

a. Dependent variable: Subjective well-being
b. Excluded variables: Mali

As country seemed to be a more influential predictor of subjective well-being than other variables included to the model, and also to be able to answer the fourth research question (what is the best predictor of subjective well-being at the country level), country was used as a stratification variable in the following hierarchical regression models.

Eswatini

The deprivation score was entered at Step 1, explaining 1.2% of the variance in subjective well-being. After entry of age, living area, marital status and parental status at Step 2, the total variance explained

by the model as a whole was 2.7%, F (5, 1972) = 10.80, p < .000. The four control measures explained an additional 1.4% of the variance in subjective well-being, after controlling for the deprivation score, R squared change = .014, F change (4, 1972) = 7.26, p < .000. In the final model, only three variables were statistically significant, with the deprivation score recording a higher beta value (beta = -.11, p < .000) than age (beta = -.08, p < .005) and marital status (beta = .07, p <.005). Living area and parental status did not make a unique contribution to subjective well-being in Eswatini. See Table 10 for model summary and Table 11 for Model's coefficients.

Table 10

Model's Summary of Hierarchical Multiple Regression of Subjective Well-being[c] *in Eswatini*

				Std.Error	Change Statistics				
Model	R	R^2	Adjusted R^2	of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	.111[a]	.012	.012	.551	.012	24.68	1	1976	.000
2	.163[b]	.027	.024	.547	.014	7.26	4	1972	.000

a. Predictors: (Constant), Deprivation score
b. Predictors: (Constant), Deprivation score, Age, Living area, Marital Status, Parental Status
c. Dependent variable: Subjective Well-being

Table 11

Coefficients of Hierarchical Multiple Regression of Subjective Well-being[a] *in Eswatini*

		Understandardized Coefficients		Standardized Coefficients		
Model		B	Std.Error	Beta	t	Sig
1	(Constant)	4.510	.021		219.06	.000
	Deprivation Score	-.532	.107	-.111	-4.97	.000
2	(Constant)	4.808	.106		45.32	.000
	Deprivation Score	-.538	.114	-.112	-4.72	.000
	Living Area	.027	.034	.019	.81	.420
	Age	-.016	.005	-.083	-3.00	.003
	Marital Status	.151	.049	.072	3.05	.002
	Parental Status	-.058	.032	-.050	-1.79	.073

a. Dependent variable: Subjective well-being

Mali

After entering the deprivation score at Step 1, it did not explain any of the variance in the subjective well-being scores. After entry of age, living area, marital status and parental status at Step 2, the total variance explained by the model as a whole was 0.6%, F (5, 7157) = 8.85, p < .000. In the final model, only four variables were statistically significant, with marital status recording a higher beta value (beta = .06, p < .000) than living area (beta = .06, p <.000), deprivation score (beta = -.05, p < .000) and age (beta = -.04, p <.005). Parental status did not make a unique contribution to subjective well-being in Mali. See Table 12 for model summary and Table 13 for Model's coefficients.

Table 12

Model's Summary of Hierarchical Multiple Regression of Subjective Well-being[c] *in Mali*

				Std.Error		Change Statistics			
Model	R	R^2	Adjusted R^2	of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	.015[a]	.000	.000	.581	.000	1.58	1	7161	.209
2	.078[b]	.006	.005	.579	.006	10.67	4	7157	.000

a. Predictors: (Constant), Deprivation score
b. Predictors: (Constant), Deprivation score, Age, Living area, Marital Status, Parental Status
c. Dependent variable: Subjective Well-being

Table 13

Coefficients of Hierarchical Multiple Regression of Subjective Well-being[a] *in Mali*

		Understandardized Coefficients		Standardized Coefficients		
Model		B	Std.Error	Beta	t	Sig
1	(Constant)	4.306	.013		321.76	.000
	Deprivation Score	-.038	.030	-.015	-1.26	.209
2	(Constant)	4.426	.054		81.72	.000
	Deprivation Score	-.127	.035	-.050	-3.58	.000
	Living Area	.069	.017	.055	3.97	.000
	Age	-.008	.003	-.040	-2.83	.005
	Marital Status	.073	.019	.063	3.86	.000
	Parental Status	-.032	.019	-.028	-1.66	.097

a. Dependent variable: Subjective well-being

Mauritania

The deprivation score was entered at Step 1, explaining 0.9% of the variance in subjective well-being. After entry of age, living area, marital status and parental status at Step 2 the total variance explained by the model as a whole was 1.7%, F (5, 5292) = 18.68, p < .000. The four control measures explained an additional 0.9% of the variance in subjective well-being, after controlling for the deprivation score, R squared change = .009, F change (4, 5292) = 11.65, p < .000. In the final model, only three variables were statistically significant, with the deprivation score recording a higher beta value (beta = -.13, p < .000) than living area (beta = .08, p < .000) and parental status (beta = -.07, p< .000). Age and marital status did not make a unique contribution to subjective well-being in Mauritania. See Table 14 for model summary and Table 15 for Model's coefficients.

Table 14

Model's Summary of Hierarchical Multiple Regression of Subjective Well-being[c] *in Mauritania*

				Std.Error	Change Statistics				
Model	R	R^2	Adjusted R^2	of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	.093[a]	.009	.008	.414	.009	46.41	1	5296	.000
2	.132[b]	.017	.016	.413	.009	11.65	4	5292	.000

a. Predictors: (Constant), Deprivation score
b. Predictors: (Constant), Deprivation score, Age, Living area, Marital status, Parental Status
c. Dependent variable: Subjective Well-being

Table 15

Coefficients of Hierarchical Multiple Regression of Subjective Well-being[a] *in Mauritania*

		Understandardized Coefficients		Standardized Coefficients		
Model		B	Std.Error	Beta	t	Sig
1	(Constant)	4.805	.009		543.29	.000
	Deprivation Score	-.181	.027	-.093	-6.81	.000
2	(Constant)	4.680	.043		109.74	.000
	Deprivation Score	-.249	.032	-.128	-7.83	.000
	Living Area	.070	.013	.084	5.29	.000
	Age	.006	.002	.042	2.73	.006
	Marital Status	.029	.016	.033	1.84	.065
	Parental Status	-.067	.017	-.074	-3.95	.000

a. Dependent variable: Subjective well-being

7. DISCUSSION

In this chapter, first the results of the study are discussed in light of study objectives, the theoretical framework and existing literature. Second, the strengths and limitations of methodological considerations will be discussed. Finally, theoretical and practical implications of the study are addressed.

7.1 Discussion of study findings

In this section, I discuss the main results of this study and will answer each of the research questions presented in the study objectives chapter. The results are discussed in light of existing literature and the capability approach.

7.1.1 Multidimensional poverty

The first research question was whether the incidence and intensity of multidimensional poverty differ between the socio-demographic variables. In the total study sample 43 percent of respondents were classified multidimensionally poor, when using the poverty cutoff of 33 percent. This means that over 40 percent of the study sample was deprived at least in 33 percent of the weighted poverty indicators. On the average, multidimensionally poor people were deprived in 54 percent of the poverty indicators, whereas the mean of the total sample was 30 percent. Compared to the global MPI (including all the age groups and men), the results from this sample indicate that the incidence and intensity of multidimensional poverty was slightly smaller among young women compared to the total sample of these countries (OPHI, 2018).

In the total sample, the major functionings of which women were most likely to be deprived included having the possibility to cook with clean fuel (79%), being adequately sheltered (58%) and having the ability to use electricity (52%). Deprivation was lowest in the functionings of being able to avoid unwanted pregnancy (3%) and being free from premature mortality (5%). These findings are not consistent with the previous literature that has usually recognized years of schooling as the indicator with the highest deprivation level among women in SSA (Batana, 2013). This can be partly explained by the fact that in Eswatini only less than a percent of the women were deprived in the education indicator (compared to significantly higher deprivation rates in Mali and Mauritania), which reduced the impact of this indicator in the total sample. On the other hand, also in Mali, where over a half of the women were deprived in the education indicator, the highest levels of deprivation occurred in the

cooking fuel and housing indicators. One notable finding was that the levels of deprivation in unmet need for contraception and child mortality indicators were surprisingly low, since according to the latest data of UNICEF (2020b), SSA remains the region with the highest under-five mortality (an average of 8 percent) in the world. Also, only half of the women in SSA who want to avoid pregnancy are using modern contraceptive methods (United Nations, 2020b). On the other hand, reducing child mortality and ensuring access to reproductive health-care services have been one of the central targets of the global development goals during the last decades, and clearly stated in both the MDGs and the SDGs. Less attention has been paid in general to housing conditions and clean fuel, although they are mentioned in the SDG targets. In fact, previous research has shown that housing interventions reduce both the incidence and intensity of poverty and effectively decline the number of multidimensionally poor households (Mitchell & Macció, 2018). These results indicate that more attention should be paid to housing conditions in the poverty alleviation targets.

Socio-demographic differences in multidimensional poverty

The incidence and intensity in multidimensional poverty differed considerably between all the socio-demographic variables, with the exception of age. By country, women living in Mali reported higher incidence and intensity of multidimensional poverty compared to women living in Eswatini and Mauritania. This difference was mostly due to higher deprivation levels in education, nutrition and cooking fuel indicators. According to World Bank (2013), Mali has a high prevalence of chronic malnutrition, which can also be found in the present study, women living in Mali suffering from food poverty twice as much than women in Mauritania and almost three times more than women living in Eswatini. Based on the capability approach, the country ones live in could be evaluated as an environmental conversion factor. According to the capability approach, conversion factors have a key role on whether an individual is able to convert available resources into valuable functionings. Country of residence has a significant impact on an individual's abilities for instance through laws and political atmosphere. In the last decade, Mali has suffered from conflicts and insecurity, which might have affected individuals' capabilities to achieve basic functionings. Many children and youth have for example been pushed out of school due to displacement caused by these conflicts (UNICEF, 2015b).

The incidence and intensity of poverty differed also between living areas, women living in rural areas having a higher incidence of multidimensional poverty and reporting higher levels of deprivation. This is not a surprising finding as multiple studies have reported similar results (e.g., Batana, 2008;

Vijaya et al., 2014; Megbowon, 2018; Aguilar & Sumner, 2020). Women living in rural areas were more deprived in each of the poverty indicators compared to women living in urban areas, the difference was notably especially in the education, nutrition and living standard indicators. Living area can also be considered as an environmental conversion factor that has a significant impact on an individual's abilities to achieve valuable functionings. For instance, young women living in rural areas have poorer access to services, such as schools, which contributes to their abilities for achieving the functioning of being educated. Based on the traditional policies the provision of services in urban areas is more profitable than extending it to sparsely populated rural areas, which affects for instance the availability of electricity (Golumbeanu & Barnes, 2013). This in turn has a direct impact on how an individual is able to utilize resources and convert them into valuable functionings.

The incidence of multidimensional poverty was considerably higher among married women compared to unmarried ones. The findings showed that women who were married were also almost twice as deprived as unmarried women reporting higher levels of deprivation in the years of schooling, nutrition, child mortality and most of the living standard indicators. The sample used in this study consisted of relatively young women and almost one-fifth of the women in the age group of 15-17 were currently married. Marriage before the age of 18 is generally defined as child marriage (UNICEF, 2021) and according to the International Women's Health Coalition (n.d.), child marriage has often some severe consequences for girls, such as exclusion from education, minimized economic opportunities, and increased risk of domestic violence and high-risk pregnancies. The prevalence of child marriage in this sample was smaller than what previous studies have indicated: over 40 percent of all girls in SSA marry before the age of 18 (Nguyen & Wodon, 2014). Due to the definition of indicators in the health dimension, one possible explanation for higher deprivation level is that married women also had more likely children, which influenced their deprivation scores by increasing deprivation levels in the nutrition and child mortality indicators. However, the deprivation level of married women was significantly higher also in the education indicator and was particularly pronounced among the youngest age group (15-17 years), which supports the prevailing research findings on the associations between child marriage and low educational attainment (e.g., Singh & Samara, 1996; Delprato et al., 2015; Omoeva & Hatch, 2020). Based on the capability approach, marriage can be seen as a social conversion factor, either supporting or discouraging women's abilities to achieve capabilities. In this study, marriage seemed to discourage the women's abilities to make use of resources. One of the possible explanations is the lack of decision making-power in the household as the decision-making power usually lies with the man (Jensen & Thornton, 2003). This thus affects a woman's freedom to make choices such as attending school.

Finally, the incidence and the deprivation level of multidimensional poverty was higher among women with children compared to childless women. Besides the obvious differences in the nutrition and child mortality indicators, women who had ever had children were more deprived also in the education and living standard dimensions. This is in line with previous studies that have found a relationship between young maternal age and failure to complete schooling (Fall et al., 2015). On the other hand, low educational attainment and poverty is also correlated with early adolescent childbearing (Gausman et al., 2018). Further, women living in rural areas, as well as married women were more likely to have children in the present study. This is a common finding as having children at a young age has been found to be more common in rural areas. In addition, early marriage has found to be one of the strongest predictors of youth childbearing, with 90 percent of adolescent childbearing occurring in marriage (Saloojee & Coovadia, 2015; Kassa et al., 2019; Ibarra-Nava et al., 2020). Parental status can also be considered as a significant social conversion factor, especially in LMICS. Early motherhood, especially if it is not planned and wanted, can make it difficult to achieve basic functionings, as mothers are usually responsible for caring for a child and may therefore, for instance, have to drop out of school. Moreover, if the pregnancy is not desired, but due to pressure from a partner or a lack of modern contraception, it prevents a woman from having effective freedom to choose and thus precludes the actual capability of avoiding unwanted pregnancy.

7.1.2 The relationship between multidimensional poverty and subjective well-being

The second research objective of this study was to explore whether the used multidimensional poverty measure, the deprivation score, was correlated with the subjective well-being levels of young women in three SSA countries, both across all countries and for each country separately. In the total sample, deprivation score had a small but significant negative correlation with subjective well-being ($r = -.14$, $p < .001$), meaning that more intense multidimensional poverty correlated with lower levels of well-being. This finding is in line with previous studies (Nozaki & Oshio, 2016; Nidup et al., 2017) and indicates that reducing multidimensional poverty in SSA countries may increase the well-being of young women. This finding also supports the capability approach framework adapted to this study, as a lack of basic functionings seems to lower individuals' well-being. However, it must be noted, that despite the significant result, the correlation was very weak.

At the country level, deprivation score had a small negative correlation with subjective well-being in Eswatini ($r = -.10$, $p < .01$) and Mauritania ($r = -.08$, $p < .01$), but not in Mali ($r = -.01$). Interestingly, even though deprivation and subjective well-being scores were significantly higher in rural living

areas than urban living areas, the association between deprivation score and subjective well-being was notably higher in urban living areas ($r = -.22$, $p < .01$ vs. $r = -.09$, $p < .01$). This result is in line with the findings of Strotmann and Volkert (2018) and according to them this might be due to the fact that people tend to adapt to problems if almost all those around them are also suffering from the same deprivations. Moreover, according to Diener and Fujita (1997), subjective well-being is affected by social comparison and people tend evaluate their lives by comparing their circumstances to other peoples' lives. In the present study, women living in rural areas were more deprived in each of the poverty indicators than women living in urban living areas. In addition to this, the incidence of deprivation in these indicators was high among the rural residents, especially in living standards and education indicators. Therefore, in rural areas it is more common for instance that a household does not have clean cooking fuel or electricity, and as a result women who do not have access to these goods do not necessarily classify themselves as deprived, as this situation is natural in their environment, and their well-being is therefore not affected that much by these deprivations. In urban areas, on the other hand, the minority suffers from deprivations, which makes the possible deprivations of an individual to stand out, which can lead to more negative assessments of his or her well-being as a result of comparison to others.

