FACTORS AND COST IMPLICATIONS OF MARIJUANA USE AMONG THE YOUTH
(A cross-sectional study)

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***Abstract*- Marijuana/Cannabis is said to have the fastest-growing rate of use and is the most commonly used illegal drug worldwide. There is increasing research on the medical uses of the active ingredients cannabidiol (CBD) and delta-9-tetrahydrocannabinol (THC) which are both found in cannabis plants. The aim of this study was to assess the factors influencing its use and the cost implications to the individual and society during the COVID-19 pandemic.**

Methodology: The study employed a cross-sectional design. A semi-structured questionnaire was used to collect the data from 20th to 5th August 2021 and prepared by editing, coding, transcribing, and cleaning. The data were analyzed using Microsoft Excel tool and SPSS version.26 and the results were presented in descriptive statistics such as tables, frequencies, percentages, and figures. Regression analysis was used to establish an association between the factors.

Findings: A total of 218 volunteers were involved in this study. Males were 54.1% and females 45.9%. 50.5% of the respondents were within the 21-25 age group. The results showed age, gender, smoking status, anxiety disorders, other past year drug use, alcohol use disorders, and psychotic symptoms as some of the factors. In 40.5% of marijuana users, there was an *increase in intake during the pandemic season resulting in a 61.8% incremental jump in high rolls.*

Conclusion: There was *an increase in marijuana intake resulting in a 61.8% increase in high rolls during the covid season leading to a high economic cost.*

***Keywords*: Covid 19, cost implications, factors, Marijuana Usage**

Introduction

Substance abuse is defined by the World Health Organization (WHO), as the hazardous use of psychoactive substances which also include alcoholic beverages and illegal drugs. [1]. In-depth research and more accurate and detailed data have revealed that the adverse health consequences of drug use are more severe and widespread than previously thought. Globally, some 35 million people are estimated to suffer from drug use disorders and require treatment services, according to the World Drug Report, released by the United Nations Office on Drugs and Crime [2] Substance abuse has been labeled as a "chronic relapsing disease", with extremely high relapse rates that vary from 56.8% to 81.8% [3]. Marijuana has been referred to as cannabis but also has other names such as weed, ganja, dope, etc. [4], and it contains over 400 chemicals [5] but only 61 chemicals are unique to this cannabis plant [6]. It is usually a mixture of leaves that have been dried, with it stems and seeds of the hemp plant appearing in a brown, green, or gray color. Usually, marijuana when smoked gives off a distinctive sweet smell. The element that causes an individual to go "high"/ "boozed"/ "hazed" is called Tetrahydrocannabinol (THC), this element initiates the mind-altering effects which classify marijuana as a

drug [5]. Marijuana is the cheapest psychoactive substance in Ghana and it is packaged at "Gp50" per piece this is an affordable amount in Ghana [7]

Marijuana Abuse during Pandemic Season

The world is engulfed in a state of uncertainty with scours of morbidity and mortality rates without clear treatment options available and no vaccine insight to arrest this deadly pandemic. To survive this (Covid-19) pandemic, individuals and nations have resorted to many possible treatment options and the role of cannabis and cannabinoids and their efficacy against Covid-19 is not an exception. According to the World Health Organization, the mode of spread of the COVID-19 virus is fundamentally by saliva droplets or discharges of fluid through the nose when an infected person sneezes or coughs. Respiratory etiquette is recommended [7]

Method

The study employed a cross-sectional design. A semi-structured questionnaire was used to collect the data from 20th to 5th August 2021 and prepared by editing, coding, transcribing, and cleaning. The data were analyzed using Microsoft Excel tool and SPSS version.26 and the results were presented in descriptive statistics such as tables, frequencies, percentages, and figures. Regression analysis was used to establish an association between the factors.

Study Design: cross-sectional

Inclusion Criteria

Participants of this study were chosen with the following criteria to be enrolled.

- Individuals 13years and above
- Individuals who live in the study enclave
- Individuals with or without experience in marijuana use

Exclusion criteria

- Individuals who do not live in the study enclave
- Individuals 13years and below
- Individuals with mental disorders

Data Collection Technique

A semi-structured interview guide was designed to conduct a face-to-face interview with respondents which explored the research questions and objectives of marijuana users during the Covid 19 pandemic

Statistical Analysis: Pearson's chi-square test or the chi-square test of association was used to discover if there is a relationship between two categorical variables, whereas the odds ratio (OR) was used to measure by what probability an event is likely to occur compared to other factors. Regression analysis was used to establish an association between the factors.

