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E-CIGARETTE OR VAPING USE AND ADULESCENTS' ATTITUDE AND PERCEPTIONS IN TUDUN WADA/BADIKKO KADUNA STATE, NIGERIA

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ABSTRACT

E-cigarette abuse is becoming more common by the day. Many studies have been conducted by researchers to investigate adolescents' attitudes toward smoking; however, few have extended this research to adolescents' attitudes toward e-cigarettes. This research has not strayed from the goal of examining adolescents' attitudes and perceptions about e-cigarette ingredients, safety, health harm, addiction, social norms, accessibility, affordability, and regulation; and determining whether attitudes differ for e-cigarette use. There were 150 participants from Tudun Wada and Badikko, Kaduna SouthL.G.A , Kaduna State, Nigeria. Interview and close ended questionnaires were used, researcher and 5 trained research assistant were used for data collection, the result of the study shows that (37% of the respondents are between the age of 19-21 years, mean age (16.1),88% male and 33% have no known educational qualification). According to the findings, 87% of participants start smoking e-cigarette by the influence of friends, 73% has 1-5 years exposure, 67% believe that the ingredients are affordable. Most of the respondents are on the perceptions that the smoke e-cigarette for fashion, feel among and to feel 'high', 43% thought e-cigarettes were not a tobacco product, 54% agree they were safer than cigarette, 30% agree is the easy way to quit cigarette smoking. 45.5% of the participants thought e-cigarettes have no harm to the health. Based on this study, most adolescents are not aware of the risks associated with e-cigarettes, but many have misconceptions and prefer e-cigarettes to cigarettes. The relationship between favourable e-cigarette attitudes and use is cause for concern. Findings point to the need to provide adolescents with accurate information about e-cigarette ingredients, risks, and the lack of evidence of their role in cigarette cessation. The government should impose strict adherence

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by regulating e-cigarette pushers, raise public awareness about the dangers of e-cigarettes, organise workshops on danger of e-cigarette in schools, and encourage participation.

KEY POINTS: *Adolescents, attitudes, perceptions, safety, health harm, addiction, social norms, accessibility, affordability, and regulation.*

INTRODUCTION

An e-cigarette, also known as an electronic cigarette. Some are disposable. Some have rechargeable batteries and replaceable e-liquid cartridges. Other products do not look like cigarettes and may have names such as: Vape Pens, Vape Boxes, Vapes, Tank systems, E-Hookah, Hookah Pen, Hookah Stick, Shisha Stick, Juul, Mechanical Mods, E-Cigar, and E-Pipe. The liquid inside may smell fruity, but it may be high in nicotine (Kalkhoran S, Glantz SA, 2016).Acording to American thoracic society, There has been an outbreak of severe respiratory disease called e-cigarette or vaping associated acute lung injury (EVALI) in over 2,500 patients which has resulted in hospitalization and over 60 deaths (www.thoracic.org/patients/)

JUUL devices, for example, appear to be like USB drives (Kalkhoran .S et al, 2016). Concerns have been raised about young people using JUUL. Refills come in flavours like cool cucumber, mango, and mint, which may appear natural and harmless, but a single JUUL refill contains the same amount of nicotine as a source of nicotine (Pearson JL, Stanton CA, Cha S, Niaura RS, Luta G, Graham AL, 2015)

E-cigarettes are marketed as tools for quitting or reducing smoking, but they are classified as tobacco products by the American Food and Drug Administration (FDA). The majority of these products contain nicotine, which is one of the most addictive substances known and is the same nicotine found in tobacco products (American thoracic society, 2022)

