Digital Technology as a Coping Strategy for the Effect of Menopause and Andropause on Work Performance in Tertiary Institutions in Ibadan, Nigeria

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Abstract
Work performance has been observed to be a significant determinant of organizational achievements. Despite factors known to affect work performance, such as gender and health status, little research has been done on digital technology and its influence on menopause, andropause, and work performance. This study, therefore, investigates the effect of technology use on reducing the impact of menopause and andropause on work performance among employees in selected tertiary institutions in Ibadan, Oyo State, Nigeria. Through a mixed-methods approach, data were gathered from 210 randomly selected staff aged 40–60 via structured questionnaires and Key Informant Interviews, which were analysed using descriptive statistics. The qualitative data collected were analysed using content analysis. Findings revealed challenges in both genders, including fatigue, hot flashes, and decreased energy levels during the transition. Women undergoing menopause reported performance below expectations, while men undergoing andropause noted a decline in physical health. However, respondents generally disagreed that this transition has a negative impact on work performance. Coping strategies included physical exercise, medical advice, and counselling. Breaking the barriers of taboos, misinformation, negative stereotypes, cultural beliefs, and doubts surrounding this physiological period, digitalization has helped reduce stress by providing solutions ranging from wearable, mobile apps to virtual care. These findings contribute to understanding the development of gender-specific technology and the complexities of work performance during the menopausal and andropause transition and highlight the need for organizational support for affected employees. Future research could explore coping strategies with digital technology during this transitional period.

Keywords: Digitalization, Menopause, Andropause, Coping Strategies, Employers, Employees, Tertiary Institutions, Work performance.

Introduction

Human development encompasses various stages, from childhood to adulthood, with aging being an inevitable part of this continuum. The characteristics and health challenges at each life stage are unique and are influenced by biological, social, and environmental factors, including age, socioeconomic status, and gender (World Health Organization, 2008). Among these are menopause in women and andropause in men, which represent transitional phases that often coincide with the working years, particularly for both academic and non-academic staff in higher institutions of learning. Medically, menopause and andropause conditions are characterized by hormonal declines—estrogen and progesterone in women, and testosterone in men— which go along with the ageing process. Female menopause and male menopause are two different situations. In women, ovulation ends and hormone production plummets during a relatively short period of time**.** In men, production of testosterone and other hormones declines over a period of many years. These periods have their challenges and symptoms. These symptoms include fatigue, mood swings, hot flushes, and reduced concentration, which may indirectly affect work performance. In tertiary institutions, where cognitive sharpness and productivity are paramount, workers are expected to be in a good state of health; otherwise, productivity may be impaired. A well-managed and monitored menopause and andropause among academic staff brings about quality teaching, good research output, and improved institutional efficiency, which has a ripple effect on the economy as a whole. Health significantly influences professional efficacy, and addressing these challenges is crucial for maintaining a robust academic workforce, which in turn supports institutional and economic outcomes.

Menopause marks the cessation of menstruation, typically occurring between ages 45 and 55, signaling the end of a woman's reproductive phase due to diminished ovarian function (World Health Organization, 2022). Approximately 80% of women experience symptoms, with 45% finding them challenging to manage (Peacock et al., 2023). Common symptoms include hot flushes, night sweats, irritability, and cognitive difficulties, all of which can disrupt workplace productivity. Conversely, andropause, though less distinctly defined, involves a gradual decline in testosterone levels in men, often starting around age 45, with symptoms like fatigue, depression, and sexual dysfunction potentially affecting work performance (Matsumoto, 2024). The menopausal and postmenopausal phase in the life of a woman and the andropause in men is becoming more important. Menopause progresses through stages including perimenopause, marked by irregular menstrual cycles and symptoms like hot flashes and mood changes, menopause itself characterized by the cessation of periods and a decline in estrogen levels, and post menopause, where long-term health risks become prominent (Mayo Clinic, 2020) Research on menopause-related issues, such as its impact on productivity, is also emerging (Smith et al., 2019). However, in the early 2000s, more attention was given to the andropause (Novák et al. 2002). By integrating menopause-related content into academia in Tertiary Institutions in Ibadan, Nigeria, to promote inclusivity and a supportive environment

for menopausal individuals. The question remains: To what extent are workers prepared for this transition period, and what coping mechanisms are individuals and organizations implementing to address this issue? Creating an inclusive and supportive workplace culture is crucial to any organization, where awareness and understanding of both menopause and andropause are promoted among all staff. Digital Technology integration offers promising solutions to alleviate the impact of these conditions on work performance. Wearable devices, telehealth platforms, and mobile applications can monitor symptoms, provide real-time coping strategies, and facilitate access to medical support, thereby enhancing workplace resilience (Smith & Griffiths, 2024). For instance, apps designed for symptom tracking and stress management have shown efficacy in improving quality of life among menopausal women (Lee et al., 2023). Similarly, digital interventions for men, such as testosterone monitoring tools, are emerging as viable support mechanisms (Jones et al., 2025). This study, therefore, investigates whether technology can serve as a determinant in reducing the adverse effects of menopause and andropause on work performance among academic staff in Ibadan's higher institutions. Grounded in Victor Vroom's expectancy theory, the research explores how technological interventions influence motivation and coping strategies during these transitions.