Further examination revealed that at the indicator level, unclean cooking fuel ($r = -.24$) and lack of primary education ($r = -.14$) had the strongest correlation with subjective well-being. This finding is partly in line with the findings of Strotmann and Volkert (2018). In their study, subjective well-being had the strongest correlation with the years of schooling ($r = -.18$), assets ($r = -.23$), and housing indicators ($r = -.19$). Multiple studies have shown that indoor and outdoor air pollution is not only correlated with physical health problems, but also with lower subjective well-being (Darçın, 2017; Barrington-Leigh et al., 2019; Ahumada & Iturra, 2021). Similarly, schooling and education have found to be strong predictors of subjective well-being in previous studies and this relation has usually been stronger in samples of women than men (e.g., Witter et al., 1984; Lim et al., 2017). Policy implications for improving educational opportunities for young women in SSA would improve their subjective well-being and, as discussed earlier, also reduce deprivations in other basic functionings by preventing early marriage and motherhood, but also by increasing women's economic opportunities in the future. Further, improving the indoor air quality in LMICs by supporting energy transition would have an impact on improving women's subjective well-being, as they are often responsible for cooking and therefore more vulnerable to indoor air pollution (Isara & Aigbokhaode, 2014).

7.1.3 Deprivation score as a predictor of subjective well-being

The third research question was to explore how well the deprivation score, the sum of deprivations in basic functionings, managed to predict the levels of subjective well-being after controlling the possible effect of conversion factors of country, living area, age, marital status and parental status. According to this study, the deprivation score had a small negative correlation with subjective well-being, meaning that lower levels of deprivation indicated higher levels of subjective well-being. However, the regression model revealed that the deprivation score was able to predict only l.7% of the variance in subjective well-being without controlling for other factors, and 0.4% of the variance after controlling for age, living area, country, marital status and parental status. This result is much smaller compared to the findings of Aida (2018), who found that the MPI measure predicted 7 percent of the variance of subjective well-being after controlling for other individual variables. This result is surprisingly small also compared to the prevalence and intensity of multidimensional poverty in the study sample. It might imply that the functionings used in this study were not considered valuable by the women, and other, more advanced functionings, such as empowerment and control over one's life, would predict subjective well-being better. At the country level, deprivation score was the strongest predictor of subjective well-being in Eswatini and Mauritania, which on the other hand underlines its significance. In Mali, however, marital status and living area were stronger predictors of subjective well-being than deprivation score.

What was the role of conversion factors for predicting the levels of subjective well-being?

Based on the theoretical framework, age was used as a personal conversion factor, country and living area as environmental conversion factors, and marital and parental status as social conversion factors. Overall, the conversion factors, with the exception of age, were significant predictors of subjective well-being in the total sample. Together they explained 13.6 percent of the total variance in the subjective well-being scores. In the following, I discuss the role of each of these factors in the final regression model and their correlations with subjective well-being in more detail.

Marital status

In the final model, marital status emerged as a significant variable for subjective well-being in the total sample but also in Mali and Mauritania. After controlling for marital status, the deprivation score was still a significant predictor of subjective well-being. According to this study, currently married

women reported slightly higher levels of subjective well-being than unmarried women. Higher levels of subjective well-being among the married women may be explained, for example, by the emotional and financial support provided by marriage, which can have a direct impact on an individual's well-being (Shields & Wooden, 2003). However, in the present study the correlations between the marital status and indicators of subjective well-being were very weak (r = -.05). The relationship between marital status and subjective well-being have been explored in several studies and positive correlations have been found especially among adults (e.g., Haring-Hidore et al., 1985; Diener et al., 2000; Ndayambaje et al., 2020). Some studies have also been conducted to study these associations among young people. For instance, Lim et al. (2017) found that also young, married people reported in general higher levels of happiness, life satisfaction and optimism than those who had never been married or had divorced. However, they also concluded that marriage before the age of 18 decreased the levels of happiness with 30 percent, even though it was not associated with life satisfaction or optimism. This also contributes to the importance of preventing child marriage in order to promote the well-being of young women.

Parental status

Parental status was a significant predictor of subjective well-being in the total sample and also in Mauritania. After controlling for parental status, deprivation score remained as a significant predictor of subjective well-being. From the study sample, 40 percent of the women had or had ever had a child(ren). Women with children reported higher levels of deprivation in each of the multidimensional poverty indicators and having children also correlated negatively with subjective well-being, women with children reporting lower levels of well-being. This result is consistent with the findings of Lim et al. (2017), who reported that women who had children were 30 percent less likely to be very satisfied and over 40 percent less likely to be optimistic than women without children. Lower subjective well-being among young mothers may be due to increased psychosocial challenges such as feelings of guilt, loneliness, anxiety, financial constraints and stress that parenthood entails, especially if the reactions of a woman’s partner and family toward pregnancy have been negative (Govender et al., 2020). This result also contributes to reinforcing the importance of delaying childbearing among adolescent girls and young women in SSA.

Living area

In the final model, living area emerged as a significant variable for subjective well-being in the total sample but also in Mali and Mauritania. However, even after controlling for living area, the

deprivation score remained as a significant predictor of well-being. In the current study, women living in rural areas were significantly more deprived than women living urban areas, but the subjective well-being scores were only slightly higher among the women living in urban areas (4.52 vs. 4.46). This finding is in line with the findings of Burger et al. (2020), which concluded that people living in urban areas report higher positive affect and life evaluation than people residing in rural areas, mostly due to better economic situation and better educational opportunities that cities have (Burger et al., 2020). In this thesis, the deprivation score had a small but significant negative correlation with subjective well-being in urban living areas but in rural living areas this correlation was notably weaker. This might be due to the adaptation process that was discussed earlier in this chapter.

Country

In the final model, Eswatini and Mauritania were statistically significant predictors of subjective well-being. Mauritania as a country of residence was the strongest predictor of subjective well-being. However, after controlling for the country, the deprivation score still remained as a significant predictor of subjective well-being. As discussed above, the country of residence had the strongest correlation with all the subjective well-being measures, women living in Mauritania reporting the highest levels of life satisfaction and happiness. The findings showed a strong positive correlation between Mauritania and subjective well-being, whereas the medium negative correlation between Mali and subjective well-being was found. Women living in Mali were more significantly deprived in each of the multidimensional poverty indicators than women living in Eswatini or Mauritania, but the regression analysis revealed that the deprivation score actually did not explain any of the variance in subjective well-being scores in Mali, which reinforces the notion that subjective well-being is underpinned by other, more relevant functionings that this study was unable to capture.

In summary, this study revealed that multidimensional poverty was correlated with subjective well-being among young women, but the actual effect of this correlation was very small. Also, all the socio-demographic variables, with the exception of age, were significant predictors of subjective well-being in the final model. This reflects their direct connection to subjective well-being, which is also presented in the figure at the end of the literature review. In addition, these variables (with the exception of age) were influential as conversion factors, which was reflected in the different deprivation scores between the groups. It can be therefore assumed that conversion factors have at least some role in the process of converting resources into functionings. However, a moderation

analysis would be needed to better evaluate the role of these conversion factors, but it was not conducted in this thesis as it was beyond the scope of this study.

7.2 Discussion of methodological considerations

In this part I will discuss the limitations of the main study measures of multidimensional poverty and subjective well-being. First, the multidimensional poverty measure – the adapted MPI – and its suitability for measuring capabilities is discussed. This is followed by discussion of the subjective well-being measure. Finally, other study limitations are briefly discussed.

7.2.1 The MPI – measuring capabilities?

The MPI was used in the present study to measure poverty through deprivations in basic functionings. Although it is based on the capability approach, it contains many features that are actually controversial from the perspective of the theory. The first weakness is in the selection process of the poverty dimensions and indicators. According to Alkire & Santos (2010), the selection of the dimensions and indicators used in the MPI is based on the human rights perspective, global development goals and existing literature, which have identified the chosen dimensions as important elements of well-being. However, also data availability has had a significant role in the selection process, and due to data constraints many important dimensions, such as work and empowerment, have been left out of the index (Alkire & Santos, 2010). Such an approach is contrary to the capability approach as it states that data considerations should not be the primary criteria on which to choose dimensions, because the existing data are not necessarily related to valued capabilities (Alkire, 2008a). Therefore, the indicators used in this study do not necessarily represent functionings that young women consider valuable and desirable, but rather represent a general idea of what basic functionings are required as a basis for individual well-being. There are also disagreements on whether various dimensions of poverty can be congregated into a single index in a meaningful way (Lustig, 2011).

Secondly, from a theoretical and practical point of view, the chosen dimensions and indicators in the MPI are in themselves problematic in some ways. Although the MPI was used in this study to describe basic functionings, many of its indicators (particularly living standard indicators) are actually measuring the lack of (access to) resources that might enable some functionings. However, according to the capability approach, the goods and resources alone do not guarantee that people are able to

transform them into real actions and doings (Sen, 1979). In this study, individuals were identified either deprived or non-deprived in different indicators or 'functionings', but actual conclusions on what the individuals are able to do with these functionings or whether a lack of any functioning has an impact on their actual capabilities cannot be drawn. For instance, even if a person was not deprived in the education dimension, the actual quality of education was not explored or whether an individual was able to make use of the level of education she had received to improve her well-being, for instance by getting better employment. On the other hand, a person who is deprived in the housing indicator does not necessarily feel that her prospects and well-being are affected in any way by inadequate housing materials, even though in this study she is considered as poor in that indicator.

Also, most of the indicators used in this study are expressing more of a lack of choices than actual freedom or autonomy (Ataguba et al., 2013). According to Brando and Fragoso (2020, pp. 3) *"people living in poverty lack access to the basic resources and opportunities which condition and limit one's control over one's life and options in a fundamental way".* Therefore they argue that multidimensional poverty measures should measure particular indicators that are reflecting this fundamental lack of control. They also explored how the three major multidimensional poverty indexes, including the MPI, measured this lack (capability deprivation) and found that they reflected poverty as capability deprivation very poorly. They pointed out that poverty is not always just a lack of formal access to income, food, education or other goods (which is measured in these indexes) but a lack of control over one's life, which is not captured by these indexes. Furthermore, although some of the variables used in this thesis (e.g. being educated and well-nourished) have been defined as capabilities in many previous studies, the actual freedom of choosing these basic functionings cannot be verified on the basis of data and therefore I decided to describe these as functionings rather than actual capabilities. The major weakness of the MPI is that it assumes that people equally value the functionings that are included in its measures. On the other hand, the indicators describe basic needs well and it can be concluded that achieving these basic functionings provides a basis for well-being, even if the individual does not consider these functions valuable.

Further, determining when an individual is deprived in the chosen indicators is sometimes questionable. For example, the nutrition indicator defines a person as deprived if the household she is living in has any underweight, stunted or wasted children. However, it does not consider overweight or obesity, which are an increasing challenge also in SSA (Scott et al., 2013; Muthuri et al., 2014). Overweight and obesity are major health risks and among women in SSA they are associated with, among other things, cardiovascular diseases and neonatal deaths (Cresswell, 2012; Steyn et al., 2014).

Many of the diets people living in poverty have include enough kilocalories to meet their energy needs but lack the dietary quality that is needed to promote optimal health (Tanumihardjo et al., 2007). This double burden of malnutrition (coexistence of undernutrition along with overweight and obesity) in LMICs should be better assessed in the poverty indicators. Another example is the unmet need indicator, which defines a woman as deprived if she does not want to get pregnant but is not using modern contraceptive methods. However, it does not consider infertility, the situations where women want but are unable to get pregnant. Having children is highly valued in SSA and it is even assumed to belong to the role of a woman, and previous studies have shown that infertility increases the risk of psychosocial distress and social stigma (Fledderjohann, 2012; Dierickx, 2018), which presumably have an impact on women's well-being.

Another shortcoming of the MPI from the perspective of the capability approach is the level of measurement. The MPI is derived from household averages rather than individual-level information (Vijaya et al., 2014), while the capability approach emphasizes the importance of the individual level assessment to being able to evaluate the achievement of functionings valuable *for individual* and to being able to identify potential inequalities (Iversen, 2003). Alkire (2008b) justifies the use of the household-level indicators in the MPI by stating that the capability approach adopts ethical individualism but no other kinds of individualisms, such as ontological or methodological individualism. By that she means that even though an individual is the fundamental unit of analysis, the process of improving quality of life also requires cooperation and collective action and quality of life as well as some of the capabilities cannot be traced in isolation or produced or enjoyed individually. In any case, some adjustments for the MPI measure were made in the present study to better describe the achievement of basic functionings at the individual level: years of schooling, child mortality and unmet need for contraception were all measured at the individual level. The indicators of the health dimension (child mortality and malnutrition) have been recognized as the most problematic measures of the MPI (Alkire & Santos, 2011; Gweshengwe, 2019). Child mortality and malnutrition are household-level measures and do not directly measure an individual's health. In addition, these indicators exclude households without children under the age of five, assuming that the individual is non-deprived in that case. In this study, child mortality was measured at the individual level (whether a woman's own child has died), but the nutritional measure remained at the household level. To reinforce this dimension, I added a new health indicator (unmet need for contraception) that was directly related to an individual and covered all participants. However, only a few percent of respondents were deprived in this indicator and it had only a very weak correlation

with subjective well-being (r = -.03). Better indicators for assessing the health of individuals are urgently needed.

As discussed, the MPI has multiple shortcomings that are widely recognized. However, it is one of the only globally used measures of multidimensional poverty, and it provides a good overview of the basic functionings that presumably affect an individual's well-being. It is also a valuable tool for identifying the most deprived and for monitoring the progress towards the SDGs.

7.2.2 Subjective well-being

This study revealed that most of the respondents were at least somewhat happy, satisfied and optimistic with their lives. This is not a rare phenomenon and according to Diener et al., (2018) happiness and life satisfaction scores are often skewed, most people reporting above neutral. In the MICS surveys the subjective well-being data has been collected through the face-to-face interviews, which might have affected the results. If the research topic is sensitive (such as life satisfaction, happiness and optimism in this case), respondents might overreport socially desirable answers (Krumpal, 2013). Veenhoven (2012) also points out that one of the biggest doubts is that most people have no opinion at all about their well-being and therefore they might report their well-being based on how happy or satisfied they are supposed to be, instead of reporting how they actually feel. This sometimes leads to a so-called “social desirability bias” in self-reported well-being measures (Caputo, 2017). However, Diener et al. (2018) note that various measures of subjective well-being show similar results in most populations and these measures seem to be sensitive to disadvantageous life circumstances.

One of the major criticisms of the subjective well-being approach is that self-reported measures are not comparable across countries, since the concept of happiness and life satisfaction, and the determinants which make people happy are understood differently in different societies (Ratzlaff et al., 2000; Sarracino, 2010). However, in the MICS, the questions were aided by a smiley scale, which presumably makes it easier to answer and understand the outline of these questions. The present study explored subjective well-being through questions of life satisfaction, happiness and optimism, which have been used as the main indicators of subjective well-being also in some previous studies (e.g., Lim et al., 2017). However, each of these three concepts were measured only by one question, which is not ideal for latent constructs like these. Latent constructs are abstract constructs that cannot be measured directly but indirectly, usually using scales that comprise items that are reflective of the

construct (El-Den et al., 2020). Happiness, life satisfaction and optimism are all latent constructs that cannot be fully captured by only a single question. However, due to lack of data, better measures for these constructs were not available. Life satisfaction is usually considered to be the key indicator of subjective well-being (Proctor et al., 2009), and similar results can be found in this study, life satisfaction having the strongest positive correlation with the total scores of subjective well-being.