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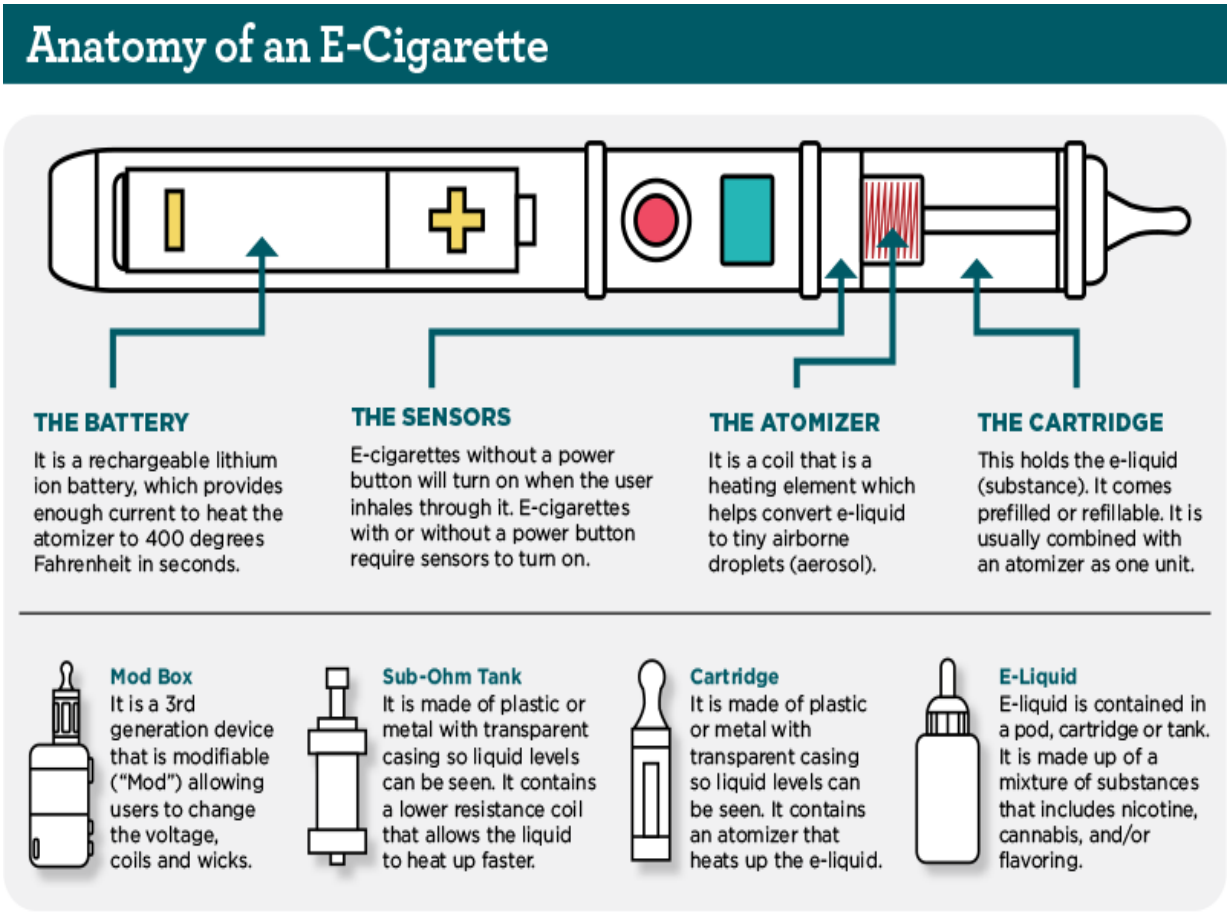
Many smokers believe that vaping is less harmful than smoking, and some use it as an alternative to smoking ((Mohammed B, M. AAbdalqader, M. Ali, 2021)

No e-cigarette has been approved as a cessation device or authorised to make a modified risk claim as of yet, and more research is needed to understand the potential risks and benefits these products may offer adults who use tobacco products (FDA, 2022)

How e-cigarette work

The following components are found in the majority of e-cigarettes:



RISK

Manufacturers claim that e-cigarettes avoid many of the health risks associated with tobacco smoking, providing a healthier alternative, while these devices may assist some people in

