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# CHICHA IN YOPOUGON (ABIDJAN, IVORY COAST) : ANALYSIS OF THE ATTITUDE OF ADOLESCENT GIRLS BASED ON THEIR LEVEL OF EDUCATION, THEIR SELF-ESTEEM AND THEIR PERCEPTION OF THE RISK OF LUNG CANCER

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## 1. INTRODUCTION

For several generations, tobacco consumption has witnessed multiple developments around the world, moving from its centuries-old status of "rooted in tradition" to a contemporary reality imbued with new forms of temptation. Among these new trends in tobacco consumption, the shisha or hookah or water pipe has emerged as a particularly strong source of attraction for adolescents and young people (Chaouachi, 2006 ; Chaouachi, 2007). While the first traces of tobacco use date back centuries, shisha has captured the attention of new generations in a unique way, creating profound issues for public health (WHO, 2005). According to the World Health Organization, the number of shisha smokers is estimated at around one hundred million worldwide, spread across the following geographic areas : the Middle East, South Asia, Africa and the Latin America. Among this population of smokers, a significant proportion of adolescents and young people are reported, which proportion has been growing steadily for several decades (Dago, 2015). The prevalence of shisha consumption varied between 12% and 24.3% among adolescents aged 15 to 19 according to surveys carried out in France en 2017 (Guignard et al., 2015). In Ivory Coast, smoking prevalence is 14.5% and among adolescents aged 13 to 15, 19% are already smokers (APA, 2019).

Recent works in the literature have gradually revealed the mysteries of hookah, revealing a disturbing reality beneath its seductive swirls (WHO, 2005 ; Becquemin et al., 2007 ; Shihadeh and Saleh, 2005 ; White, 2001). Indeed, despite its sometimes tempting image, the work of Sasco (2007) and Pignot et al. (2008) highlighted the dangerous and potentially harmful nature of shisha consumption for health. The authors agree on the risks associated with this practice, warning of the harmful effects on respiratory and cardiovascular health, especially among adolescents and young people (Tengs, 2001).

The Ivory Coast, like several countries, has enacted the very first anti-tobacco law since June 17, 2019, through its Parliament, and is now aligned with the WHO Framework Convention on Tobacco Control (FCTC).), which Convention she signed en 2002. The Ivorian anti-tobacco law now prohibits tobacco consumption in places open to the public as well as in public transport. These new provisions aim to strengthen Ivorian anti-tobacco measures in a context of concern over the rise in popularity of new tobacco products, such as hookahs and electronic cigarettes.

Notwithstanding the dangers linked to the consumption of shisha, it is gaining ground. It is not uncommon to find, in certain municipalities of the Abidjan capital, spaces designed exclusively for the consumption of shisha. In these spaces, it is adolescents and young people who are the most regular customers. Likewise, some teenagers and young students regularly organize meetings in broad daylight or in the evening to indulge in group consumption of shisha. Are the proportion of adolescents who join the ranks of water pipe smokers every day informed of the health dangers linked to their practice ? What are the underlying psycho-sociological factors likely to highlight this trivialization of the risks linked to the consumption of shisha among adolescents ? Aren't self-esteem and the minimization of health risks involved in young people's attitudinal dispositions towards shisha consumption ?

Including those that involve risks (Steinberg, 1993). Similarly, the prefrontal cortex in the brain, responsible for impulse control and rational decision-making, is not yet fully developed in adolescents, making them more likely to

take risks (Anderson, 2007 ; Casey, 2008). In addition, adolescents are strongly influenced by their peers, their social group. The social group's attitude towards shisha could put significant pressure on them. Social acceptance or rejection by the group would be linked to the attitude towards shisha. Attitude could be defined as à mental predisposition to act in a particular way. It mainly designates an intention and is therefore not directly observable. According to Allport (1935), attitude is a mental and neuropsychological state of preparation for action, organized as a result of experience and which concerns a dynamic influence on the behavior of the individual towards everyone objects and all the situations relating to them. Indeed, adolescents and young people would adopt positive attitudes towards shisha to integrate or, on the contrary, would develop negative attitudes to avoid stigmatization by the peer group. Moreover, according to Bouquet (2019) adolescents tend to underestimate the risks associated with certain behaviors, including hookah consumption. They perceive it as less dangerous than other forms of smoking because of the flavor and friendliness associated with it. Furthermore, the quest for identity and self-construction, characteristic of the adolescent period, forces them to develop their own image and self-esteem. Self-esteem refers to a person's judgment or evaluation of their own worth When an individual performs an act that he or she believes is valuable, he or she feels a sense of validation ; when he evaluates his actions as being in opposition to his values, he reacts by “lowering in his esteem” (Larivey, 20202). For James (1980), self-esteem is the result of a relationship between our successes and our pretensions in important areas of life. In other words, James' postulate is that self-esteem is the relationship between what humans actually are and what they want to be. This essential aspect of adolescent personality is influenced by several factors such as education, the quality of the parent/child relationship, birth order in the family, etc. According to the literature, there is a relationship between high self-esteem and respect for social norms, tolerance, non-risk taking (Miller and Naruyama, 1976 ; Falbo and Polit, 1986 ; Boden and Smart, 1996). This work, in parallel with adolescents in Ivory Coast, shows that low self-esteem among the latter pushes them to adopt attitudes that could endanger their lives, in particular the consumption of shisha. The objective of this study is threefold :

