



## Time Use Patterns and Its Predictors among Zimbabwean Young Adults Living with HIV/AIDS: A Cross Sectional Analytical Study

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### Abstract

Time use patterns among HIV-infected young adults may have a bearing on functional health outcomes yet it has not been explored in Zimbabwe. A study was done to determine time use patterns by this group for various occupations in a typical week day and to identify factors influencing these patterns.

Participants aged 20 to 39 years were consecutively recruited as they attended routine medical check-up in an urban setting. Data collection from 61 participants was through a structured interview. Ethical clearance was granted and participation was voluntary.

Major time use was in sleep (39.1%), Instrumental activities of daily living (IADL) (11.3%) and Basic ADL (11.3%). Gender was the major influencing factor for time use in IADL, social participation, leisure and rest ( $p < 0.01$ ). Religion and age-group explained social participation ( $p < 0.01$ ). There is occupational imbalance, and intervention programs should be implemented to address the imbalance.

**Key words:** *Time use, occupation, young adults, HIV/AIDS, Zimbabwe.*

### 1. INTRODUCTION

Time use patterns reflect the time dedicated to participation in particular occupations. An understanding of time use gives an insight into people's lifestyles and potential health outcomes (Pentland & McColl, 1999; Christiansen & Matuska, 2006). Occupation as the key construct in occupational therapy and occupational science is well understood in terms of meaningful use of time and energy resources (Kielhofner, 1997).

There is a working relationship between time use and occupation which translates into health and well-being of humans (Christiansen, 1996; Kielhofner, 2004; Wagman, Håkansson & Björklund, 2012). In this relationship, engagement in occupation and time use are directly related, as time structures occupation and occupation fills time. Therefore, there is need for an organised time use pattern in all areas of occupation to enhance quality of life (Shimitras et al., 2003). Wilcock (2006) reaffirms this position by posting that balanced occupations enhance health and well-being for all.

Occupational imbalance is a major call for intervention in marginalised groups and those suffering from chronic and disabling conditions. Several studies on time use in people living with illnesses or with disabilities have shown patterns of occupational imbalance (Krupa et al., 2003; Bejerholm & Eklund, 2004; Minato & Zemke, 2004; Schonherr et al., 2005; Winkler et al., 2005; Bejerholm & Eklund, 2006; Leufstadius, Erlandsson & Eklund, 2006). These studies showed dominant patterns of unproductive occupations and more time spent in sedentary engagements when compared to the general population. The ideal will be occupational balance, defined by Christiansen and Matuska (2006) as "a consistent pattern of occupations that results in reduced stress and improved health and wellbeing" (p. 50). This balance in occupations has to cater for all categories of occupations and can differ with context, in terms of the occupations afforded, age, and culture. In general, there should be a "balance among self-care, work/productive activities, play or leisure, and rest" (Nurit & Michal, 2003, p. 228). Occupational restrictions, diseases and generally unsupportive environments can disrupt this balance. However, it needs to be acknowledged that most of the human's intrinsic needs which contribute to improved quality of life, life satisfaction, health and well-being, can be met via balanced occupational engagements and participation. Even when people are in difficult circumstances, they can be supported to maintain a state of occupational balance by engaging in their daily meaningful occupations (Leufstadius et al., 2006).