In the current study, subjective well-being was measured at the individual level, which supports the principles of the capability approach. However, Sen (2008) also argues that the concept of subjective happiness can be unfair to those who are tenaciously and hopelessly deprived, as they may lack the fortitude to desire any radical change and therefore adjust their wishes and expectations to what little they see as feasible. Individuals also adapt their aspirations to their circumstances which makes the exploration of interpersonal comparisons and intrapersonal comparisons over time difficult (Beegle, 2010, p. 85). As Robeyns and Byskov (2020) state, even if a deprived person has a greater increase in well-being with fewer resources and functionings, it does not mean that the situation is justifiable in the first place (Robeyns & Byskov, 2020). Therefore also objective measures are needed to perceive the bigger picture of the situation. In the current study the subjective well-being evaluations were supported with the objective multidimensional poverty measure. According to this study the subjective well-being measure showed sensitivity to unfavorable life circumstances as it correlated negatively with most of the poverty indicators.

7.2.3 Other limitations

The results of this study, particularly the significant relationship between deprivation score and subjective well-being, should be interpreted with caution since the sample size was big and the explained variance very low. Due to the cross-sectional nature of this study, causations cannot be established either. Correlations between multidimensional poverty characteristics and subjective well-being may work both ways, as people with high well-being, for example, may be more likely to complete schooling. Also this study included only a few confounding factors and other relevant factors may have been neglected. Other factors previously associated with subjective well-being of young women in SSA that were not measured in this study include for instance decision-making power, social support and perceived life control (Minkov, 2009; Cunsolo, 2017; Annan et al., 2021). Moreover, due to the data limitations and the focus of the study, intrahousehold and gender inequalities could not be explored, although several studies have shown that poverty is unequally

distributed within the households and genders (e.g., Robeyns, 2003; Rodríguez, 2016; Cantillon & Moran, 2017; De Vreyer & Lambert, 2018).

7.4 Implications

The literature and findings of this study provides insights into the many determinants of poverty and subjective well-being of young women in one of the multidimensionally poorest areas in the world. The findings of this study have important implications for research and health promotion policies. Further, these results could be used to help governments focus aid in order to improve subjective well-being of young women in SSA.

Implications for research and theory

Based on the evidence of this study, the capability approach is a suitable framework for evaluating and explaining the relationship between conversion factors, basic functionings and subjective well-being. This study also provides an example, how the capability approach can be modified for multidimensional poverty research. The current study used the MPI and the subjective well-being measures to evaluate the correlation between multidimensional poverty and well-being among women in three SSA countries. However, as discussed, the MPI was not able to capture capabilities satisfactorily and better measures are needed to be able to evaluate the real freedoms of the individuals. Moreover, due to methodological and data collection challenges, most of the MPI indicators measure functionings at the household level rather than the individual level. This approach would exclude poor people in non-poor households from policy implications (Vijaya et al., 2014) and better research tools for measuring multidimensional poverty at the individual level are needed to prevent this to happen.

Implications for health promotion and development

This study provided valuable information on how some of the sub-targets of the SDGs were related to each other and the well-being of young women. In addition, by examining different subgroups, it provided information on who is at risk of being left behind and where multidimensional poverty reduction interventions should be targeted. This study revealed that multidimensional poverty was correlated with lower levels of subjective well-being among young women in Eswatini, Mali and Mauritania. Policy implications for reducing multidimensional poverty would thus contribute to

subjective well-being of young women in SSA countries. According to the findings of this study, marriage and childbearing at young age are correlated with higher deprivation in multidimensional poverty indicators, which emphasize the importance of delaying marriage and parenthood for adolescent girls and young women. In addition, programmes promoting school attendance and reproductive health would possibly reduce early marriage and motherhood of young women, which in turn would contribute to lower levels of deprivation and higher levels of subjective well-being. However, if early childbearing within marriage is socially accepted and encouraged, interventions that are targeted at increasing contraceptive availability would do only little and then interventions should be targeted in reducing child marriage rather than fertility itself (McQueston et al., 2012).

Further analysis of the multidimensional poverty indicators revealed that the deprivation in years of schooling and clean cooking fuel indicators had the strongest correlation with subjective well-being, and therefore it is recommended that health promotion interventions with the focus of increasing educational opportunities and improving housing conditions are needed to promote the health of young women in SSA countries. In particular, young moms, married women and women living in rural areas need support in schooling as their deprivation levels in the primary schooling indicator were notably above the average. Further, the findings of this study highlight the need to support energy transition from unclean cooking fuel to clean energy, especially in rural households. In addition, the importance of having control over one’s life is highlighted in both the Ottawa Charter and the capability approach, and more interventions are needed to increase young women’s empowerment and decision-making power in SSA countries.

8. CONCLUSION

The overall objective of this study was to explore the relationship between multidimensional poverty and subjective well-being among young women in Eswatini, Mali and Mauritania. A negative relationship between multidimensional poverty and subjective well-being was found, and this is supported in previous studies. Lower intensity of multidimensional poverty was correlated with higher levels of subjective well-being in the total sample, as well as in Eswatini and Mauritania. Multiple regression analysis allowed the identification of other contextual factors associated with higher levels of subjective well-being, including single status, not having children and urban residence. These findings provide further support for health promotion and development policies to reduce multidimensional poverty (with the special attention to rural areas) and child marriage, and to delay parenthood for adolescent girls and young women.

Further analysis of the multidimensional poverty measure revealed that the deprivation in the years of schooling and clean cooking fuel indicators had the strongest correlation with lower levels of subjective well-being. Women are often responsible for cooking and therefore more vulnerable to indoor air pollution. Due to early marriage and motherhood, young women in SSA have also higher risk of dropping out of school. Interventions for improving educational opportunities and housing conditions, with the specific focus on clean cooking fuels and indoor air quality, would help both to reduce multidimensional poverty and increase subjective well-being of young women in SSA countries.

The relationship between multidimensional poverty and subjective well-being was examined in the light of the capability approach, which provided a good basis for exploring the relationship between the lack of basic functionings and subjective well-being of young women. However, further research with indicators that incorporate also the aspect of freedom in the data collection and analysis is needed to take into account all aspects of the capability approach and to be able to evaluate the actual capabilities instead of functionings. Further research is also needed to better understand the role of the conversion factors in the process of converting resources into functionings. As shown in this study, the correlation between multidimensional poverty and subjective well-being differs between the countries and further research on other countries would allow systematic comparison and give valuable information on how these two concepts are correlated in other regions. In addition, there is a need for longitudinal research design to give insight on how multidimensional poverty and subjective well-being, as well as correlations between these concepts develop over the life course.

REFERENCES

Abel, T., & Frohlich, K. L. (2012). Capitals and Capabilities: Linking Structure and Agency to Reduce Health Inequalities. *Social Science & Medicine, 74(2)*, 236-244. https://doi.org/10.1016/j.socscimed.2011.10.028

Abowitz, D. A., & Toole, T. M. (2010). Mixed Method Research: Fundamental Issues of Design, Validity, and Reliability in Construction Research. *Journal of Construction Engineering and Management, 136(1*), 108-116. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000026

Abu-Alhaija, A. (2019). Quantitative Research or Qualitative Research: From Epistemology to Structural Equation Modeling: An Essential Guide in Understanding the Principles of Research Philosophy in Selecting the Appropriate Methodology. *Australian Journal of Basic and Applied Sciences, 13*, 122-128. https://doi.org/10.22587/ajbas.2019.13.9.12

Addai, I., Opoku-Agyeman, C., & Amanfu, S. K. (2015). Marriage and Subjective Wellbeing in Ghana. *African Review of Economics and Finance, 7(1),* 53-79. https://hdl.handle.net/10520/EJC173488

Adeoti, A. I. (2014). Trend and Determinants of Multidimensional Poverty in Rural Nigeria. *Journal of Development and Agricultural Economics, 6(5),* 220-231. https://doi.org/10.5897/jdae2013.0535

Adeyemi, S. L., Ijaiya, G. T., & Raheem, U. A. (2009). Determinants of Poverty in Sub-Saharan Africa. *African Research Review, 3(2),* 162-177. https://doi.org/10.4314/afrrev.v3i2.43617

Aguilar, G., & Sumner, A. (2020). Who are the World's Poor? A New Profile of Global Multidimensional Poverty. *World Development, 126.* https://doi.org/10.1016/j.worlddev.2019.104716

Ahumada, G., & Iturra, V. (2021). If the Air Was Cleaner, Would We Be Happier? An Economic Assessment of the Effects of Air Pollution on Individual Subjective Well-being in Chile. *Journal of Cleaner Production, 289*, 125-152. https://doi.org/10.1016/j.jclepro.2020.125152

Aida, T. (2018). Exploring the Relationship Between Subjective Well-being and Objective Poverty Indices: Evidence from Panel Data in South Africa (No. 707). Institute of Developing Economies, Japan External Trade Organization (JETRO). Retrieved from http://hdl.handle.net/2344/00050315

Al-Janabi, H. (2018). Do Capability and Functioning Differ? A Study of UK Survey Responses. *Health Economics, 27(3),* 465-479. https://doi.org/10.1002/hec.3586

Alkire, S. (2002). Dimensions of Human Development. *World development*, *30*(2), 181-205. https://doi.org/10.1016/S0305-750X(01)00109-7

Alkire, S. (2008a). Choosing Dimensions: The Capability Approach and Multidimensional Poverty. In N. Kakwani & J. Silber (Eds.), The Many Dimensions of Poverty. New York: Palgrave Macmillan.

Alkire, S. (2008b). The Capability Approach to the Quality of Life. OPHI Research in Progress Series 2008. Retrieved from https://ophi.org.uk/ophi-research-paper-2a/

Alkire, S. (2015). The Capability Approach and Well-being Measurement for Public Policy. OPHI Working Paper No. 94. Retrieved from https://ophi.org.uk/wp-content/uploads/OPHIWP094.pdf

Alkire, S., & Fang, Y. (2019). Dynamics of Multidimensional Poverty and Uni-dimensional Income Poverty: An Evidence of Stability Analysis from China. *Social Indicators Research, 142*, 25–64. https://doi.org/10.1007/s11205-018-1895-2

Alkire, S., & Foster, J. (2011). Counting and Multidimensional Poverty Measurement. *Journal of public economics, 95(7-8),* 476-487. https://doi.org/10.1016/j.jpubeco.2010.11.006

Alkire, S., Foster, J. E., Seth, S., Santos, M. E., Roche, J. M., & Fernandez, P. B. (2015). Multidimensional Poverty Measurement and Analysis: Chapter 5 -the Alkire-Foster Counting Methodology. Retrieved from https://www.ophi.org.uk/wp-content/uploads/OPHIWP086_Ch5.pdf

Alkire, S., & Jahan, S. (2018). The New Global MPI 2018: Aligning with the Sustainable Development Goals. (Issue 121, pp. 1–19). OPHI. Retrieved from http://hdr.undp.org/sites/default/files/2018_mpi_jahan_alkire.pdf.

Alkire, S., Jindra, S. Robles, G., & Vaz, A. (2016). Multidimensional Poverty in Africa. OPHI Briefing 40 Affiliation: Oxford Poverty and Human Development Initiative (OPHI), University of Oxford. https://doi.org/10.13140/RG.2.1.4927.4489

Alkire, S., Roche, J. M., & Vaz, A. (2017). Changes Over Time in Multidimensional Poverty: Methodology and Results for 34 Countries. *World Development, 94,* 232-249. https://doi.org/10.1016/j.worlddev.2017.01.011

Alkire, S., & Santos, E. M. (2010). Acute Multidimensional Poverty: A New Index for Developing Countries. OPHI Working Paper No. 38, University of Oxford. https://doi.org/10.2139/ssrn.1815243

Alkire, S., & Santos, M. E. (2011). Training Material for Producing National Human Development Reports: the Multidimensional Poverty Index (MPI). Retrieved from https://ora.ox.ac.uk/objects/uuid:18c6645b-d2e1-412b-8c06-404ad114dfdf

Anand, P., Hunter, G., Carter, I., Dowding, K., Guala, F., & van Hees, M. (2009). The Development of Capability Indicators. *Journal of Human Development and Capabilities, 10(1),* 125–152. https://doi.org/10.1080/14649880802675366

Anand, P., Hunter, G., & Smith, R. (2005). Capabilities and Well-being: Evidence Based on the Sen–Nussbaum Approach to Welfare. *Social Indicators Research, 74(1),* 9-55. https://doi.org/10.1007/s11205-005-6518-z

Anand, P., Jones, S., Donoghue, M., & Teitler, J. (2020). Non-monetary Poverty and Deprivation: A capability Approach. *Journal of European Social Policy, 31(1),* 78-91. https://doi.org/10.1177/0958928720938334

Anand, P., & Van Hees, M. (2006). Capabilities and Achievements: An Empirical Study. *The Journal of Socio-Economics, 35(2),* 268-284. https://doi.org/10.1016/j.socec.2005.11.003

Annan, J., Donald, A., Goldstein, M., Martinez, P. G., & Koolwal, G. (2021). Taking Power: Women's Empowerment and Household Well-being in Sub-Saharan Africa. *World Development, 140,* 105292. https://doi.org/10.1016/j.worlddev.2020.105292

Artha, D., & Dartanto, T. (2015). Multidimensional Approach to Poverty Measurement in Indonesia. Retrieved from https://www.lpem.org/wp-content/uploads/2015/01/WP-LPEM_02_TeguhDes.pdf.

Ataguba, J. E. O., Ichoku, H. E., & Fonta, W. M. (2013). Multidimensional Poverty Assessment: Applying the Capability Approach. *International Journal of Social Economics, 40(4),* 331-354. https://doi.org/10.1108/03068291311305017

Atkinson, J. D. (2017). Research Methodologies. In Journey into Social Activism: Qualitative Approaches (pp. 27-64). New York: Fordham University Press

Axford, N., Jodrell, D., & Hobbs, T. (2014). Objective or Subjective Well-Being? In A. Ben-Arieh, F. Casas, I. Frønes & J. Korbin (Eds), Handbook of Child Well-Being. Dordrecht: Springer. https://doi.org/10.1007/978-90-481-9063-8_108

Bader, C., Bieri, S., Wiesmann, U., & Heinimann, A. (2016). Differences Between Monetary and Multidimensional Poverty in the Lao PDR: Implications for Targeting of Poverty Reduction Policies and Interventions. *Poverty & Public Policy, 8(2),* 171-197. https://doi.org/10.1002/pop4.140

Bagolin, I. (2004). Human Development Index (HDI) - A Poor Representation to Human Development Approach. Retrieved from https://www.researchgate.net/publication/228427587

Barrington-Leigh, C., Baumgartner, J., Carter, E., Robinson, B. E., Tao, S., & Zhang, Y. (2019). An Evaluation of Air Quality, Home Heating and Well-being Under Beijing's Programme to Eliminate Household Coal Use. *Nature Energy, 4(5),* 416-423.

