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Chapter

Impact of Chronic Medical and Neuropsychiatric Illnesses on Quality of Life and Life Expectancy among Patients at the University of Port Harcourt Teaching Hospital (UPTH)

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Abstract

The prevalence of chronic medical and psychiatric diseases has continued to increase worldwide, and their consequences have remained a growing concern. Acting with a number of sociodemographic and clinical variables, they tend to affect quality of life (QOL) and onward to life expectancy. There is a direct relationship between QOL and life expectancy. Hypertension and diabetes mellitus acting with adverse environmental factors reset and overamplify the sympathetic outflow, and this may worsen hypertension and or cause depression, dysthymia, and anxiety disorders. Tuberculosis and HIV are two chronic infective medical conditions that equally negatively affect quality of life well-being and life expectancy. These chronic medical and psychiatric conditions have been associated with reduced QOL and life expectancy. The aim of this study, therefore, was to determine the impact of chronic medical and psychiatric disorders (HIV, tuberculosis, diabetes mellitus, hypertension, dysthymia, and GAD) on quality of life and life expectancy. Following ethical approval and informed consent from the participants, 40 subjects from each group of HIV, tuberculosis, diabetes mellitus, hypertension, anxiety, and dysthymia were studied using sociodemographic/clinical questionnaire and the WHOQOL-Bref. The data were analyzed using the SPSS version 20 statistical package. Confidence interval was set at 95% while P-value of less than 0.05 was considered statistically significant. There was reduced QOL on physical, psychological, and social relationship, environment domains, and general health facet, respectively. Chronic medical and psychiatric conditions may contribute to reduced QOL and life expectancy. Management of patients with these conditions should necessarily include attention to their QOL and well-being.

Keywords: chronic medical and psychiatric diseases, QOL, life expectancy, UPTH

1. Introduction

The prevalence of chronic medical and psychiatric diseases has continued to increase worldwide, and their consequences have remained a growing concern.

Acting with a number of sociodemographic and clinical variables, they tend to negatively affect life expectancy through, among many other pathways, reducing quality of life. Despite healthcare improvements, there has been little evidence of benefit on life expectancy in people with chronic medical and mental disorders [1–3].

A number of sociodemographic and clinical variables may however serve as key determinants of quality of life and life expectancy. In Nigeria, these medical conditions have remained on the rise [4–9]. Studies have noted a prevalence of 10–15% for diabetes mellitus and 4.6% for HIV infection [4–6]. Worldwide, it was estimated that diabetes affected 285 million adults (20–79 years) in 2010, and this figure would likely increase to about 439 million adults by 2030 [6]. The World Health Organization (WHO) has also estimated that 2 billion people, almost a third of the world's population, have latent TB [7–9] which is one of the leading causes of mortality worldwide [9–11]. About 8 million people develop tuberculosis every year, and out of this number, some 3 million die of it, and over 95% are from developing countries [9–11].

The global prevalence of high blood pressures has been estimated to be between 10 and 15% of adult populations [12], which is also in line with the findings in Africa [13]. However, other studies have reported a worldwide prevalence of 15–30% in adults [14]. The prevalence of hypertension has increased from 11.2% in 1990 to 27.9% in 2010 in rural communities in the Niger Delta and 44.3% in urban Lagos [15–17]. Over 36 million people have contracted HIV infection worldwide, and over 16 million people are said to have died from the disease [4, 11]. The prevalence of cancer diseases, schizophrenia, and dementia have all continued to increase [18–21].

In terms of mode of acquisition, while hypertension, diabetes mellitus, cancer, schizophrenia, and dementia have a clear genetic component, in addition to adverse environmental factors [22, 23], HIV and tuberculosis are mainly acquired infections [24–26]. Furthermore, HIV infection, tuberculosis, and schizophrenia are associated with a high level of stigma and social discrimination [26–29], another strong determinant of the degree of psychological impact of these chronic conditions. It is also worthy of note that while severe emotional trauma can directly cause hypertension, diabetes, and schizophrenia [30–32], it can only predispose an individual to acquiring HIV due to poor sense of judgment, leading to sexual indiscretion and other risk-bearing practices [24–26]. In their late stages, HIV and tuberculosis infections can also cause dementia and mental disorders including schizophrenia-like illnesses [33–37].

The choice for their comparison was basically borne out of the observation that they all share some common features in terms of chronicity, with subsequent need for long-term medications, direct or indirect effects on the central nervous system (CNS) [25], high rate of mortality [18–21] and morbidity [32–38], and impact on emotion [33–38]. In addition, patients with these conditions need extensive education, attitudinal change, and coping and healthy lifestyle including diet and exercise [39–42]. The illnesses are equally similar in terms of complications in the central nervous system [21, 23]. Diabetic ketoacidosis, HIV and hypertensive encephalopathies, CNS disseminated tuberculosis, some metastasis to the brain cells, as well as the direct CNS impairment may all directly or indirectly affect the brain cell functions and cognitive ability. This in turn may cause altered sensorium, neuro-affectations, neuro-deficits, cognitive impairment, and seizures in some cases. Furthermore, all conditions can directly alter neurotransmitter levels due to direct toxic effects on the brain cells (neurons) either from the viral cells or other opportunistic infections, disseminated tuberculosis to the CNS, hypertensive encephalopathy, or ketoacidotic complication, significantly disrupting relevant neurotransmissions. This may affect particularly the limbic apparatus, the center that regulates mood and controls emotions, anger, and rage.