Results

Sociodemographic Characteristics of Patients

Table one (1) presents a summary of the demographic characteristics of respondents who used marijuana during the COVID-19 period. The total of respondents was 200 respondents. The majority of the respondents lay within the 21-25 age group category constituting 50.5% of the total respondents. This age group was followed 26-30years age group which constituted 26.0% (52) and the 31-35 age group was 10.5%, however, the teenagers were 13% (26) thus the age group of 15-20 years. The number of males outnumbered the females by 23.0%, the males were 123 which formed 61.5% of the respondents. Majority of the respondents were single 118(59.0%), followed by those who were married 54(27.0%), separated 15(7.5%) and divorced 13(6.5%). Almost all of the respondents were educated, cumulatively, the educated respondents were 91.5% of them. There were varieties of occupations thus accountants (.5%), artists (1.0%), football coaches (0.5%) etc. Among the respondents, a number of them were traders constituting 31.0% of the respondents. Comparatively, those who had employment or had an occupation of a kind outnumbered those who were unemployed 11(7.5%).

Table 1: Demographic Characteristics

	Sex	Frequency	Percent	Cum. Percent
Gender	Male	123	61.5	61.5
	Female	77	38.5	100.0
	Total	200	100.0	

age group	15-20	26	13.0	13.0
	21-25	101	50.5	63.5
	26-30	52	26.0	89.5
	31-35+	21	10.5	100.0
	Total	200	100.0	
Marital Status	Single	118	59.0	59.0
	Married	54	27.0	86.0
	Divorced	13	6.5	92.5
	Separated	15	7.5	100.0
	Total	200	100.0	
Education level	No Education	17	8.5	8.5
	Basic/Primary	74	37.0	45.5
	Secondary	98	49.0	94.5
	Tertiary	11	5.5	100.0
	Total	200	100.0	

Knowledge of Marijuana Smokers on Covid 19

Table 2 below presents the analysis of respondents' knowledge. The results showed that the knowledge of marijuana uses on Covid 19, Eighty-one (81) of them forming 40.5% had excellent knowledge on Covid 19 pandemic. This actually formed the majority of them, they answered all three questions correctly. Those who had good knowledge were 44 (22.0%) by answering two answers correctly only. Of those who had poor knowledge 75(37.5%), they had two questions wrongly answered.

Relationship between the Demographic of Respondents and their Knowledge of Covid- 19

Relationships were found between demographics and knowledge of Covid 19. None of them were significant except for their education level which showed statistical significance ($p=0.00< 0.05$).

Table 2: Knowledge of Marijuana Smokers on Covid 19

	Frequency (N=200)	Percent (%)	Cumulative Percent (%)
Good	44	22.0	22.0
Poor	75	37.5	59.5
Excellent	81	40.5	100.0
Total	200	100.0	

Table 3: Relationship between the Demographic of respondents and their knowledge of Covid- 19 protocols

Demographics		Knowledge on Covid 19				
		Excellent N (%)	Good N (%)	Poor N (%)	Total	P value
Marital Status	Single	47(39.8)	26(22.0)	45(38.1)	118	0.969
	Married/Once married	34(41.5)	18(22.0)	30(36.6)	82	
Age	Teens	7(26.9)	9(34.6)	10(38.5)	26	0.434
	Adults	10(47.6)	4(19.0)	7(33.3)	21	
	Youth	64(41.8)	31(20.3)	58(37.9)	153	
Education	No Education	2(11.8)	0(0.0)	15(88.2)	17	0.000
	Basic/Primary	6(8.1)	17(23.0)	51(68.9)	74	
	Sec &Tertiary	73(67.0)	27(24.8)	9(8.3)	109	
Gender	Male	49(39.8)	23(18.7)	51(41.5)	123	0.228
	Female	32(41.6)	21(27.3)	24(31.2)	77	
	Total	81(40.5)	44(22.0)	75(37.5)	200	

The use of Marijuana before and during Covid 19 season

The results indicated that 21.9% smoked or used marijuana because it was their self-identity, however, 26.9% (52) mentioned that they used it to aid them to increase concentration. 17.1% used it because it prevented the disease. The majority 80.2% (154) said that Covid-19 had affected their attitudes towards the use/smoking of marijuana. 96.3% (184) of the respondents were marijuana smokers.45.8% indicated that access to marijuana was easy.66.0% (123) of the respondents had smoked marijuana for 5 years and over (table 4.5). In Figure 4.1 below, some respondents said they used it to prevent the Covid 19 virus spread to them, while others answered it was