The HIV and AIDS pandemic is a major burden in sub Saharan Africa, with approximately 24 million people living with HIV in this region (Joint United Nations Program on HIV/AIDS (UNAIDS), 2008; Sherry & Martin, 2010; Williams et al., 2015). The 2010-2011 Zimbabwe Demographic Health Survey reports that 18.6 percent of those living with HIV are within the age range of 20 to 39 years (Zimbabwe National Statistics Agency (ZIMSTAT) & ICF International, 2012) with most new infections also happening within this age group (National Aids Council of Zimbabwe (NAC), 2011). In a Zimbabwean population, people living with HIV/AIDS have been reported to have limitations and restrictions in mobility, self-care, domestic activities, social relationships, productivity and community life mainly due to paraesthesia, decreased endurance, visual problems, stigma and poor coordination, among other HIV/AIDS related problems (Mlambo, 2011). These challenges may translate to time use problems and are affected by contextual factors including gender, age, employment status, educational level, marital status (Shimitras et al., 2003; Krupa et al., 2003; Bejerholm & Eklund, 2006), occupational identity and religious orientation (Nhunzvi, 2014). Information on time use may be helpful in assessing the impact of HIV/AIDS on the young adults in terms of occupational functioning thereby giving insight into their functional health outcomes, including time use across the work-rest continuum. With impact of HIV/AIDS spelt in occupational terms and the fact that a well performing health workforce is one that is responsive to

the needs and expectations of people, this will subsequently require occupational therapists to intervene in restoring occupational balance among this population. Occupational therapy promotes health and well-being of people living with chronic conditions through occupational engagement and participation for maintaining, restoring and enhancing quality of life (Solomon & Wilkins, 2008). Occupational time use interventions have been shown to be efficacious in the management of occupational imbalance, social marginalisation and social exclusion for people with chronic and disabling conditions (Edgelow & Krupa, 2011).

Over the years, studies have been done in a quest to understand the relationship between time use, disease and health as well as the associated factors (Krupa et al., 2003; Shimitras et al., 2003; Minato & Zemke, 2004; Schonherr et al., 2005; Winkler et al., 2005; Bejerholm & Eklund, 2006; Leufstadius et al., 2006; Basavaraj et al. 2010). There is however paucity of empirical evidence in the field of HIV/AIDS in this regard especially in low income countries like Zimbabwe.

This study was therefore aimed at exploring the time use patterns of young adults living with HIV/AIDS in Harare, Zimbabwe. The specific focus was on those accessing anti-retroviral therapy at Parirenyatwa Group of Hospitals (a referral hospital in Zimbabwe), with emphasis on their time use patterns, dominant occupations and factors associated with time use patterns.

## 2. METHODOLOGY

### 2.1 Design and setting

A cross-sectional analytical study was conducted at the Opportunistic Infections (OI) clinic at Parirenyatwa Group of Hospitals in Harare. Parirenyatwa Group of Hospitals is the largest referral and teaching hospital in Zimbabwe. Its OI clinic is also the largest referral clinic, providing anti-retroviral therapy and medical reviews for patients of all ages from around the country. The sample size for the study was calculated using Dopson formula:  $(n = z^2pq \div e^2)$

Where:  $n$  = the sample size,

$z$  = the confidence interval (1.96)

$p$  = the proportion of young adults with HIV infection

$q$  = (1-p)

$e$  = the level of precision (10%)

Hence  $n = (1.96)^2(0.186)(0.86) \div (0.1)^2 = 61$

### 2.2 Inclusion/exclusion criteria:

Participants living with HIV/AIDS within the age range 20 and 39 who were accessing Anti-retroviral therapy at Parirenyatwa OI clinic during the period of data collection were included. HIV positive diagnosis was confirmed from case notes. Those who refused to give consent were excluded.

### 2.3 Data collection instruments

A structured questionnaire with two sections was used to collect data on demographic characteristics and time use patterns. Section A collected demographic details (age, gender, marital status, employment status and religion) while section B focused on the participants' time use budget on a typical 24 hour day. Section B of the questionnaire was an adapted occupational questionnaire (Smith et al., 1986) which consisted of a daily timetable in one hour blocks for the participant to describe his/her typical way of spending time on a 'working' weekday. Each activity could then be categorized as being, in their social participation, work, leisure, education, basic ADL, instrumental ADL, sleep or rest. For the purposes of this paper, only the stated component of the occupational questionnaire was used.

