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PHILOSOPHY &RELIGION | RESEARCH ARTICLE

Knowledge of COVID-19 and preventive measures on self-medication practices among Nigerian undergraduates

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Abstract: Self-medication has been identified as a prevalent practice in Nigeria as it provides a ready low-cost alternative in low-income countries. The current study aims to assess the influence of knowledge of and experience of COVID-19 symptoms on self-medication behaviour in a cross-section of Nigerian undergraduates. Three hundred fifty-six university undergraduates across 31 Nigerian universities was conducted during the COVID-19 outbreak between May and August 2020 to observe the prevalence of knowledge and experience of COVID-19 symptoms, the frequency and type of medications utilised for self-medication and the influence of socio-demographic variables, specifically gender, on self-medication in undergraduates. The mean age of respondents was 20.34 years. A majority (90.4%) of the sample recognised breathing difficulties as a symptom of COVID-19 symptoms. Self-medication was noted among respondents, with a prevalence of 65.4%. Paracetamol was the most commonly used drug for self-medication for perceived COVID-19 symptoms. Knowledge of COVID-19 symptoms did not significantly

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PUBLIC INTEREST STATEMENT

The study examines a vital aspect of adolescent health behaviour; self-medication. Young people are especially prone to self-medication due to the profound biological and physical changes they encounter. The outbreak of the COVID-19 virus and the accompanying social and health implications can impact health behaviours in this developmental phase. Respondents in this study displayed a high level of knowledge of COVID-19 symptoms and preventive measures. Although the knowledge of COVID-19 self-medication use, symptom experience had a significant impact on self-medication. The study adds to the body of knowledge on adolescent health behaviour and has implications for youth health education and policy planning.

predict self-medication {F(1, 352) = 1.277, p < .005; however, the experience of COVID-19 symptoms significantly predicted self-medication {F(1, 352) = 51.305, p > .005 in the sample. Self-medication practice did not differ significantly between male and female undergraduates. Prevalence of self-medication is high in the present cohort, and continuous awareness and sensitisation about the risks of self-medication will be of immense benefit to the health status of young adults.

Subjects: Education - Social Sciences; Health Psychology; Multidisciplinary Psychology

Keywords: COVID-19 symptoms; COVID-19 knowledge; self-medication; undergraduates; Nigeria

Introduction

Self-medication, the selection and use of medicines by individuals to treat self-recognised or self-diagnosed conditions or symptoms without consulting qualified health personnel is a global phenomenon (Oyediran et al., 2019; Bennadi, 2013; Aqeel et al., 2014; Eticha & Mesfin, 2014). The World Self-Medication Industrydefines self-medication as "the treatment of common health problems with medicines especially designed and labelled for use and approved as safe and effective for such use without medical supervision." Self-medication involves the purchase and use of over-the-counter (OTC) medications, prescription-only medications (POM), and the use of leftover medication out of recommended use (Pereira et al., 2021; Zafar et al., 2008).

Several studies have identified factors responsible for the constant rise in self-medication across the globe. These include socioeconomic factors, lifestyle, ready access to drugs, increased potential to manage certain illnesses through self-care, and greater availability of medicinal products (Ayalew, 2017). Furthermore, the feeling that a disease condition is mild thus not requiring doctor's consultation, previous pleasant experiences with self-medication, feeling of ability to take on proper self-care and non-availability of doctors also account for an increase in self-medication (Garofalo et al., 2015; Haider & Thaver, 1995; Shankar et al., 2012; Suleman et al., 2009).

Self-medication is a common practice in developing countries like Nigeria that are characterised by fragile health care systems (Oyediran et al., 2019; Arikpo et al., 2010; Afolabi, 2008). Studies have reported significantly high prevalence rates of self-medication in Nigeria even among the educated: 99.4% (Arikpo, et al., 2008), 95% (Afolabi, 2008) and 60–80% (Gutema et al., 2011; Khan, 2011; Mossa et al., 2012; Worku, 2003).

These studies further reveal that self-medication represents a common problem among the young people. Exposure to pharmaceutical advertisements, advice of family and friends, tendency to trivialise health problems, lack of time and non-availability of transportation have been adduced as factors responsible for self-medication among university students (Ghosh et al., 2010; Hussain & Khanum, 2008; Klemenc-Ketis et al., 2010; Sawalha, 2008). In a study of self-medication among secondary school students, Awosusi and Konwea (2015), found a high prevalence of self-medication among participants with analgesics being most commonly used. In addition, demographic factors such as age, sex and social role were identified as influencers of self-medication.