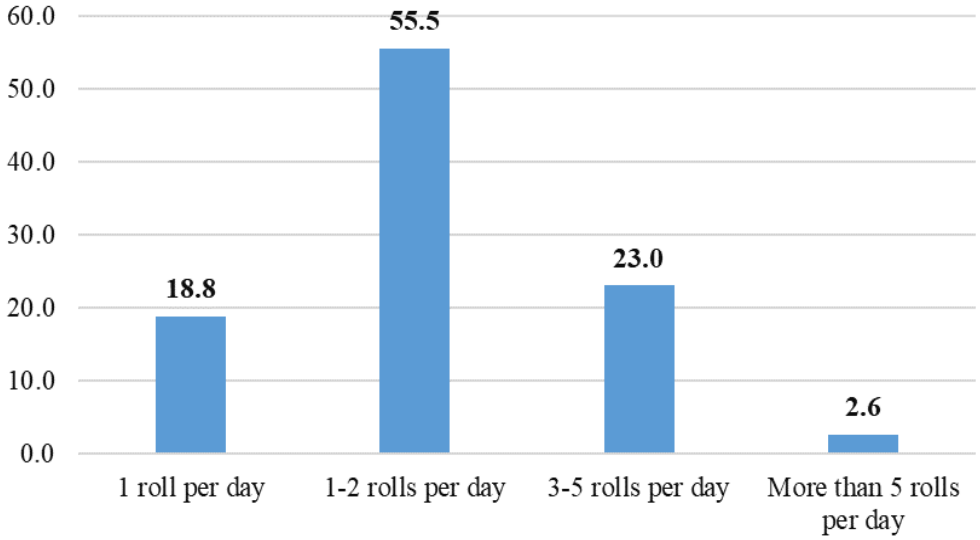

Figure 1: Frequency of Marijuana Use

Age, gender, other past year drug use, presence of alcohol use disorders, smoking status, depressive disorders, anxiety disorders, and psychotic symptoms, individually, are predictive of the patient's use of marijuana during the past year. A logistic regression was performed to ascertain the effects of marital status, gender, knowledge, weight, and "Covid 19 awareness" on the likelihood that participants have increased marijuana use. Using a backward stepwise logistics regression to build the befitting model as shown in the table above, the step 3 model was the befitting model. The logistic regression model was statistically significant, $\chi^2(4) = 13.397, p < .05$. The model explained 9.0% (Nagelkerke R^2) of the variance in increased marijuana usage ease and correctly classified 64.6% of cases. Gender and Marital status were significant predictors of the model. Females were 0.399 less likely to increase marijuana usage than males and males were 2.5 times more likely to increase marijuana usage than females. Married and or Divorcees were 2.27 more likely to increase using marijuana than single participants who are not married

Table 4.10 Factors Influencing usage of increased marijuana use

							Nagekerke R^2
	S.E.	Wald (df)	Sig.	Exp(B)	95% C.I. for EXP(B) Lower	Upper	
Marital Class (1)	.316	6.7(1)	.009	.440	0.237	.818	0.090
Gender (1)	.319	8.3(1)	.004	.399	0.213	.746	

Constant	.290	13.8(1)	.000	2.938

The cost implication of Marijuana Use during Covid 19 Season

The cost relation was explored and a Pearson's chi-square test was done to determine whether there really cost association between the cost of marijuana use before and the cost of marijuana during the Covid-19 season. Pearson's chi-square test or the chi-square test of association, is used to discover if there is a relationship between two categorical variables, whereas Phi Crammer's V measures the strength of association. The results show that there is a significant association between the pre and during-coved 19 costs [$X^2(1) = 13.7$, $p=0.00<0.05$). The strength of the association is weak at 0.27.

Table 5: Cost Implication of Marijuana Use during Covid 19 Season

	Responses (N=192)	Cost of Marijuana during Covid 19 (GHS)		X^2 Value	Df	P Value.	Phi & Crammer's V
		less than 100	100 and above				
Cost of Marijuana before Covid 19 (GHS)	less than 100 (n=181)	104(57.5)	77(42.5)	13.7	1	0.00	0.268
	100 and above (n=11)	0(0.0)	11(100.0)				
Total		104(54.2)	88(45.8)				

Pre and during Covid 19 Marijuana difference

Pearson's chi-square test or the chi-square test of association, is used to discover if there is a relationship between two categorical variables, whereas the odds ratio (OR) measures by what probability an event is likely to occur compared to other factors. The results show that there is a significant association between the pre and during coved 19 use of marijuana [$X^2(1) = 13.7$, $p=0.00<0.05$). It was found that the odds of smoking marijuana high rolls were 8.8 more than smoking marijuana before Covid 19 season the strength of the association is weak at 0.27

