

## **Enhancing a Sense of Achievement for Improved Treatment Outcomes among Youths Receiving Tuberculosis Treatment at a Hospital in Harare, Zimbabwe**

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### **Abstract**

*This study explores the importance of fostering a sense of achievement to improve treatment outcomes for chronically ill tuberculosis (TB) youths in Zimbabwe. Conducted at a local hospital in Harare, Zimbabwe, the research employed mixed methods to collect data from 30 youths undergoing TB treatment. Both probability and non-probability sampling techniques were utilised to select participants from a target population of 500 youths receiving care at the hospital. Quantitative data was gathered through surveys using lists of a questionnaire, while qualitative data was collected via focus group discussions, in-depth interviews, and key informant interviews. Descriptive statistics were used to analyse the quantitative data, and thematic content analysis was applied to the qualitative data. The burden of treatment theory was used to explain the phenomenon observed in the study. The findings indicate that recognising patients' efforts in managing their daily activities enhances their sense of achievement. Additionally, rewarding individuals for regaining tangible functions, such as weight gain and improved decision-making skills, further boosts their sense of achievement and leads to positive treatment outcomes. The study concludes that collaborative efforts among healthcare providers, patients, and their relatives or caregivers are essential to enhance a sense of achievement and achieve favourable treatment results. It is recommended that healthcare workers accept TB patients as they are and acknowledge their progress in improving health. A multi-faceted approach to enhancing the sense of achievement among TB patients should be integrated into the treatment process.*

**Keywords:** achievement, outcome, sense, tuberculosis, treatment, Zimbabwe

## **Introduction**

Tuberculosis (TB) is a social disease that can affect anyone, regardless of individual differences. It is considered deadly worldwide as it can attack any part of the body. The disease is characterised by generalised muscle wasting, loss of energy, and cognitive impairment. Those affected often lose their jobs due to the prolonged illness and treatment period, leading to various adverse effects (Chikwaiwa, 2019). Individuals diagnosed with tuberculosis may experience a significant loss of their overall human function, particularly their sense of achievement. Many chronically ill TB patients become completely dependent on others for basic daily activities, such as brushing their teeth, using the bathroom, walking, and sometimes even feeding themselves. Although it is in their best interest to perform these tasks independently, their illness may hinder their ability to do so. Fostering a sense of achievement among TB patients remains largely unexplored despite its potential to improve treatment outcomes. This paper therefore examines how medical health practitioners, patients, and caregivers can work together to promote the development of a sense of achievement in TB patients, ultimately leading to better treatment outcomes.

## **Background to the study**

The treatment of tuberculosis (TB) often causes anxiety in patients, as reported by Bahuguma (2017). Typically, the TB treatment process takes an instructional approach, which can make patients feel marginalised and reduced to mere recipients of orders from healthcare professionals (Kumwenda et al., 2016). Research conducted by Peddireddy (2016) in India and Subbaraman et al. (2016) revealed that TB patients experience high levels of stress, a sense of loss, and low morale when starting treatment. The physical suffering of TB patients is further exacerbated by the expectations placed on them to follow directives from hospital and clinic staff, as well as to wait, obtain treatment, and complete all necessary paperwork before beginning to actively participate in their own treatment process.

Baughman (2017) noted that tuberculosis (TB) patients often lose their sense of achievement when required to attend multiple follow-up appointments, and they sometimes receive contradictory advice from healthcare providers. This situation creates a significant burden on patients who cannot attend these reviews due to personal commitments. When patients are unable to complete treatment tasks, they may feel a loss of accomplishment, especially when faced with circumstances beyond their control (Kumwenda et al., 2016; Subbaraman et al., 2016). In this study, the sense of achievement is defined by patients' ability to perform basic

tasks, such as getting out of bed without assistance, walking a few steps unaided, using the bathroom independently, remembering to take medication, recognising people in their environment, sitting alone for a short period, and experiencing sexual energy.

According to Sahile et al. (2018), tuberculosis (TB) treatment impacts patients' mental well-being and overall treatment outcomes. Patient experiences, as reported by Boland et al. (2016), are intricately narrated by those who have gone through the treatment. These narratives illuminate the genuine challenges patients face, emphasising the nature and sources of treatment burden (Boland, 2016). TB patients deserve to live fulfilling lives characterised by happiness, hope, and high self-esteem, just like anyone else. However, when the quality of life is significantly diminished, leading to a loss of achievement, energy, initiative, motivation, and sleep due to the treatment process, TB treatment becomes a heavy burden (Sahile et al., 2018; May et al., 2014).