- Evaluate the link between the level of study of adolescents and their attitude towards the consumption of shisha
- Determine the relationship between adolescents' self-esteem and their attitude towards shisha consumption ;
- Detect the relationship between adolescents' risk-taking and their attitude towards shisha consumption.

## 2. METHODS AND MATERIALS

### 2.1. Participants

The population of this study is all adolescents in the economic capital of Côte d'Ivoire, Abidjan. For the purposes of the research, the commune of Yopougon was chosen as the area of investigation. Indeed, Yopougon is the largest commune in Ivory Coast with an estimated population of 1,571,065 inhabitants. For this study, ninety-six (96) participants were enrolled from the eight districts of Yopougon, whose sociodemographic characteristics are presented in Table I. Thus, only adolescents and teenage girls were included in the study. Whose age is between 10 to 19 years according to the WHO definition and willing to participate.

**Table I :** Sociodemographic characteristics of the study population

| The eight districts of Yopougon | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Gender of participants | Yopougon-Attié | Banco nord | Banco sud | Kouté | Zone industriel | Hôpital | Niangon Nord | Niangon sud | Total |
| Man | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 48 |
| Woman | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 48 |
| Total | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 96 |

**2.2. Exclusion criteria**

a) Participants whose age is outside the study range ;
b) Participants with Cognitive Disability ;
c) Participants with serious mental health problems ;
d) Participants with serious physical health problems ;
e) participants who refuse to participate in the survey.

**2.3. Data collection procédure**

This is a cross-sectional study with a comprehensive and explanatory aim which took place from January 2023 to July 2023. The participants were met in the evening in spaces dedicated to the consumption of shisha in the different districts of the municipality of Yopougon. Contact was first made with the owner of the shisha consumption space to explain the objectives of the study and the guarantee of confidentiality of the data and results. Once agreement has been obtained, we head towards the groups of young people seated around water pipes. The objectives and confidential nature of the survey were clearly explained to them to obtain their consent to participate. If consent was obtained, then the investigation took place with the group of adolescents. If the group refused to participate in the survey, then we respected their choice. The interviews with each participant made it possible to collect socio-demographic information and complete the following questionnaires :

- The revised version of the illness perception questionnaire abbreviated IPQ-R developed by Moss-Morris et al. En 2002 was used for the quantitative measurement of the representation of the disease. This scale addresses eight dimensions of this representation which are : identity, duration (acute/chronic), cyclical duration, consequences, personal control, processing, emotional representation and coherence. The rating of the items of each dimension is carried out on a 5-point Likert-type scale (l=strongly disagree ; 5=strongly agree). The IPQ-R in its original version was modified to be adapted to the needs of the study in order to measure the representation of lung cancer in adolescents. The adaptation of this scale is now composed of eighteen (18) items and explores only three (03) dimensions of the representation of the illness : emotional representation, consequences and personal control. There are nine (09) items in the “consequences” dimension, with seven positively worded items and two negatively worded items. For example item 3 “this illness risks putting my life in danger”, the different response methods to the questions are “Disagree at all = 1”, “Disagree = 2”, “Nor agree nor disagree =3”, “Agree = 4” and “Strongly agree = 5”. For the negatively worded item, the scoring is reversed. For example item 4 “Nowadays people no longer die of cancer”, the response methods are as follows : “Disagree at all = 5”, “Disagree = 4”, “Neither agree nor disagree =3”, “Agree = 2” and “Completely agree = 1” Regarding the personal control dimension, it is measured by eight items, six of which (06) are formulated positively and two (02) negatively. The response methods remain the same as those of the previous dimension. In addition, the third dimension is composed of a single item formulated positively. This is the emotional representation dimension with item 7 “around me, when someone suffers from a serious illness I am anxious”. Our scale allows us to obtain a theoretical score ranging from 18 to 90. The value 18 reflects the minimum cancer representation score that a participant can obtain while the value 96 represents the highest representation score. It is therefore on this continuum ranging from 18 to 90 that the cancer representation score of each participant is located.
- Rosenberg’s self-esteem scale (1965). This instrument is one of the best-known and most widely used self-esteem measurement tests in the field of self-esteem assessment in psychology. Published en 1965, it has continued to be a reference tool. It is made up of 10 items, 5 of which assess positive self-esteem highlighting self-esteem (items 1, 2, 4, 6, 7). For example : “I think I have a number of good qualities.” The other 5 questions assess negative self-esteem referring to self-devaluation (items 3, 5, 8, 9, 10). For example : “I feel little reason to be proud of myself.” The different response methods to the questions are “1 = Completely disagree”, “2 = somewhat disagree”, “3 = somewhat agree”, “4 = Completely agree”. Responses to positive items are weighted from 1 “Strongly disagree” to 4 “Strongly agree”. On the other hand, responses to negative items are weighted inversely, that is to say 1 “Completely agree” to 4 “Completely disagree”. The Rosenberg self-esteem scale allows you to obtain a theoretical score ranging from 10 to 40. The value 10 reflects the minimum self-esteem score that a participant can obtain while the value 40 represents the score of highest esteem. It is therefore on this continuum ranging from 10 to 40 that the self-esteem score of each participant is located.