Batana, Y. M. (2013). Multidimensional Measurement of Poverty Among Women in Sub-Saharan Africa. *Social Indicators Research, 112(2),* 337-362. https://doi.org/10.1007/s11205-013-0251-9

Battiston, D., Cruces, G., Lopez-Calva, L. F., Lugo, M. A., & Santos, M. E. (2013). Income and Beyond: Multidimensional Poverty in Six Latin American Countries. *Social Indicators Research, 112(2), 291*-314. https://doi.org/10.1007/s11205-013-0249-3

Beegle, K., Christiaensen, L., Dabalen, A., & Gaddis, I. (2016). Poverty from a Nonmonetary Perspective. In K. Beegle, L. Christiaensen, A Dabalen & I. Gaddis (Eds.), Poverty in a Rising Africa (pp. 83-115). https://doi.org/10.1596/978-1-4648-0723-7_ch3

Bellani, L., & D'Ambrosio, C. (2011). Deprivation, Social Exclusion and Subjective Well-being. *Social indicators research, 104(1),* 67-86. https://doi.org/10.1007/s11205-010-9718-0

Bérenger, V., & Verdier-Chouchane, A. (2007). Multidimensional Measures of Well-being: Standard of living and Quality of Life Across Countries. *World Development, 35(7),* 1259-1276. https://doi.org/10.1016/j.worlddev.2006.10.011

Binder, M. (2014). Subjective Well-being Capabilities: Bridging the Gap Between the Capability Approach and Subjective Well-being Research. *Journal of Happiness Studies, 15(5),* 1197-1217. https://doi.org/10.1007/s10902-013-9471-6

Bonnefoy, X. (2007). Inadequate Housing and Health: An Overview. *International Journal of Environment and Pollution, 30(3-4),* 411-429. https://doi.org/10.1504/IJEP.2007.014819

Bookwalter, J. T., & Dalenberg, D. (2004). Subjective Well-Being and Household Factors in South Africa. *Social Indicators Research, 65,* 333–353. https://doi.org/10.1023/B:SOCI.0000003546.96008.58

Booysen, F., Van Der Berg, S., Burger, R., Von Maltitz, M., & Du Rand, G. (2008). Using an Asset Index to Assess Trends in Poverty in Seven Sub-Saharan African Countries. *World Development, 36(6),* 1113-1130. https://doi.org/10.1016/j.worlddev.2007.10.008

Brando, N., & Fragoso, K. (2020). Capability Deprivation and the Relational Dimension of Poverty: Testing Universal Multidimensional Indexes. In V. Beck, H. Hahn & R. Lepenies (Eds.), Dimensions of Poverty: Measurement, Epistemic Injustices, Activism (Vol. 2). Springer, Cham. https://doi.org/10.1007/978-3-030-31711-9_16

Buheji, M., da Costa Cunha, K., Beka, G., Mavric, B., De Souza, Y., da Costa Silva, S., Hanafi, M., & Yein, T. (2020). The Extent of Covid-19 Pandemic Socio-economic Impact on Global Poverty: A Global Integrative Multidisciplinary Review. *American Journal of Economics, 10(4),* 213-224. https://doi.org/10.5923/j.economics.20201004.02

Burchi, F., & De Muro, P. (2016). From Food Availability to Nutritional Capabilities: Advancing Food Security Analysis. *Food Policy, 60,* 10-19. https://doi.org/10.1016/j.foodpol.2015.03.008

Burchi, F., Malerba, D., Rippin, N., & Montenegro, C. E. (2019). Comparing Global Trends in Multidimensional and Income Poverty and Assessing Horizontal Inequalities. https://doi.org/10.23661/dp2.2019

Burchi, F., Rippin, N., & Montenegro, C. E. (2018). From Income Poverty to Multidimensional Poverty – an International Comparison. Retrieved from https://www.researchgate.net/publication/327622607

Burger, M. J., Morrison, P. S., Hendriks, M., & Hoogerbrugge, M. M. (2020). Urban-Rural Happiness Differentials Across the World. In J. Helliwell, R. Layard, J. Sachs, & J-E De Neve (Eds), World Happiness Report 2020. New York: Sustainable Development Solutions Network. Retrieved from https://worldhappiness.report/ed/2020/.

Butty, J. (2010). Campaign Launched to Drop Sub-Saharan-African-Phrase. Voice of America. Retrieved from https://www.voanews.com/africa/campaign-launched-drop-sub-saharan-african-phrase.

Camfield, L. (2004). Subjective Measures of Well-being in Developing Countries. In Challenges for Quality of Life in the Contemporary World (pp. 45-59). Dordrecht: Springer.

Cantillon, S., & Moran, M. (2017). Intra-household Inequality, Poverty and Well-being. In S. Millns & S. Wong (Eds.), Wealth and Poverty in Close Personal Relationships: Money Matters (pp. 21-38).

Caputo, A. (2017). Social Desirability Bias in Self-reported Well-being Measures: Evidence from an Online Survey. *Universitas Psychologica, 16(2),* 1-13. https://doi.org/10.11144/Javeriana.upsy16-2.sdsw

Carter, S., & Little, M. (2007). Justifying Knowledge, Justifying Method, Taking Action: Epistemologies, Methodologies, and Methods in Qualitative Research. Q*ualitative Health Research, 17(10),* 1316-1328. https://doi.org/10.1177/1049732307306927

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30(7),* 879-889. https://doi.org/10.1016/j.cpr.2010.01.006

Chiappero-Martinetti, E. (2003). Unpaid Work and Household Well-being. In A. Picchio (ed.), Unpaid Work and the Economy: A Gender Analysis of the Standards of Living (pp. 122-255). London: Routledge.

Chiappero-Martinetti, E., Egdell, V., & Hollywood, E., & McQuaid, R. (2012). Operationalisation of the Capability Approach. In H. Ziegler, T. Berthet, R. Atzmüller, J-M. Bovin & C.C. Kjeldsen, Vulnerable Young People in Europe and the Issue of Full Citizenship (pp. 211-236).

Clark, A., Imperato, P. J., & Baker, K. M. (2021). Mali. Encyclopedia Britannica. Retrieved from https://www.britannica.com/place/Mali

Clark, A. E., D'ambrosio, C., & Ghislandi, S. (2013). Poverty and Well-being: Panel Evidence from Germany. Society for the Study of Economic Inequality Working Papers Series. Retrieved from: http://www. ecineq. org/milano/WP/ECINEQ2013-291. pdf

Clark, A. E., & Oswald, A. J. (2006). The Curved Relationship Between Subjective Well-being and Age. Retrieved from https://halshs.archives-ouvertes.fr/halshs-00590404

Clark, D. A., & Qizilbash, M. (2005). Core Poverty, Basic Capabilities and Vagueness: An Application to the South Context. Retrieved from http://www.gprg.org/pubs/workingpapers/pdfs/gprg-wps-026.pdf

Coast, J., Smith, R., & Lorgelly, P. (2008). Should the Capability Approach be Applied in Health Economics? *Health Economics, 17(6),* 667-670. https://doi.org/10.1002/hec.1359

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. New Jersey: Lawrence Erlbaum Associates.

Comim, F. (2001). Operationalizing Sen's Capability Approach. Justice and Poverty: Examining Sen's Capability Approach Conference.

Conceição, P., Assa, J., Calderon, C., Esbry, F. P., Fuentes, R., Hsu, Y-C., et al. (2020). Human Development Report 2020. Retrieved from http://hdr.undp.org/sites/default/files/hdr2020.pdf

Conconi, A., & Viollaz, M. (2018). Poverty, Inequality and Development: A Discussion from the Capability Approach's Framework. In N. Al-Rodhan, J. Andrews, M. Centeno et al., The Age of Perplexity: Rethinking the World We Knew. Penguin Random House Grupo Editorial.

Constitution of the World Health Organization. (1946). *American Journal of Public Health, 36(11*), 1315-1323. https://doi.org/10.2105/AJPH.36.11.1315

Crocker, D. A. (1995). Functioning and Capability: The Foundations of Sen's and Nussbaum's Development Ethic, Part 2 In M.C. Nussbaum & J. Glover (Eds), Women, Culture, and Development: A Study of Human Capabilities. https://doi.org/10.1093/0198289642.003.0007

Cummins, R. (1996). The Domains of Life Satisfaction: An Attempt to Order Chaos. *Social Indicators Research, 38(3),* 303–328. https://doi.org/10.1007/BF00292050

Cunsolo, S. (2017). Subjective Wellbeing During Adolescence: A Literature Review on Key Factors Relating to Adolescent's Subjective Wellbeing and Education Outcomes. *Open Journal of Education, 20(1),* 81-94. https://doi.org/10.13128/Studi_Formaz-20941

Dagsvik, J. K. (2013). Making Sen's Capability Approach Operational: A Random Scale Framework. *Theory and Decision, 74(1),* 75-105. https://doi.org/10.1007/s11238-012-9340-5

Dahlgren, G., & Whitehead, M. (1991). Policies and Strategies to Promote Social Equity in Health. Background Document to WHO – Strategy Paper for Europe. Retrieved from https://core.ac.uk/download/pdf/6472456.pdf.

Darçın, M. (2017). How Air Pollution Affects Subjective Well-being. In M. Mollaoglu (Ed.), Well-being and Quality of Life: Medical Perspective (pp. 211-230). Norderstedt: Books On Demand.

De Vreyer, P., & Lambert, S. (2018). By Ignoring Intra-household Inequality, do we Underestimate the Extent of Poverty? Retrieved from https://halshs.archives-ouvertes.fr/halshs-01724194

Delprato, M., Akyeampong, K., Sabates, R., & Hernandez-Fernandez, J. (2015). On the Impact of Early Marriage on Schooling Outcomes in Sub-Saharan Africa and South West Asia. *International Journal of Educational Development, 44,* 42–55. https://doi.org/10.1016/j.ijedudev.2015.06.001

Dembele, N. (n.d.). Accelerating Global Actions for a World without Poverty: The Experience of Mali. Inter-agency Expert Group Meeting on Implementation of the Third United Nations Decade for the Eradication of Poverty (2018-2027). Retrieved from https://www.un.org/development/desa/dspd/2020-meetings/3decade-poverty.html

Deneulin, S., & McGregor, J. A. (2010). The Capability Approach and the Politics of a Social Conception of Well-being. *European Journal of Social Theory, 13(4),* 501-519. https://doi.org/10.1177/1368431010382762

Diego-Rosell, P., Tortora, R., & Bird, J. (2018). International Determinants of Subjective Well-being: Living in a Subjectively Material World. *Journal of Happiness Studies, 19(*1), 123-143. https://doi.org/10.1007/s10902-016-9812-3

Diener, E. (1984). Subjective Well-Being. *Psychological Bulletin, 95(3),* 542-575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., & Chan, M. Y. (2011). Happy People Live Longer: Subjective Well-being Contributes to Health and Longevity. *Applied Psychology: Health and Well-Being, 3(1),* 1-43. https://doi.org/10.1111/j.1758-0854.2010.01045.x

Diener, E., & Diener, C. (1996). Most People Are Happy. *Psychological Science, 7,* 181–185.

Diener, E., Diener, C., Choi, H., & Oishi, S. (2018). Revisiting "Most People Are Happy" - And Discovering When They Are Not. *Perspectives on Psychological Science, 13(2),* 166-170. https://doi.org/10.1177/1745691618765111

Diener, E., & Fujita, F. (1997). Social Comparisons and Subjective Well-being. In B. P. Buunk, F. X. Gibbons & A. Buunk, Health, Coping and Well-being: Perspectives from Social Comparison Theory (pp. 329-357). London: Psychology Press.

Diener, E., Gohm, C. L., Suh, E., & Oishi, S. (2000). Similarity of the Relations Between Marital Status and Subjective Well-being Across Cultures. *Journal of Cross-cultural Psychology, 31(4),* 419-436. https://doi.org/10.1177/0022022100031004001

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective Well-being: Three Decades of Progress. *Psychological Bulletin, 125(2),* 276-302. https://doi.org/10.1037/0033-2909.125.2.276

Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective Well-being: The Science of Happiness and Life Satisfaction. *Handbook of positive psychology, 2,* 63-73. https://doi.org/10.1093/oxfordhb/9780195187243.013.0017

Diener, E., & Ryan, K. (2009). Subjective Well-being: A General Overview. *South African journal of psychology, 39(4),* 391-406. https://doi.org/10.1177/008124630903900402

Dierickx, S., Rahbari, L., Longman, C., Jaiteh, F., & Coene, G. (2018). 'I am Always Crying on the Inside': A Qualitative Study on the Implications of Infertility on Women's Lives in Urban Gambia. *Reproductive health, 15(1),* 1-11. https://doi.org/10.1186/s12978-018-0596-2

Dotter, C., & Klasen, S. (2017). The Multidimensional Poverty Index: Achievements, Conceptual and Empirical Issues (No. 233). Discussion Papers. Retrieved from http://hdr.undp.org/sites/default/files/mpi_dotter_and_klasen.pdf

Duff, P. A. (2006). Beyond Generalizability. In M. Chalhoub-Deville, C. A. Chapelle & P. A. Duff (Eds.), Inference and Generalizability in Applied Linguistics: Multiple perspectives (pp. 65-96).

El-Den, S., Schneider, C., Mirzaei, A., & Carter, S. (2020). How to Measure a Latent Construct: Psychometric Principles for the Development and Validation of Measurement Instruments. *International Journal of Pharmacy Practice, 28(4*), 326-336. https://doi.org/10.1111/ijpp.12600

Emelj, T., Biljana, P. M., & Jovan, A. (2018). Indicators of Rural Poverty in the Republic of Macedonia – Multidimensional Poverty Analysis. *Journal of Agricultural, Food and Environmental Sciences, JAFES, 72(3),* 142-150. Retrieved from https://journals.ukim.mk/index.php/jafes/article/view/1184

Engström, E., Målqvist, M., & Hultstrand, J. N. (2020). Family Planning Practices and Women's Impression of an Adapted Reproductive Life Plan in a Disadvantaged Area in Eswatini. https://doi.org/10.21203/rs.3.rs-18287/v1

Eozenou, P., Madani, D., & Swinkels, R. (2013). Poverty, Malnutrition and Vulnerability in Mali. The World Bank. https://doi.org/10.1596/1813-9450-6561

Espinoza-Delgado, J., & Klasen, S. (2018). Gender and Multidimensional Poverty in Nicaragua: An Individual Based Approach. *World Development, 110,* 466-491. https://doi.org/10.1016/j.worlddev.2018.06.016

Eswatini Central Statistical Office. (2016). Swaziland Multiple Indicator Cluster Survey 2014. Final Report. Mbabane, Swaziland, Central Statistical Office and UNICEF. Retrieved from https://mics.unicef.org/surveys

Fall, C. H., Sachdev, H. S., Osmond, C., Restrepo-Mendez, M. C., Victora, C., Martorell, R., ... & Richter, L. (2015). Association Between Maternal Age at Childbirth and Child and Adult Outcomes in the Offspring: A Prospective Study in Five Low-income and Middle-income Countries (COHORTS Collaboration). *The Lancet Global Health, 3(7),* e366-e377. https://doi.org/10.1016/S2214-109X(15)00038-8

Ferrante, F. (2009). Education, Aspirations and Life Satisfaction. *Kyklos, 62(4),* 542-562. https://doi.org/10.1111/j.1467-6435.2009.00450.x

Ferreira, F. H., & Lugo, M. A. (2013). Multidimensional Poverty Analysis: Looking for a Middle Ground. *The World Bank Research Observer, 28(2),* 220-235. https://doi.org/10.1093/wbro/lks013

Fledderjohann, J. J. (2012). 'Zero is Not Good for Me': Implications of Infertility in Ghana. *Human Reproduction, 27(5),* 1383-1390. https://doi.org/10.1093/humrep/des035

Fortin, N., Helliwell, J. F., & Wang, S. (2015). How Does Subjective Well-being Vary Around the World by Gender and Age. World Happiness Report, 42-75.