It is equally important to note that baseline adverse psychosocial factors or psychological distress have been implicated as predictors of schizophrenia, hypertension and diabetes, or HIV infection [9–12, 43], through impairment of judgment in the later [24–26]. Also, certain environmental as well as socioeconomic factors have been identified to predispose to tuberculosis like living in an overcrowded environment [9–12, 43].

Studies have indicated that life expectancy decreases with each additional chronic condition [1–3]. A study remarked that a 67-year-old person will live on average 22.6 additional years in the absence of any chronic conditions while a 67-year-old person will live 7.7 fewer years and 17.6 fewer years with 5 chronic conditions and ≥ 10 chronic conditions, respectively [44]. The same study found that the average marginal decline in life expectancy was 1.8 years with each additional chronic condition ranging from 0.4 fewer years with the first condition to 2.6 fewer years with the sixth condition. These results are consistent by sex and race [44].

Another study using a sample of Medicare beneficiaries enrolled as of January 2008, of 21 different chronic conditions and about 1.4 million persons aged 67 and above, found that, on average, a 75-year-old American woman who has no chronic conditions will live 17.3 additional years to more than 92 years old [45]. Conversely, similar individual with five chronic conditions will live, on average, only to age 87, while an individual with 10 or more chronic conditions will survive only to age 80 [45]. Women tend to live longer than men, while white people live longer than black. Clearly, the nature and number of the chronic diseases are important for life expectancy. An individual with heart disease at age 67 is estimated to live an additional 21.2 years on average, while someone of the same age diagnosed with Alzheimer's disease is only expected to live 12 additional years [46]. Different medical conditions have different life expectancy, but this difference gradually decreases with age and more comorbid conditions [44–49].

Struggling with multiple chronic illnesses shortens life expectancy dramatically [45–49], and for older individuals, chronic or multiple chronic conditions equally threaten to reverse recent gains in average life spans. The medical advances and new technologies that have allowed sick people to live longer may not be able to keep up with the growing burden of chronic diseases. It is becoming very clear that preventing the development of additional chronic conditions and giving adequate treatment when they occur in the middle ages and the elderly could be the only way to continue to improve life expectancy. Violence and adverse childhood events are said to speed up aging, and life span continues to increase with each generation.

Concerns about premature mortality among people with chronic mental and medical disorders have been increasing [1–3]. Higher general and specific causes of mortality in all or specific age groups have been identified for people with serious medical and mental illnesses [18–21]. People with chronic and severe mental illness have lower life expectancies of between 13 and more than 30 years than the general population [50], and a loss of 8.8 life years (14.1 years for men and 5.7 years for women) was estimated by a study which compared people treated for SMI and the general population in Massachusetts, USA [2]. Also, using a nationwide hospital discharge registry, a study reported a wide difference in life expectancy at age 30 for the main mental disorder categories compared to the general population, particularly for functional psychosis other than schizophrenia/affective psychosis (15.9 years lost), substance abuse (15.6 years lost), and organic psychosis (14.8 years lost) for men and organic psychosis (22.6 years lost), mental retardation (14.7 years lost), and substance abuse (18.8 years lost) for

women [46]. Emphasis has been made on management of suicide risk and physical illness, minimum polypharmacy, and improvement of accessibility to physical healthcare [51].

Social security and different forms of life insurance policies have greatly helped in stabilizing life expectancy; in spite of this, a growing number of beneficiaries with multiple chronic conditions still have reduced life expectancy. The burden and stress of chronic disease could erase decades of progress. Life expectancy in the USA is rising more slowly than in other parts of the developed world. Many blame the obesity epidemic and related health conditions for the worsening health of the American population.

Functional limitations, including difficulty walking across the room or preparing meals, and health problems, such as high blood pressure, cancer, and diabetes, also predicted greater odds of experiencing a fall for adults 65 and older. Previous research indicates that older African Americans were more likely to live in extended family households. The availability of assistance at home could help older adults avoid scenarios or behaviors that could lead to falls.

Medication side effect is another important factor influencing longevity [51–57]. People with chronic illness tend to stay compliant longer on medications with less side effect profiles. For example, many people living with HIV find it difficult to continue the treatment regimen due to the side effects [53, 58]. Hence, decreasing the toxicity and side effects of HIV drugs will increase longevity, as this will increase their life span by increasing the amount of time that patients can stay on the life-saving treatment regimen and also increase quality of life [52–54]. Similarly, the antituberculosis and anticancer drugs are known to have serious side effects that can impair drug compliance, thereby reducing the life span of the affected individual [55–57, 59–62]. Bringing new drugs to market is an essential part of increasing the life expectancy of young people with HIV, but lowering the drugs' toxicity may have even greater health benefits for all HIV patients [52, 54]. Some side effects, such as increased cardiovascular risk, also cause problems that directly contribute to premature mortality and reduced life.