### 2.4 Data Collection

Individuals who met the inclusion criteria and agreed to participate were consecutively recruited until the required sample size was met. Data was collected through an interview questionnaire. The first author collected the data between 5 January and 5 February 2015. Data was collected on each working day between 0800hrs and 1300hrs, while participants were waiting to see the doctor. The researcher would ask the participant to describe how they would spend their typical 'working' 24 hour day in one hour blocks as the researcher completed the questionnaire. It took approximately 30 minutes to complete each questionnaire. In the demographics section, age was collected as a continuous variable and then later grouped into 5 year age categories. All questionnaires yielded complete data.

### 2.5 Data Analysis

Time use data for the typical 24 hour 'working' weekday were coded following the occupational categories in Table 1. These occupational categories were derived from the Occupational Therapy Practice framework second edition (American Association of Occupational Therapy (AOTA), 2008) and the occupational questionnaire.

**Table 1. Occupational categories used to code time use activities**

<b>Occupational categories</b>	<b>Examples of occupations in the category</b>
BADL	Bathing, eating,
IADL	Cooking, shopping
Rest & Sleep	Sleeping, seating under shed to relax,
Education	Studying, attending a course, research work
Leisure	Hobbies, games, etc
Work	Paid job, voluntary work, self-employment
Social participation	Socialising, visiting entertainment centres

\*Adapted from the OT Practice Framework: domain and process 2<sup>nd</sup> edition and occupational questionnaire.

Microsoft Excel was used for data entry and the descriptive statistics for demographics and occupational areas were done using the Epi Info version 7. With the data on time use not being normally distributed, non-parametric tests were chosen. Univariate and multivariate analysis was done using STATA version 13 to find out the predictors of time use patterns.

The Kruskal Wallis test was used to compare demographic differences in time use and to show where there were significant differences. A  $p < 0.05$  was accepted as statistically significant and tables and graphs were used to represent the data.

## 2.6 Ethical issues

Ethical approvals were obtained from Joint Parirenyatwa Hospital and University of Zimbabwe College of Health Sciences Research Ethics Committee (JREC) (JREC/268/14) and the Medical Research Council of Zimbabwe (MRCZ) (MRCZ/B/746). All participants gave written informed consent and participation was voluntary. For confidentiality purposes, no names were used but each participant was identified by a number which was only known to the researcher.

## 3. RESULTS

A total of 61 adults aged 20 to 39 years participated in the study. The mean age of the participants was 29.0 years (SD = 6.1years). Age-groups 20 – 24 years and 30 – 34 years had the highest number of participants (32.8% each). Females contributed 63.9% of the sample. From analysis of age as a continuous variable, there was no significant difference in age distribution between males (mean age= 27.7 years, SD=6.1years) and females (mean age=29.7years, SD=6.0 years),  $p=0.228$ . Most of the participants were either married (50.8%) or single (46%). The majority (91.8%) indicated that they were Christians and the rest did not specify their religion. Most (64%) were not employed and 8.2% were students. There was no statistically significant difference between gender and the following demographic characteristics; Age-group ( $p= 0.744$ ), marital status ( $p = 0.397$ ) and employment status ( $p = 0.072$ ) (Table 2).

**Table 2: Demographic characteristics of participants**

Variable	Total, n=61 Frequency (%)	Males, n=22 Frequency (%)	Females, n=39 Frequency (%)	p-value
<b>Age group</b>				0.744
20-24	20 (32.8)	9 (14.8)	11 (18.0)	
25-29	7 (11.4)	3 (4.8)	4 (6.6)	
30-34	20 (32.8)	6 (9.8)	14 (23.0)	
35-39	14 (23.0)	4 (6.6)	10 (16.4)	
<b>Marital status</b>				0.397
Single	28 (46.0)	13 (21.0)	15 (25.0)	
Married	31 (50.8)	9 (14.8)	22 (36.0)	
Divorced	1 (1.6)	0	1(1.6)	
Widowed	1 (1.6)	0	1(1.6)	
<b>Religion</b>				0.052
Christianity	56 (91.8)	18 (29.5)	38 (62.3)	
None	5 (8.2)	4 (6.6)	1 (1.6)	
<b>Employment status</b>				0.072
Student	5 (8.2)	1 (1.6)	4 (6.6)	
Employed	17 (27.8)	10 (16.4)	7 (11.4)	
Unemployed	39 (64.0)	11 (18.0)	28 (46.0)	