This study builds on the Wales TUC survey and Catherine Kyomuhendo research on Managing Menopause in the Workplace: Strategies for Professional Success and Support in Ugandan Higher Institutions of Learning. They both explored menopause in the workplace. By replicating their framework, this study collected data from the selected Tertiary Institutions in Ibadan, Nigeria, and extended the scope to include andropause and the role of technology in mitigating its effects. Unlike the Wales TUC report, which focused solely on menopause, this study incorporates andropause to provide a more comprehensive gender-inclusive perspective.

Research Objectives

1. To investigate the impact of menopause and andropause on work performance in selected tertiary institutions in Ibadan, Nigeria.
2. To identify the coping strategy adopted by employees during menopause and andropause at work.
3. To investigate the effectiveness of the use of digital technology in the reduction of the effect of menopause and andropause on work performance in selected tertiary institutions in Ibadan, Nigeria.

Research Questions

1. What is the impact of menopause and andropause on work performance in selected tertiary institutions in Ibadan, Nigeria?
2. Are there any coping strategies adopted by employees during menopause and andropause?
3. How effective is the use of digital technology in reducing the effect of menopause and andropause on work performance in selected tertiary institutions in Ibadan, Nigeria?

Conceptualizing Menopause and Andropause in Workplaces

The intersection between aging, gender-specific hormonal changes, and work performance has garnered increasing scholarly interest in recent years. The implications of menopause and

andropause—once treated as private medical matters—are now being examined within occupational health frameworks, particularly as aging populations remain active in the workforce.

Despite the growing body of evidence, workplace policies remain underdeveloped regarding hormonal transitions. Equally, cultural taboos surrounding menopause and andropause further impede open dialogue and policy formation (Smith et al., 2019).
Although a culture of silence surrounds anything that has to do with reproduction, the transition from reproductive age to menopausal age is not without its challenges. (Ibraheem et al 2015). As employees get older and develop to menopausal transition, they may experience some of the menopausal and andropause signs mentioned earlier. These signs may have severe negative effects on employees' overall quality of life, including performance at work. Also, the symptoms may sometimes be unpredictable, especially when the affected person is ignorant of the fact that they are related to transition. It is on this basis that the need to carry out a study on the effect of andropause and menopause on employees' work performance becomes imperative.

Although several global studies have examined menopause in the workplace (Wales TUC, 2020), African-specific research is limited. Kyomuhendo's work in Uganda highlights the absence of institutional support, as well as the potential for integrating mobile health platforms to empower aging employees. In Nigeria, little research exists on andropause or the dual impact of menopause and andropause on work performance, a gap this study aims to address.

Many researchers have worked on related topics in Nigeria and other countries, such as Omokanye *et al*. (2017); Adebajo (2017); Griffiths *et al*. (2013); Ibraheem et al (2015); mostly focused on female climacterics (menopause). Only a few of them considered the counterpart of this event in males, that is, andropause, since it is a recently recognized term in literature resulting from a unique rise in the occurrence of psychological disturbances noticed among middle-aged men (Chen *et al*, 2013). Therefore, this study provides evidence on both menopause and andropause in relation to their effects on the work performance of employees. The intent of this is to contribute to the few existing studies on these transitions. The findings of this research also provide information that will be of immense importance to policymakers, health agencies and line managers on employees' occupational health in Nigeria.

In addition, Digital health solutions have emerged as promising interventions for managing menopause and andropause symptoms. Wearables like Fitbit and Garmin monitor sleep patterns, stress levels, and hormonal fluctuations. Mobile applications such as "Clue" and "Balance" offer symptom tracking, educational content, and connection to telehealth professionals (Lee et al., 2023). Men are increasingly using digital testosterone trackers and wellness apps designed to monitor libido, muscle mass, and fatigue (Jones et al., 2025). These tools help users understand their physiological changes, seek timely help, and implement lifestyle changes. Smith and Griffiths (2024) underscore that when integrated into institutional wellness programs, these technologies can significantly improve employee well-being and productivity. The adoption of these tools also aligns with expectancy theory by enhancing individuals' belief in their ability to maintain performance despite aging challenges (Clark & Zheng, 2023).

There is a growing call for the development of gender-sensitive digital tools that cater to the unique physiological and psychological needs of both men and women during midlife transitions. Navarro and Klein (2022) advocate digital tools that offer personalized coping strategies, community forums, and stress-reduction features grounded in Adlerian principles of social connectedness and resilience. The use of technology can also break traditional taboos, enable private management of symptoms while reducing stigma. This is particularly relevant in African contexts where cultural conservatism may inhibit open discussion (Kyomuhendo, 2021).