Expectedly, the declaration of the COVID-19 infection as a Public Health Emergency of International Concern and being characterised as a highly contagious disease, with total number of deaths caused by the virus exceeding that caused by any of its predecessors (WHO World Health Organization, 2020) has been linked to an increase in self-medication in Nigeria and across the globe (Edet et al., 2020; Malik et al., 2020; Molento, 2020). Akor et al. (2020) purported that in the wake of COVID-19 pandemic, many Nigerians have resorted to self-medication for different ailments and for purported protection against COVID-19 instead of accessing medical care at health facilities. Kang (2020) posits that social and

economic distress mandated isolation, possible aggravation in anxiety and depression may be the culprits for increased self-medication during the COVID-19 pandemic.

Although the WHO does not recommend self-medication with any medicines as a prevention or cure for COVID-19 (Chattopadhyay & Chowdhury, 2020) findings from the National Health Management Information System (NHIS) show that outpatient visits to hospitals dropped from four million to about two million while antenatal visits dropped from 1.3 million to 655,000 since the onset of the COVID-19 in Nigeria (Okoro & Peter, 2020). Although there is presently no cure for COVID-19 infection (Chattopadhyay & Chowdhury, 2020), the pandemic instilled anxiety in the general populace and deterred them from hospital visits.

A study by Verdict (2020) reveals that patients were hesitant on hospitals visit and hospitals in turn shut down out-patient wards. Verdict further found that a majority (79%) of the respondents stated a willingness to avoid hospital visits at any cost. Although self-medicating practices among university undergraduates is a popular subject in medical and behavioural science research (Esan et al., 2018; Afolabi, 2008; Ayalew, 2017), self-medicating practices relating specifically to the COVID-19 pandemic among undergraduates is yet to receive adequate research attention. In addition, several scholars have examined the effects of COVID-19 on several aspects of human existence (Hashemi, 2021; Kupolati et al., 2021; Wastnedge et al., 2021), it is imperative to examine its effect on the health decisions, in this case, self medication.

According to certain health research, there is relatively no correlation between knowing about an infectious disease and actually engaging in preventative behavior (De Buck et al., 2017; Phillips et al., 2015; Seimetz et al., 2020). Other researchers suggest that certain factors such as attention, information surveillance and elaboration (Raza et al., 2020), risk perceptions (Brug et al., 2004; Taglioni et al., 2013), self-efficacy (Rimal, 2000), and so on, mediate the path from knowledge to actual precautionary behavior. As a result, persons who are more aware about the disease's etiology are more concerned about becoming infected, implying a relationship between knowledge and risk perception (Vartti et al., 2009).

Individuals' risk perception (Abdelrahman, 2020; Vijayaraghavan & Singhal, 2020) and beliefs about the disease are also important factors in the route of an infectious disease (Janz & Becker, 1984). Olapegba et al. (2020a, b) posit a good understanding of COVID-19 globally and in Nigeria. However, Chukwuorji and Iorfa (2020) are concerned that conflicting myths and holy narratives may influence participation in appropriate preventative actions.

A study of COVID-19 knowledge is crucial because, despite widespread acceptance of the fact that there is no medicinal cure for COVID-19, conspiracy theories concerning the origin and causation of the pandemic have also sprouted up (Ahmed et al., 2020; Georgiou et al., 2020). These hypotheses, the majority of which are unsubstantiated and largely incorrect (Chukwuorji & Iorfa, 2020), may have reduced the propensity to engage in cautious activities (Allington et al., 2020; Van Bavel et al., 2020). These conspiracy beliefs and the perceptions they shape may influence people's participation in precautionary behaviours (Chukwuorji & Iorfa, 2020) like self-medication.

Therefore, this current study seeks to assess knowledge of COVID-19 and self-medication practices among Nigerian undergraduates during the COVID-19 lockdown. We hypothesise that knowledge and experience of COVID-19 symptoms will significantly influence self-medication among Nigerian undergraduates. We further hypothesise that gender will influence self-medication, specifically that female undergraduates will engage in self-medication more significantly than their male counterparts.

2. Materials and methods

2.1. Research Design

This study adopted a web-based cross-sectional survey using an online survey distributed via e-mails, WhatsApp, Instagram, LinkedIn and other social media for ease of access to respondents during the pandemic.