Major time use was in sleep which took 39.1% of the time with each participant spending an average of 9.39 hrs in sleep. This was followed by instrumental ADL (11.3%), Basic ADL (11.3%), rest (11%) and leisure (10.7%). Least time was spent in education (3.1%) (Table 3).

### 3.1 Age-group and time use

**Table 3: Proportion of time use and group mean according to occupational category**

Occupational category	Work	Instrumental ADL	Basic ADL	Education	Social participation	Leisure	Sleep	Rest
Grp Sum (hrs) (%)	138 (9.4)	165 (11.3)	165 (11.3)	45 (3.1)	60 (4.1)	157 (10.7)	573 (39.1)	161 (11.0)
Grp Mean (hrs) (S.D)	2.26 (3.30)	2.70 (2.38)	2.70 (1.10)	0.74 (2.41)	0.98 (2.42)	2.57 (2.30)	9.39 (1.55)	2.64 (2.42)

Age-group 30-34 years spent most time (3.85 hrs) in work while 20-24 year age-group spent the least amount of time (0.30 hrs). Those in the 35-39 years age-group spent an average of 3.43 hrs in instrumental ADL while the other younger age-groups spent 2.29 and 2.80 hrs. All age-groups spent an average of 2.29 to 2.95 hrs in basic ADL. Generally, all age-groups did not spend much time in education and social participation as shown by a mean time use ranging from zero to 1.15 hrs for education (age-groups 25 -29 and 35 -39 had no time for education). The 20 – 24 years group spent 2.80 hrs in social participation while the other age-groups' time use ranged from zero to 0.15 hrs. (Table 4).

On univariate analysis (that is before we controlled for other confounding factors), age-group was associated with time use in work (0.0007) and social participation ( $p < 0.001$ ) (Table 5).

### 3.2 Gender and time use

Time use across gender varied for work, instrumental ADL, social participation, leisure and rest. The male participants spent more time than their female counterparts in work, social participation and leisure, while females spent more time than males in instrumental ADL and rest (Table 4). On univariate analysis, gender was associated with work ( $p = 0.05$ ), instrumental ADL ( $P < 0.001$ ), social participation ( $p = 0.0001$ ), leisure ( $p = 0.0004$ ) and rest ( $p = 0.001$ ) (Table 5).

### 3.3 Marital status and time use

On average, the widowed spent the highest amount of time in work (mean 8 hrs) followed by the married (3.68 hrs). The single only spent 0.46 hrs in work. The married, single and widowed spent between 2.46 and 3 hrs in instrumental ADL while the divorced had no time allocated for Instrumental ADL. The divorced spent the highest amount of time in Basic ADL. It was the single who spent some time (1.5 hrs) in education and 2.07 hrs in social participation, the other categories spent very minimal or no time at all in these occupational categories. As for leisure, it ranged between 2.19 hrs to 3.07 hrs for the married, divorced and single while the widowed had no time allocated for leisure. As expected, there wasn't much variation in sleep time across the different marital statuses. On rest, the widowed had no time for rest while the divorced spent the highest time (4 hrs) resting (Table 4). On univariate analysis, marital status was significantly associated with time spent in work ( $p = 0.0014$ ) and social participation ( $p = 0.0047$ ) (Table 5).

### 3.4 Employment status and time use

As expected, the employed spent the highest amount of time in work (6.59 hrs) while students had no time for work. The unemployed spent the highest time in instrumental ADL (3.54 hrs) while students and the employed spent 0.40 hrs and 1.47 hrs respectively.