These discussions support the need to examine and look into the impact of menopause and andropause on work performance and which part of work is affected, as well as the level of awareness of the accompanying symptoms among older workers. Equally, employers can best assist their male and female employees, as well as employees assisting themselves, with the use of technology as they navigate their respective transition periods. Overall, however, it is crucial to notice that almost without exception, the evidence of performance at work rests upon self-perceived measures. Also, the evidence of the possible effect of menopause and andropause on work performance is still inconclusive, and more studies need to be carried out. This study, therefore, aims to fill the existing gap in the literature.

Theoretical Framework

This study is anchored in Victor Vroom's Expectancy Theory of Motivation. This theory provides a foundation for understanding how individuals experience, interpret, and respond to the physiological and psychological transitions of menopause and andropause, especially within a work environment shaped by digital tools. Vroom's Expectancy Theory (1964) posits that an individual's motivation to perform is a function of three interrelated factors: expectancy (belief that effort will lead to performance), instrumentality (belief that performance will lead to desired outcomes), and valence (the value the individual places on those outcomes). In mathematical terms:

Motivation = Expectancy × Instrumentality × Valence

In the context of this study, employees experiencing menopause or andropause may face perceived or real challenges such as fatigue, concentration difficulties, or mood instability. These symptoms may lower their expectancy (belief in their ability to perform). However, access to technology-based interventions—such as mobile health apps, wearable monitors, and telehealth support—can enhance self-efficacy and control, thereby increasing expectancy and instrumentality. When staff believe these tools help them maintain performance and that good performance leads to institutional recognition or personal fulfillment, motivation is sustained. "Digital health tools that enhance an individual's sense of control and feedback are directly aligned with expectancy theory's tenets of motivation" (Clark & Zheng, 2023). This theory intersects with the study's objectives by supporting the analysis of how technology motivates staff to perform despite biological transitions.

Study setting

Ibadan is the capital of Oyo State, located in south-western Nigeria. The capital city is the third most populous city after Lagos and Kano, with a population of about 7.8 million (NPC, 2017). The city has several tertiary institutions of learning. Notable ones are the foremost University of Ibadan, The Technical University, The Polytechnic Ibadan, and some private Universities (Lead City University, Dominican University, Kola-Daisi University), The University of Ibadan (Federal institution), Polytechnic of Ibadan (State-owned institution), and Lead City University (private institution) were chosen as the study sites. These institutions were selected because they represent a cross-section of public and private tertiary education sectors in the city, and they are among the leading centers of tertiary institutions in Ibadan, Nigeria.

Data collection

For this research, a well-structured questionnaire was used to gather the necessary information. Some of these include demographic characteristics, perception of andropause and menopause, associated symptoms, and work-related information. In addition, key informant interviews and in-depth interviews were also carried out. The participants were drawn from academic and non-academic staff. Participants include men and women who were employees between the ages of 40 and 60. This age range was chosen because it typically coincides with the onset of natural menopause in women and andropause in men.

Data collection instrument

The research instrument used was patterned after the Wales TUC survey report (2020) investigating the menopause in the workplace through a literature review. Data was collected through the administration of a well-structured questionnaire to 210 participants between the age bracket of forty (40) and sixty (60) years selected across the three higher institutions of learning. Seventy (70) questionnaires were administered in each higher education of learning under study. The researcher was able to retrieve two hundred and nine (209) questionnaires. Questions were both closed and open-ended. The responses from the questionnaire to the item were structured on a Likert-summated rating scale of 1- Strongly Agree **(SA)**, 2- Agree **(A)**, 3Undecided **(U)**, 4- Disagree **(D),** and 5- Strongly Disagree **(SD).** More introspective responses were collected through In-depth interviews (IDIs) from senior and junior officers at the health centres of respective institutions under study in order to gain further insight into the phenomenon of interest. The tape recording was transcribed and reconciled with the notes taken. The use of key informant interviews and in-depth interviews specifically helped to obtain information about the job performance of the respondents while passing through menopause, and the coping mechanisms adopted. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed using content analysis.

Sample size and sampling techniques

A multi-stage sampling technique was employed to select a representative sample of academic and non-academic staff from tertiary institutions in Ibadan, Nigeria, ensuring diversity across gender, institution type, and occupational roles. This approach is suitable for capturing the heterogeneous characteristics of employees in a large urban setting like Ibadan, which hosts multiple tertiary institutions.

Stage One – Stratified Sampling: The study population was stratified based on the type of higher institution: federal (University of Ibadan), state-owned (The Polytechnic Ibadan), and private (Lead City University). These institutions were selected to represent the diversity of public and private tertiary education sectors in Ibadan, ensuring a broad sampling frame that accounts for institutional differences in workforce dynamics and resources (Creswell, 2014).