Tuberculosis (TB) patients often describe their treatment burden as stemming from several factors, including their interactions with the healthcare system, medication-related challenges, lifestyle changes, financial difficulties, the learning process about their treatment, and various social circumstances in their environment (Rosbach & Andersen, 2017). According to estimates from the World Health Organisation (2015) and Peddireddy (2016), approximately 40% to 70% of TB patients experience anxiety disorders related to their experiences during treatment. Below, we discuss how these factors contribute to the overall well-being of TB patients in detail.

Patients with tuberculosis (TB), like all patients, have an ethical obligation to take charge of their health. This empowerment is essential for them to meet their basic human rights, such as freedom, respect, and autonomy, which can often be diminished during treatment (Firfirey & Hess-April, 2014; Kumwenda et al., 2016). Similarly, TB patients should be equipped to respond to and manage their symptoms, despite the significant challenges present within health delivery systems (Chikovore et al., 2014; Kumwenda et al., 2016; Nliwasa et al., 2016).

TB treatment involves patients as active participants who weigh the costs and benefits of available options. The patients negotiate and navigate their past experiences, current realities, and potential future outcomes to achieve positive treatment results (Kumwenda et al., 2016).

## **Explanatory variables**

There are variables which constitute achievement in the context of TB treatment among youths, and these are discussed in turn.

### **Remembering to take medication**

Researchers have conducted a study to gauge the impact of treatment burdens on young patients' mental well-being and sense of accomplishment. Chikwaiwa et al. (2018) observed that remembering to take medication is key to achieving positive outcomes from TB treatment. This study posits that young patients who successfully adhere to their medication schedules can experience a greater sense of accomplishment, which can lead to better overall treatment outcomes.

### **Performing activities of daily living**

Tuberculosis can significantly drain a patient's energy, leading to serious consequences for their physical abilities. According to Bravell, Zarit and Johansson (2011), the disease can negatively affect even basic activities of daily living such as bathing, maintaining continence, dressing, mobility, and eating (excluding meal preparation). As a result, patients may need to relearn these skills to perform these activities successfully. The impact of tuberculosis can be devastating; many patients lose the ability to bathe themselves, maintain hair and nail hygiene, or control their bowels and bladder. They may also struggle to choose appropriate clothes and dress independently. Additionally, some patients may find walking or moving from one location to another difficult, such as getting in and out of bed or a chair, moving food from their plate to their mouth, or chewing and swallowing (Milmac & Feng, 2016). They may also be unable to get on and off the toilet and clean themselves without assistance.

The inability to perform essential activities of daily living (ADLs) can result in unsafe conditions and a reduced quality of life. The healthcare team must assess patients' ADL capabilities to identify those who need assistance. Successfully managing these daily personal tasks independently, without support from significant others, would be a significant achievement for patients.

### **Having libidinal energy**

Calababro et al. (2019) define libido as the biological need for sexual activity (the sex drive) and frequently is expressed as sex-seeking behaviour. Sigmund Freud originated this

concept to signify the instinctual physiological or psychic energy associated with sexual urges and, in his later writings, with all constructive human activity (Stoléru, 2014).

Most TB patients lose libidinal energy as a result of adverse effects of TB. Sexual desire, arousal, and orgasm are mediated by complex, yet still not fully understood interactions of the somatic and autonomic nervous systems operating at the central and peripheral levels (Stoléru, 2014). Disruption of endocrine, neural, or vascular response caused by ageing, medical illness, neurological diseases, surgery, or drugs can lead to sexual dysfunctions, thus significantly affecting TB patients' quality of life. This narrative review aims to characterise the involvement of the central nervous system in human sexual behaviour.

### **Passing flatus**

Most patients who take tuberculosis medication experience constipation, which can lead to gas accumulation during digestion. This trapped gas can cause discomfort and pain in the abdomen (Migala, 2023). Passing gas or farting throughout the day and night is actually beneficial because it releases this trapped gas and prevents uncomfortable bloating. If gas build-up is not relieved, it can cause cramping pain and discomfort in the colon (Weaver et al., 2018). Pain may also occur in the upper right or left part of the colon, which can feel similar to gallbladder or heart pain (Lacey et al., 2020). Therefore, farting can provide relief from gas and the associated pain or pressure caused by TB medication. However, some patients may find it difficult to pass gas, even though it is beneficial to do so. While farting can be healthy, excessive gas may cause discomfort. When a patient feels pressure building in their stomach, releasing gas can be incredibly satisfying (Migala, 2023).

