ADOPTION OF PERSONALISED HEALTHCARE AMONG COMMERCIAL BUS DRIVERS IN ALIMOSHO LOCAL GOVERNMENT AREA, LAGOS STATE

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Abstract
Personalised healthcare is a preventive approach that uses a patient's individual characteristics in diseases prevention, diagnosis and treatment. This study assessed the adoption of personalised healthcare among commercial bus drivers in Lagos State, Nigeria. This researchers adopts the descriptive survey research design. Two research questions and hypotheses were postulated to guide the study while the population comprised of all commercial bus drivers in Lagos State from which a sample of 300 commercial bus drivers was selected using multistage sampling techniques (convenience and purposive).Convenience and purposive sampling techniques were used for the number of bus drivers available at time of the study. Data were collected using a self-developed structured instrument titled "Personalised Healthcare Questionnaire (PHQ)," The reliability of the instrument was established using a Cronbach's alpha coefficient of 0.78 was obtained. The questionnaire was administered adopting the on-spot technique. Data analysis involved descriptive statistics (frequency counts and percentages) for the demographics and inferential statistics of one sample t-test and regression analysis were used to test all the hypotheses at 0.05 level of significance. The findings revealed that there was significant adoption of wearable health monitoring devices among commercial bus drivers in Alimosho Local Government Area, Lagos State Nigeria ($t = 13.48$, $p < 0.05$), the findings indicated a significant relationship between socio-economic factors and the adoption of wearable health monitoring devices ($R^2=0.52$, $p<0.05$). Part of the recommendations included the need for health education campaigns to be conducted within motor parks to enpower bus drivers on the benefits, usage, and maintenance of wearable health technologies.

Keywords: Personalised healthcare, Wearable health monitoring device, Socio-economic factors

Introduction

The concept of personalised healthcare has gained significant traction in recent years, particularly in the global push toward more patient-centred, preventive and technology-driven health systems. Personalised healthcare refers to medical care administration and lifestyle interventions tailored to individual characteristics, needs and preferences (Alzeer, 2023). Faiola et al., (2019) affirmed that popularly adopting the use of wearable health monitoring devices, mobile health (mHealth) applications on devices and lifestyle coaching technique forms the major sub components of personalised healthcare.

Wearable health monitoring devices such as smartwatches, fitness trackers and blood pressure have experienced increase in production since the merger of health and technology in this space which monitors and continuously collect data on users' physiological parameters, enabling early detection of anomalies and fosters real-time self-monitoring (Prieto-Avalos et al.,2022). These technologies can be particularly useful for commercial bus drivers who are faced with limited access to formal healthcare settings based on the demands of their work. Similarly, utilisation of digital devices for health purposes will foster health promotion through offering services like symptom tracking, medication reminders, teleconsultations and health education (Ashon et al., 2025). These apps can be easily accessed via smartphones which offers a convenient platform for health management among individuals of different occupations.

Canali et al., (2022) noted that wearable health monitoring devices employs advanced sensor technologies to capture vital health data such as heart rate, physical activity, blood oxygen saturation, sleep quality, body temperature and in some cases stress levels. Comparatively, through real-time data collection and transmission to connected smartphones or cloud platforms, wearables enable early identification of physiological abnormalities, promote self-awareness and facilitate preventive health behaviours among users. The adoption of such technologies aligns with the growing paradigm of personalised and precision health care, where individuals actively participate in monitoring and managing their own health.

Commercial bus drivers in cosmopolitan Lagos are saddled with daily and busy engagements predisposing them to many evitable health implications. Wearable health devices which offer unique health benefits that addresses occupational exposure to fatigue, stress, long sedentary hours and cardiovascular risks. Ogunbamowo and Oladipupo (2019) asserted that continuous tracking of heart rate and sleep patterns detect early will foster early identification of hypertension, sleep apnoea and excessive fatigue. These conditions are common among commercial bus drivers and show relationship with prevalence of road traffic accidents (Obaseki et al., 2014; Olatona, 2017). Wearable devices equipped with accelerometers and photoplethysmography sensors can monitor physical inactivity, stress responses and irregular cardiac rhythms which is capable of prompting drivers to seek timely medical evaluation. Importantly, wearable monitoring devices are designed to provide feedback mechanisms such as vibration alerts or mobile notifications which serve as behavioural prompts that encourage healthier lifestyle choices. Consequently, Ogunbamowo et al., (2025) emphasized that the integration of wearable health devices into drivers' daily routines could substantially reduce morbidity and mortality associated with occupational health hazards.

The public-health implications of wearable devices are significant and could be widely adopted as a highly effective approach to health promoting behaviour. Rha et al., (2022) affirmed that the use of wearable devices in personalized health monitoring encourages a shift from reactive to proactive healthcare, reducing healthcare costs and hospital admissions. Despite these advantages, challenges persist in the adoption of wearable technology in low- and middle-income countries which sociodemographic characteristics such as age and gender are responsible. This in the long run influences

individual attitudes toward technology use, health awareness and utilisation of digital health innovations. Venkatesh et al., (2012) observed that young individuals show higher levels of acceptance, digital literacy and engagement with health-related technologies compared to older adults.