In spite of the current drug toxicity levels, young people with HIV add nearly 2 years to their lives by initiating HIV treatment regimens soon after infection [52]. If a new drug has a low toxicity and is well-tolerated by the patients, then they are more likely to take it regularly so that it is as effective as possible, and this will add to their life span. Reduction in the toxicity of new drugs has been associated with increase in the patient's quality-adjusted life expectancy by as much as 11%, or more than 3 years [52]. "Quality-adjusted life years" and "quality-adjusted life expectancy" are measures that are used to determine the value of different medical actions. For example, a potentially life-saving drug that is highly toxic, causes so much discomfort, and leaves a patient debilitated would have a lower value than a life-saving drug that does not have such side effects. Furthermore, there exists the negative psychological impact of being on medications for a long time (and in some cases a lifetime), which is in turn detrimental on quality of life and longevity.

Infectious diseases are a significant health concern especially in developing countries, and this has significantly contributed to life expectancy [24–29]. Of particular importance is the interface between the immune system and invading bacteria or virus and the proteins that protrude through the outer cell membrane of the bacteria or virus. Because these outer membrane proteins are on the outside of the antigenic cells, they are visible to the human immune system and therefore are targeted by antibodies. Antibodies are so tuned to recognize the three-dimensional structure of outer membrane proteins that they can attach to them with lock-and-key specificity, thereby labeling the foreign bacteria cell for elimination.

Mutations in the genes that code for outer membrane proteins can produce changes in the protein's structure, and if the key then no longer fits the lock, the genetic mutations allow the bacterium or virus to evade recognition by antibodies [9, 25, 29]. The intense selective pressure on the disease-causing microorganism to survive the immune response, coupled with increased mutation rates, produces the incredibly fast rate of genomic change in infectious organisms. Mutations occur randomly throughout the genome, but because they help the microorganism avoid elimination by the immune system, changes in outer membrane proteins appear much more often than would be expected by chance in the surviving organism. Furthermore, this initial burst of mutations during the acute phase of infection allows the bacteria or virus to survive the host's immune response, and this helps to establish a chronic infection including HIV and tuberculosis. In addition, the already weakened or compromised immunity sets a vulnerable pace for repeated reinfections or other new infections [24–29]. These infections eventually become chronic and invariably affect longevity.

The chronicity of these medical illnesses, persistent and recurrent symptoms, impairment in functioning capacity, other adverse and enduring environmental psychosocial burdens, and even the thought of these can also in turn affect quality of life and subsequently lower life expectancy. Although HIV- and tuberculosis-infected and cancer-affected patients under antiretroviral (arbacire, nevirapine), antituberculosis drug (isoniazid and cycloserine), and anticancer medication (methotrexate) therapy infrequently suffer acute organic psychotic complications, the chronicity of the disease places them at greater risk for psychiatric comorbidity than the general population [63–77].

The terms “quality of life” refers to the physical, psychological, and social domains of health, viewed as distinct areas that are influenced by a person's experiences, beliefs, expectations, and perception [78], (“which is referred to here collectively as perceptions of health”). Two things are significant in the above definition: the first is the subjective nature of QOL, and second is the need for a Clinician to assess all those areas of life considered as having significant impact on QOL. Quality of life assessment measures changes in physical, functional, mental, and social health in order to evaluate the human and financial cost and benefits of new programs and interventions [78, 79].

Quality of life therefore is impaired in many ways by the individual's level of independence, social relationships, personal beliefs, and their relationship to salient features of the environment in addition to their physical health and psychological state. Quality of life also consists of fulfilling needs, meeting of social expectations, and assessing opportunities by using abilities. Abilities are impaired by ill health and worse still chronic medical illnesses [78, 79]. The services rendered by healthcare givers in mental health help to moderate social demands, supplement opportunities, and restore abilities. Quality of life can be altered by both the immediate and the long-term consequences of treatment especially the case of chronic illnesses [80]. Since 1948, when the WHO defined health as being not only the absence of disease and infirmity but also the presence of physical, mental, and social well-being, quality-of-life issues and well-being have taken the center stage in healthcare practices and research [78, 79, 81]. Several studies have shown that chronic medical and mental illnesses often impair or have negative impacts on the quality of life and subjective well-being of persons across a whole range of areas [80, 82–89].

There has been a growing interest during the past decades for assessing determinant factors of patients' health-related quality of life (HRQOL), especially in

chronic diseases [78–89]. Diabetes mellitus, HIV, tuberculosis, hypertensive, cancer, schizophrenia, and dementia are some of these chronic diseases that involve people of all races and to some extent all ages. They are considered common chronic diseases in most countries, and their prevalence has continued to increase. Several studies have shown that chronic illnesses often impair or have negative impacts on the quality of life and subjective well-being of persons across a whole range of areas [80, 82–89].