2.2. Study Area

31 Nigerian Universities across the six-geopolitical zones of Nigeria were sampled in this study.

2.3. Sampling Technique

The drive of this research is to assess knowledge of covid-19 and preventive measures on self-medication practices among Nigerian undergraduates during the COVID-19 pandemic. The focus on this population resulted not only from the researchers affiliation in the study area during the time of research but also from a keen interest to evaluate factors that may influence self-medication among undergraduates during the COVID-19 pandemic. It was impossible to physically recruit respondents due to limited physical contact during the study period. Hence, a non-probabilistic sampling technique was adopted.

To this end, the multistage sampling technique was employed. Purposive sampling technique was employed in selecting undergraduates while snowballing was used to recruit 356 participants for the current study. Therefore, the population involves undergraduate students across Nigerian universities of differing ages, faculty, courses of study and state of residence. Therefore, having this kind of population mix ensured the representativeness of the information generated from the field.

2.4. Inclusion-Exclusion Criteria

For the present study, only undergraduate students across Nigerian universities with access to the internet were sampled. The questionnaire link was sent via e-mails, WhatsApp, Instagram, LinkedIn and other social media requiring respondents to give informed consent and commit 8 minutes to respond to the questionnaire. These inclusion criteria provided this study with valid research outcomes by minimising the possibility of responses originating from sampling primary, secondary or postgraduate students. Furthermore, these inclusion criteria facilitated easier and more effective data collection and helped to ensure that all prospective respondents were adequately informed on the purpose of the study, thereby fostering motivation and true response.

2.5. Ethical Considerations

The study obtained ethical approval from the Research Ethics Board of the Department of Behavioural Studies, Redeemer's University, Nigeria. An information page detailing the aims of the research and what participation would involve was provided to each participant. No identifying information was collected to retain anonymity.

2.6. Research Instruments

Data was collected with the aid of a close-ended online survey. The survey comprised the following sections:

2.7. Section A: Socio-demographic Measures

This included seven questions aimed at capturing socio-demographic characteristics of study respondents. These include age, sex, university, faculty, department, level and state of residence.

2.8. Section B: Knowledge of COVID-19 Symptoms and Symptom Experience

This section comprised of an eighteen-item scale on Knowledge of COVID-19 symptoms as well as individual experiences of COVID-19 symptoms. Possible responses on the nine items measures for Knowledge of COVID-19 symptoms range from "True" to "False." Possible responses on the nine items for the COVID-19 Symptom Experience measures are presented on a 5-point Likert scale

ranging from "Never" to "Always". Cronbach's alpha for the scale calculated with the sample of this study was acceptable (α = .83) on the measures of Knowledge of COVID-19 symptoms and (α = .86) on the measures of COVID-19 Symptom Experience.

Items generated were based on the NCDC () stipulated symptoms of COVID-19 communicated to Nigerians via SMS messages, social media accounts and an official website (Obi-Ani et al., 2020; UNICEF, 2020). As of the time of data collection for this study, there were no existing scale assessing COVID-19 symptoms and symptom experience. The choice of NCDC specified as a measure for COVID-19 symptoms and symptom experience in this study is premised on its position as Nigeria's leading public health institute saddled with a mandate to protect Nigerians' health through evidence-based prevention, comprehensive disease surveillance and response activities, and a one-health approach that is research-based and led by a skilled workforce (NCDC, 2022a).

2.9. Section C: Self-Medication

This section consisted of 12 classes of over-the-counter drugs and prescription-only medications (POM) associated with COVID-19 symptoms. These medications include paracetamol/panadol, tramadol, cough syrup, vitamin-c, herbs, anti-malaria, anti-diarrhoea, piriton, slimming teas and tablets, food supplements, hydroxylcholoroquine and others. Possible responses range from

"True" to "False" on the use of these medications in the prevention or management of COVID-19 symptoms other than as prescribed by authorised medical personnel. Items generated were based on expert face validation and literature search on self-medication trends during the COVID-19 pandemic. Cronbach's alpha for the scale calculated with the sample of this study was acceptable (α = .76).

2.10. Section D: Knowledge of Preventive Measures COVID-19

Eight items were used in ascertaining participant's knowledge of COVID-19 preventive measures with true or false response options. Cronbach's alpha for the scale calculated with the sample of this study was (α = .53).