Table 6: Pre and during Covid 19 Marijuana difference

Response		Post Marijuana use		OR(CI)	Sig. (P value)
		high rolls	low rolls		
Pre marijuana use	high rolls	48	1	8.8 (1.1-67.1)	0.00
	low rolls	120	22		
Total		168	23		

Discussion, Recommendations, and Conclusion

The cost implication of marijuana usage during Covid 19

Cost implication from the analysis clearly indicated there was a rise in the purchase of marijuana during the Covid-19 season. The analysis as shown in Figure 4.2 throws light on how many rolls of marijuana were used before the Covid and during the pandemic season the rise in rolls used. The use of marijuana per day had increased significantly despite the rise in cost as Table 4.7 indicated. The qualitative analysis further throws light on the cost implication and why marijuana was still been used, and even used in higher quantities than before the pandemic season. The claim was, marijuana was a protective medication to them against Covid 19, it was both to them a preventive medication and a curative medication against Covid 19. Furthermore, the benefits they derived from marijuana were evident to them such that the rise in cost was not a burden to them. A global survey in 2019, put the cost of marijuana in Ghana as one of the countries with the lowest price of marijuana though within the African region the lowest was Zambia it claimed that the average cost of one gram of marijuana ranged from "0.4$ to 1$" in countries like Zimbabwe, Ghana and the Kingdom of Eswatini. Zambia and Malawi had the lowest average cost of cannabis at 0.2 U.S. dollars per gram [8]. They claim it was easy to get marijuana and comparatively, it was less expensive than the other substances. Personality, family, religious, and pastime factors exerted stage-specific, sex-specific, and age-specific influences. Assessment of substance, school, and delinquency factors is important in identifying individuals at high risk for continued involvement with marijuana. A study conducted in Ghana claimed that the use of other substances especially heroin and cocaine is not very scarce among abusers of substances the reason is that they were too expensive as compared to Marijuana [9] A study conducted in Thailand by Sujitta et al,2019 suggested a possible high economic impact of Marijuana due to treatment and rehabilitation costs such as medical expenses, loss of revenue for both Marijuana users and their caregivers, and costs due to law enforcement and others such as possible lawsuits [8] According to the UN Office on Drugs and Crime (UNODC)'s World Drug Report 2022, the rise in the use and cost of marijuana in this study prior to the 2023 legalization of Marijuana cultivation for medical purposes in Ghana, provides a similar situation to that of other countries around the globe where marijuana legalization appears to have accelerated daily use and related health and economic impacts. [10] The economic setback of non-medical marijuana is in its addictiveness, resulting in the virtual enslavement of the youth and building on them such inertia anytime they run out of it. [9] The results show that almost 49.0% of the respondents had secondary education and therefore could contribute meaningfully to the Ghanaian economy. A study conducted by Michael French et al indicated that the average economic costs of the five types of outpatient treatments for marijuana addiction ranged from $837 to $3334 per episode, and varied by both direct factors such as hours of treatment, treatment retention, and indirect factors such as cost of living, staff level, case-load variation [12] Irrespective of the economic and social costs of marijuana, our surest bet is having more information which is critical to making the best decisions for the future of our youth. Research in Colorado, USA, found out that for every dollar gained in tax revenue, Coloradans spent approximately $4.50 to mitigate the effects of legalization and costs related to the healthcare system, and high school drop-outs are the largest cost contributors. The report also noted that even though people who attended college and use marijuana have grown since legalization, marijuana use remains more prevalent in the population with less education. [13] Research showed a connection between marijuana use and the use of alcohol and other substances. It also concluded that People who use marijuana more frequently tend to be less physically active, and a sedentary or inactive lifestyle is associated with increased medical costs [13] As discussed earlier, the key strategy for safeguarding our youth is the early identification of the factors involved. For instance, adolescents whose families smoke even cigarettes may require family-targeted intervention, while children with multiple risk factors may need an individually tailored intervention that addresses the collective risk. Again, in this study, males had a higher risk of daily marijuana cannabis use. Other risk factors to be watched are mental health challenges, immediate gratification, stigma, self-discovery, and wider age disparity [14] Research further indicates an increase in the multimode approach by the youth where they would add another method of marijuana use instead of replacing it. [15]

Limitations of the study

Some for fear of being identified did not partake in this study

Conclusions:

There was high use of and increased marijuana intake during the pandemic season and hence high economic cost. The results showed age, gender, smoking status, anxiety disorders, other past year drug use, alcohol use disorders, and psychotic symptoms many more factors Influencing factors are such as the desire for personality.

Recommendations: I recommend further research in this area, especially, to evaluate the economic impact of Medical Marijuana on a larger.

2. To explore further studies on medical marijuana and its economic impact on Africa.

Conflict of interests: The authors have no conflict of interest to declare

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