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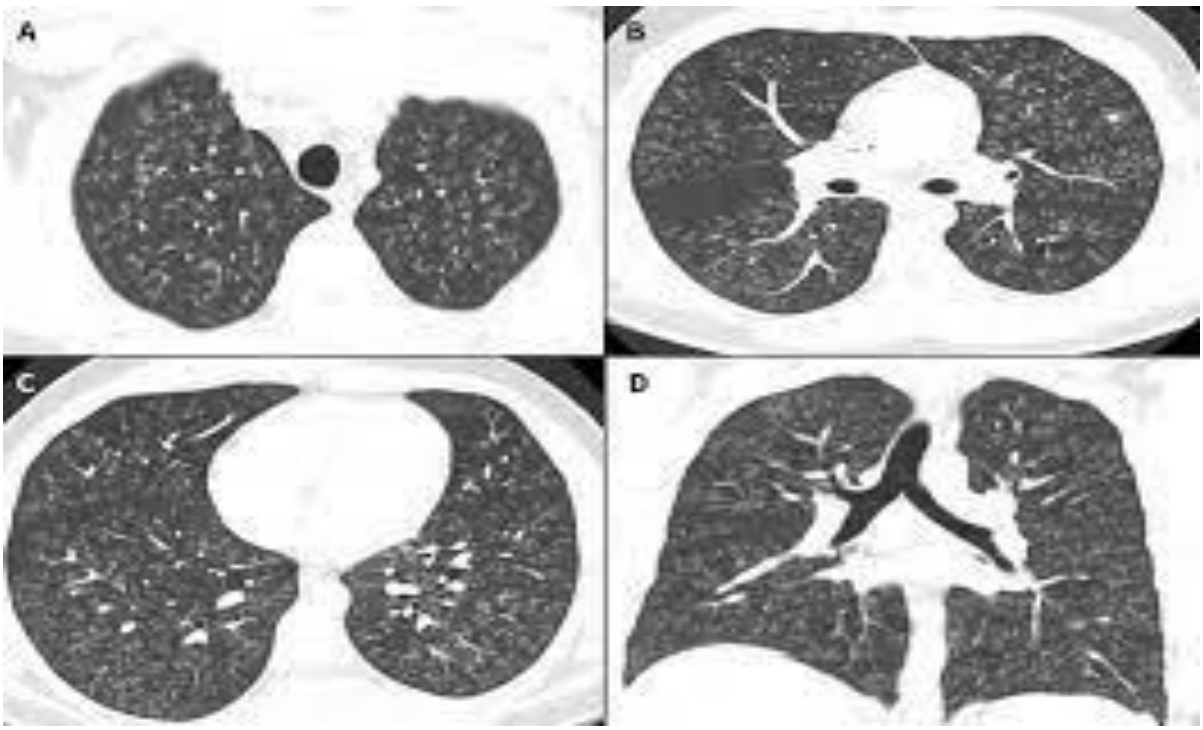
quitting smoking, there is growing evidence that e-cigarettes can pose serious health risks, particularly to those who do not smoke traditional cigarettes (Pearson JL et al, 2015).

The cause of vaping-associated pulmonary injury (VAPI) is unknown, but it does not appear to be infection-related. There are multiple compounds present in vaporized material that could potentially cause injury such as flavorants (e.g. diacetyl, a chemical linked to serious lung disease); volatile organic compounds; and heavy metals (e.g. nickel, tin, and lead) .VAPI has been associated with a variety of vaping devices and liquids; no single liquid or device has been identified as the causative agent. VAPI has been linked to nicotine, tetrahydrocannabinol (THC) and cannabidiol (CBD) products.

Imaging and laboratory findings

The associated lab findings in VAPI patients are variable and non-specific. Elevated white blood cell count and erythrocyte sedimentation rate are two of them. CT imaging reveals infiltrates in both lungs (W. Graham Carlos, MD, 2019). By Oil Red O staining or Sudan staining, bronchoscopy with BAL most commonly demonstrates neutrophilia and sparse to moderate lipid-laden macrophages.



CT findings of a patient with acute VAPI

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E-cigarette or VAPI has been linked to the following patterns of lung injury:Acute eosinophilic pneumonia, Lipoid pneumonia, acute lung injury and acute respiratory distress syndrome, Acute and sub-acute hypersensitivity pneumonitis, Organizing pneumonia, acute eosinophilic pneumonia, diffuse alveolar hemorrhage and Respiratory bronchiolitis-associated pneumonitis (Rene and mace, 2020).