Tuberculosis, HIV, and cancer diseases weaken patients' physical functioning and impair their quality of life and hence may affect life expectancy [82–85]. It has become important that TB and HIV control programs as well as cancer awareness and prevention programs at public health clinics design strategies to improve the quality of health and life of these patients. In patients with chronic diseases, all predicted domains of quality of life (QOL), including general health perceptions, somatic sensation, psychological health, spiritual well-being, and physical, social, and role functioning, all tend to be negatively affected [86–93]. Social stigmatization, isolation, pill burden, long duration of therapy, sexual dysfunction, loss of income, and fear were additional specific problems related to chronic medical conditions [80, 82–88]. Despite available curative therapy, TB and its treatment still have significant short- and long-term consequences on patients' QOL [82, 83, 86–93]. QOL has also been characterized as “the ultimate goal of all health interventions” [81].

2. Aim

The aim of this study, therefore, was to determine the impact of chronic medical and neuropsychiatric disorders (HIV, tuberculosis, diabetes mellitus, hypertension, schizophrenia, and dementia) on life expectancy and the role of quality of life and well-being.

3. Methodology

Following ethical approval and informed consent from the participants, 20 subjects from each group of HIV, tuberculosis, diabetes mellitus, hypertension, schizophrenia, and dementia were recruited based on the study's inclusion and exclusion criteria. The study group comprised patients already diagnosed by the consultant physicians at their respective specialty clinics at the University of Port Harcourt Teaching Hospital and on treatment and have been regular on follow-up at their respective outpatient clinics. Participants were recruited through a simple random sampling. Those recruited were within 30–40 years of age, whose illness duration was within 3–5 years. Thirty-five normal individuals (five for each medical condition) were selected also via simple random sampling from among staff of the hospital, matched for age and sex, as controls.

Both subjects and controls were administered the study's instruments including the sociodemographic/clinical questionnaire, WHO Composite International Diagnostic Interview (WHO CIDI), and the WHOQOL-Bref. The data were analyzed using the SPSS version 20 statistical package. The cohorts and control were followed up for clinic attendance, dropout, quality of life, death, and survival rates after 5 years. Confidence interval was set at 95%, while P-value of less than 0.05 was considered statistically significant (**Tables 1 and 2**).

4. Results

Variable	DM	Hypertension	HIV	TB	Cancer	Schizo	Dementia
Age							
30–39 years	9 (45%)	6 (30%)	12 (60%)	9 (45%)	7 (35%)	11 (55%)	0 (0%)
40–49 years	11 (55%)	14 (70%)	8 (40%)	11 (55%)	13 (65%)	9 (45%)	20 (100%)
Sex							
Female	12 (60%)	10 (50%)	10 (50%)	9 (45%)	10 (50%)	12 (60%)	11 (55%)
Male	8 (40%)	10 (50%)	10 (50%)	11 (55%)	10 (50%)	8 (40%)	9 (54%)
Marital status							
Married	10 (50%)	8 (40%)	8 (40%)	9 (45%)	12 (60%)	6 (30%)	14 (70%)
Divorce	2 (10%)	1 (5%)	2 (10%)	3 (15%)	2 (10%)	0 (0%)	0 (0%)
Separated	3 (15%)	3 (15%)	3 (15%)	3 (15%)	1 (5%)	5 (25%)	3 (15%)
Single	3 (15%)	4 (20%)	6 (30%)	4 (20%)	3 (15%)	9 (45%)	1 (5%)
Widowed	2 (10%)	4 (20%)	1 (5%)	1 (5%)	1 (5%)	0 (0%)	2 (10%)
Education							
Primary	2 (10%)	3 (15%)	3 (15%)	3 (15%)	2 (10%)	2 (10%)	2 (10%)
Secondary	8 (40%)	7 (35%)	4 (20%)	7 (35%)	6 (30%)	10 (50%)	5 (25%)
Tertiary	9 (45%)	8 (40%)	7 (35%)	7 (35%)	11 (55%)	7 (35%)	13 (65%)
None	1 (5%)	2 (10%)	1 (5%)	3 (15%)	0 (0%)	1 (5%)	0 (0%)
Occupation							
Managers	2 (10%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (15%)
Professionals	3 (15%)	1 (5%)	1 (5%)	0 (0%)	4 (20%)	0 (0%)	4 (20%)
Clerical support workers	5 (25%)	5 (25%)	4 (20%)	5 (25%)	4 (20%)	0 (0%)	2 (10%)
Service and sales workers	2 (10%)	4 (20%)	4 (20%)	5 (25%)	3 (15%)	3 (15%)	3 (15%)
Skilled agricultural forestry and fishery workers	4 (20%)	5 (25%)	2 (10%)	4 (20%)	2 (10%)	4 (20%)	2 (10%)
Craft and related trade workers	2 (10%)	1 (5%)	4 (20%)	3 (15%)	3 (15%)	4 (20%)	2 (10%)
Plant and machine operators and assemblers	1 (5%)	1 (5%)	3 (15%)	1 (5%)	2 (10%)	3 (15%)	1 (5%)
Elementary occupation	1 (5%)	1 (5%)	2 (10%)	2 (10%)	2 (10%)	6 (30%)	1 (5%)
Armed forces occupation	0 (0%)	1 (5%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Income							
Low	5 (25%)	4 (20%)	8 (40%)	9 (45%)	6 (30%)	11 (55%)	7 (35%)
Average	13 (65%)	14 (70%)	11 (55%)	10 (50%)	18 (90%)	9 (45%)	6 (30%)
High	2 (10%)	2 (10%)	1 (5%)	1 (5%)	1 (5%)	0 (0%)	7 (35%)