Frahsa, A., Abel, T., Gelius, P., & Rütten, A. (2021). The Capability Approach as a Bridging Framework Across Health Promotion Settings: Theoretical and Empirical Considerations. *Health Promotion International, 36(2),* 493-504. https://doi.org/10.1093/heapro/daaa076

Frey, B. S., & Stutzer, A. (2002). What Can Economists Learn from Happiness Research? *Journal of Economic literature, 40(2),* 402-435. https://doi.org/10.1257/002205102320161320

Gandjour, A. (2008). Mutual Dependency Between Capabilities and Functionings in Amartya Sen's Capability approach. *Social Choice and Welfare, 31(2),* 345-350. https://doi.org/10.1007/s00355-007-0283-7

Gausman, J., Langer, A., Austin, S. B., & Subramanian, S. V. (2019). Contextual Variation in Early Adolescent Childbearing: A Multilevel Study from 33,822 Communities in 44 Low-and Middle-Income Countries. *Journal of Adolescent Health, 64(6),* 737-745. https://doi.org/10.1016/j.jadohealth.2018.11.018

Golumbeanu, R., & Barnes, D. (2013). Connection Charges and Electricity Access in sub-Saharan Africa. Policy Research Working Paper No. 6511. World Bank, Washington DC. Retrieved from http://hdl.handle.net/10986/15871

González-Carrasco, M., Casas, F., Malo, S., Vinas, F., & Dinisman, T. (2017). Changes with Age in Subjective Well-Being Through the Adolescent Years: Differences by Gender. *Journal of Happiness Studies 18,* 63–88. https://doi.org/10.1007/s10902-016-9717-1

Gould, C. F., Urpelainen, J., & Sais, J. H. (2020). The Role of Education and Attitudes In Cooking Fuel Choice: Evidence from two States in India. *Energy for Sustainable Development, 54,* 36-50. https://doi.org/10.1016/j.esd.2019.09.003

Govender, D., Naidoo, S., & Taylor, M. (2020). "I Have to Provide for Another Life Emotionally, Physically and Financially": Understanding Pregnancy, Motherhood and the Future Aspirations of Adolescent Mothers in KwaZulu-Natal South, Africa. *BMC Pregnancy and Childbirth, 20(1),* 1-21. https://doi.org/10.1186/s12884-020-03319-7

Greco, G., Lorgelly, P., & Yamabhai, I. (2016). Outcomes in Economic Evaluations of Public Health Interventions in Low-and Middle-income Countries: Health, Capabilities and Subjective Wellbeing. *Health Economics, 25,* 83-94. https://doi.org/10.1002/hec.3302

Greeley, M. (1994). Measurement of Poverty and Poverty of Measurement. *Institute of Development Studies Bulletin, 25(2),* 50-58. https://doi.org/10.1111/j.1759-5436.1994.mp25002005.x

Gweshengwe, B. (2019). A Critique of the Income Poverty Line and Global Multidimensional Poverty Index. *Southeast Asia: A Multidisciplinary Journal, 19,* 37-46.

Haring-Hidore, M., Stock, W. A., Okun, M. A., & Witter, R. A. (1985). Marital Status and Subjective Well-being: A Research Synthesis. *Journal of Marriage and the Family, 47(4),* 947-953. https://doi.org/10.2307/352338

Heale, R., & Twycross, A. (2015). Validity and Reliability in Quantitative Studies. *Evidence-based Nursing, 18(3),* 66-67. http://dx.doi.org/10.1136/eb-2015-102129

Helliwell, J. F. (2002). How's Life? Combining Individual and National Variables to Explain Subjective Well-being. *Economic modelling, 20(2),* 331-360. https://doi.org/10.1016/S0264-9993(02)00057-3

Helliwell, J. F., Huang, H., Wang, S., & Norton, M. (2020). Social Environments for World Happiness. In J. Helliwell, R. Layard, J. Sachs, & J-E De Neve (Eds), World Happiness Report 2020. New York: Sustainable Development Solutions Network. Retrieved from https://worldhappiness.report/ed/2020/.

Helliwell, J. F., Layard, R., Sachs, J., & De Neve J-E. (2020). World Happiness Report 2020. New York: Sustainable Development Solutions Network. Retrieved from https://worldhappiness.report/ed/2020/

Hick, R. (2012). The Capability Approach: Insights for a New Poverty Focus. *Journal of Social Policy, 41(2),* 291-308. https://doi.org/10.1017/S0047279411000845

Hick, R. (2016). Material Poverty and Multiple Deprivation in the UK: The Distinctiveness of Multidimensional Assessment. *Journal of Public Policy, 36(2),* 277-308. http://dx.doi.org/10.1017/S0143814X14000348

Howell, R. T., & Howell, C. J. (2008). The Relation of Economic Status to Subjective Well-being in Developing Countries: a Meta-analysis. *Psychological Bulletin, 134(4*), 536-560. https://doi.org/10.1037/0033-2909.134.4.536

Ibarra-Nava, I., Choudhry, V. & Agardh, A. (2020). Desire to Delay the First Childbirth Among Young, Married Women in India: a Cross-sectional Study Based on National Survey Data. *BMC Public Health 20, 350.* https://doi.org/10.1186/s12889-020-8402-9

International Women's Health Coalition. (n.d.). The Facts on Child Marriage. Retrieved from https://iwhc.org/resources/facts-child-marriage/

Isara, A. R., & Aigbokhaode, A. Q. (2014). Household Cooking Fuel Use among Residents of a Sub-Urban Community in Nigeria: Implications for Indoor Air Pollution. *The Eurasian Journal of Medicine, 46(3),* 203-298. https://doi.org/10.5152/eajm.2014.0051

Iversen, V. (2003). Intra-household Inequality: a Challenge for the Capability Approach?. *Feminist Economics, 9(2-3),* 93-115. https://doi.org/10.1080/1354570032000080868

Jensen, R., & Thornton, R. (2003). Early Female Marriage in the Developing World. *Gender & Development, 11(2),* 9-19. https://doi.org/10.1080/741954311

Johnston, M. (2014). Secondary Data Analysis: A Method of Which the Time Has Come. *Qualitative and Quantitative Methods in Libraries, 3(3),* 619-626. Retrieved from http://www.qqml-journal.net/index.php/qqml/article/view/169

Joint Monitoring Programme. (n.d.). Retrieved from https://washdata.org/

Jovanović, V., & Lazić, M. (2020). Is Longer Always Better? A Comparison of the Validity of Single-item versus Multiple-item Measures of life satisfaction. *Applied Research in Quality of Life, 15,* 675–692. https://doi.org/10.1007/s11482-018-9680-6

Kabiru, C., Izugbara, C., & Beguy, D. (2013). The Health and Wellbeing of Young People in Sub-Saharan Africa: An Under-researched Area? *BMC International Health and Human Rights 13(11)*. https://doi.org/10.1186/1472-698X-13-11

Kacanoglu, M. (2020). An Evaluation on the Criticism of Amartya Sen's Development Approach. *Ekonomik Yaklasim, 31(117),* 483-524. https://doi.org/10.5455/ey.17100

Kaczmarek, L. D. (2017). Happiness. In V. Zeigler-Hill & T. K. Shackelford (Eds), Encyclopedia of Personality and Individual Differences (pp.1-5). http://dx.doi.org/10.1007/978-3-319-28099-8_522-1

Kakwani, N., & Silber, J. (2007). The Many Dimensions of Poverty. London: Palgrave Macmillan. https://doi.org/10.1057/9780230592407

Kamata, A., Turhan, A., & Darandari, E. (2003). Estimating Reliability for Multidimensional Composite Scale Scores. In Annual Meeting of American Educational Research Association. https://doi.org/10.1.1.494.2506

Kannan, K. P. (1999). Poverty Alleviation as Advancing Basic Human Capabilities: Kerala's Achievements Compared. CDS Working Papers, no. 294. Trivandrum: CDS. Retrieved from https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/3007

Kassa, G. M., Arowojolu, A. O., Odukogbe, A. T. A., & Yalew, A. W. (2019). Trends and Determinants of Teenage Childbearing in Ethiopia: Evidence from the 2000 to 2016 Demographic and Health Surveys. *Italian Journal of Pediatrics, 45(1),* 1-13. https://doi.org/10.1186/s13052-019-0745-4

Khan, S., & Hancioglu, A. (2019). Multiple Indicator Cluster Surveys: Delivering Robust Data on Children and Women across the Globe. *Studies in Family Planning, 50(3),* 279-286. https://doi.org/10.1111/sifp.12103

Killam, L. (2013). Research Terminology Simplified: Paradigms, Axiology, Ontology, Epistemology and Methodology. Sudbury: Laura Killam.

Kim, S. G. (2016). What Have We Called as "Poverty"? A Multidimensional and Longitudinal Perspective. *Social Indicators Research*, *129*(1), 229-276. https://doi.org/10.1007/s11205-015-1101-8

Kimhur, B. (2020). How to Apply the Capability Approach to Housing Policy? Concepts, Theories and Challenges. *Housing, Theory and Society, 37(3),* 257-277. https://doi.org/10.1080/14036096.2019.1706630

Kingdon, G. G., & Knight, J. (2006). Subjective Well-being Poverty vs. Income Poverty and Capabilities poverty? *The Journal of Development Studies, 42(7),* 1199-1224. https://doi.org/10.1080/00220380600884167

Kivunja, C., & Kuyini, A. B. (2017). Understanding and Applying Research Paradigms in Educational Contexts. *International Journal of Higher Education, 6(5),* 26-41. https://doi.org/10.5430/ijhe.v6n5p26

Klasen, S. (2000). Measuring Poverty and Deprivation in South Africa. *Review of Income and Wealth, 46(1),* 33-58. https://doi.org/10.1111/j.1475-4991.2000.tb00390.x

Klasen, S., & Lahoti, R. (2016). How Serious is the Neglect of Intra-household Inequality in Multi-dimensional Poverty Indices? https://dx.doi.org/10.2139/ssrn.2742083

Krasikova, D., LeBreton, J. M., & Tonidandel, S. (2011). Estimating the Relative Importance of Variables in Multiple Regression Models. International Review of Industrial and Organizational Psychology.

Krishnakumar, J., & Ballon, P. (2008). Estimating Basic Capabilities: A Structural Equation Model Applied to Bolivia. *World Development, 36(6),* 992-1010. https://doi.org/10.1016/j.worlddev.2007.10.006

Laderchi, C. R. (1997). Poverty and Its Many Dimensions: the Role of Income as an Indicator. *Oxford Development Studies, 25,* 345–60.

Laderchi, C. R. (1999). The Many Dimensions of Deprivation in Peru. Queen Elizabeth House Working Paper Series, 29.

Laderchi, C. R., Saith, R., & Stewart, F. (2003). Does it Matter that we do not Agree on the Definition of Poverty? A Comparison of Four Approaches. *Oxford Development Studies, 31(3),* 243-274. https://doi.org/10.1080/1360081032000111698

Leon, D. F. (2017). Capability Approach: A Formal Introduction. *Journal of Economics and Political Economy, 4(2),* 215-218. https://doi.org/10.1453/jepe.v4i2.1348

Leßmann, O. (2004). Some Reflections on Operationalising the Capability-set and a Definition of Poverty as Capability Failure. Retrieved from http://cfs.unipv.it/ca2004/papers/lessman.pdf

Lever, J. P. (2004). Poverty and Subjective Well-being in Mexico. *Social Indicators Research 68,* 1–33. https://doi.org/10.1023/B:SOCI.0000025567.04153.46

Lim, M., Cappa, C., & Patton, G. C. (2017). Subjective Well-being Among Young People in Five Eastern European Countries. *Global Mental Health, 4, c12*. https://doi.org/10.1017/gmh.2017.8

Lorgelly, P. K., Lawson, K. D., Fenwick, E. A., & Briggs, A. H. (2010). Outcome Measurement in Economic Evaluations of Public Health Interventions: A Role for the Capability Approach*? International Journal of Environmental Research and Public Health, 7(5),* 2274-2289. https://doi.org/10.3390/ijerph7052274

Lusih, M., Sibandze, S., & Mehlo, M. (2019). Government of the Kingdom of Eswatini/UNFPA 6th Country Programme Evaluation (2016-2020). Retrieved from https://eswatini.unfpa.org

Lustig, N. (2011). Multidimensional Indices of Achievements and Poverty: What do we gain and what do we lose? *Center for Global Development Working Paper*, (262). https://doi.org/10.2139/ssrn.1910099

McCosker, H., Barnard, A., & Gerber, R. (2001). Undertaking Sensitive Research: Issues and Strategies for Meeting the Safety Needs of all Participants. *Qualitative Social Research, 2(1).* https://doi.org/10.17169/fqs-2.1.983

McQueston, K., Silverman, R., & Glassman, A. (2012). Adolescent Fertility in Low-and Middle-Income Countries: Effects and Solutions. Center for Global Development Working Paper, 295. Retrieved from https://econpapers.repec.org/paper/esswpaper/id_3a4975.htm

Main, G. (2014). Child Poverty and Children's Subjective Well-being. *Child Indicators Research, 7(3),* 451-472. https://doi.org/10.1007/s12187-014-9237-7

Main, G. (2019). Money Matters: A Nuanced Approach to Understanding the Relationship between Household Income and Child Subjective Well-being. *Child Indicators Research, 12(4),* 1125-1145. https://doi.org/10.1007/s12187-018-9574-z

Majumdar, M., & Subramanian, S. (2010). Capability Failure and Group Disparities: Some Evidence from India for the 1980s. *Journal of Development Studies, 37(5),* 104-140. https://doi.org/10.1080/00220380412331322141

Martinetti, E. C. (2000). A Multidimensional Assessment of Well-being Based on Sen's Functioning Approach. *Rivista Internazionale di Scienze Sociali, 198(2),* 207-239. http://dx.doi.org/10.2307/41634742

Masson, J. R. (2021). Eswatini. Encyclopedia Britannica. Retrieved from https://www.britannica.com/place/Eswatini

Mauritania National Statistical Office. (2016). Mauritania Multiple Indicator Cluster Survey 2016. Nouakchott, Mauritania. Retrieved from https://mics.unicef.org/surveys

Mayoux, L. (2006). Quantitative, Qualitative or Participatory? Which Method, for What and When? In Desai, V., & Potter, R. B. (Eds.), Doing Development Research (pp.115-129). London: SAGE Publications, Ltd. https://doi.org/10.4135/9781849208925

Megbowon, E. T. (2018). Multidimensional Poverty Analysis of Urban and Rural Households in South Africa. *Studia Universitatis Babes Bolyai-Oeconomica, 63(1),* 3-19. http://dx.doi.org/10.2478/subboec-2018-0001

Minkov, M. (2009). Predictors of Differences in Subjective Well-being Across 97 Nations. *Cross-Cultural Research, 43(2),* 152-179. http://dx.doi.org/10.1177/1069397109332239

Mitchell, A., & Macció, J. (2018). Evaluating the Effects of Housing Interventions on Multidimensional Poverty: The case of TECHO-Argentina. Oxford Poverty and Human Development Initiative (OPHI). Retrieved from https://ophi.org.uk/wp-120/

Mitchell, P. M., Roberts, T. E., Barton, P. M., & Coast, J. (2017). Applications of the Capability Approach in the Health Field: a Literature Review. *Social indicators research, 133(1),* 345-371. https://doi.org/10.1007/s11205-016-1356-8

Mitra, S. (2006). The Capability Approach and Disability. *Journal of disability policy studies, 16*(4), 236-247. https://doi.org/10.1177/10442073060160040501

Mogilner, C., Kamvar, S. D., & Aaker, J. (2011). The Shifting Meaning of Happiness. *Social Psychological and Personality Science, 2(4),* 395-402. https://doi.org/10.1177%2F1948550610393987

Mohanty, S. K., & Dehury, B. (2012). Human Development Indices: Old and New. *Artha Vijnana, 54(1),* 19-38. http://dx.doi.org/10.21648/arthavij/2012/v54/i1/111102

Moura Jr. J., & Castella Sarriera, J. (2017). The Relationship Between Poverty and Well-Being: A Systematic Review. *Estudos Interdisciplinares em Psicologia, 2(8),* 100-125. http://dx.doi.org/10.5433/2236-6407.2017v8n2p100

Muffels, R., & Headey, B. (2013). Capabilities and Choices: Do They Make Sen'se for Understanding Objective and Subjective Well-being? An Empirical Test of Sen's Capability Framework on German and British Panel Data. *Social Indicators Research*, 110(3), 1159-1185. https://doi.org/10.1007/s11205-011-9978-3

Multiple Indicator Cluster Survey in Mali (MICS-Mali) 2015. Final Report. Bamako, Mali, INSTAT. Retrieved from https://mics.unicef.org/surveys

Muthuri, S. K., Francis, C. E., Wachira, L. J. M., LeBlanc, A. G., Sampson, M., Onywera, V. O., & Tremblay, M. S. (2014). Evidence of an Overweight/Obesity Transition Among School-aged Children and Youth in Sub-Saharan Africa: a Systematic Review. *PloS one, 9(3),* e92846. https://doi.org/10.1371/journal.pone.0092846

Nájera, H. E., & Gordon, D. (2020). The Importance of Reliability and Construct Validity in Multidimensional Poverty Measurement: An Illustration using the Multidimensional Poverty Index for Latin America (MPI-LA). *The Journal of Development Studies, 56(9),* 1763-1783. https://doi.org/10.1080/00220388.2019.1663176

Nambiar, S. (2013). Capabilities, Conversion Factors and Institutions. Progress in Development Studies, 13(3), 221-230. https://doi.org/10.1177/1464993413486547

Narayan, D., Patel, R., & Schafft, K. R. (2000).Voices of the Poor: Can Anyone Hear Us. New York: Oxford University Press for the World Bank. Retrieved from http://documents.worldbank.org/curated/en/131441468779067441/Voices-of-the-poor-can-anyone-hear-us

Ndayambaje, E., Pierewan, A. C., Nizeyumukiza, E., Nkundimana, B., & Ayriza, Y. (2020). Marital Status And Subjective Well-being: Does Education Level Take Into Account? *Cakrawala Pendidikan, 39(1),* 120-132. https://doi.org/10.21831/cp.v39i1.29620

Neuman, W. L. (2014). Social Research Methods: Qualitative and Quantitative Approaches. Boston: Pearson.