Empiric therapy with antibiotics such as azithromycin was found to be more responsivetreatment for patient with vaping induces respiratory infection (Rene and mace, 2020). In addition, clinicians should seek to identify other causes of illness (e.g. infections) that may be contributing to the clinical presentation. In any patient presenting with acute lung disease, clinicians should specifically inquire about e-cigarette use. In patients suspected of having VAPI who are candidates for bronchoscopy, performing bronchoscopy with BAL for submission of samples for Oil Red O or Sudan staining and further infectious work-up to rule out other etiologies may be beneficial.

Reasons to stay away from e-cigarettes

The following are reasons why e-cigarettes can be dangerous:

1. They usually contain nicotine: Most e-cigarettes contain nicotine, which is dangerous because it forms a habit and has an impact on brain development, which lasts until about the age of 25. Itcan be harmful to a fetus during pregnancy.
2. They contain additional toxins: Beyond nicotine, a number of toxins found in e-cigarettes among which include the following: acetaldehyde and formaldehyde, which are carcinogens, acrolein, a weed killer that can cause irreversible lung damage, benzene, a car exhaust compound, diacetyl, a chemical linked to bronchiolitis, also known as "popcorn lung"; propylene glycol, used in antifreeze; and hazardous metals such as lead and cadmium. Other minute particles capable of entering the lungs. Many of these are also found in conventional cigarettes (American Lung Association, 2020)
3. Quitting smoking may be more difficult: People who switch from traditional cigarettes to e-cigarettes may put off seeking medical help or using proven tools to help them quit. This can make quitting smoking more difficult or even impossible. According to a FDA, 2022, people who use or have used e-cigarettes are less likely to quit smoking completely.
4. They contribute to secondhand smoke: Secondhand smoke is produced by vaping. Because e-cigarettes frequently contain the same chemicals as traditional cigarettes, vaping smoke may be toxic to those nearby.
5. They may not discourage teen smoking: The marketing of e-cigarettes and their various flavors may give the impression that vaping is safe. This message may entice people,

including teenagers, to begin vaping. However, vaping early in life may increase the chances of smoking regular cigarettes later in life; teens who use e-cigarettes are more likely than their peers to smoke regular tobacco products later in life.

6. They have the potential to harm the brain: Nicotine use in adolescents can have an effect on the brain's reward system. According to the National Institute on Drug Abuse, this can make the use of other drugs, such as cocaine, more pleasurable over time.
7. Furthermore, nicotine use can have an impact on areas of the brain responsible for attention and learning in adolescents.It may also increase the risk of developing mood disorders and impulse control issues. (NIDA, 2014)
8. Experimentation may be more hazardous: Experimenting with different methods of using vaping materials can be dangerous as well. As an illustration, consider the practice of "dripping." This entails inhaling solutions that have been dripped directly onto the heater coil in order to "produce a stronger throat hit." The specific risks associated with these practices are still unclear.(NIDA, 2014)

METHODS

The target population consisted of 700 adolescents, 150 of whom were sampled using a simple random sampling technique. The data collection instrument is structured questionnaire, designed in to aspects of socio-demographic attributes of respondents, attitudes and perceptions to elicit responses to the research questions that guided the study.

DATA ANALYSIS AND STATISTIC

Data were collected and analyzed using simple frequency, percentage, mean and standard deviation.

Socio-demographic Information

Table 1: Age and sex distribution of respondents

Age	Frequency	Percentage(%)Mean
10-13	19	13 16.1
14-17	26	18
18-21	55	37
Total	150	100
Sex		

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Male	123	88
Female	27	18
Total	150	100

Table 1 indicates that majority of the respondents(37%) are between the ages 18-21,while few(13%) fall between 10-13 age bracket. Majority of the respondents are male(88%) and 18% females respectively.

Table 2: Educational Qualification of Respondents

Educational Qualification	Frequency	Percentage %
None	50	33
FSLC	2	1.5
SSCE/GCE	28	19
A LEVEL	31	21
OTHERS	29	19
TOTAL	150	100

Table 2 indicates that most respondents (33%) are not educated while few (1.5%) are first school leaving certificates and senior secondary certificates holders respectively

Table 3: E-cigarette smoking attitude and perception using likert scale: agree (A), strongly agree (SA), disagree (D), strongly disagree (SD) and undecided or Neutral (N).