Stage Two – Simple Random Sampling (Fish Bowl Technique): From the stratified institutions, three were randomly selected using the fish bowl method. The names of all major higher institutions in Ibadan were written on identical slips of paper and placed in a container. Three slips were drawn without looking, ensuring each institution had an equal chance of selection. This method promoted fairness and minimized selection bias in choosing the study sites.

Stage Three – Systematic Sampling: Within each selected institution, systematic sampling was used to select participants from the staff population. A sampling interval was calculated by dividing the estimated total number of eligible staff (aged 40–60 years) in each institution by the desired sample size per institution (70 participants). The first participant was randomly selected, and subsequent participants were chosen based on the interval (e.g., every 5th staff member on the employee roster). This ensured a structured and uniform selection process across institutions.

Sample Size Calculation: The sample size was determined using the Taro Yamane formula to ensure statistical representativeness:

$$n = \frac{N}{1+N(e^2)}$$

Where:

- n = sample size
- N = population size (estimated total staff aged 40–60 across the three institutions, approximately 2,000 based on institutional records)
- e = margin of error (0.05 at 5% significance level)

$$n = \frac{2000}{1+2000(0.05^2)}$$

$$n = \frac{2000}{1+2000(0.0025)}$$

$$n = \frac{2000}{1+5}$$

$$n = \frac{2000}{6}$$

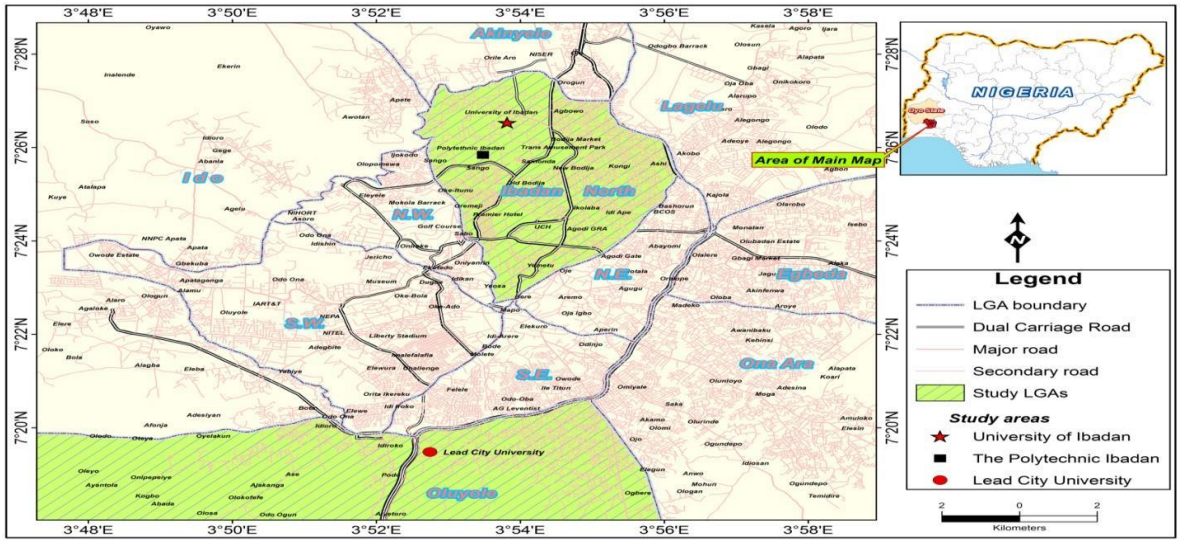
$$n \approx 333$$

To account for potential non-response and ensure robust data, the study targeted 333 respondents, with 70 questionnaires administered per institution (totaling 210 participants). After data collection, 209 questionnaires were retrieved, achieving a high response rate. This sample size was sufficient to represent the population while maintaining statistical power for the study's objectives.

Ethical considerations

The ethical standards on research that involve human subjects are taken into consideration. The research observed ethical principles that aimed at protecting the privacy of every respondent that are involved in the study. The researcher also requested the consent of respondents without any inducement or force. Whatever information supplied was treated with utmost confidentiality.

Map showing the three higher institutions and their local government areas.



Source: Geography Department, University of Ibadan, Ibadan. (2022)

In all, 209 respondents participated in the research, with 52% being female and 48% being male. Respondents were asked about their age. Most of the respondents are aged between 40-50 years (51.90% for males and 57.10% for females), 50-60 years (39.40% for males and 34.30% for females), 60 years above (8.70% for males and 7.60% for females). The demographic characteristics of the respondents involved in the survey are shown in the tables below.

Table 1:

Below is the Demographic Characteristics of the Respondents showing Age distribution frequency.