Table 1.
Sociodemographic variables of patients with diabetes, hypertension, HIV, tuberculosis, cancer schizophrenia, and dementia.

Medical/mental condition	Respondents	Domains of quality of life				
		Domain 1 (physical)	Domain 2 (psychological)	Domain 3 (social relationship)	Domain 4 (environment)	GHF
DM	Control	51.97 ± 14.77	56.20 ± 22.19	57.51 ± 26.13	52.01 ± 16.91	48.34 ± 22.44
	Subjects	44.98 ± 13.064	56.60 ± 24.914	48.06 ± 26.114	44.95 ± 14.831	47.98 ± 21.896
Hypertension	Subjects	45.98 ± 13.064	46.60 ± 24.914	53.06 ± 26.114	56.95 ± 14.831	50.98 ± 21.896
	Control	60.46 ± 12.788	61.05 ± 13.362	66.80 ± 21.378	59.62 ± 16.503	51.91 ± 23.319
HIV	Subjects	53.70 ± 10.103	48.67 ± 15.016	46.84 ± 21.032	50.33 ± 10.456	63.83 ± 20.349
	Control	66.36 ± 13.698	67.85 ± 27.870	57.09 ± 14.888	67.50 ± 24.102	66.61 ± 22.418
TB	Subjects	43.18 ± 12.044	44.60 ± 32.823	44.06 ± 37.141	45.85 ± 11.236	46.98 ± 23.493
	Control	61.26 ± 13.428	62.05 ± 11.122	65.71 ± 23.241	56.71 ± 15.412	52.78 ± 14.271
Schizo	Subject	41.22 ± 13.015	53.40 ± 22.813	46.16 ± 37.213	45.39 ± 14.622	43.15 ± 21.533
	Control	62.46 ± 12.644	59.06 ± 53.362	62.80 ± 27.378	57.62 ± 16.503	54.91 ± 23.100
HIV	Subject	49.23 ± 13.072	59.63 ± 24.152	52.06 ± 15.345	58.95 ± 14.511	53.15 ± 21.414
	Control	67.36 ± 17.614	68.85 ± 38.833	56.09 ± 17.755	63.50 ± 34.107	65.61 ± 29.411
Cancer	Subject	41.98 ± 83.062	42.60 ± 74.215	47.06 ± 76.877	45.95 ± 25.837	43.98 ± 84.819
	Control	66.46 ± 12.788	67.05 ± 13.362	66.74 ± 28.414	62.62 ± 19.411	64.91 ± 23.744
Dementia	Subject	41.70 ± 75.111	45.67 ± 31.075	45.84 ± 91.923	45.33 ± 17.411	47.83 ± 29.384
	Control	58.69 ± 13.17	57.28 ± 56.39	58.49 ± 53.44	54.33 ± 29.83	60.62 ± 34.71
Statistical analysis		P = 0.001	P = 0.001	P = 0.002	P = 0.004	P = 0.24

DM, diabetes mellitus; HPT, hypertension; HIV, human immunodeficiency virus; TB, tuberculosis; GHF, general health facet.

Table 2.
Quality of life using the WHOQOL-Bref of subjects and controls with diabetes mellitus, hypertension, HIV, tuberculosis, schizophrenia, cancer, and dementia.

5. Discussion

Young adults from 35 years and above predominated the study group. Similarly, younger age adults were more prevalent among the HIV, tuberculosis, and schizophrenia groups than the group with hypertension and cancer. The dementia group was composed of entirely younger age adults. Infectious diseases both sexually and nonsexually infections were predominantly represented by patients in early adulthood [4, 7]. Similarly, tuberculosis is an infective disease, and exposure to it may be more in adults who work in healthcare facilities and are mostly caregivers close to already infected persons [7–9]. Tuberculosis is also common in individuals whose immunity may have waned due to poor nutrition, alcohol use, stress, and other emotional illnesses, in most times occasioned by the medical illness, as well as other infective diseases [7–9]. HIV had the most of youngest population with age group 30–39 years forming 60%. This is in line with the earlier finding that HIV is more prevalent among young persons [24, 27]. Similarly, most cases of schizophrenia usually begin in early adulthood except paraphrenia that occurs among the elderly [21]. Hebephrenia, characteristically, one of the most early-onset and worst prognoses was excluded the same way as those with AIDS-defined illness that were excluded among the HIV group. Paranoid schizophrenia was the most common of the schizophrenic group.