	A (%)	SA (%)	D (%)	SD (%)	N (%)	TOTAL
Smoke for fashion	57(38)	64(42)	18(12)	11(7)	0(0)	150
To feel among	52(35)	66(44)	19(13)	8(5.5)	5(3.5)	150
To Feel ‘high’	65(43.5)	58(39)	11(7.5)	14(9.5)	2(1.5)	150

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Not a tobacco product	46(31)	64(43)	14(9.5)	21(14)	5(3,5)	150
Safer than cigarette	42(28)	81(54)	8(5.5)	15(10)	4(3)	150
An easy way to quit smoking	45(30)	32(21.5)	31(21)	15(10)	27(18)	150
Have no harm to health	86(45.5)	15(10)	12(8)	23(15.5)	14(9.5)	150
Socially acceptable	28(19)	35(23.5)	41(27.5)	39(26)	7(5)	150
Legal	28(19)	21(14)	54(36)	33(22)	14(9.5)	150

The results shows that 43% believe that e-cigarette is not a tobacco product as such has no harm to health, 54% believe e-cigarette is safer than cigarette smoking while 30% claimed that it is an easy way to quit smoking.

Table 4: E-cigarette frequency, addiction, social norms, affordability and accessibility of the respondents.

YES (F)	(percentage)	N (f)	(percentage)	Total
1. How did you start smoking?				
a. Personal opinion	30		20	
b. Peer group	130		87	150

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2. Duration of exposure?
   a. 1 – 5 years 109 73
   b. Above 5 years41 27 150

3. How frequent do you smoke?
   a. Every day 125 83
   b. Occasionally25 17 150

4. E-cigarette smoking point?
   a. At home 29 19
   b. With friend at joint121 81 150

5. E-cigarette accessibility?
   a. Very easy to get 56 37
   b. Difficult to get94 63 150

6. E-cigarette ingredients affordability
   a. Not expensive4932.6
   b. Expensive10167 150

7. Is e-cigarette culturally 181213288 150

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Accepted?

The results shows that majority (87%) of respondents were influence to e-cigarette smoking by their friends, 88% believe e-cigarette is culturally frowns at.

CONCLUSION

We realizedthat the attitude and perception of e-cigarette or vaping use among adolescent in Tudunwada and Badikkokaduna are as follows. The results indicates that most of the respondents smokes e-cigarette for fashion, feel among and to feel high (43%); $p = < 0.05$, though majority of the participants (55.5%) do not know that the ingredients are harmful to the health. This contradict a finding reported by Anuradha and colleague (2016) which revealed that almost two-thirds (66.72%) of adolescents perceived that e-cigarette vapor is dangerous to babies and kids, this contradiction could be attributable to the defenses in level of education and exposure.According to this study, 54% perceived that e-cigarette are safer than cigarette as such it is an easy way to quit smoking and not a tobacco product although the American Food and Drug Administration (FDA) classifies them as tobacco products and most of these products contain nicotine which is one of the most addictive substances known and this is the same nicotine that is in tobacco products (American thoracic society, 2022) The studies revealed that e-cigarette smoking is attributable to peer group influence (87%); $p = < 0.05$, results also indicated e-cigarette leads to addiction as expressed by the majority of the respondents (83%). E-cigarette is difficult to access and expensive to afford for majority of the respondents (67%). Furthermore, 88% of the respondents believed that e-cigarette smoking culturally unacceptable.

Recommendation

Findings point the need to provide adolescents with

1. Accurate information about e-cigarette ingredients, risks/negative impact associated with their use and the lack of evidence of their role in cigarette cessation should be provided by media agencies and health care workers.
2. The government should impose strict adherence by regulating the use and access to e-cigarette among youths.
3. pushers should be arrested and prosecuted by the relevant governing authorities.
4. Government should increase Tax/VAT to any nicotine product
5. Organize workshops and seminars on e-cigarette at schools and encourage participation.
6. Community/traditional and religious leaders should be mobilize and train by the Health authorities on the dangers associated with e-cigarette smoking, who inturn should further disseminate the information to their local communities. .

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