Students spent the highest time in Basic ADL (4.20 hrs) compared to the employed (2.65 hrs) and the unemployed (2.54 hrs). As expected, students spent 8.4 hrs in education while the employed had no time for education. Time spent in social participation ranged from 0.60 hrs to 1.26 hrs with the unemployed spending the highest amount of time in this category. Time spent in leisure was similar between the employed and unemployed while students spent the least amount of time in leisure activities. As expected, there wasn't much difference in time spent in sleeping across the employment categories although the employed had the lowest mean time allocated for sleep. Time spent resting varied across the three categories with the students spending the least amount of time (0.40 hrs) and the unemployed spending the most time (3.56 hrs) (Table 4).

On univariate analysis, employment status was associated with time use for work ( $p < 0.001$ ), instrumental ADL ( $P = 0.001$ ), Basic ADL ( $p = 0.009$ ), education ( $p < 0.001$ ) and rest ( $p = 0.0003$ ) (Table 5).

### 3.5 Religion and time use

Generally, time use for all occupational categories was similarly distributed between those who indicated their religion as Christianity and those who did not indicate their religion. The only exception was social participation where those who had not indicated they were Christians spent 4.2 hrs on average compared to 0.7 hrs by the Christians (Table 4). On univariate analysis, religion was associated with time use in social participation ( $p = 0.0014$ ) (Table 5).

**Table 4: Time use (hours) of participants by occupational category and demographic characteristics**

Variable	Occupational category Mean time use in hours							
	Work	Instr ADL	Basic ADL	Educatio n	Social part	Leisure	Sleep	Rest
<b>Age group</b>								
20-24	0.30	2.80	2.95	1.10	2.80	2.45	9.35	2.45
25-29	2.43	2.29	2.29	0	0	3	9.70	4.29
30-34	3.85	2.55	2.70	1.15	0.15	2.20	9.35	2.15
35-39	2.64	3.43	2.79	0	0	3.14	9.21	2.79
<b>Marital status</b>								
Single	0.46	2.46	2.89	1.5	2.07	3.07	9.36	2.18
Married	3.68	3	2.48	0.097	0.06	2.19	9.39	3.1
Divorced	3	0	4	0	0	3	10	4
Widowed	8	3	3	0	0	0	10	0
<b>Religion</b>								
Christianity	2.29	2.84	2.73	0.80	0.7	2.54	9.39	2.71
None	2	1.20	2.40	0	4.20	3	9.40	1.80
<b>Employment status</b>								
0	0	0.40	4.20	8.4	0.60	0.60	9.40	0.40
Student	6.59	1.47	2.65	0	0.47	2.88	8.76	1.18
Employed	0.67	3.54	2.54	0.77	1.26	2.66	9.67	3.56
Unemployed								
<b>Gender</b>								
Male	3.32	0.68	2.59	0.32	2.50	4.04	9.27	1.27
Female	1.67	3.85	2.77	0.97	0.13	1.74	9.46	3.41

**Table 5: Factors associated with time use before controlling for confounders (Univariate analysis)**

Categories of occupation	Age-group	Gender	Marital status	Employment status	Religion
<b>Work</b>	<b>0.0072</b>	<b>0.0470</b>	<b>0.0014</b>	<b>&lt;0.001</b>	0.584
<b>Instrumental ADL</b>	0.6515	<b>&lt;0.001</b>	0.5062	<b>0.0012</b>	0.1419
<b>Basic ADL</b>	0.6502	0.5845	0.2654	<b>0.0093</b>	0.5106
<b>Education</b>	0.3305	0.2953	0.2654	<b>&lt;0.001</b>	0.4805
<b>Social Participation</b>	<b>&lt;0.001</b>	<b>0.0001</b>	<b>0.0047</b>	0.6302	<b>0.0014</b>
<b>Leisure</b>	0.9435	<b>0.0004</b>	0.3505	0.0533	0.6746
<b>Sleep</b>	0.6780	0.7977	0.8062	0.1417	0.992
<b>Rest</b>	0.3384	<b>0.0010</b>	0.2561	<b>0.0003</b>	0.422