### **Ability to sit without support**

When individuals contract TB and become bedridden, they often experience paralysis in their lower limbs and trunk, which can make sitting unsupported quite challenging (Harvey et al., 2011). To improve their ability to sit, TB patients may require the services of a physiotherapist, which can be costly for those who are responsible for payment. Sitting unaided is an essential skill for individuals with TB as it can enhance their breathing ability and enable them to carry out daily activities while seated (Sahile et al., 2018). For TB patients who may have struggled with this skill due to their illness, being able to sit unsupported can be an enormous accomplishment. The recovery of TB patients can be assessed based on their ability to perform activities they may have lost due to their illness (Harvey et al., 2011).

### **Study objective**

This study sought to explore the importance of fostering a sense of achievement to improve treatment outcomes for chronically ill tuberculosis (TB) youths in Zimbabwe.

### **Methodology**

This study utilised a cross-sectional design and mixed research methods to explore youths' lived experiences undergoing tuberculosis treatment. The target population consisted of thirty youths diagnosed with tuberculosis at a Local Authority Infectious Diseases Hospital. Participants were selected using probability and non-probability sampling techniques from a larger population of 500 youths receiving treatment at the hospital in Harare.

### **Participants**

The study involved 30 youths undergoing tuberculosis treatment who volunteered to participate. Additionally, key informants included the doctor-in-charge of the TB clinic, the matron, the sister-in-charge, four caregivers, and three nurse aides. Key informants were selected for participation in the study based on their knowledge, expertise, and experience working with TB patients.

### **Sampling**

For the quantitative aspect of the study, a probability sampling technique was employed to randomly select 30 respondents. Simple random sampling was used to ensure that each respondent had an equal chance of being chosen for the research. A random number generator was utilised to select every fifth patient for an interview while they waited to enter the doctor's examination room.

For the qualitative aspect of the study, a non-probability sampling technique was utilised to purposively select eight participants. Youths undergoing tuberculosis treatment and willing to participate in the study were chosen for the research.

### **Data collection**

Quantitative data were collected using surveys, with the questionnaire designed to gather information from respondents. In contrast, qualitative data were obtained through focus group discussions, in-depth interviews, and key informant interviews. Specific guides were utilised for each method to ensure comprehensive data collection from the study participants. Additionally, focus group discussions were conducted with the participants until saturation, the point at which no new information emerged, was reached.

The collected data were analysed using descriptive statistics and thematic content analysis for the quantitative and qualitative aspects of the study, respectively.

### **Ethical considerations**

This paper honoured ethical standards set by generic research ethics. Study respondents and the participants were informed about the purpose of the study and all the steps to be undertaken under the study. Thus, informed consent was sought from the participants before the study was conducted. The participants were informed that the study was voluntary and that they were not forced to participate. The key ethical issues addressed to promote the protection and human rights of the participants, who were largely TB patients, were confidentiality, anonymity, least harm, and voluntarism. To ensure the confidentiality of TB patients' information, the researchers assured the patients of such and proceeded to record and keep records in lockable drawers and passworded folders. The information would be available at the patient's request or for continuous treatment. Anonymity was upheld as the researcher used pseudonyms and codes to hide the identity of participants. Given that TB is a social disease that carries a lot of stigma, participants were encouraged not to respond to questions they regarded sensitive; hence, the participants were protected from the least harm. Voluntarism to participate in the study was facilitated through non-coercion in selecting the participants.