Items generated were based on the NCDC () recommended preventive measures for COVID-19 conveyed via SMS messages, social media accounts and an official website (Obi-Ani et al., 2020; UNICEF, 2020). As of the time of data collection for this study, there were no existing scale assessing knowledge of COVID-19 preventive measures. Hence, the choice of NCDC prescribed COVID-19 preventive measures for the assessment of the knowledge of preventive measures of COVID-19 is based on the familiarity of Nigerians with these measures due to daily updates through SMS and periodic updates on Twitter and Facebook in the heat of the pandemic (Obi-Ani et al., 2020).

2.11. Mode of Data Analysis

Data were analysed using SPSS 23 (SPSS, Inc., Chicago, IL, USA). Descriptive statistics (mean, standard deviations, frequency counts and simple percentages) and inferential statistics (independent t-test and simple linear regressions) were computed (Table 8). Descriptive statistics were utilised in presenting information on the socio-demographic characteristics, knowledge and symptom experience of COVID-19, general prevalence rates of self-medication, and medication-specific prevalence rates of commonly abused medications among Nigerian undergraduates. Independent sample t-test was used to compare the mean self-medication scores between two groups (males and females). Simple linear regression was utilised in two hypotheses assessing the predictive influence of the knowledge of COVID-19 symptoms and the experience of COVID-19 symptoms on self-medication among Nigerian university undergraduates, respectively.

3. Results

3.1. Socio-Demographic Data of Respondents

This section clearly portrays the socio-demographic characteristics of the respondents using a table. The levels, frequency and percentage distribution of these variables are shown in Table 1.

Table 1 shows the socio-demographic profile of the respondents. Respondents were aged between 15 and 51 years, with a mean age of 20.34 years signifying that youths are the larger percentage of undergraduates in Nigeria. Also, the respondents included 162 (45.5%) males and 194 (54.5%) females.

4. Knowledge estimates and prevalence rates

Table 2 displays the knowledge of and prevalence of COVID-19 symptoms among University undergraduates sampled in the study. A majority of the sample (91.9%) agree that difficulty breathing/shortness of breath is a symptom of COVID-19 while 46.9% had experienced headaches since the onset of the COVID-19 lockdown.

Table 3 reveals that of the respondents in this study, 65.4% have self-medicated during the COVID-19 lockdown. More males (56.8%) self-medicate in comparison to their female counterparts. Also, undergraduates aged 20–24 (53.4%) self-medicate more than those age 15–19 (52.6%) and those aged ≥25 (32.4).

Table 4 and Figure 1 show the prevalence rate of self-medication in relation to COVID-19 symptoms. Of the respondents sampled, the prevalence rate of self-medication are as follows: 43% use of paracetamol/panadol, 2% use of tramadol, 8.1% use of cough syrup, 52% use of Vitamic C, 28.7% use of herbs, 24.7% use of anti-malaria, 2.2% anti-diarrhea, 3.4% use of piriton, 6.5% use of slimming teas and tablets, 15.7% use of food supplements, 2% use of hydroxychloroquine and 15.2% use of other medications. Further results reveal that more males self-medicated on tramadol (4%), cough syrup (10.2%), herbs (37.2%), anti-malaria (30.3%), anti-diarrhea (3.3%), piriton (4.8%), slimming teas and tablets (8.7%), hydroxychloroquine (3.2%) and other medications (19.5%), more females self-medicated on paracetamol/panadol (55.2%) and Vitamin C (63.1%) and both gender equally self-medicated on food supplements (19.7%). Based on age, results show that respondents aged 20–24 exhibited higher levels of self-medication on tramadol (4.2%), cough syrups (11.7%), anti-diarrhea (3.5%), slimming teas and tablets (9.2%) and hydroxychloroquine (4.2%) than respondents aged 15–19 and those aged ≥25. Also, respondents aged ≥25 exhibited higher levels of self-medication on paracetamol/panadol (55.9%), vitamin C (59.4%), herbs (53.3%), anti-malaria (34.4%), piriton (13.8%), food supplements (31%) and other medications (20.7%) than those aged 15–19 and 20–24 respectively.

Table 5 shows the knowledge of recommended COVID-19 preventive measures. A majority (93.3%) agree that hand washing is necessary to prevent COVID-19 infection.