Apart from the influence of genetic predisposition, diabetic mellitus and hypertension are largely a disease of lifestyle including unhealthy eating habits, alcohol intake, and sedentary lifestyle, which would be mostly displayed among adults [4, 13, 42, 48–50]. Hypertension is typically a disease of older adults but can occur in younger ages [12–14]. In this study, the majority of patients with hypertension were in the 40–49 age group. Cancers can occur in any age group [93–97], and those in this study ranged from lung, prostate, breast, cervical, blood, and bone cancers to cancers of the gastrointestinal tract. Dementia is generally a disease of advanced age but could present as presenile [98–102]. Even though all dementia participants sampled in this study were within the age group of 40–49, a majority were presenile. Patients with vascular dementia were excluded to reduce the influence of high blood pressure on this group. Overall, all the chronic illnesses in this study span from young to older ages. Therefore the choice of a fairly mid-age as inclusion criteria for respondents was to reduce the impact of extremes of age on the study variable particularly quality of life and life span. However, this may have contributed to the low mortality rate in this study.

In the study, female gender was slightly higher among all subjects with 56%. Females generally have better healthcare-seeking behavior and tend to have lower mortality rate at all ages [103]. So, even though hypertension has higher prevalence in community studies [6, 13, 17], most hospital-based studies show slightly higher prevalence in females. This is in addition to biological and cultural vulnerability of HIV infection [104]. Cancer was slightly higher among females, and this could also be due to the same reason that females report symptoms more readily than do males [103, 104].

The majority of the respondents were married. However, illnesses that have predominantly onset in early adulthood like schizophrenia or common among young adult like HIV had a high percentage of single people [21, 24, 27]. In addition to being predominant among young people, HIV and schizophrenia are associated with a high level of stigma [1, 77, 105], although stigma in the former seems to have reduced significantly over the years. Persons affected with schizophrenia particular early-onset type tend to have difficulty forming or sustaining relationship or even get married, and even those who are already married may face a high risk of separation due to fear of transmission.

A majority of the respondents were engaged in middle-class occupation followed by the lower cadre occupation. Hypertension and dementia which are conditions seen common in advance age were most common among the first-class occupations, while cancer, TB, HIV, and schizophrenia were more prevalent among those with lower cadre occupation. Similarly, about 95% of the respondents fall within low- and medium-income earners. A rewarding and satisfying job or occupation is key to good quality of life and by extension prolongs life span [78–84]. Because of the stigma associated with HIV, tuberculosis, schizophrenia, and to some extent cancer [1, 105, 106], there is reduced opportunity to secure sustained employment, so most of these individual settle for menial jobs and petty trading. Even those who had better jobs are sometimes laid off due to chronic illnesses especially in the private sector. Diabetes, hypertension and pre-senile dementia, though without risk from job discrimination, can be the cause of job dissatisfaction due to poor functioning and performance following disabling symptoms.

The cost of continuing treatment in chronic medical and mental disorders is usually huge on sufferers and their families [30]. This often is a major reason for poor drug compliance and in some cases treatment discontinuation [60–62] and may largely contribute to mortality [51, 58]. A majority of the respondents were low- and medium-income earners and may have difficulty in financing the management of their illness. This may reduce quality of life as well as life span. From the study, the dropout rates were high among dementia patients, followed by diabetes mellitus and schizophrenia. This may be due to financial difficulty or poor insight.

Quality of life among all respondents was below average on almost all domains and was statistically significant on all domains except the general health facet. The controls all had better quality of life as they all scored above average. Cancer and tuberculosis patients scored lowest on quality of life particularly both on physical and psychological domains and on social domains for the later. Apart from specific symptoms of these two medical conditions, they are usually associated with weight loss and extreme weakness, and as such the patient may have difficulty carrying out daily activities. In this case, physical domain of quality of life may be impaired. Psychological domains of quality of life of people suffering from chronic illnesses are usually first to be affected [64–73]. Cancers are associated with some level of stigma but not as high as seen in tuberculosis. The high level of stigma and discrimination associated tuberculosis usually affects the social domain of quality of life [82, 83, 106, 107]. Diabetes mellitus was the next with poor quality of life especially on physical and environmental domains, giving credence to a number of studies [107–110]. Diabetes presents with a lot of physical symptoms and risk of systemic damage and requires strict drug and dietary compliance. This may have contributed to the high rate of dropout and poor quality of life.