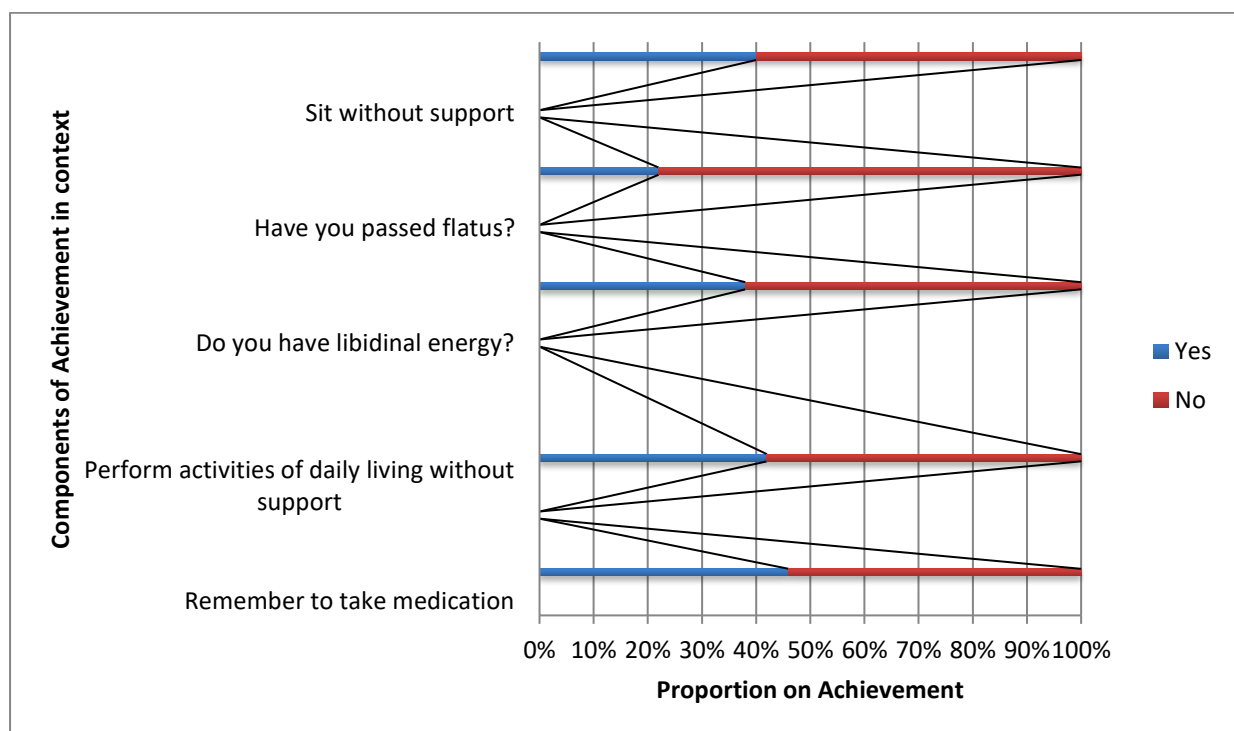
### **Feasibility**

The Harare City Health Department granted approval to conduct the study at the hospital after meeting the requirements of the Institutional Research Board.

## Study results

Results from the study showed that positive tuberculosis treatment outcomes are a function of a patient's attainment of a sense of achievement. Youths on treatment attained a sense of achievement as they displayed an ability to remember to take medication, perform activities of daily living (bathing, using the toilet, brushing teeth unaided), ability to realise the presence of libidinal energy (through experiencing an erection), passing flatus and ability to sit alone for a while without support. Results on the proportion of youths' sense of achievement while on treatment are presented next.

### Components of achievement amongst TB patients



**Figure 1: Showing the proportion of the sense of achievement among youths on TB treatment**

Study findings showed that 48% of youths on TB treatment remembered to take their medication, 42% were able to perform activities of daily living, 38% had libidinal energy, 22% could pass flatus, and 40% could sit without support.

The above study findings are presented jointly through descriptive statistics and in themes next.



### **Remember to take medication**

Results from the study illustrated that 48% of the youths on TB treatment made significant achievements through remembering to take medication without being reminded by caregivers to do so.

Evidence from the focus group discussions (FDGs) showed that it takes an effort for patients on TB treatment to remember to take medication. This finding was supported by a participant who made the following remarks:

TB drugs weaken the body's muscles, and they have sedative effects. During the first days of treatment, I was totally dependent on the nurses for my medication; hence I could not do anything for myself. As time elapsed, I was regaining my independence and would sometimes remember to take medication without being reminded to do so. This was a great achievement for me, and I knew that I was going to recover soon.

### **Able to perform activities of daily living**

Study results revealed that 42% of the respondents were able to perform activities of daily living as a milestone towards selfcare.