The bulk of individuals that makes up the totality of commercial bus drivers in Lagos State, fall within the middle-aged and older categories, often between 35–55 years who show resistance to innovation and technological shift due to lower familiarity and fear of adaptability with digital platforms (technophobia) and limited exposure to updated health technology training. In the light of this Adewale &Olatona (2018) reasoned that many older drivers perceive wearable devices as unnecessary or incompatible with their daily routines compounded with difficulty interpreting device data, managing battery charging, or synchronizing devices with smartphones despite potential health benefits.

Consecutively, gender presents unique challenges to the adoption of wearable health technologies. Obaseki et al., (2014) indicated that men and women differ in their motivations and patterns of use of wearable devices with women generally more proactive about preventive health behaviours. Although, women are less represented in male-dominated occupations such as commercial driving hugely by cultural and occupational norms. Furthermore, gendered expectations surrounding technology use contribute to disparities, with men tending to prioritize performance or entertainment features over health-related applications (Zhang et al., 2021).

Despite the promising results that digital and personalized health technologies hold, there remains a significant gap in research focusing on informal workers like commercial bus drivers with most existing studies on health technology adoption focusing on middle- to high-income earners or individuals within formal employment structures. This leaves a gap in understanding how low-income, mobile populations perceive and interact with these innovations, especially in Lagos State. Filling this gap is important for inclusive healthcare development. Peters et al., (2021) opined that commercial group frequently exposed to occupational stress, long working hours, poor dietary habits, and limited access to formal healthcare services, placing them at heightened risk for chronic diseases and other health complications.

Although the potential benefits of personalized healthcare in addressing individual health risks and promoting wellness, its utilisation among Lagos commercial bus drivers appears to be low. Without empirical evidences, efforts to improve health outcomes through personalized healthcare may fail to reach those who need it most. This study, therefore, explored the adoption of personalized healthcare among bus drivers in Alimosho Local Government, Lagos State.

Methodology

The descriptive survey research design was adopted because of its capability to examine the variables under the study and development of generalizations. The population for this study comprised of all commercial bus drivers in Alimosho Local Government Area. The sample for this study were three hundred (300) commercial bus drivers in Alimosho Local Government Area, Lagos State. Multistage sampling technique of convenience and

purposive sampling techniques. In the first stage, convenience sampling technique was adopted in the selection of five parks in Alimosho Local Government Area which were Ijegun, Ikotun, Igando, Iyana-Ipaja and Akowonjo area. The second stage adopts the purposive sampling technique in selection of sixty (60) commercial bus drivers working within Alimosho axis. Convenience and purposive sampling techniques were used for the number of bus drivers available at time of the study. The research instrument for this study was a self-developed questionnaire titled "Personalised Healthcare Questionnaire" (PHQ). The questionnaire was divided into two sections: A and B. Section A contained demographic data of respondents, while Section B was structured to test the stated hypotheses. Further, the questionnaire adopted a four (4) point Likert modified scale ranging from Strongly agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The face, construct and content validity of the instrument were ascertained by a panel of experts in the Department of Human Kinetics, Sports and Health Education. The reliability of the instrument was obtained by administering twenty (20) copies of the validated questionnaire to commercial bus drivers at Iyana-Iba Park in Ojo Local Government Area, Lagos State which is not part of the study area. The reliability of the instrument was tested using Cronbach Alpha technique (α = 0.78). Three hundred (300) copies of the questionnaires were distributed and collected by the researcher with the help of three trained research assistants to the respondents. Copies of the administered questionnaires were checked to ensure that they were well completed. Daily review meetings were held at the beginning and end of each day with the research assistants, data collection lasted for three weeks. Data collected were analysed using descriptive statistics of frequency counts and percentages for demographic data while the inferential statistics of t-test analysis and regression analysis was used to test all stated hypothesis at 0.05 alpha level of significance. The Statistical Package for Social Science (SPSS) version 23 was used for analysis.

Results and Discussion

Hypothesis One

There will be no significant adoption of wearable health monitoring device among commercial bus drivers in Alimosho Local Government Area, Lagos State.

Table 1: One-Sample T-Test Statistics on adoption of wearable health monitoring device among commercial bus drivers in Alimosho Local Government Area, Lagos State Nigeria

N	Mean	Std. Deviation	Std. Error Mean
300	1.69	0.86	0.050

One-Sample Test

Test Value= 2.5

				95.0% Confidence Interval of the Difference	
T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
13.48	299	.000	0.67	0.57	0.77

From table 1, it could be observed that there was a mean value of 1.69 and a t value of 13.48 which was significant at 0.000 at p value < 0.005 level of significance. The hypothesis postulated is hereby rejected with P value of 0.000. Therefore, the result of this finding implies that there was significant adoption of wearable health monitoring device among commercial bus drivers in Alimosho Local Government Area, Lagos State Nigeria. Hypothesis One revealed that there was significant adoption of wearable health monitoring device among commercial bus drivers in Alimosho Local Government Area, Lagos State Nigeria. The t value was significant and a t value (13.48; P< 0.05) was recorded.