Hypertension had the best quality of life on all domains followed by HIV. These two conditions were equally found to have lower crude mortality rates. Generally, the study found that better quality of life directly correlated with higher person-years lived and inversely correlated with crude mortality rates (**Table 3**). Hypertension equally presents with a number of physical symptoms, the risk of systemic damage, and the need for strict drug compliance. However, it is not associated with any form of stigma, and a majority of respondents were average-income earners. The level of stigma and discrimination that was associated with HIV two decades ago has drastically reduced following massive public awareness. Also, governments of different countries and the WHO have continued to embark on different intervention strategies including free antiretroviral medications. These effects may have combined to reduce the financial and social burden including stigma and discrimination among HIV-positive individuals.

Condition	No. of alive at beginning of study	Average quality of life	No. of deaths	Dropout	Mean person-years lived	Crude mortality rate
Hypertension	20	49.84 ± 26.124	2 (10%)	1 (5%)	2.31	0.844
Diabetes	20	45.31 ± 71.012	3 (15%)	2 (10%)	2.15	1.395
Tuberculosis	20	41.92 ± 13.021	4 (20%)	0 (0%)	1.21	3.306
Schizophrenia	20	53.43 ± 22.081	1 (5%)	2 (10%)	3.42	0.292
HIV	20	47.51 ± 31.411	2 (10%)	1 (5%)	2.83	0.707
Cancer	20	42.61 ± 78.033	4 (20%)	1 (5%)	1.85	2.162
Dementia	20	48.19 ± 85.151	2 (10%)	3 (15%)	3.21	0.623
Control	35	67.22 ± 52.81	0 (0%)	1 (5%)	—	—

Table 3.
Record of death and survival of respondents.

Quality of life in people living with HIV (PLWHIV), dementia, schizophrenia, and tuberculosis was significantly affected, more on the psychological and social domains compared with diabetes mellitus, hypertension, and cancer diseases [92, 107–112]. This suggests that the stigma and social rejection associated with the communicable disease may play a significant role in the development of psychological illness. This also implies that even though psychological burden is equally common in the diabetes mellitus and hypertension and affecting quality of life generally, the presence of psychological burden and trauma that may be associated with PLWHIV and tuberculosis tended to have more severe negative impact on quality of life [65, 66]. Again, there is a possibility that there may have been existing psychological illnesses either undiagnosed or untreated that may have made them engage in risky sexual behaviors that may have made them vulnerable to infectious diseases.

The presence of symptoms of tuberculosis, cancers, hypertension, and diabetes mellitus alone appears to be more disabling than those in PLWHIV, dementia, and schizophrenia bearing in mind that acute cases were excluded. Moderate to severe cases of diabetes mellitus, hypertension, and tuberculosis cause more symptoms, and they are more disabling. This may account for the better quality of life among PLWHIV on the physical domain and the lower quality of life scores on both the physical and environment domains, among them, than the PLWHIV in this study. HIV not complicated with AIDS is most of the time symptom free or stable on medication, and this stability is often less sensitive to adverse environmental factors unlike in diabetes mellitus, hypertension, and tuberculosis where little adverse changes in the environment could affect profoundly the patients who had hitherto remained stable on medications [12, 22, 30, 39, 43, 52]. Such changes may include change in income level, employment, marital status (prolonged difficulty, disharmony, separation, divorce, or widowhood), and poor drug adherence with immediate exacerbation of symptoms.

A majority of the patients in all medical conditions fared well on most domains. The possible reasons are their focus on physical strength (e.g., evident physical health, absence of symptoms, ability to work around, available family support, and a strong religious belief) than on their weaknesses (e.g., social discrimination). On Domains 1 and 4, PLWHIV had better performance on quality of life, followed by hypertension and diabetes mellitus, while tuberculosis had the least in similar domains. Furthermore, PLWHIV also scored higher on GHF than the other medical conditions.

Chronic medical and mental diseases account for multiple burdens for patients, including the necessity to deal with pain, suffering, reduced quality of life, premature mortality, financial costs, and familial emotional trauma [12, 30, 32, 72, 73]. The risk factors for mental health problems among patients suffering from chronic medical illnesses are complex [72, 73, 113]. Usually, the more serious the somatic disease and symptoms are, the more probable it will be to be accompanied by mood and/or anxiety symptoms of variable severity [72, 73]; conditions arising after the somatic disease are diagnosed. In other words, even if those with dual diagnoses were excluded from the study, it clearly understood that most chronic medical conditions tend to be associated with some emotional disturbance. Failure to manage such mental health problems increases the patients' probability of suffering from complications, even lethal.

In chronic medical conditions, functionality may be severely impaired due to chronic psychogenic and somatic pain, frequent hospital admissions, and dependency from medical and nursing personnel. These are all markers of poor quality of life and well-being. It is important to mention that most of the mortalities in chronic medical conditions may not be due to the direct complication of the disease, rather a cumulative outcome of social and psychological dissatisfaction of the condition. Sufferers maintain the feeling that they have come to the end of the road and seek the easiest escape rooting out of the problem which is suicide [114–117]. In addition, research has pointed out a relationship between sustained emotional disturbance especially depression and reduced immunity. This may be worse among chronically ill patients, and this makes them more vulnerable to recurrent infections or reinfections. Good quality of life and well-being are a measure of satisfaction in major areas of life including mood stability and affording basic nutrition which will sustain immunity.