Characteristics	**Frequency (Percentage)**	**Frequency (Percentage)**
	Male respondents	**Female respondents**
Age		
40-50	54(51.90)	60(57.10)
50-60	41(39.40)	36(34.30)
60 and above	9(8.70)	8(7.60)

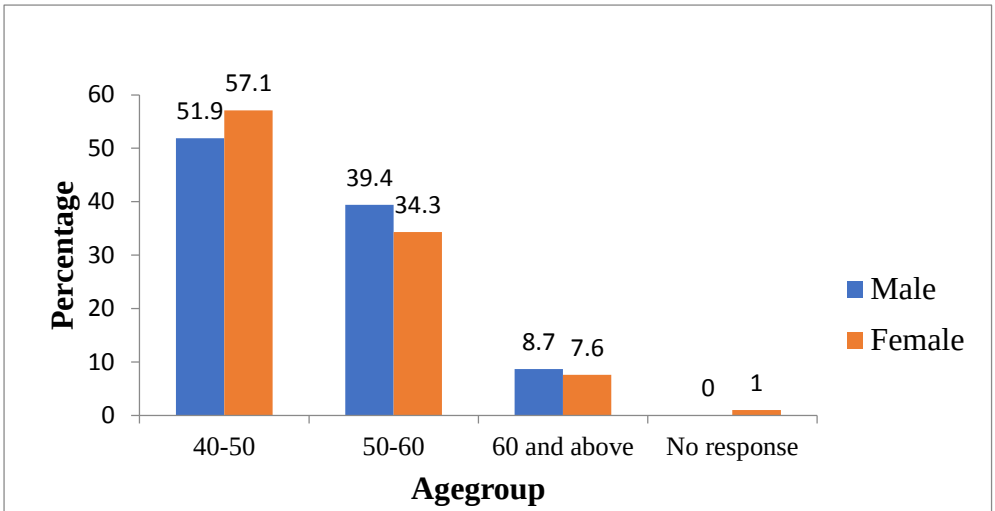


Figure II: Age group of respondents

No response	-	1(1.00)

Source: Field survey (2023)

Table 2: There were more female respondents (45.70%) who were academic staff members in their various institutions than the males (40.40%)

Below is the Demographic Characteristics of the Respondents showing occupation distribution

Characteristics	**Frequency (Percentage)**	**Frequency (Percentage)**
	Male respondents	**Female respondents**
Occupation		
Academic staff	42(40.40)	48(45.70)
Non-academic staff	41(39.40)	47(44.80)
Others (specify)	4(3.90)	2(1.90)
No response	17(16.30)	8(7.60)

Source: Field survey (2023)

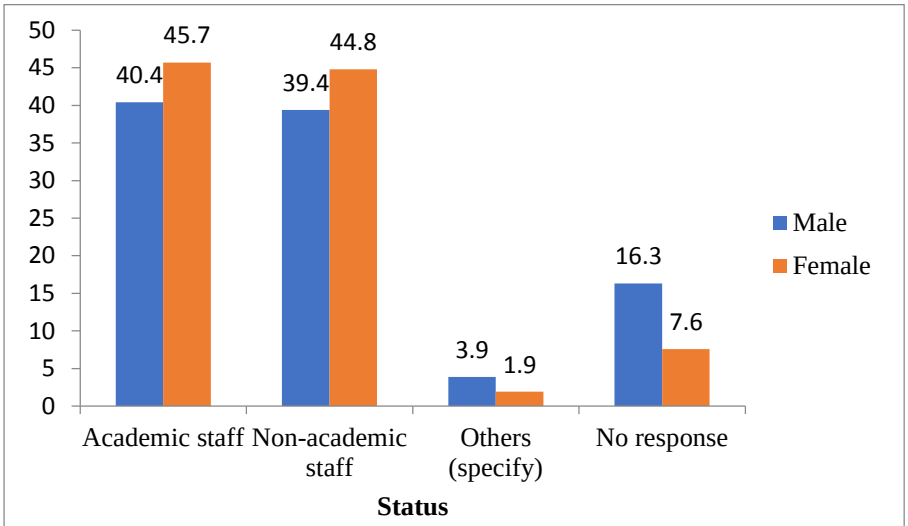


Figure III: Occupational status of respondents

Source: Field survey (2023)

More than half of both male and female respondents are married (76.90%, 72.40%)

Table 3: *Demographic Characteristics of the Respondents showing marital status*

Characteristics	**Frequency (Percentage)**	**Frequency (Percentage)**
	Male respondents	**Female respondents**
Marital status		
Single	9 (8.70)	8(7.60)
Married	80(76.90)	76(72.40)
Divorced/Separated	7(6.70)	10(9.50)
Widowed	5(4.80)	10(9.50)
No response	3(2.90)	1(1.00)

Source: Field survey conducted by the researcher, 2023.