4.1. Hypotheses Testing

Hypothesis One: Knowledge of COVID-19 symptoms will significantly influence self-medication among Nigerian university undergraduate

{F(1, 352) = 1.277, p > .05, R^2 = .004. A simple linear regression was computed to predict self-medication by knowledge of COVID-19. The analysis summary in tables shows that a significant regression equation was found {F(1,352) = 1.277, p < .005, with an R^2 of .004. This suggests that knowledge of COVID-19 symptoms significantly predicts self-medication among Nigerian university undergraduates though it is observed from the table that 0.4**%** variation in self-medication is predicted by knowledge of COVID-19 symptoms. Therefore, the hypothesis that knowledge of COVID-19 symptoms will significantly influence self-medication among Nigerian university undergraduates is not accepted.

Table 1. Percentage distribution of respondents by socio-demographic characteristics

Variables	Level	Frequency	Percentage
Age	• = 20.34 15–19 20–24 ≥ 25 Total	171 148 37 356	48 41.6 10.4 100
Gender	Male Female	162 194 356	45.5 54.5 100

Table 2. Knowledge and symptom experience of COVID-19

COVID-19 symptoms	Knowledge (%)	Symptom experience (%)
Shivering	38.8	11.
Body Pain	45.5	27.5
Headache	67.4	46.9
Sore Throat	80.9	17.7
Recent Loss of Taste/Smell	39.9	12.9
Difficulty Breathing/Shortness of Breath	91.9	12.6
Diarrhea/Abdominal Pain	29.2	18.3
Runny Nose/Catarrh	64.6	28.6
Fatigue	64.6	32.8

Table 3. Prevalence of self-medication among university undergraduates

Variables	Prevalence (%)	Gender	Age
Self-Medication	65.4	Male 56.8 Female 45.9	15–19 52.6 20–24 53.4 ≥ 25 32.4

Hypothesis Two: Experience of COVID-19 symptoms will significantly influence self-medication among Nigerian university undergraduates

A simple linear regression was computed to predict self-medication by experience of COVID-19 symptoms. The analysis summary in tables 6 and 7 shows that a significant regression equation was found {F(1, 352) = 51.305, p > .005 with an R^2 = .127. This suggests that the experience of COVID-19 symptoms significantly predicts self-medication among Nigerian university undergraduates. This is an indication that 12.7% variation in self-medication is predicted by experience of COVID-19 symptoms. Therefore, the hypothesis that experience of COVID-19 symptoms significantly influences self-medication among Nigerian university undergraduates is accepted.

Hypothesis Three: Female undergraduates will engage in self-medication more significantly than their male counterparts during the lockdown (due to the COVID-19 pandemic)

There is no significant difference in the levels of self-medications between male ($\bar{x}$*=1.88, SD = 2.098)* and female ($\bar{x}$*=2.07, SD = 1.847*) Nigerian undergraduates. Therefore, the hypothesis that female undergraduates will engage in self-medication compared to male undergraduates during the lockdown is not accepted.

Table 4. Commonly abused medications

	Prevalence (%)	Gender (%)	Age (%)
Paracetamol/Panadol	43	Male 41.6 Female 55.2	15–19 46.6 20–24 50.4 ≥ 25 55.9
Tramadol	2	Male 4 Female 1.3	15–19 0.8 20–24 4.2 ≥ 25 3.4
Cough Syrup	8.1	Male 10.2 Female 10	15–19 8.7 20–24 11.7 ≥ 25 10
Vitamin C	52	Male 54 Female 63.1	15–19 59.1 20–24 59.1 ≥ 25 59.4
Herbs	28.7	Male 37.2 Female 32.7	15–19 32.6 20–24 32.5 ≥ 25 53.3
Anti-Malaria	24.7	Male 30.3 Female 28.9	15–19 31 20–24 26.6 ≥ 25 34.4
Anti-Diarrhea	2.2	Male 3.3 Female 2.6	15–19 2.3 20–24 3.5 ≥ 25 3.4
Piriton	3.4	Male 4.8 Female 3.9	15–19 2.3 20–24 4.3 ≥ 25 13.8
Slimming Pills and Teas	6.5	Male 8.7 Female 7.8	15–19 7.6 20–24 9.2 ≥ 25 6.9
Food Supplements	15.7	Male 19.7 Female 19.7	15–19 15 20–24 22.1 ≥ 25 31
Hydroxylchloroquine	2	Male 3.2 Female 1.9	15–19 0.8 20–24 4.2 ≥ 25 3.6
Others	15.2	Male 19.5 Female 18	15–19 18.7 20–24 18.3 ≥ 25 20.7

5. Discussion

The study assessed knowledge of covid-19 and preventive measures on self-medication practices in a sample of three hundred and fifty-six (356) Nigerian undergraduates. Using a close-ended questionnaire, the study derived the knowledge estimates and symptom experience of COVID-19. It also derived the prevalence of self-medication and commonly abused medication, providing additional information on the prevalence based on age and gender. Level of knowledge of recommended preventive COVID-19 preventive measures was also ascertained.