Qualitative results from the study showed that being able to perform activities of daily living without external help was a great achievement amongst most TB patients. A study participant echoed this finding during in-depth interviews, and he gave the following narration:

“Chirwere cheTB hachina kumira mushe hama dzangu. Chikakubata zvakanaka unotadza kuita chero chinhu zvokuti unenge wongoitirwa zvese kunge chitunha. Ukaona wave kukwanisa kuzviitira zvisvishoma woziva kuti wararama”.

Translated into simple English language, the study participant meant to say that:

TB is a devastating disease which can incapacitate the victims from performing activities of daily living as one would be similar to a dead person. If you find yourself performing a bit of the activities of daily living, it would be a huge achievement and a sign of recovering from the disease.

### **Having libidinal energy**

Findings from the study revealed that 38% of the respondents managed to have libidinal energy as an achievement.

According to the study, the development of libidinal energy is a significant breakthrough in the treatment of TB patients. This was highlighted by one of the participants who shared the following comments during a focused group discussion (FGD):

Developing libidinal energy is a sign that blood is flowing to the peripheral body parts. It also shows that the heart is able to bring back life by pumping blood to the peripheries. Apart from TB patients, sportsmen have also measured their fitness through libidinal energy levels in the event of fainting. The moment I realised that each morning I woke up with my male sexual organ erect I was convinced that I was on a recovery path. It is a great achievement to develop libidinal energy when one is recovering from TB.

### **Able to pass flatus**

Quantitative results showed that 22% of the youths receiving TB treatment were able to pass flatus as an achievement towards a cure.

Results from the qualitative aspect of the study showed that passing flatus was a greater achievement for patients on TB treatment. Evidence from a key informant revealed that patients who manage to pass flatus or gas would have moved a milestone towards positive treatment outcomes, as remarked below:

Tuberculosis medication has many side effects, including constipation. Most patients experience poor bowel movements during constipation due to gas formation in the gastrointestinal system. TB patients mostly experience a lot of pain, which is relieved through passing gas or flatus. Passing flatus is a sign of life. Doctors use it to determine the prognosis of chronically ill patients.

### **Able to sit without support**

Study findings showed that 40% of youths receiving treatment were able to sit without support, which is a sign of great achievement.

Qualitative results revealed that TB patients would have achieved a lot towards their recovery when they could sit without support. Evidence of this finding was given by a participant Mr Togara (not his real name) who made the following remarks during FGD:

“Pandakatanga kurwara neTB ndaisumudzwa nevana vangu uye nemuzukuru kuti ndimbogara kuti ndisarambe ndakavata. Ndaiona kuti ndaivashungurudza chose panguva yavaindivisa pamubhedha nokundiendesa panze kuti ndinogara pamushana. Ndaigariswa pakona yemba kuti ndigare zvakanaka ivo vagokwanisa kuita mabasa avo. Dzimwe nguva ndaigara ndakambundigwa nemachira kuti ndisadonha. Ini ndiri munhu muhombe anorema saka vana ava ndaivapa nguva yakaoma pese pandaida kugara. Ndaingonamata nguva dzose kuti dai Mwari vandipa simba ndagona kuzvigarira ndoga ndisinga netsi vana Kugona kugara ndoga pasina anondibatsira zvinhu zvairatidza kuti ndave kupora uye ndave kugona kudzora utano hwangu ndisina rubatsiro kubva kuvanhu”.

Translated into the English language, the study participant meant to say that:

When he started suffering from TB he was being supported each time he was put in a sitting position. He noticed that he was giving his helpers torrid time while putting him in a sitting position due to his huge body frame. Sometimes he would be sat at a corner a room to get support from the walls and sometimes he would be supported by blankets. He always prays to God for energy to sit without support. Being able to sit without support would be a giant step towards recovery and independence.

## **Discussion**

The results of this study revealed that tuberculosis (TB) patients who remember to take their medication without external reminders tend to achieve more favourable treatment outcomes. This observation is consistent with the findings of Chikwaiwa (2018), which demonstrated that young patients who adhere to their medication schedules experience greater success, ultimately leading to improved overall treatment results. This can be attributed to involving patients in the treatment process through communication and raising their awareness of the importance of each step in their treatment. The burden of treatment theory supports this conclusion by asserting that patients recover more rapidly when the treatment burden is alleviated, facilitated by their engagement and the establishment of a safe, supportive living environment.