### 3.6 Predictors of time use after adjusting for confounding factors

Table 6 indicates factors that predict time use after we adjust for confounding factors. Age-group ( $p = 0.05$ ) and employment status ( $p < 0.001$ ) remained statistically significant in explaining time use in work. Instrumental ADL was associated with gender ( $p < 0.001$ ) and employment status ( $p < 0.001$ ) while Basic ADL and sleep had no significant association with any of the demographic (explanatory) variables. Time spent in education was only associated with employment status ( $p < 0.001$ ) while social participation was significantly associated with age-group ( $p = 0.001$ ), gender ( $p = 0.001$ ) and religion ( $p = 0.003$ ). Leisure and rest were only significantly associated with gender ( $p < 0.001$  and  $p = 0.003$  respectively).

**Table 6: Factors associated with time use after adjusting for confounding factors (Multivariate Analysis)**

Categories of occupation	Age-group	Gender	Marital status	Employment status	Religion
<b>Work</b>	<b>0.053</b>	0.226	0.600	<b>0.000</b>	0.199
<b>Instrumental ADL</b>	0.990	<b>0.000</b>	0.494	<b>0.000</b>	0.870
<b>Basic ADL</b>	0.817	0.895	0.184	0.224	0.632
<b>Education</b>	0.562	0.588	0.684	<b>0.000</b>	0.727
<b>Social Participation</b>	<b>0.001</b>	<b>0.001</b>	0.139	0.438	<b>0.006</b>
<b>Leisure</b>	0.268	<b>0.000</b>	0.434	0.736	0.66
<b>Sleep</b>	0.910	0.946	0.880	0.181	0.855
<b>Rest</b>	0.429	<b>0.003</b>	0.082	0.544	0.896

## 4. DISCUSSION

This is the first known study to describe the time use patterns with respect to occupational participation in Zimbabwe. The findings of this study provide a foundational picture for evidence based practice and in-depth exploration of the concept of time use among disadvantaged groups. Time use patterns remain a very important tool in exploring and addressing lifestyle and health issues of communities and individuals (Shimitras et al., 2003). To a larger extent the finding of an impoverished lifestyle in terms of time use in meaningful occupations which was shown in this study is consistent with other studies on time use among populations with chronic, stigmatised and sometimes disabling conditions (Shimitras et al., 2003; Leufstadius et al., 2006). The results of this study showed that, on a typical 'working' day, the group under study spent lesser time in productive occupations as compared to other activities. The little time spent in work can be a reflection of compromised/unbalanced lifestyles and health in this population despite the fact that work is fundamental to life, offering an opportunity for independent, self-directed life (U.S. Department of Labor, 2012). Participants spent most of their time sleeping and resting on their typical day meaning that these individuals were idle on the most part of the day.

The socio-demographic profile of the participants in this study is consistent with the national profile with respect to HIV/AIDS especially in terms of gender distribution. There were more females which tallies with the HIV prevalence in Zimbabwe as shown by the Demographic and Health Survey of 2010-2011 where HIV prevalence was higher in females (18%) than males (12%) (ZIMSTAT & ICF International, 2012). The reason for this could be that females are more prone to the HIV infection due to biological and cultural factors (UNAIDS, 2013), which include sexual encounters with older men (Jewkes et al., 2002; O'Sullivan et al., 2006), being financially dependent on their partners (Setshedi & de la Monte, 2011), limited sexual choices in relationships (Varga, 2003) and inability to negotiate on the use of protection (MacPhail & Campbell, 2001, Morojele et al., 2006).

The validity of the findings of this study also rests on the fact that all data was complete, hence no data was excluded from analysis. However, results from sub-group analyses should be interpreted with caution due to a small sample size.