As reflected in the results, the present cohort was very knowledgeable about the symptoms of COVID-19. This may be reflective of higher literacy rates and ready access to information sources about symptoms of COVID-19 in the present cohort. These rates may also be credited to the sensitisation efforts of the Nigerian Center for Disease Control via SMS messages, social media accounts and its official website (Obi-Ani et al., 2020a). This knowledge also appears to have translated into awareness of recommended COVID-19 preventive measures. In a study of knowledge of mode of spread and preventive practices of COVID-19 among adolescent college students in Eastern Nigeria, Aronu et al. (2021) report a high proportion of respondent (98.4%) were aware of COVID-19 preventive measures. This result mirrors the results of other studies conducted in Nigeria

Table 5. Estimated knowledge of recommended COVID-19 preventive measures

Recommended Preventive Measures Estimated Knowledge (%) Staying at home	90.4
Physical Distancing	90.7
Wearing Mask in Public	92.1
Hand Washing	93.3
Disinfecting Surfaces	87.1
Avoiding touching eyes, nose and mouth with unwashed hands	89.3
Coughing and Sneezing into Elbow/Tissue	91

Table 6. Linear regression showing the prediction of self-medication by knowledge of COVID-19 symptoms

	B	Std. error	Beta	T	Sig.
(Constant)	1.696	.275		6.169	.000
Self-Medication	.025	.022	.060	1.130	.259

Table 7. Linear regression showing the prediction of self-medication by the experience of COVID-19 symptoms

	B	Std. error	Beta	T	Sig.
(Constant)	.177	.272		.650	.516
Self-Medication	.146	.020	.357	7.163	.000

{F(1, 352) = 51.305, p < .05, R^2 = .127)

and other locations suggesting a possible positive relationship between knowledge of COVID-19 symptoms and preventive measures (Quispe-Cañari et al., 2021; Adela et al., 2020).

Self-medication rates among undergraduates with regards to perceived COVID-19 symptoms were 65.4%. This is in relation to other Nigerian studies that assert a high prevalence of COVID-19 across different samples (Akinnawo et al., 2020; Onisile et al., 2020; Esan et al., 2018; Lawan et al., 2013). This finding is comparably higher than what was earlier reported by Wegbom et al. (2021) in a web-based survey of 461 Nigerian adults. In the present cohort, self-medication was significantly associated with experiencing COVID-19 symptoms. Although there is no approved specific medication to prevent or treat COVID-19, Nasir et al. (2020) opine that unsolicited news of remedies of COVID-19 in media channels, panic about the ready availability of health care and mental stress of the lockdown and isolation may have triggered the increased rate of self-medication.

This study uncovers that in the light of COVID-19 that male undergraduates self-medicated more than their female counterparts. However, this is in contrast with several studies that posit that women self-medicate more than men (Abduelmula & Abduelkarem, 2017; Johnson & Pope, 1983; Karimy et al., 2019; Mosley et al., 2015; Sherazi et al., 2012; World Health Organization, 2020). A significant explanation for the change in self-medication pattern may be the COVID-19 infection and mortality rates reported to be higher in men than in women (Ambrosino et al., 2020; Global Health 50/50, 2020; Grasselli et al., 2020; Greenfieldboyce, 2020; Griffith et al., 2020; Shattuck-Heidorn et al., 2020; Wenham et al., 2020). Also, results based on assessment of self-medication prevalence across age groups emphasise a high prevalence of self-medication among adolescents and young adults (Bertoldi et al., 2014; Esan et al., 2018; Mathias et al., 2020; Zewdie et al., 2020).