This study also highlighted that most TB patients succumb to the negative effects of the disease and fail to perform activities of daily living. This finding is similar to study findings by Bravell., Zarit and Johansson (2011) who found that, given the devastating effects of TB disease, most patients lose the ability to bathe themselves and maintain hair and nail hygiene, have complete control of their bowels and bladder and even the ability to select appropriate clothes and dress independently. The inability to accomplish essential activities of daily living may lead to unsafe conditions and poor quality of life. Hence, patients who can perform basic daily activities realise the significance of such achievements in their personal health and independence.

Study results further showed that most TB patients lose libidinal energy as a result of the adverse effects of TB. This finding is dissimilar to findings by Stoleru (2014), who found out that sexual desire, arousal, and orgasm are mediated by complex, yet still not fully understood, interactions of the somatic and autonomic nervous systems operating at the central and peripheral level and not through the Paterson`s cognition.

Results from this study also revealed that farting can provide relief from gas and the associated pain or pressure caused by TB medication. This finding is similar to findings by Migala (2023) who found out that, when a patient feels pressure building in their stomach, releasing gas can be incredibly satisfying.

## **Recommendations**

This study emphasises the importance of assessing activities of daily living (ADLs) in patients to ensure that those who require assistance are identified and their needs addressed. Continuous training for the healthcare team on contemporary management trends for tuberculosis (TB) patients is essential to achieve this goal. Furthermore, caregivers should be educated through various methods and platforms to encourage ethical interactions with TB patients, aiming to enhance their cognition, self-worth, and right to life. It would be a significant achievement for patients to complete daily personal tasks independently, without relying on others for support. The study also recommends involving patients in their treatment by recognizing and rewarding small achievements to improve overall treatment outcomes. Each achievement made by patients should be observed, documented, and encouraged to facilitate their complete and timely recovery from the disease.

## **Conclusion**

In conclusion, this paper highlights the crucial role of fostering a sense of achievement to improve treatment outcomes for patients undergoing tuberculosis (TB) treatment. TB is a severe disease that drains a patient's energy, weakens muscles, impairs mental cognition, and makes individuals dependent on others for daily activities. In extreme cases, TB patients may struggle to remember their medical appointments due to their illness. They often find it challenging to perform basic daily tasks such as brushing their teeth or using the toilet. Some may experience a loss of libido and even face difficulties such as constipation caused by medication. Additionally, TB patients may be unable to sit up without support.

However, as these patients gradually recover from the disease, the burden of treatment lessens with each achievement made, no matter how small. Therefore, recognising and rewarding even the smallest accomplishments of TB patients is essential, as it significantly contributes to their overall recovery and leads to better treatment outcomes.

## **References**

- Baguhuma, K. (2017). Impact of tuberculosis on mental health largely ignored: Building a strong emotional and psychological support system for TB patients is crucial for increasing chances of their survival. Thursday 30 March 2017.
- Boland. M.R., van Boven J.F., Kruis A.L., Chavannes. N.H, van der Molen T, Goossens L.M., & Rutten-van Mólken M.P. (2015). Investigating the association between medication

adherence and health-related quality of life in COPD: Methodological challenges when using a proxy measure of adherence. *Respir Med.*, 110, 34-45. DOI: 10.1016/j.rmed.2015.11.008. Epub 2015 Nov 23.