Nguyen, M. C., & Wodon, Q. (2014). Impact of Child Marriage on Literacy and Education Attainment in Africa. Washington, DC: UNICEF and UNESCO Statistics.

Nicola, P., Bravo, M. O., & Sarmiento, J. S. (2018). The Determinants of Subjective Well-being In A Developing Country: The Ecuadorian Case. JRC Technical Reports: Luxembourg: European Union. https://doi.org/10.1007/s10902-019-00211-w

Nidup, J., Feeny, S., & de Silva, A. (2018). Improving Well-Being in Bhutan: A Pursuit of Happiness or Poverty Reduction? *Social Indicators Research, 140(1),* 79-100. https://doi.org/10.1007/s11205-017-1775-1

Nor-Azzatunnisak, M., Roseliza-Murni, A., Manap, J., & Hoesni, S. M. (2017). Selecting Appropriate Happiness Measures and Malleability: A Review. *International Journal of Academic Research in Business and Social Sciences, 7(11),* 1082-1099. http://dx.doi.org/10.6007/IJARBSS/v7-i11/3547

Nozaki, K., & Oshio, T. (2016). Multidimensional Poverty and Perceived Happiness: Evidence from China, Japan and Korea. *Asian Economic Journal, 30(3),* 275-293. https://doi.org/10.1111/asej.12094

Nussbaum, M. C. (1997). Capabilities and Human Rights. *Fordham Law Review, 66(2),* 273-300. Retrieved from https://ir.lawnet.fordham.edu/flr/vol66/iss2/2

Nussbaum, M. C. (2000). Creating Capabilities: The Human Development Approach and Its Implementation. *Hypatia, 24(3),* 211-215. https://doi.org/10.1111/j.1527-2001.2009.01053.x

Omoeva, C., & Hatch, R. (2020). Teenaged, Married, and Out of School: Effects of Early Marriage and Childbirth on School Exit in Eastern Africa. *Prospects*, 2020. https://doi.org/10.1007/s11125-020-09517-7

OPHI. (n.d.). Global Multidimensional Poverty Index. Retrieved from https://ophi.org.uk/multidimensional-poverty-index/

OPHI. (2018). Global Multidimensional Poverty Index 2018: The Most Detailed Picture to Date of the World's Poorest People. Oxford Poverty and Human Development Initiative, University of Oxford. Retrieved from https://ophi.org.uk/wp-content/uploads/G-MPI_2018_2ed_web.pdf

OPHI. (2019). United Nations Development Programme. Retrieved from http://hdr.undp.org/en/2019-MPI.
Oxfam. (n.d.). Mauritania. Retrieved from https://www.oxfam.org/en/what-we-do/countries/mauritania
Panhwar, A. H., Ansari, S., & Shah, A. A. (2017). Post-positivism: An Effective Paradigm for Social and Educational Research. *International Research Journal of Arts & Humanities (IRJAH), 45(45),* 254–260. Retrieved from https://www.researchgate.net/publication/317605754.
Pallant, J. (2016). SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS. Maidenhead: Open University Press/McGraw-Hill.
Pomati, M., & Nandy, S. (2020). Measuring Multidimensional Poverty According to National Definitions: Operationalising Target 1.2 of the Sustainable Development Goals. *Social Indicators Research, 148,* 105–126. https://doi.org/10.1007/s11205-019-02198-6
Price, P., Jhangiani, R., & Chiang, I. (2015). Research Methods in Psychology - 2nd Canadian Edition. Victoria, B.C.: BCcampus. Retrieved from https://opentextbc.ca/researchmethods/
Proctor, C., Alex Linley, P., & Maltby, J. (2009). Youth Life Satisfaction Measures: A Review. *The Journal of Positive Psychology, 4(2),* 128-144. https://doi.org/10.1080/17439760802650816
Punch, K. (2014). Introduction to Social Research: Quantitative & Qualitative Approaches. London: Sage.
Qi, D., & Wu, Y. (2019). Comparing the Extent and Levels of Child Poverty by the Income and Multidimensional Deprivation Approach in China. *Child Indicators Research, 12(2),* 627-645. https://doi.org/10.1007/s12187-018-9544-5
Ratzlaff, C., Matsumoto, D., Kouznetsova, N., Raroque, J., & Ray, R. (2000). Individual Psychological Culture and Subjective Well-being. In E. Diener & M. E. Suh (Eds.), Culture and Subjective Well-being (pp. 37-60). Cambridge, Ma: MIT Press
Ravallion, M. (2003). The Debate on Globalization, Poverty and Inequality: Why Measurement Matters. *International Affairs, 79(4),* 739-753. https://doi.org/10.1111/1468-2346.00334
Rawnsley, M. M. (1998). Ontology, Epistemology, and Methodology: A Clarification. *Nursing Science Quarterly, 11(1),* 2–4. https://doi.org/10.1177/089431849801100102
Roberts, P., & Priest, H. (2006). Reliability and Validity in Research. *Nursing Standard, 20(44),* 41-46. http://dx.doi.org/10.7748/ns.20.44.41.s56
Robeyns, I. (2000). An Unworkable Idea or a Promising Alternative? Sen's Capability Approach Re-examined. Retrieved from: https://core.ac.uk/download/pdf/6979068.pdf
Robeyns, I. (2003). Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities. *Feminist Economics, 9,* 61–92. https://doi.org/10.1080/1354570022000078024
Robeyns, I. (2005a). The Capability Approach: A Theoretical Survey. *Journal of Human Development, 6(1),* 93-117. https://doi.org/10.1080/146498805200034266
Robeyns, I. (2005b). Selecting Capabilities for Quality of Life Measurement. *Social Indicators Research, 74,* 191-215. https://doi.org/10.1007/s11205-005-6524-1
Robeyns, I. (2006). The Capability Approach in Practice. *Journal of Political Philosophy, 14(3),* 351-376. https://doi.org/10.1111/j.1467-9760.2006.00263.x
Robeyns, I. (2014). Functioning and Capabilities. Retrieved from https://crookedtimber.org/2014/03/06/ca-01-functionings-and-capabilities/
Robeyns, I., & Byskov, M. F. (2020). The Capability Approach. In E. N. Zalta (Ed), The Stanford Encyclopedia of Philosophy. Retrieved from https://plato.stanford.edu/archives/win2020/entries/capability-approach/
Rodríguez, L. (2016). Intrahousehold Inequalities in Child Rights and Well-being. A Barrier to Progress? *World Development, 83,* 111-134. https://doi.org/10.1016/j.worlddev.2016.02.005
Rogan, M. (2016). Gender and Multidimensional Poverty in South Africa: Applying the Global Multidimensional Poverty Index (MPI). *Social Indicators Research, 126(3),* 987-1006. https://doi.org/10.1007/s11205-015-0937-2
Rojas, M. (2004). Well-being and the Complexity of Poverty: A Subjective Well-being Approach. WIDER Research Paper, No. 2004/29, The United Nations University World Institute for Development Economics Research, Helsinki. Retrieved from http://hdl.handle.net/10419/63558
Roser, M., & Ortiz-Ospina, E. (2019). Global Extreme Poverty. Retrieved from https://ourworldindata.org/extreme-poverty#citation.
Ross, M. W., Iguchi, M. Y., & Panicker, S. (2018). Ethical Aspects of Data Sharing and Research Participant Protections. *American Psychologist, 73(2),* 138. https://psycnet.apa.org/doi/10.1037/amp0000240

Rutledge, K., Ramroop, T., Boudreau, D., McDaniel, M., Teng, S., Sprout, E., Costa, H., Hall, H., & Hunt, J. (2011). Urban Area. Retrieved from https://www.nationalgeographic.org/encyclopedia/urban-area/

Saloojee, H., & Coovadia, H. (2015). Maternal Age Matters: For a Lifetime, or Longer. *The Lancet Global Health, 3(7),* e342-e343. https://doi.org/10.1016/S2214-109X(15)00034-0

Sahn, D. E., & Stifel, D. C. (2000). Poverty Comparisons Over Time and Across Countries in Africa. World development, 28(12), 2123-2155. https://doi.org/10.1016/S0305-750X(00)00075-9

Saith, R. (2001). Capabilities: the Concept and its Operationalisation. Oxford: Queen Elizabeth House.

Sale, J., Lohfeld, L., & Brazil, K. (2002). Revisiting the Quantitative-Qualitative Debate: Implications for Mixed-Methods Research. *Quality & Quantity 36,* 43–53. https://doi.org/10.1023/A:1014301607592

Salecker, L., Ahmadov, A. K., & Karimli, L. (2020). Contrasting Monetary and Multidimensional Poverty Measures in a Low‐Income Sub‐Saharan African Country. *Social Indicators Research, 151,* 547–574. https://doi.org/10.1007/s11205-020-02382-z

Sandvik, E., Diener, E., & Seidlitz, L. (2009). Subjective Well-being: The Convergence and Stability of Self-report and Non-self-report Measures. In E. Diener (Ed), Assessing Well-being (pp. 119-138). Dordrecht: Springer.

Santos, M. C. J., Magramo Jr, C., Oguan Jr, F., Paat, J. J., & Barnachea, E. A. (2012). Meaning in Life and Subjective Well-being: Is a Satisfying Life Meaningful? *Researchers World, 3(4).*

Santos, M. E., & Villatoro, P. (2020). The Importance of Reliability in the Multidimensional Poverty Index for Latin America (MPI-LA). *The Journal of Development Studies, 56(9),* 1784-1789. https://doi.org/10.1080/00220388.2019.1663177

Sarracino, F. (2010). Determinants of Subjective Well-being in High and Low Income Countries: Do Happiness Equations Differ Across Countries? *Journal of Behavioral and Experimental Economics, 42(C),* 51-66. https://doi.org/10.1016/j.socec.2012.11.006

Saunders, P. (2003). Can Social Exclusion Provide a New Framework for Measuring Poverty? Sydney: Social Policy Research Centre, University of New South Wales.

Schischka, J., Dalziel, P., & Saunders, C. (2008). Applying Sen's Capability Approach to Poverty Alleviation Programs: Two Case Studies. *Journal of Human Development, 9(2),* 229-246. https://doi.org/10.1080/14649880802078777

Schokkaert, E. (2008). The Capabilities Approach. https://doi.org/10.2139/ssrn.1084821

Scott, A., Ejikeme, C. S., Clottey, E. N., & Thomas, J. G. (2013). Obesity in Sub-Saharan Africa: Development of an Ecological Theoretical Framework. *Health promotion international, 28(1),* 4-16. https://doi.org/10.1093/heapro/das038

Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian Journal of Dermatology, 61(3),* 261-264. https://doi.org/10.4103/0019-5154.182410

Sen, A. (1979). Equality or What? *The Tanner Lectures on Human Values, 1,* 197-220. Retrieved from http://www.ophi.org.uk/wp-content/uploads/Sen-1979_Equality-of-What.pdf

Sen, A. (1983). Poor, Relatively Speaking. *Oxford Economic Papers, 35,* 153–169. Retrieved from http://www.jstor.org/stable/2662642

Sen, A. (1984). Resources, Values and Development. Oxford: Blackwell, and Cambridge, Mass.: Harvard University Press.

Sen, A. (1985). Commodities and Capabilities. North-Holland.

Sen, A. (1987). On Ethics and Economics. Oxford: Basil Blackwell.

Sen, A. (1990). Development as Capability Expansion. In K. Griffin, & J. Knight (Eds.), Human Development and the International Development Strategy for the 1990s. London: Macmillan.

Sen, A. (1992). Inequality Re-examined. Oxford: Clarendon Press.

Sen, A. (1999). Development as Freedom. New York: Alfred Knopf

Sen, A. (2000). Social Exclusion: Concept, Application, and Scrutiny. Asian Development Bank.

Sen, A. (2002). Why Health Equity? *Health Economics, 11(8),* 659–666. https://doi.org/10.1002/hec.762

Sen, A. (2003). Issues in the Measurement of Poverty. *International Library Of Critical Writings In Economics, 158,* 60-82.

Sen, A. (2004). Capabilities, Lists, and Public Reason: Continuing the Conversation. *Feminist Economics, 10(3),* 77-80. https://doi.org/10.1080/1354570042000315163

Sengupta, M. (2018). Transformational Change or Tenuous Wish List? A Critique of SDG 1 ('End Poverty in All Its Forms Everywhere'). *Social Alternatives*, *37*(1), 12-17. https://search.informit.org/doi/10.3316/ielapa.573646044161666

Shams, K. (2016). Developments in the Measurement of Subjective Well-being and Poverty: An Economic Perspective. *Journal of happiness Studies, 17(6),* 2213-2236. https://doi.org/10.1007/s10902-015-9691-z

Shields, M., & Wooden, M. (2003). Marriage, Children and Subjective Well-being. In 8th Australian Institute of Family Studies Conference. Retrieved from http://www.melbourneinstitute.com/hilda/Biblio/hbibliocq.html.

Sial, M. H., Noreen, A., & Awan, R. U. (2015). Measuring Multidimensional Poverty and Inequality in Pakistan. *The Pakistan Development Review, 54(4),* 685-696. Retrieved from http://www.jstor.org/stable/43831354

Sijtsma, K. (2009). On the Use, the Misuse, and the Very Limited Usefulness of Cronbach's Alpha. *Psychometrika, 74(1),* 107-120. https://doi.org/10.1007/S11336-008-9101-0

Simiyu, S., Swilling, M., Cairncross, S. & Rheingans, R. (2017). Determinants of Quality of Shared Sanitation Facilities in Informal Settlements: Case Study of Kisumu, Kenya. *BMC Public Health, 17(68)*. https://doi.org/10.1186/s12889-016-4009-6

Singh, S., & Samara, R. (1996). Early Marriage Among Women in Developing Countries. *International Family Planning Perspectives, 22(4),* 148-175. https://doi.org/10.2307/2950812

Snyder C. R., & Lopez, S. J. (2002). Handbook of Positive Psychology. New York: Oxford University Press.