• The questionnaire for measuring attitude towards shisha consumption is made up of eight (08) items with "Yes" and "No" response options. The different items make it possible to explore the mental disposition of the participant in relation to the consumption of shisha. For example item 1 "consumption of shisha is a good thing". the frequency of "yes" or "no" responses tells us about the adolescent's attitude towards shisha consumption.

### 2.4. Statistical Analysis

The study data were processed with SPSS-21 statistical software. For a better presentation of the data, different types of analyzes were carried out. The Microsoft Office Excel office software was also used to create the graphs.

## 3. RESULTS AND DISCUSSION

### 3.1. Results

In this study we distinguish between adolescents with a favorable attitude to shisha consumption in the frequency of "yes" is greater than the frequency of "no" in the attitudinal questionnaire for shisha consumption. While their unfavorable attitude if the frequency of "no" is greater than that of "yes".

#### 3.1.1. Distribution of adolescents by sex.

Among the participants recruited for the study, there were 48 girls and 48 boys. Or percentages of 50% for each category (Table II).

**Table II :** proportion of participants by gender

| Gender of participants | Number (n) | Percentage (%) |
|---|---|---|
| **Boys** | 48 | 50% |
| **Girls** | 48 | 50% |
| **Total** | 96 | 100% |

#### 3.1.2. Distribution of participants according to level of study

The survey revealed 4 levels of study among the participants (Table II). These different levels were broken down as follows : "Not in school" for those who had never been to school ; "primary" for those who had stopped their schooling between Preparatory Course 1 and Middle Course 2 ; "Secondary 1" for those whose educational background is between 6th and 3rd grade ; and "Secondary 2" to describe participants in the school career between 2nd and Terminale. Thus, 29% of adolescents had a "Secondary 2" level, 27.1% "Secondary 1", 22.9% "primary" and 20.8% had not been to school.

**Table IV :** Proportion of participants according to study levels

| Level of study of participants | Number (n) | Percentage (%) |
|---|---|---|
| **Not in school** | 20 | 20,8% |
| **Primary** | 22 | 22,9% |
| **Secondary 1** | 26 | 27,1% |
| **Secondary 2** | 28 | 29,2% |
| **Total** | 96 | 100% |

**3.1.3. Distribution of participants according to age**

The participants were aged between 12 and 19 years, the percentages of which ranged between 4.2% and 26% (Table III). The average age of study participants was 16.18 years.

**Table V :** Proportion of participants according to their ages

| Age of participants | Number (n) | Percentage (%) |
|---|---|---|
| **12 years** | 4 | 4,2 |
| **13 years** | 4 | 4,2 |
| **14 years** | 17 | 17,7 |
| **15 years** | 13 | 13,5 |
| **16 years** | 8 | 8,3 |
| **17 years** | 16 | 16,7 |
| **18 years** | 25 | 26 |
| **19 years** | 9 | 9,4 |
| **Total** | 96 | 100% |

**3.1.4. Distribution of participants according to attitude towards shisha consumption**

The 96 participants surveyed reported frequencies of 67.7% and 32.3% respectively for those who had a favorable attitude to water pipe consumption and those against having an opposite attitude (table IV).