More time was being spent in rest and self-care related occupations, and lesser in work related occupations, with this being more pronounced among females. It is however important to note that female participants in this study were more involved in instrumental ADL which can be considered work (unpaid family worker according to the 2012 census results). And because females do not have opportunities and resources to go outside their homes to relax, they consider as

resting what their male counterparts could consider social participation. Furthermore, females may be tired from carrying out the IADLs, hence would need a rest while their male counterparts will not need to rest but participate in social activities for relaxation because they would have been seated anyway. This study showed that being female was associated with increased time spent in instrumental ADLs and rest, and less time spent in social participation and leisure.

There is no national time use data for the general population in Zimbabwe to compare these findings to. A regional study showed that the average South African young adult spent 16% of their time in work, 3% in education, 11% in instrumental ADL, 13% in social participation, 8% in leisure and 49% in personal care which included basic ADL, sleep and rest (Statistics South Africa, 2001). If we assume that these proportions are similar to the Zimbabwean young adult in the general population, then the Zimbabwean young adult living with HIV/AIDS is spending significantly less time in work related activities (9% in the present study as compared to 16% in the South African time use survey) and social participation and more time in personal care including sleep and leisure. Hence, it can be argued that young adults living with HIV/AIDS in Zimbabwe are experiencing time use imbalance, which can further complicate their health and well-being. It is important to consider that this study and the South African one are different in terms of health status, source of participants, economic/employment situation in the different countries and difference in periods of data collection.

#### 4.1 Poverty of productive occupations

Findings in this study showed low participation in formal employment by people living with HIV/AIDS who were in the working age group. This may be as a result of both the medical and psychosocial aspects of the pandemic (Liu, Canada, Shi, & Corrigan, 2012). The high unemployment rate is consistent with other studies on similar populations (Mlambo, 2011; Grierson et al., 2002; Gaidhaine et al., 2008). In a Zimbabwean study with HIV-infected adults on antiretroviral drugs, Mlambo, Gwanzura & Rusakaniko (2012) noted that 36% and 61% had respectively stopped and reduced their usual activities due to HIV. This consistency was also shown in a study by Gaidhaine et al (2008) in India where 53% of the participants were unemployed and 47% had quit jobs due to HIV-related reasons. A study by Grierson et al (2002) in Australia also illustrated this high unemployment rate where more than half of the participants were unemployed and nearly two thirds reported that they had stopped work due to the HIV diagnosis or other reasons relating to the HIV/AIDS diagnosis including low energy levels, depression, stress, anxiety and poor health. Similar reasons were cited by other researchers (Grierson et al., 2002; Gaidhaine et al., 2008; Mlambo, 2011; Grierson et al., 2002). However, the high unemployment rate corresponds to the unemployment rate in the Zimbabwean general population. The Zimbabwe 2012 census showed that 11% of the population were unemployed, 8% were unpaid family workers and 50% were own account workers (ZIMSTAT, 2013) meaning that the general population in Zimbabwe is also facing formal employment challenges. In multivariate analysis, participation in work was significantly influenced by employment status and age group.

The small proportion of time dedicated to work related activities among Zimbabwean young adults living with HIV/AIDS in this study may be due to high unemployment rates in the context of study. Furthermore, it is difficult to conclude on employment problems among participants in this study as resulting from the HIV diagnosis since the study did not explore on the employability of these individuals in terms of educational levels and the necessary skills. It also did not collect information on co-morbidities. However, this reported poverty of engagement in productive occupations points to the need for health and social care service providers (including occupational therapists) to consider interventions aimed at promoting engagement in work and education like prevocational and vocational rehabilitation as was advocated for in other time use studies on people with chronic conditions (Shimitras et al., 2003; Leufstadius et al., 2006). Also to be explored further are the factors hindering participation in formal employment as is shown in experiences of those living with HIV/AIDS in this study.