The finding that there was significant adoption of wearable health monitoring devices among commercial bus drivers in Alimosho Local Government Area, Lagos State suggests a growing recognition of the role of digital health technologies in managing occupational health risks. The significant *t* value (13.48; *p*< .05) indicates that wearable technologies have gained acceptance as preventive tools for monitoring health conditions such as stress, fatigue, and cardiovascular risks among transport workers. This aligns with the work of Okunlola et al., (2024), who noted that occupational groups with high stress exposure are increasingly leveraging digital health tools for early detection of health issues.

Taken together, the findings of this study, it underscore the relevance of both technology adoption and technology-related risks. While wearable devices appear to serve as beneficial health monitoring tools, unregulated digital engagement, especially at night, may serve as a risk factor for sleep-related disorders. This duality reflects the paradox of technology in occupational health: it can both mitigate and exacerbate health risks depending on usage patterns.

Hypothesis Two

There will be no significant relationship between socio-economic factors and adoption of wearable health monitoring device.

Table 2: Relationship between Socio-Economic Factors and Adoption of Wearable Health Monitoring Device in Alimosho Local Government Area, Lagos State Nigeria.

Model	**R=0.228**	**R^2 =0.052**	**AR^2 =0.046**	**F=**	**8.136***
Sig=0.000					
	Unstandardized Coefficients	Standardized Coefficients	t		Sig.
Constant	12.865	0.537		23.963	
0.000					
Age	1.266	0.323	0.224	3.913	
0.000					
Gender	0.064	0.220	0.017	0.291	
0.771					

From table 2 above, it could be observed that the relationship between the independent variables (socioeconomic factors) and the dependent variable (adoption of wearable technology) could be predicted at 5.2% (R^2=0.52). It could further be observed that a significant F-value (F=8.136; P>0.05) was obtained at 0.05 level of significance. The hypothesis postulated is hereby rejected with P value of 0.000. The table further reveals that age had significant relationship with the use of wearable technology while gender had no significant relationship with the adoption of wearable technology.

Hypothesis Two revealed that there was significant relationship between socio-economic factors and adoption of adoption of wearable health monitoring device among public bus drivers in Alimosho Local Government Area, Lagos State. The regression analysis revealed that the relationship between the independent variables (socioeconomic factors) and the dependent variable (adoption of wearable technology) could be predicted at 5.2% (R^2 = 0.52). This indicates that socioeconomic factors, though modest in their predictive power, still play a role in influencing the uptake of wearable health technologies among public bus drivers in Alimosho Local Government Area, Lagos State. The model further produced a significant *F*-value (F = 8.136; $p< 0.05$), leading to the rejection of the null hypothesis. This outcome suggests that socioeconomic factors are important determinants in the adoption of wearable health technologies.

Specifically, the finding that age had a significant relationship with the use of wearable technology, while gender did not, is consistent with global evidence. Studies such as Peek et al. (2016) and Piwek et al., (2016) have demonstrated that younger individuals are more inclined to adopt wearable technologies due to higher digital literacy and greater openness to technological innovation, whereas older users often face barriers such as limited technological skills and lower perceived ease of use. The nonsignificant

relationship between gender and adoption suggests that, in this population, both male and female drivers show similar patterns of wearable technology use when socioeconomic factors are accounted for. This aligns with findings by Shih and Han (2020), who noted that gender differences in technology adoption are diminishing as digital devices become more mainstream.

The result also resonates with the Technology Acceptance Model (TAM), which emphasizes that perceived usefulness and ease of use often influenced by age, education, and socioeconomic status are critical determinants of technology adoption (Davis, 1989; Venkatesh & Davis, 2000). In the context of public bus drivers, age-related factors such as familiarity with smartphones and comfort with digital tools appear to drive wearable technology usage more strongly than gender.

Overall, the findings highlighted the importance of tailoring digital health interventions to age demographics, with targeted training and sensitization programs for older drivers to improve adoption rates. Additionally, the insignificant role of gender suggests that health promotion strategies involving wearable technology can be applied broadly across male and female drivers without requiring gender-specific interventions.

Conclusion

Based on the findings of this study, it was concluded that there was significant adoption of wearable health monitoring device among public bus drivers in Alimosho Local Government Area of Lagos State. Age had significant relationship with the use of wearable technology while gender had no significant relationship with the adoption of wearable technology.Based on the conclusion of this study, it was recommended that:

i. Health stakeholders should partner with technology firms to subsidize costs and improve access for bus drivers in the area. This will encourage consistent usage and wider coverage.
ii. Health workers especially health educators should develop programmes should be designed in simple formats, possibly integrated into existing mobile health apps, and delivered in local languages to encourage engagement.
iii. Non governmental organisation (NGOs) should include health education campaigns should be conducted within motor parks to train bus drivers on the benefits, usage, and maintenance of wearable health technologies and mobile apps in their programmes. Peer educators from within the drivers' community can also be trained to enhance trust and sustainability of the interventions.

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