- Bravell, M. E., Zarit, S. H., & Johansson, B. (2011). Self-reported activities of daily living and performance-based functional ability: A study of congruence among the oldest old. *European Journal of Ageing*, 8(3), 199–209.
- Calababrò, R. S., Cacciola, A., Bruschetta, D., Milardi, D., Quattrini, F., Sciarrone, F., la Rosa, G., Bramanti, P., & Anastasi, G. (2019). Neuroanatomy and function of human sexual behavior: A neglected or unknown issue? *Brain and Behavior*, 9(12). <https://doi.org/10.1002/brb3.1389>.
- Chikovore, J., Hart, G., Kumwenda, M., Chipungu, G.A., Desmond, N. & Corbett, L. (2014). Control, struggle, and emergent masculinities: a qualitative study of men’s care-seeking determinants for chronic cough and tuberculosis symptoms in Blantyre, Malawi. *BMC Public Health*, 14. DOI: <https://doi.org/10.1186/1471-2458-14-1053>.
- Chikwaiwa B.K. (2019). *Tuberculosis treatment adherence among the economically active age group 15-64 years patients in Zimbabwe: A study of Wilkins Hospital and its catchment area*. <https://www.uz.ac.zw/index.php/title-of-thesis-databases>.
- Chikwaiwa, B.K., Nyikahadzoi, K., Dzingirai, V. & Rusakaniko, S. (2018). When death stares at you, how much can you adhere to treatment?: Personal determinants associated with adherence tuberculosis treatment during the intensive phase of treatment among economically active age-group (15-64 years) of patients at Wilkins Hospital in Harare, Zimbabwe. *Zambezia Journal*, 45(i).
- Harvey, L. A., Ristev, D., Hossain, M. S., Hossain, M. A., Bowden, J. L., Boswell-Ruys, C. L., Hossain, M. M., & Ben, M. (2011). Training unsupported sitting does not improve ability to sit in people with recently acquired paraplegia: A randomised trial. *Journal of Physiotherapy*, 57(2), 83–90. [https://doi.org/10.1016/s1836-9553\(11\)70018-2](https://doi.org/10.1016/s1836-9553(11)70018-2).
- Kumwenda, M., Desmond, N., Hart, G., Choko, A., Chipungu, G. A., Nyirenda, D., Shand, T., Corbett, E. L., & Chikovore, J. (2016). Treatment-seeking for tuberculosis-suggestive symptoms: A reflection on the role of human agency in the context of universal health coverage in Malawi. *PlosOne*, 11(4), e0154103. <https://doi.org/10.1371/journal.pone.0154103>.
- May, C., Eton, D.T., Boehmer, K.R. Gallagher, K., Hunt, K., Macdonald, S., Mair, F.S., May, C.M., Montori, V.M., Richardson, A., Rogers, A.E. & Shippee, N. (2014). Rethinking the patient: Using burden of treatment theory to understand the changing dynamics of illness. *BMC Health Services Research*, in press.
- Migala, J. (2023). *What causes excessive farts?* Dotdash: Meredith Publishing family.
- Mlinac, M. & Feng, M.C. (2016). Assessment of activities of daily living, self-care, and independence. *Archives of Clinical Neuropsychology*, 31(6), 506–516. <https://doi.org/10.1093/arclin/acw049>.
- Nliwasa, M., MacPherson, P., Mukaka, M., Mdolo, A., Mwapasa, M., Kaswaswa, K., Msefula, C., Chipungu, G., Mwandumba, HC., & Corbett, E.L. (2016). High mortality and

- prevalence of HIV and tuberculosis in adults with chronic cough in Malawi: A cohort study. *The International Journal of Tuberculosis and Lung Disease*, 20(2), 202-210. DOI: <https://doi.org/10.5588/ijtld.15.0388>.
- Peddireddy, V. (2016). Psychological interventions to improve the quality of life in Indian lung cancer patients: a neglected area. *J. Health Psychol.* DOI: 10.1177/1359105316650930.
- Rosback, M & Andersen, J.P. (2017). The patient-experienced burden of treatment in patients with multimorbidity: A systematic review of qualitative data. *PLoSOne*, 12(6), e0179916. Published online 2017 Jun23. DOI: [10.1371/journal.pone.0179916].
- Sahile, Yared, Z.A & Mirgissa, K. (2018). Patients' experiences and perceptions on associates of TB treatment adherence: A qualitative study on DOTS service in public health centers in Addis Ababa, Ethiopia. *BMC Public Health. BMC*, 18, 462. <https://doi.org/10.1186/s12889-018-5404-y>Published: 10 April 2018.
- Stoléru, S. (2014). Reading the Freudian theory of sexual drives from a functional neuroimaging perspective. *Frontiers in Human Neuroscience*, 8, 157. <https://doi.org/10.3389/fnhum.2014.00157>.
- Subbaraman, R., Nathavitharana, R.R., Satyanarayana, S., Pai, M., Thomas, B.E & Chadha, V.K, (2016). The tuberculosis cascade of care in India's public sector: A systematic review and meta-analysis. *PLoS.Med.*, 13(10), e1002149. DOI: 10.1371/journal.pmed.1002149.
- Weaver K.R., Melkus G.D., Fletcher J., & Henderson W.A., (2018). Perceived stress, its physiological correlates, and quality of life in patients with irritable bowel syndrome. *Biol Res Nurs.*, 20(3), 312-320. <https://doi:10.1177/1099800418756733>.
- WHO. (2015). The end of TB strategy: Global strategy and targets for tuberculosis prevention, care and control after 2015. In *WHO global tuberculosis report*. World Health Organisation: Geneva.