Most chronic illnesses particularly HIV, cancer, and tuberculosis in sub-Saharan Africa are classic examples of diseases with both medical and social dimensions, characterized by its close relation to poor socioeconomic conditions [27–31]. For instance, in tuberculosis, a higher risk of acquiring active disease occurs with alcoholism, smoking [48, 49], intravenous drug abuse [48, 49, 58, 74], diabetes mellitus, HIV infection, overcrowding, and other factors. The abovementioned risk factors are very prevalent among populations with reduced quality of life and well-being and increase risk of having HIV and progression from latent TB to active TB [77].

From the study, mortality was the highest among tuberculosis and cancer patients, followed by patients with diabetes mellitus. Schizophrenia had the lowest mortality after 5 years. There was no mortality among the control within the period. Correspondingly, mortality was the highest among the groups with the lowest quality of life. Quality of life is an indicator of total well-being and optimal health; therefore, if it is low, then it is an indication that the individual may not be enjoying good health. The finding among the diabetes group is in line with the earlier report that reduced life expectancy at age 15 by 1.3 years for men and 2.0 years for women in Canada [47] and a BMI of 40–45 kg/m² were associated with a 10-year reduction of life expectancy at age 35 compared to a BMI of 22.5–25 kg/m² [118]. Causes of mortality may be due to organ damage, complication of medication, systemic damage, or hemodynamic changes. Actual or direct causes of the deaths could not be ascertained as many of the deaths did not occur in the hospital. Mortality from tuberculosis and cancer tends to be high with a low rate of survival. Mortality in severe chronic mental illness is recognized to be raised, and underlying causes may be multiple. However, the death rate was lowest among schizophrenics in this study. This may be due to the fact the schizophrenics were predominantly young

population and also because those with poor prognosis like hebephrenia and disorganized were excluded from the study and only paranoid and catatonic types which carry better prognosis were included. This finding however differs from the earlier finding that any psychiatric diagnosis was associated with a 65% higher than expected total mortality in a case register study in a British primary care cohort [119].

Coronary heart disease accounts for threefold elevated mortality in young adults with severe mental illness [120] and diabetes, while stroke is usually a complication of long-standing hypertension. Long-term antipsychotic use and adverse lifestyle choices (e.g., obesity, smoking, poor diet, illicit drug use, and physical inactivity) are implicated in increased risk of cardiovascular events in these populations [1, 51, 120–122] and clearly need higher levels of consideration in order to improve health and survival, as well as the better-known risks of suicide and violent deaths. The causal pathways between mental disorder and premature mortality are multiple, making life years lost an important outcome measure in this population.

Life expectancy is a commonly used indicator for how longevity may be impaired by specific long-term exposures (e.g., smoking, obesity, ethnicity, and socioeconomic status) or chronic conditions of ill health or risk (e.g., diabetes mellitus) [48, 49] and provides an alternative measure to determine the influences of different exposures for the purpose of highlighting premature mortality at younger ages in potentially vulnerable groups. It is therefore primarily a measure of *impact* and should be seen as complementary to more elaborate studies using measures of *effect*. As a measure, life expectancy analyses offer an important means of communicating impact on survival to policy makers. Current smoking is associated with around 4 to 5 life years lost for both genders [48, 49].

Clearly the mechanisms through which medical and mental disorders are associated with premature mortality will include the effects of these individual risk factors (e.g., smoking behavior, risk of diabetes, etc.) as well as other factors (such as risk of suicide or accidents and direct effects of mental distress on cardiovascular risk). Excess mortality associated with mental disorders has been demonstrated to be predominantly due to “natural” causes [18, 119, 120] although mental health service provision is often focused on preventing more rare outcomes of suicide and violent death [115–117]. If improving overall survival is to be considered as an alternative priority, much more efforts are clearly required to address the challenges of improving general health in people with mental disorders through medical services, socioeconomic support, and physical health promotion strategies [51].

It is important to note that a good number of psychosocial and clinical factors, like increased age, marital status (married), later age of onset of illness, education, employment, average to high monthly income, shorter duration of illness, longer duration of treatment, and emotional stability, may affect the quality of life and other outcome of the medical conditions. The implication of this is that these factors have to be addressed in the holistic management of these and indeed other chronic medical conditions.

6. Conclusion

The findings of this study support the impression that chronic medical conditions are associated with reduced quality of life, which, together with a number of sociodemographic and clinical factors, in turn affect life expectancy. The results support the call that the management of patients with these medical conditions should necessarily include attention to the mental health status of the sufferers.

7. Recommendations

Based on the findings of this study that chronic medical conditions are commonly associated with reduced quality of life and well-being, which further affect longevity, it becomes imperative that renewed efforts by government, aimed at both primary and secondary prevention, be intensified for these chronic medical conditions.

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