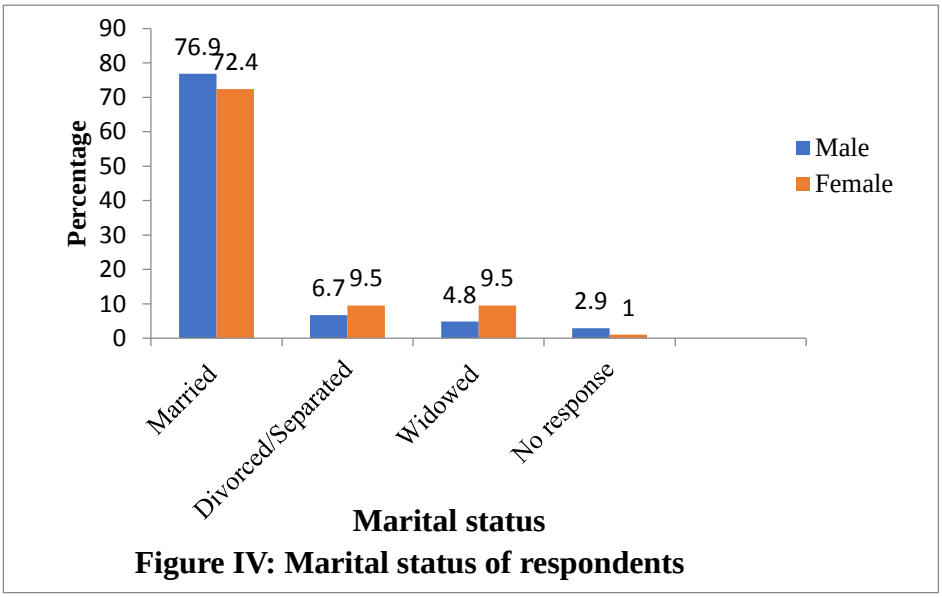


Figure IV: Marital status of respondents

Source: Field survey (2023)

Symptoms of Andropause and Menopause

The symptoms of andropause and menopause as identified by men and women in the study are presented in **Table 4**. Results showed that fatigue ($\overline{X}$ =3.50), hot flushes ($\overline{X}$ =3.29), loss of sex drive ($\overline{X}$ =3.18) and depression ($\overline{X}$ =3.17) were mostly identified as symptoms of andropause by men. However, most men did not agree that loss of concentration and short-term memory; and weakness were symptoms of andropause. The findings of Yan, (2010) support the position that loss of libido and erectile dysfunction (Fatusi *et al*., 2003) are symptoms of andropause. For women, hot flushes were mostly reported as the symptom of menopause ($\overline{X}$ =3.14). This finding supports that of Ande *et al*., 2011 which revealed that hot flushes are one of the symptoms of menopause identified by menopausal women in Benin City. As opposed to the men, women disagree that depression ($\overline{X}$ =2.97) and loss of sexual enjoyment ($\overline{X}$ =2.96) are menopausal symptoms. However, the findings of Ogurlu *et al*., (2011) revealed that symptoms of menopause among women include depression and loss of sexual desire. Women do not agree that forgetfulness is a menopausal symptom ($\overline{X}$ =2.82).

Table 4: *Andropausal and Menopausal Symptoms*

Symptoms	**Mean**	**Decision**
Men		
Loss of concentration and short-term memory	2.99	Disagree
Depression	3.17	Agree
Erectile dysfunction	3.07	Agree
Hot flushes	3.29	Agree
Loss of sex drive	3.18	Agree
Fatigue	3.50	Agree
Weaknesses	2.18	Disagree
Women		
Forgetfulness	2.82	Disagree
Depression	2.97	Disagree
Loss of sexual enjoyment	2.96	Disagree
Hot flushes	3.14	Agree

Source: Field survey (2023)

Andropause, Menopause, and Work Performance

This section presents the relationship between andropause, menopause, and work performance. **Table 5** shows that women between the ages of 45-55 years who were in the menopausal age performed below expectations in their different offices ($\overline{X}$ =3.91). This result is in agreement with Wales's TUC report 2017, which states that respondents felt that menopause affects working life. On the other hand, men disagreed that andropause affects work life (=2.98). Men agreed that they experienced a lack of energy and a decrease in physical health (=3.11), while women disagreed with this statement ($\overline{X}$ =2.95). This is also in line with the Wales TUC report 2017, which states that some of the respondents who did not have direct experience were less likely to recognise the impact that menopause can have on working life, although more than half of the respondents in this paper were those passing through menopause and andropause. Both men and women disagreed that andropause and menopause affect work performance.

The following excerpts from the key informant further buttress this position.