#### 4.2 Personal care, sleep and rest as dominant occupations

In this study, there was predominance of time use in self-care related occupations which included sleep, rest and basic ADL among the participants. The participants were spending 61% of their time in a typical day engaging in these occupations and of these, 39% was in sleeping alone. These findings are supported by other time use studies (Shimitras et al., 2003; Winkler et al., 2005) in which for example 53% of time use was dedicated to sleeping, eating and personal care and sleeping alone took up 40% of the time in Shimitras et al (2003)'s study with patients with schizophrenia.

When comparing with the general population of the same age group in another developing country of similar context (South Africa), the dominant occupation engaged in by young adults was personal care including sleep and it constituted 49% of their time (Statistics South Africa, 2001). However, participants in this study spent a greater proportion of their time in sleep (39%) compared to 31% in an average adult (Gelder et al., 2003) and they were idle during most part of their typical 'working' day. This dominance of personal care, sleep and rest and greater proportion of time allocated to these activities amongst the participants illustrates a lack of balance in the occupations engaged in. This restricted participation was at the expense of the activities that promote health hence this may lead to compromised quality of life (Christiansen & Townsend, 2004; Stadnyk et al, 2010; Nilsson & Townsend, 2010). There is therefore need for increased participation in productive activities.

The reasons for these findings could be due to low energy levels, poor health and fatigue (Grierson et al., 2002), stress and depression (Rusch et al., 2004), grieving due to the HIV/AIDS diagnosis, uncertainty (O'Brien et al., 2008) and also because of culture which views individuals living with HIV/AIDS as sick, allowing them to play a sick role by spending more time sleeping and resting. Some individuals may sleep a lot because they prefer to be isolated in fear of stigma and disclosure (Flicker et al., 2005).

Another explanation for the dominance of rest related occupations can be from the fact that the participants lacked resources (financial) for active leisure and social participation, a result of no formal work engagements, hence all excess time was used for rest and sleep. Participation in formal work is known to provide material resources to support active leisure engagements (Bittman, 1999).

### 4.3 Limitations

When considering the generalisability of this study, it needs to be remembered that the present study used a cross-sectional design and convenience sampling. The study was based on a single time use measure, which is a limitation in terms of external validity and the potential of the findings in revealing causal relationships. Despite the small sample, the design used is consistent with what has been used in other time use studies (Shimitras et al., 2003; Leufstadius et al., 2006).

Furthermore, the study did not collect information on co-morbidities the participants had as this could have been linked with time use patterns shown in this study.

### 4.4 Conclusion

The time use patterns among Zimbabwean young adults living with HIV/AIDS reflect occupational imbalance. This highlights the need to help this group lead balanced lives in terms of participation and engagement in meaningful occupations. There is need for guidance, support and occupational opportunities to be afforded with the ultimate goal of improving general functioning, health and well-being. The young HIV infected male should be targeted in terms of facilitating increased time use in productive activities and his female counterpart needs to be assisted in getting opportunities to engage in social participation outside the home.

### 4.5 Implications

This study leads to the recommendation that occupational therapy services should be part of the comprehensive care for young adults living with HIV/AIDS to assist in structuring time use to fulfil self-care, work, leisure and social participation needs of the participants. There is also need to provide programs that encourage productivity and constructive use of time among young adults living with HIV/AIDS and reduce idle time. We recommend further exploration of the concept of time use in understanding the impact of disease on functioning using larger and more representative samples for generalisability of findings.

### Authorship

ALL named authors made an active contribution to the conception and design and/or analysis and interpretation of the data and/or the drafting of the paper. KM and CN made substantial contributions to conception and design of study, acquisition of data, analysis and interpretation of data. CN had a supervisor role with KM being the principal investigator. CN and KM worked on drafting the article. TM did further interpretation of findings and offered expert opinion to the paper. CT, EM, TM, CN and KM, all made substantial contributions in revising the paper critically for important intellectual content and final approval of this version.

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