Sousa-Poza, A. & Siangchokyoo, N. (2012). Research Methodologies: A Look at the Underlying Philosophical Foundations of Research. Retrieved from https://www.researchgate.net/publication/261703881

Stanton, E. A. (2007). The Human Development Index: A History. Political Economy Research Institute Working Papers, 85. Retrieved from https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1101&context=peri_workingpapers

Stevenson, B., & Wolfers, J. (2013). Subjective Well-being and Income: Is There Any Evidence of Satiation? *American Economic Review, 103*(3), 598-604. https://doi.org/10.1257/aer.103.3.598

Stewart, C. C., Gerteiny, A. G., Toupet, C. H., & Deschamps, H. J. (2021). Mauritania. Encyclopedia Britannica. Retrieved from https://www.britannica.com/place/Mauritania

Steyn, N. P., & Mchiza, Z. J. (2014). Obesity and the Nutrition Transition in Sub-Saharan Africa. *Annals of the New York academy of sciences, 1311(1),* 88-101. https://doi.org/10.1111/nyas.12433

Strotmann, H., & Volkert, J. (2018). Multidimensional Poverty Index and Happiness. *Journal of Happiness Studies, 19,* 167–189. https://doi.org/10.1007/s10902-016-9807-0

Stutzer, A., & Frey, B. S. (2003). Reported Subjective Well-being: A Challenge for Economic Theory and Economic Policy. *Journal of Applied Social Science Studies, 124(2),* 191-231. http://hdl.handle.net/10419/214283

Sumner, A., Hoy, C., & Ortiz-Juarez, E. (2020). Estimates of the Impact of COVID-19 on Global Poverty. WIDER Working Paper 2020/43. https://doi.org/10.35188/UNU-WIDER/2020/800-9

Susniene, D., & Jurkauskas, A. (2009). The Concepts of Quality of Life and Happiness – Correlation and Differences. *Engineering Economics, 63(3).* https://doi.org/10.5755/J01.EE.63.4.11648

Taber, K. S. (2018). The Use of Cronbach's alpha when Developing and Reporting Research Instruments in Science Education. *Research in Science Education, 48(6),* 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

Tanumihardjo, S. A., Anderson, C., Kaufer-Horwitz, M., Bode, L., Emenaker, N. J., Haqq, A. M., ... & Stadler, D. D. (2007). Poverty, Obesity, and Malnutrition: An International Perspective Recognizing the Paradox. *Journal of the American Dietetic Association, 107(11),* 1966-1972. https://doi.org/10.1016/j.jada.2007.08.007

Tavakol, M., & Dennick, R. (2011). Making Sense of Cronbach's Alpha. *International Journal of Medical Education, 2,* 53-55. https://dx.doi.org/10.5116%2Fijme.4dfb.8dfd

Thyloth, M., Singh, H., & Subramanian, V. (2016). Increasing Burden of Mental Illnesses Across the Globe: Current Status. *Indian Journal of Social Psychiatry, 32(3),* 254-256. http://dx.doi.org/10.4103/0971-9962.193208

Townsend, P. (1979). Poverty in the United Kingdom. London: Allen Lane and Penguin Books.

Trani, J. F., Kuhlberg, J., Cannings, T., & Chakkal, D. (2016). Multidimensional Poverty in Afghanistan: Who are the Poorest of the Poor? *Oxford Development Studies, 44(2),* 220-245. https://doi.org/10.1080/13600818.2016.1160042

Ulloa, B. F. L., Møller, V., & Sousa-Poza, A. (2013). How Does Subjective Well-being Evolve with Age? A Literature Review. *Journal of Population Ageing, 6(3),* 227-246. https://doi.org/10.1007/s12062-013-9085-0

UNAIDS. (2015). Empower Young Women and Adolescent Girls: Fast-Tracking the End of the AIDS Epidemic in Africa. Retrieved from https://www.unaids.org/sites/default/files/media_asset/JC2746_en.pdf

UNDP. (n.d.). Human Development Index (HDI). Retrieved from http://hdr.undp.org/en/content/human-development-index-hdi

UNDP. (2020). The Multidimensional Poverty Index 2020. Retrieved from

UNICEF. (n.d.). MICS5 Tools: Sampling. Retrieved from https://mics.unicef.org/tools

UNICEF. (2015a). The Multiple Indicator Cluster Surveys (MICS) 1995–2015. Monitoring the Situation of Children and Women for 20 Years. Retrieved from http://hdr.undp.org/en/2020-MPI http://mics.unicef.org/publications/reports-and-methodological-papers.

UNICEF. (2015b). More than 380,000 Children out of School in Northern Mali, three Months into School Year. Retrieved fromhttps://www.unicef.org/media/media_86575.html

UNICEF. (2020a). About MICS. Retrieved from http://mics.unicef.org/about.

UNICEF. (2020b). Levels and Trends in Child Mortality: 2020 Report. Retrieved from https://data.unicef.org/resources/levels-and-trends-in-child-mortality/

UNICEF. (2021). Child Marriage. Retrieved from https://www.unicef.org/protection/child-marriage

United Nations. (2016). Study on Aging in Sub-Saharan Africa: Sampling Manual. Department of Economic and Social Affairs. Retrieved from https://www.un.org/development/desa/ageing/wp-content/uploads/sites/24/2019/04/Sampling-manual-final.pdf.

United Nations. (2019). The Sustainable Development Goals Report. https://doi.org/10.18356/20155ccd-en

United Nations. (2020a). Urbanization: Expanding Opportunities but Deeper Divides. In World Social Report 2020. Retrieved from https://www.un.org/development/desa/dspd/world-social-report/2020-2.html

United Nations. (2020b). World Family Planning 2020 Highlights. Retrieved from https://www.un.org/development/desa/pd/

Van Ootegem, L., & Verhofstadt, E. (2012). Using Capabilities as an Alternative Indicator for Well-being. *Social indicators research, 106(1),* 133-152. https://doi.org/10.1007/s11205-011-9799-4

Veenhoven, R. (1996). The Study of Life-satisfaction. Retrieved from http://hdl.handle.net/1765/16311

Veenhoven, R. (2012). Happiness: Also Known as "Life Satisfaction" and "Subjective Well-Being". In K. Land, A. Michalos & M. Sirgy (Eds), Handbook of Social Indicators and Quality of Life Research. Dordrecht: Springer. https://doi.org/10.1007/978-94-007-2421-1_3

Verkerk, M. A., Busschbach, J. J. V., & Karssing, E. D. (2001). Health-related Quality of Life Research and the Capability Approach of Amartya Sen. *Quality of Life Research, 10(1),* 49-55. https://doi.org/10.1023/a:1016652515418

Vijaya, R. M., Lahoti, R., & Swaminathan, H. (2014). Moving from the Household to the Individual: Multidimensional Poverty Analysis. *World Development, 59,* 70-81. https://doi.org/10.1016/j.worlddev.2014.01.029

Voukelatou, V., Gabrielli, L., Miliou, I., Cresci, S., Sharma, R., Tesconi, M., & Pappalardo, L. (2020). Measuring Objective and Subjective Well-being: Dimensions and Data Sources. *International Journal of Data Science and Analytics*. https://doi.org/10.1007/s41060-020-00224-2

Wagle, U. (2008). Rethinking Poverty: Definition and Measurement. *International Social Science Journal, 54(171),* 155-165. https://doi.org/10.1111/1468-2451.00366

Wagmiller, R. L., & Adelman, R. M. (2009). Childhood and Intergenerational Poverty: The Long-term Consequences of Growing Up Poor. https://doi.org/10.7916/D8MP5C0Z

Wang, X., & Cheng, Z. (2020). Cross-sectional Studies: Strengths, Weaknesses, and Recommendations. *Chest 158(1),* 565-571. https://doi.org/10.1016/j.chest.2020.03.012

Wang, Y., & Wang, B. (2016). Multidimensional Poverty Measure and Analysis: A Case Study From Hechi City, China. *Springer Plus, 5(1),* 1-25. https://doi.org/10.1186/s40064-016-2192-7

Wells, T. (n.d.). Sen's Capability Approach. The Internet Encyclopedia of Philosophy, ISSN 2161-0002. Retrieved from https://iep.utm.edu/sen-cap/

White, H. (2014). The Measurement of Poverty. In V. Desai & R. Potter (Eds.), the Companion to Development Studies (pp. 60-67). Oxford: Routledge.

Widhiarso, W. (2010). Estimate Reliability Measurement for Multidimensional Scales. https://dx.doi.org/10.2139/ssrn.1597532

Witter, R. A., Okun, M. A., Stock, W. A., & Haring, M. J. (1984). Education and Subjective well-being: A Meta-Analysis. *Educational Evaluation and Policy Analysis, 6(2)*, 165-173. https://doi.org/10.3102/01623737006002165

World Bank. (n.d.). World Bank Open Data. Retrieved from https://data.worldbank.org/

World Bank. (2020a). Monitoring Global Poverty. https://doi.org/10.1596/978-1-4648-1602-4_ch1

World Bank. (2020b). Primary Education, Duration (years). World Development Indicators. The World Bank Group. Retrieved from https://data.worldbank.org/indicator/SE.PRM.DURS.

World Bank. (2021). The World Bank in Eswatini, Mali and Mauritania. Retrieved from https://www.worldbank.org/en/country

World Food Programme. (n.d.). Eswatini and Mauritania. Retrieved from https://www.wfp.org/countries

World Health Organization. (1986). Ottawa Charter for Health Promotion: First International Conference on Health Promotion Ottawa, 21 November 1986. Retrieved from https://www.healthpromotion.org.au/images/ottawa_charter_hp.pdf

World Health Organization. (2010). Nutrition Landscape Information System (NLIS) Country Profile Indicators: Interpretation Guide. Retrieved from https://apps.who.int/iris/handle/10665/44397

World Health Organization. (2017). Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). Retrieved from https://www.unicef.org/publications/index_96611.html

Yang, L. (2018). Measuring Well-being: A Multidimensional Index Integrating Subjective Well-being and Preferences. *Journal of Human Development and Capabilities, 19(4),* 456–476. https://doi.org/10.1080/19452829.2018.1474859

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: Epistemological, Theoretical, and Methodological Differences. *European Journal of Education 48(2)*, 311-325. https://doi.org/10.1111/ejed.12014

Yoshida, N., Uematsu, H., & Sobrado, C. E. (2014). Is Extreme Poverty Going to End? An Analytical Framework to Evaluate Progress in Ending Extreme Poverty. World Bank Policy Research Working Paper, (6740). https://doi.org/10.1596/1813-9450-6740

Young, M. (2009). Basic Capabilities, Basic Learning Outcomes and Thresholds of Learning. *Journal of Human Development and Capabilities, 10(2),* 259-277. https://doi.org/10.1080/19452820902941206

Zeumo, V. K., Tsoukiás, A., & Somé, B. (2014). A New Methodology for Multidimensional Poverty Measurement Based on the Capability Approach. *Socio-Economic Planning Sciences, 48,* 273-289. https://doi.org/10.1016/j.seps.2014.04.002

Zwierzchowski, J., & Panek, T. (2020). Measurement of Subjective Well-being under Capability Approach in Poland. *Polish Sociological Review, (210),* 157-178. https://doi.org/10.26412/psr210.02

APPENDICES

APPENDIX A. Definition of Deprivation in Living Standard Indicators

	Housing materials	Drinking water	Sanitation	Cooking fuel
No deprivation	Parquet or polished wood Vinyl or asphalt strips Tiles Cement/concrete/blocks Carpet Wood planks Palm/bamboo Bricks Covered adobe Zinc sheet Metal/tin (corrugated iron) Calamine/cement fibre Roofing shingles	Piped into dwelling Piped into compound, yard or plot Piped to neighbor Public tap / standpipe Tube well, Borehole Protected well Protected spring Rainwater collection	Flush to piped sewer system Flush to septic tank Flush to pit (latrine) Ventilated Improved Pit latrine Pit latrine with slab Composting toilet	Electricity Liquefied Petroleum Gas Natural gas Biogas Kerosene/ Paraffin
Deprivation	Earth/sand/stone with mud Dung/dirt/sod Thatch/palm leaf/bamboo with mud Uncovered adobe Plywood Cardboard Reused wood Tarpaulin/plastic Rustic mat Cardboard Asbestos No roof/walls	Unprotected well Unprotected spring Tanker-truck Cart with small tank / drum Surface water (river, stream, dam, lake, pond, canal, irrigation channel) Bottled water Drinking water source was at least a 30 minute walk from home, round trip	Flush to somewhere else Pit latrine without slab Open pit Incomplete latrine Bucket Bush Field Flying toilet (plastic) No facility Toilet facility shared with other households	Coal / Lignite Charcoal Wood Straw / Shrubs / Grass Animal dung Agricultural crop residue No food cooked in household

APPENDIX B. Descriptive Statistics of Socio-demographic variables

Frequencies of socio-demographic variables: country, living area, age group, marital status and parental status

Characteristic	Frequency	Percent
Country		
Eswatini	1982	13.4
Mali	7226	48.9
Mauritania	5565	37.7
Total	14733	100
Living area		
Urban	5404	36.6
Rural	9368	63.4
Total	14733	100
Age group		
15-17 years	4850	32.8
17-20 years	4973	33.7
20-24 years	4950	33.5
Total	14733	100
Marital status		
Married	6062	41.0
Not married/divorced	8711	59.0
Total	14733	100
Parental status		
Ever had child(ren)	5918	40.1
Never had child(ren)	8855	59.9
Total	14733	100

APPENDIX C. Descriptive Statistics of Deprivation Levels in Independent Variables

Appendix C.1

Proportion of Individuals Deprived (%) in the Multidimensional Poverty Indicators by Country

	Country				Missing	
Indicator	Eswatini	Mali	Mauritania	Total	n	(%)
Education						
Years of Schooling	0.5	53.7	24.1	35.4		
Health						
Nutrition	9.1	26.5	14.1	19.2	206	(1.4)
Unmet Need	6.4	2.4	2.2	2.9		
Child Mortality	2.1	6.7	3.1	4.8		
Standard of Living						
Housing	18.4	69.3	57.1	57.9		
Electricity	41.3	50.8	57.2	51.9		
Cooking Fuel	71.2	99.1	55.3	78.9	1	(0.0)
Drinking water	41.7	35.6	43.7	39.5		
Sanitation	42.1	28.9	41.9	35.5	14	(0.1)
Assets	20.1	6.4	18.7	12.9	3	(0.0)

Appendix C.2

Proportion of Individuals Deprived (%) in the Multidimensional Poverty Indicators by Age Group

	Age				Missing	
Indicator	15-17	18-20	21-24	Total	n	(%)
Education						
Years of Schooling	28.9	38.4	38.7	35.4		
Health						
Nutrition	13.6	20.3	23.7	19.2	206	(1.4)
Unmet Need	1.5	3.0	4.2	2.9		
Child Mortality	0.9	4.9	8.5	4.8		
Standard of Living						
Housing	57.5	59.6	56.5	57.9		
Electricity	52.2	53.6	49.9	51.9		
Cooking Fuel	80.9	80.1	75.6	78.9	1	(0.0)
Drinking water	40.0	40.3	38.2	39.5		
Sanitation	35.8	34.9	35.9	35.5	14	(0.1)
Assets	12.8	12.9	13.0	12.9	3	(0.0)