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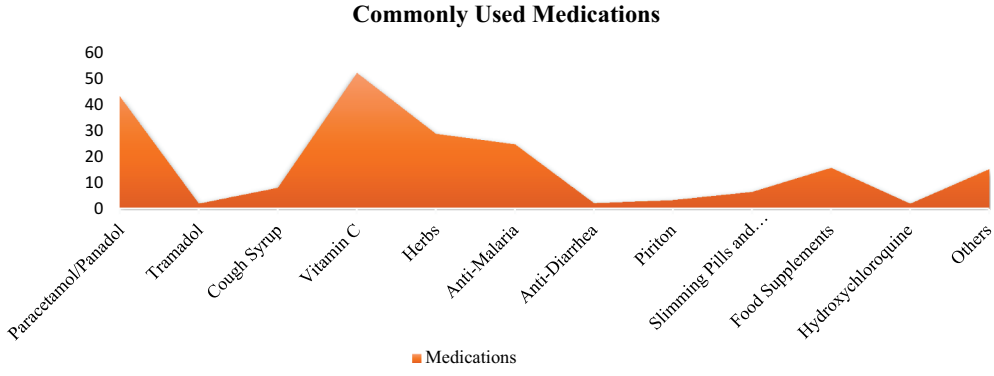
Table 8. Independent t-test showing gender difference in self-medication

Variables	N	Mean	SD	df	T	P-val
Male	162	1.88	2.098	354	−.881	.488
Female	194	2.07				

Figure 1.



The most common drug used for self-medication was analgesics specifically panadol/paracetamol. The possible explanation for this may be its ready availability in pharmacy shops and the claim between the possible association between COVID-19 symptoms and malaria symptoms which paracetamol is commonly used for (Mudenda et al., 2020). Analgesics have been severally reported in as a prevalent drug for self- medicating among undergraduates and falsely believed to be non-toxic (Al Essa et al., 2019; Esan et al., 2018). This may be a possible reason for prevalent use in this cohort.

The study findings show that the knowledge of COVID-19 symptoms did not significantly predict self-medication among Nigerian university undergraduates. According to health research findings, there is relatively no correlation between knowing about an infectious disease and engaging in preventative behavior (De Buck et al., 2017; Phillips et al., 2015; Seimetz et al., 2020). According to Azhar et al. (2021), the most frequent reason found for self-medication was unavailability of doctors. However, this finding is in contrast with findings that posit the association between disease knowledge and self-medication (James et al., 2006, 2008; Machado-Alba et al., 2014; Sadio et al., 2021).

However, the study further reveals that the experience of COVID-19 symptoms significantly influence self-medication among Nigerian university undergraduates is therefore accepted. Studies have shown that individuals self-medicated when experiencing symptoms which have a semblance with COVID-19 symptoms such as fever, fatigue, cough, sneezing, muscle pain, nasal congestion, sore throat, headache and breathing difficulty (Quispe-Cañari, Fidel-Rosales, Manrique, Mascaró-Zan, Huamán-Castillón, Chamorro–Espinoza et al., 2021).

The non-significant difference observed in self-medication with regards to gender contrasts with the general tone of the literature on self-medication trends in males and females (Helal & Abouelwafa, 2017; Lukovic et al., 2014; Osemene & Lamikanra, 2012). In a review of prevalence and measure of self-medication, Sherazi et al. (2012) noted that self-medication patterns in adults are related to gender and that across studies, women are more likely than men to self-medicate.

6. Conclusions

In conclusion, our findings demonstrated a high prevalence of self-medication among Nigerian undergraduates, across gender and age dimensions. There is widespread knowledge on the symptoms of COVID-19 and COVID-19 preventive measures among undergraduates and a high prevalence of COVID-19 symptom experience. Paracetamol and Vitamin C were identified as the most self-medicated medications among Nigerian undergraduates during the COVID-19 pandemic. Lastly, the experience of COVID-19 symptoms significantly predicted self-medication among Nigerian undergraduates.

7. Limitations

A major drawback of this study is the use of a self-report, which increases the possibility of false reporting. Additionally, cross-sectional studies do not allow for an establishment of a direct cause and effect. The scales developed for data collection on self-medication does not address all possible categories of commonly self-medicated over-the-counter medications. Limited information was captured. However, the study results add to the growing body of knowledge on self-medication during the pandemic in a unique cohort.

8. Recommendations

This study recommends that the government ensure the regulation of sales of over-the-counter medications to ensure reduction in potential healthcare burden post-COVID. Also, government and non-governmental stakeholders should foster delivery of tele-healthcare services to manage ill-health. Psychological associations and institutions should provide services to mitigate aggravation of pandemic-related distress, which may increase self-medication. Additionally, universities can utilise their network platforms to intimate their undergraduates on the self-medication while emphasising recommended COVID-19 preventive measures. Psycho education on the ills of self-medication should be emphasised via social and traditional media.

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