> "*Our secretary is a woman, she always complains about body aches, tiredness, and sleeping most of the time in the office. Sometimes she does not come to work and complains about menopause affecting her*" (**KII/University of Ibadan/male/42years/ Office Assistant/April 2023)**,
>
> "*...have passed through menopause, and I don't miss my work; it is only that some people take advantage of that to be absent from work*". **(IDI/Leadcity University/ female/52years/Lecturer/May 2023)**
>
> "*Men also pass through andropause, but that did not affect work performance except in exceptional cases*" **(KII/Polytechnic Ibadan/male/47years/Administrative officer/May 2024)**
>
> *"I have caught an elderly man using some drugs to relieve him of some andropausal symptoms. I am a Nurse, I know it*. *"Most of the patients did not know they were entering menopause, they just came to complain"* **(KII/University of Ibadan/female/55years/A Nurse/April 2023)**

Table 5: *Menopause, Andropause, and Work Performance*

Work performance	**Mean**	**Decision**
Men's work performance		
Men between the ages of 45-55 years perform below expectations in their different offices	2.98	Disagree
Men between the ages of 45-55 years who have experienced a lack of energy and a decrease in physical health often in their offices	3.11	Agree
Andropausal symptoms affect work performance	2.93	Disagree

Women's work performance		
Women between the ages of 45-55 years perform below expectations in their different offices	3.91	Agree
Women between the ages of 45-55 years experience lack of energy and a decrease in physical health, often in their offices	2.95	Disagree
Menopausal symptoms affect work performance	2.71	Disagree

Source: Field survey (2023)

Coping strategies

The coping strategies that men and women employ are presented in Table 8. Results show that men cope mostly by engaging in physical exercises ($\overline{X}$ =4.29), going for medical check-ups ($\overline{X}$ =4.11) and counselling sessions ($\overline{X}$ =3.71). Women, on the other hand, also have the same activities as men as main coping strategies, but not with the same weights. Women mostly seek counsel ($\overline{X}$ =4.84), go for medical check-ups ($\overline{X}$ =4.19), and engage in physical exercises ($\overline{X}$ =3.97). Puri and Singh (2011) identified eating healthy diets for men and Igbokwe (2011) explained that women seek medical attention as a way of coping.

The following excerpts from the in-depth interview further buttress this fact:

> *"I changed my diet; I take enough fruits in the morning and water before I go for my breakfast around 11 a.m. I just have to learn how to adapt"* **(IDI/Leadcity University/female/52years/Lecturer/April 2023)**
>
> *"I have been working for this number of years when I discovered body changes and symptoms in my body, I reduced the workload in the office and at home. I make sure I take enough rest"* **(KII/Polytechnic Ibadan/male/47years/Lecturer/May 2024)**
>
> *"When I discovered I am menopausing and I get upset easily at work, I read some books, I constantly take a very hot shower in the morning, after which I will also pour cold water on my head and body so I can perform optimally at work. This has helped me at my post of duty at work"* **(KII/University of Ibadan/female/53years/Librarian/April 2023)**
>
> *"We just give patients drugs to relieve them of their pains, knowing that the menopausal symptoms are temporary, it goes with the aging process. The suggested Hormone Replacement Therapy (HRT) is too expensive"* **(KII/University of Ibadan/female/55years/Medical Doctor/June 2023)**

Table 6: *Coping strategies for menopausal men and women*

Coping strategies	**Ien**		**Women**	
	Mean	**Decision**	**Mean**	**Decision**

Eating a special diet	3.09	Agree	2.77	Disagree
Engaging in physical exercise	4.29	Agree	3.97	Agree
Go for a medical check-up often	4.11	Agree	4.19	Agree
Counselling	3.71	Agree	4.84	Agree
Resigning	1.69	Disagree	2.38	Disagree

Source: Field survey (2023)

During the menopausal and andropausal stage, workers adopt various coping mechanism by eating special diets and engaging in physical exercises, seeking counselling and going for medical check-ups. The result supports the findings of this paper.

The use of technology in the reduction of the aftermath of menopause and andropause on work performance: These qualitative responses explain the effectiveness of technology in managing menopause and andropause symptoms within the work environment and culturally sensitive solutions that enhance work performance. The responses align with the study's findings that digital tools like mobile apps, telehealth platforms, and wearables help employees cope with symptoms such as fatigue, hot flashes, and mood swings, thereby supporting productivity in tertiary institutions in Ibadan, Nigeria.

> *"When I started experiencing hot flashes and fatigue, it was hard to focus during lectures. I felt embarrassed because I'd sweat profusely while teaching. A colleague recommended a mobile app to me that tracks symptoms and suggests coping tips. I use it to log my hot flashes and get reminders to drink water or take short breaks. Menopause isn't something we openly discuss here, so the app really helped. The app also connected me to a telehealth doctor who advised on diet changes. I feel more in control now. Without this technology, I'd probably struggle more to keep up with my teaching schedule."* **(IDI/University of Ibadan/female/48 years/Lecturer/March 2024)**

This study is in line with a study conducted by Rees et al. (2023), integrating telehealth with mobile apps to improve lifestyle changes and symptom management among menopausal women. The response supports this study by using technology to reduce the effects of menopause while working.