Appendix C.3

Proportion of Individuals Deprived (%) in the Multidimensional Poverty Indicators by Marital Status

Indicator	Married	Not married	Total	Missing n	Missing (%)
Education					
Years of Schooling	54.7	22.0	35.4		
Health					
Nutrition	29.5	12.1	19.2	206	(1.4)
Unmet Need	4.5	1.8	2.9		
Child Mortality	10.1	1.0	4.8		
Standard of Living					
Housing	72.5	47.7	57.9		
Electricity	60.6	45.9	51.9		
Cooking Fuel	86.2	73.8	78.9	1	(0.0)
Drinking water	43.8	36.5	39.5		
Sanitation	36.8	34.7	35.5	14	(0.1)
Assets	12.3	13.3	12.9	3	(0.0)

Appendix C.4

Proportion of Individuals Deprived (%) in the Multidimensional Poverty Indicators by Parental Status

Indicator	Children	No children	Total	Missing n	Missing (%)
Education					
Years of Schooling	48.7	26.5	35.4		
Health					
Nutrition	31.9	10.8	19.2	206	(1.4)
Unmet Need	4.8	1.7	2.9		
Child Mortality	11.9	0.0	4.8		
Standard of Living					
Housing	66.5	52.1	57.9		
Electricity	58.7	47.4	51.9		
Cooking Fuel	85.1	74.7	78.9	1	(0.0)
Drinking water	42.9	37.2	39.5		
Sanitation	37.7	34.0	35.5	14	(0.1)
Assets	13.9	12.2	12.9	3	(0.0)

APPENDIX D. Spearman Rank Order Correlation (rho) Between the Study Variables

Appendix D.1

Spearman Rank Order Correlation (rho) Between the Independent and the Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(1) Subjective Well-Being	1														
(2) Happiness	.80**	1													
(3) Life Satisfaction	.82**	.59**	1												
(4) Optimism	.50**	.14**	.17**	1											
(5) Deprivation Score	-.14**	-.08**	-.15**	-.10**	1										
(6) Child Mortality	-.04**	-.03**	-.04**	-.01	.19**	1									
(7) Unmet need	-.03**	-.03**	-.01	-.01	.13**	.04**	1								
(8) Nutrition	-.06**	-.03**	-.07**	-.03**	.46**	.09**	.03**	1							
(9) Years of Schooling	-.14**	-.09**	-.16**	-.09**	.82**	.13*	.01	.19**	1						
(10) Electricity	.02**	.06**	.02*	-.04**	.53**	.05**	.04**	.14**	.25**	1					
(11) Housing	-.02*	.03**	-.04**	-.04**	.58**	.09**	.01	.19**	.34**	.49**	1				
(12) Cooking Fuel	-.24**	-.20**	-.25**	-.07**	.48**	.07*	.02**	.15**	.26**	.29**	.32**	1			
(13) Sanitation	.04**	.05**	.06**	-.01	.26**	.01	.03**	.02*	.02**	.26**	.18**	.13**	1		
(14) Drinking water	.01	.06**	.04**	-.05**	.34**	.04**	.02*	.09**	.13**	.27**	.23**	.13**	.15**	1	
(15) Assets	.04**	.06**	.06**	-.01	.20**	.00	.02	.02	.01	.31**	13**	.04**	.25**	.10**	1

Note: * = correlation is significant at the 0.05 level (2-tailed), ** = correlation is significant at the 0.01 level (2-tailed)

Appendix D.2

Spearman Rank Order Correlation (rho) between the background variables, the main independent and the dependent variables

	1	2	3	4	5	6	7	8	9	10	11	12
(1) SWB	1											
(2) Life Satisfaction	.82**	1										
(3) Happiness	.80**	.59**	1									
(4) Optimism	.50**	.17**	.14**	1								
(5) Deprivation score	-.14**	-.15**	-.08**	-.10**	1							
(6) Age of woman	-.03**	-.03**	-.03**	.00	.09**	1						
(7) Living area	-.06**	-.06**	-.03**	-.02	.47**	-.00	1					
(8) Marital status	-.05**	-.08**	-.02*	-.02*	.37**	.37**	.19**	1				
(9) Parental status	-.11**	-.11**	-.08**	-.03**	.30**	.49**	.17**	.61**	1			
(10) Eswatini	-.05**	.00	-.09**	.05**	-.25**	-.01	.15**	-.27**	-.04**	1		
(11) Mali	-.38**	-.42**	-.32**	-.11**	.34**	.00	.12**	.25**	.17**	-.39**	1	
(12) Mauritania	.43**	.43**	.39**	-.08**	-.17**	-.00	-.23**	-.07**	-.14**	-.31**	-.76**	1

Note: * = correlation is significant at the 0.05 level (2-tailed), ** = correlation is significant at the 0.01 level (2-tailed)
SWB = Subjective well-being

Appendix D.3

Spearman Rank Order Correlation (rho) Between the main Study Variables Depending on Country

	1	2	3	4	5
Eswatini					
(1) Subjective Well-Being	1				
(2) Happiness	.77**	1			
(3) Life Satisfaction	.71**	.31**	1		
(4) Optimism	.36**	.03	.02	1	
(5) Deprivation Score	-.10**	-.06**	-.07**	-.07**	1
Mali					
(1) Subjective Well-Being	1				
(2) Happiness	.78**	1			
(3) Life Satisfaction	.80**	.57**	1		
(4) Optimism	.54**	.13**	.17**	1	
(5) Deprivation Score	-.01	.05**	-.00	-.06**	1
Mauritania					
(1) Subjective Well-Being	1				
(2) Happiness	.75**	1			
(3) Life Satisfaction	.78**	.52**	1		
(4) Optimism	.55**	.16**	.19**	1	
(5) Deprivation Score	-.08**	-.05**	-.08**	-.07**	1

Note: ** = Correlation is significant at the 0.01 level (2-tailed)

Appendix D.4

Spearman Rank Order Correlation (rho) Between the Main Variables by Living Area

	1	2	3	4	5
Urban					
(1) Subjective Well-Being	1				
(2) Happiness	.82**	1			
(3) Life Satisfaction	.83**	.63**	1		
(4) Optimism	.50**	.15**	.19**	1	
(5) Deprivation Score	-.22**	-.17**	-.21**	-.10**	1
Rural					
(1) Subjective Well-Being	1				
(2) Happiness	.80**	1			
(3) Life Satisfaction	.82**	.57**	1		
(4) Optimism	.50**	.13**	.16**	1	
(5) Deprivation Score	-.09**	-.03*	-.11**	-.11**	1

Note: * = correlation is significant at the 0.05 level (2-tailed), ** = correlation is significant at the 0.01 level (2-tailed)

APPENDIX E. Independent-samples T-tests

Appendix E.1

T-tests of the Main Variables by Living Area

Variable	Living Area	N	Mean (Std.Dev.)	Mean Diff.	t	df	Sig (2-tailed)	95% Confidence Interval Lower	Upper	Eta squared
Life Satisfaction										
	Rural	9326	4.30 (.83)	.10	7.67	12187.48	.000	.08	.13	.004
	Urban	5399	4.40 (.74)							
	Total	14725	4.33 (.81)							
Happiness										
	Rural	9330	4.37 (.81)	.06	4.62	11881.02	.000	.04	.09	.001
	Urban	5399	4.43 (.75)							
	Total	14729	4.39 (.79)							
Optimism										
	Rural	9160	4.72 (.75)	.03	2.01	11556.44	.044	.00	.05	.000
	Urban	5304	4.74 (.71)							
	Total	14464	4.73 (74)							
Subjective Well-Being										
	Rural	9136	4.46 (.57)	.06	6.69	11473.49	.000	.05	.08	.003
	Urban	5303	4.52 (.55)							
	Total	14439	4.48 (.57)							
Deprivation Score										
	Rural	9368	.38 (.22)	-.21	-64.53	13393.96	.000	-.22	-.20	.219
	Urban	5405	.17 (.17)							
	Total	14772	.30 (.23)							

Appendix E.2

T-tests of the main variables by marital status

Variable	Marital status	N	Mean (Std.Dev.)	Mean Diff.	t	df	Sig (2-tailed)	95% Confidence Interval Lower	Upper	Eta squared
Life Satisfaction										
	Married	6038	4.28 (.79)	.09	6.69	13243.55	.000	.06	.12	.003
	Unmarried	8687	4.37 (.82)							
	Total	14725	4.33 (.81)							
Happiness										
	Married	8691	4.39 (.81)	.01	.54	13466.69	.589	-.02	.03	.000
	Unmarried	6038	4.40 (.76)							
	Total	14729	4.39 (.79)							
Optimism										
	Married	5938	4.71 (.76)	.03	2.57	12260.29	.010	.01	.06	.000
	Unmarried	8526	4.74 (.72)							
	Total	14464	4.73 (74)							
SWB										
	Married	5925	4.46 (.56)	.04	4.52	14437	.000	.02	.06	.001
	Unmarried	8514	4.50 (.57)							
	Total	14439	4.48 (.57)							
Deprivation Score										
	Married	8711	.41 (.22)	-.17	-48.01	11903.82	.000	-.18	-.17	.135
	Unmarried	6062	.23 (.20)							
	Total	14773	.30 (.23)							

Appendix E.3

T-tests of the main variables by parental status

Variable	Parental status	N	Mean (Std.Dev.)	Mean Diff.	t	df	Sig (2-tailed)	95% Confidence Interval Lower	Upper	Eta squared
Life Satisfaction										
	Children	5892	4.25 (.81)	.15	10.93	14723	.000	.12	.17	.008
	No children	8833	4.39 (.80)							
	Total	14725	4.33 (.81)							
Happiness										
	Children	5893	4.32 (.82)	.12	9.13	12010.34	.000	.10	.15	.006
	No children	8836	4.44 (.76)							
	Total	14756	4.39 (.79)							
Optimism										
	Children	5802	4.70 (.78)	.05	4.11	11515.85	.000	.03	.08	.001
	No children	8662	4.75 (.70)							
	Total	14464	4.73 (74)							
SWB										
	Children	5789	4.42 (.58)	.11	11.26	14437	.000	.09	.13	.009
	No children	8650	4.52 (.55)							
	Total	14439	4.48 (.57)							
Deprivation Score										
	Children	5918	.39 (.23)	-.14	-37.09	11774.03	.000	-.15	-.13	.085
	No children	8855	.25 (.21)							
	Total	14773	.30 (.23)							

APPENDIX F. One-way between-groups ANOVAs and Descriptive Statistics Tables for the Main Study Variables

Appendix F.1

One-way between-groups ANOVA for the Main Variables Depending on Country

	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Life Satisfaction						
Between Groups	1477.61	2	738.80	1343.16	.000	.154
Within Groups	8097.83	14722	.55			
Total	9575.44	14724				
Happiness						
Between Groups	1121.09	2	560.55	1031.02	.000	.122
Within Groups	8006.25	14726	.54			
Total	9127.34	14728				
Optimism						
Between Groups	81.26	2	40.63	75.83	.000	.010
Within Groups	7748.75	14461	.54			
Total	7830.01	14463				
Subjective Well-Being						
Between Group	672.40	2	336.20	1232.46	.000	.146
Within Groups	3937.94	14436	.27			
Total	4610.34	14438				
Deprivation Score						
Between Groups	104.47	2	52.23	1163.13	.000	.136
Within Groups	663.28	14770	.05			
Total	767.75	14772				

Appendix F.2

Descriptive Statistics of the Main Variables by Country

Variable	Country	N	Mean	SD	Std. Error	95% Confidence Interval for mean Lower	Upper	Min	Max
Life Satisfaction									
	Eswatini	1978	4.30	.90	.020	4.26	4.34	1	5
	Mali	7186	4.04	.81	.009	4.02	4.06	1	5
	Mauritania	5561	4.73	.57	.008	4.71	4.74	1	5
	Total	14725	4.33	.81	.007	4.32	4.35	1	5
Happiness									
	Eswatini	1980	4.17	.96	.021	4.13	4.22	1	5
	Mali	7190	4.18	.79	.009	4.16	4.20	1	5
	Mauritania	5559	4.75	.56	.007	4.73	4.76	1	5
	Total	14729	4.39	.79	.006	4.38	4.41	1	5
Optimism									
	Eswatini	1979	4.81	.65	.015	4.78	4.84	1	5
	Mali	7185	4.65	.81	.010	4.64	4.67	1	5
	Mauritania	5300	4.80	.64	.009	4.78	4.82	1	5
	Total	14464	4.73	.74	.006	4.72	4.74	1	5
Subjective Well-Being									
	Eswatini	1978	4.43	.55	.012	4.40	4.45	1	5
	Mali	7163	4.29	.58	.007	4.28	4.30	1	5
	Mauritania	5298	4.76	.42	.006	4.75	4.77	2	5
	Total	14439	4.48	.57	.005	4.47	4.49	1	5
Deprivation Score									
	Eswatini	1982	.15	.12	.003	.15	.16	.000	.774
	Mali	7226	.38	.23	.003	.38	.39	.000	.941
	Mauritania	5565	.26	.21	.003	.25	.26	.000	.940
	Total	14773	.30	.23	.002	.30	.31	.000	.941

Appendix F.3

One-way between-groups ANOVA for the Main Variables Depending on Age Group

	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Life Satisfaction						
Between Groups	10.27	2	5.13	7.90	.000	.001
Within Groups	9565.17	14722	.65			
Total	9575.43	14724				
Happiness						
Between Groups	8.93	2	4.47	7.21	.001	.000
Within Groups	9118.41	14726	.62			
Total	9127.34	14728				
Optimism						
Between Groups	1.52	2	.76	1.40	.246	.000
Within Groups	7828.49	14461	.54			
Total	7830.01	14463				
Subjective Well-Being						
Between Groups	4.81	2	2.40	7.53	.001	.001
Within Groups	4605.53	14436	.32			
Total	4610.34	14438				
Deprivation Score						
Between Groups	6.39	2	3.20	65.05	.000	.008
Within Groups	761.36	14770	.05			
Total	767.75	14772				

Appendix F.4

Descriptive Statistics of the Main Variables by Age Group

Variable	Age	N	Mean	SD	Std. Error	95% Confidence Interval for mean		Min	Max
						Lower	Upper		
Life Satisfaction									
	15-17	4836	4.34	.794	.011	4.35	4.39	1	5
	18-20	4955	4.31	.814	.012	4.29	4.34	1	5
	21-24	4934	4.32	.810	.012	4.30	4.34	1	5
	Total	14725	4.33	.806	.007	4.32	4.35	1	5
Happiness									
	15-17	4835	4.43	.768	.011	4.41	4.45	1	5
	18-20	4958	4.38	.798	.011	4.35	4.40	1	5
	21-24	4936	4.38	.794	.011	4.36	4.40	1	5
	Total	14729	4.39	.787	.006	4.38	4.41	1	5
Optimism									
	15-17	4745	4.73	.736	.011	4.71	4.75	1	5
	18-20	4872	4.72	.749	.011	4.69	4.74	1	5
	21-24	4847	4.74	.722	.010	4.72	4.76	1	5
	Total	14464	4.73	.736	.006	4.72	4.74	1	5
Subjective Well-Being									
	15-17	4736	4.51	.558	.008	4.49	4.52	1	5
	18-20	4865	4.46	.570	.008	4.45	4.48	1	5
	21-24	4838	4.48	.566	.008	4.46	4.49	1	5
	Total	14439	4.48	.565	.005	4.47	4.49	1	5
Deprivation Score									
	15-17	4850	.28	.212	.003	.27	.28	.000	.885
	18-20	4973	.32	.233	.003	.31	.33	.000	.940
	21-24	4950	.32	.235	.003	.31	.32	.000	.941
	Total	14773	.30	.228	.002	.31	.31	.000	.941