> *"Menopause hit me with mood swings and sleepless nights, which made me irritable at work. I handle administrative tasks, and errors were creeping in because I couldn't concentrate. I also joined an online support group through an app, where women share tips on managing symptoms. It's private, so I don't have to talk about it in the office, so I adjust my schedule to rest more during the day. These tools have helped me stay*

*productive, and I don't feel like my work is suffering as much."***(IDI/Polytechnic Ibadan/female/52 years/Administrative officer/June 2024)**

According to research conducted by Williams & Wyatt (2023) they found that improved work and productivity are linked to management of with menopause forums and support apps which is relevant to this study. The finding is relevant to this study

*'The forgetting things easily was the worst for me from menopause. I'd forget key points during research meetings, which was embarrassing as a senior lecturer. I started using a symptom-tracking app that sends alerts for stress management exercises, like deep breathing. I also use a telehealth platform to consult with a gynecologist without leaving campus, which saves time. These technologies help me manage my symptoms quietly, which is crucial in our culture where menopause is a taboo topic. I'm performing better now because I'm not constantly worried about my symptoms derailing my work.'***(IDI/Lead City University/female/50years/Lecturer/June 2024)**

A study by Ballinger et al. (2021) supports the use of mobile technology for managing stress and cognitive load during menopause.

I' noticed I was getting tired easily and losing energy and waist pains, which affected my work in the admin office. I didn't even know it was andropause until I read about it on a health app my son showed me. The app suggests exercises and diet changes. I also use a wearable device to monitor my heart rate; I also use wearable waist massagers which helps me pace myself during busy days. These tools are private, so I don't have to discuss my health with colleagues. They've helped me stay sharp and keep up with my tasks without feeling overwhelmed." **(IDI/University of Ibadan/male/47years/Administrative officer/May 2024)**

Andropause-related fatigue and decreased vitality can be mitigated through wearable feedback and guided lifestyle interventions. Studies confirm that digital platforms for men's health increase awareness and lead to behavioral changes (Corona et al., 2021) which is relevant to this study.

I' was struggling with low libido and depression. A friend suggested a wellness app designed for men's health. It tracks symptoms like fatigue and offers tips on stress reduction. I also use a smartwatch to monitor my activity levels, which encourages me to stay active. These tools help me manage my symptoms without anyone at work knowing, which is important because andropause isn't something men discuss here. I'm more productive now and don't feel like I'm falling behind." **(IDI/Lead University/male/49 years/Supervisor/May 2024)**

Declining testosterone can result in mood disturbances and reduced self-esteem. Digital health tools tailored to men's wellness offer symptom tracking, motivational prompts, and lifestyle coaching. A study by Saad et al. (2023) notes that these tools help normalize andropause care

and support self-confidence in professional roles, which supports the findings of this work. The use of wearables like massager belts, mobile apps, telehealth, and others has helped to reduce the effects of menopause and andropause on workers, which has helped them to perform effectively at work. This supports the findings.

Conclusion

This study demonstrates that while menopause and andropause present challenges such as fatigue, hot flashes, and reduced energy, their direct impact on work performance among staff in tertiary institutions in Ibadan, Nigeria, is minimal, as both genders generally disagreed that these transitions significantly impair productivity. Women reported below-expected performance during menopause, while men noted physical health declines during andropause, yet coping strategies like physical exercise, medical check-ups, and counselling mitigated these effects. Digital health tools, including apps, wearables, and telehealth, were effective in managing symptoms discreetly. This aligns with Vroom's Expectancy Theory by enhancing self-efficacy and motivation. These findings underscore the potential of digital technology to support aging workers in culturally sensitive contexts, advocating for institutional adoption of digital interventions and supportive policies to maintain workplace productivity and well-being. Further research is needed to explore communication dynamics and technological barriers to broaden the impact of these interventions.

Recommendations

To reduce the impact of menopause and andropause on work performance in tertiary institutions in Ibadan, Nigeria, the following suggestions are proposed:

1. Incorporation of Digital Health Tools: Institutions should adopt digital tools, such as mobile apps (e.g., Clue, Balance), wearables (e.g., Fitbit, Garmin), and telehealth platforms, into employee wellness programs to provide discreet, personalized symptom management, enhancing productivity and reducing stigma.
2. Institutional Support Policies: Universities should develop gender-sensitive policies, including flexible work schedules, access to counselling, and health education workshops, to support staff navigating menopausal and andropausal transitions.
3. Awareness and Training: Conduct training for line managers and staff to increase awareness of menopause and andropause, breaking cultural taboos and fostering a supportive workplace environment.
4. Research on Technological Barriers: Future studies should investigate barriers to technology adoption, such as poor internet connectivity and power outages, to enhance the accessibility of digital tools in Nigeria.
5. Employer-Employee Communication: Encourage open dialogue through anonymous feedback channels to address perceived effects of these transitions on performance, promoting health equity and workplace inclusivity.

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