**Table VI :** Distribution of participants according to their attitudes towards shisha

| Attitude of participants | Numbers (n) | Percentage (%) |
|---|---|---|
| **Favorable** | 65 | 67,7 |
| **Unfavorable** | 31 | 32,3 |
| **Total** | 96 | 100% |

**3.1.5. Descriptive statistics of mean scores of self-esteem and representation of cancer among adolescents.**

Adolescents in this study reported average self-esteem scores overall. The average self-esteem score was 31.25 with a deviation from the mean of +/- 3.56. It clearly appears that such a level of score is in the average self-esteem category. This self-esteem is also associated with a cancer presentation score. The average cancer representation score among adolescents is 66.08 with a deviation from the average of +/- 6.16. This average score reflects a “normal” representation of cancer risks (table V).

**Table VII :** Descriptive statistics of mean scores of self-esteem and representation of cancer among adolescents

| | Adolescents (n=96) |
|---|---|
| | **Mean (Standard deviation)** |
| **Self-esteem score** | 31,25 (3,56) |
| **Cancer representation score** | 66,08 (6,16) |
| **Total** | 96 |

**3.1.6. Distribution of participants according to self-esteem**

For the purposes of the study, the self-esteem scores were categorized according to Rosenberg's provisions into four modalities (Table VI). It's about :

- Very low self-esteem, score below 25 ;
- Low self-esteem, score is between 25 and 31 ;
- average self-esteem, score between 31 and 34
- Strong self-esteem, score above 34.

**Table VIII :** Proportion of participants according to self-esteem

| Modalities of self-esteem | Numbers (n) | Percentage (%) |
|---|---|---|
| **Very low self-esteem** | 6 | 6,3 |
| **Low self-esteem** | 39 | 40,6 |
| **Average self-esteem** | 21 | 21,9 |
| **Strong self-esteem** | 30 | 31,3 |
| **Total** | 96 | 100% |

**3.1.7. Distribution of participants according to representation of lung cancer risk**

In this study, scores on the Adolescent Lung Cancer Representation Scale were dichotomized based on the mean. Participants who had scores below the mean of 66.08 were classified as “Underestimating Cancer Risk.” While those who had scores above average were in the “Normal Risk Estimate” category. The distribution of participants according to their representation of cancer is presented in Table VII.

**Table IX :** Distribution of participants according to representation of cancer risk.

| Modalities of Self-Esteem | Numbers (n) | Percentage (%) |
|---|---|---|
| **Underestimation of risk** | 53 | 55,2 |
| **Normal risk estimate** | 43 | 44,8 |
| **Total** | 96 | 100% |

### 3.1.8. Relationship between the level of study and the attitude of adolescents towards the consumption of shisha

The results showed that 65 adolescents had an unfavorable attitude towards shisha compared to 31 who had the opposite attitude. Among the 65 with a favorable attitude, 22 had secondary level II, 17 had secondary level I and 13 with primary levels and no schooling. Among adolescents with an unfavorable attitude, 31 in number, 22.6% were not in school, 29% had primary I and secondary I levels respectively. While 19.4% of the latter had secondary level II. The results showed (X2= 2.39; p=0.496) that there was no link between the attitude towards shisha and the level of study of adolescents (table VIII).

**Table X** : Relationship between the level of study and the attitude of adolescents towards the consumption of shisha

| | **Attitude towards shisha** | | | | |
|---|---|---|---|---|---|
| **Self-esteem of participants** | **Favorable attitude n (%)** | **Unfavorable attitude n (%)** | ***X²*** | ***P value*** | **Total** |
| **Not in school** | 13 (20) | 7 (22,6) | | | 20 |
| **Primary** | 13 (20) | 9 (29) | **2,39** | **0,496** | 22 |
| **Secondary 1** | 17 (26,2) | 9 (29) | | | 26 |
| **Secondary 2** | 22 (33,8) | 6 (19,4) | | | 28 |
| **Total** | 65 (100) | 31 (100) | | | 96 (100) |

### 3.1.9. Relationship between self-esteem and the attitude of adolescents towards shisha consumption

The results showed a heterogeneous distribution of self-esteem levels of adolescents depending on their attitude towards shisha consumption. Among the participants with very low self-esteem, 6 in number, all presented a favorable attitude to water pipe consumption. For those with low self-esteem, 34 had a favorable attitude compared to 5 with an unfavorable attitude. In addition, among the 21 participants whose self-esteem was average, 13 had a favorable attitude compared to 8 who did not. Finally, among the 30 participants with strong self-esteem, 12 had a favorable attitude towards the consumption of shisha compared to 18 who presented an opposite attitude (Table IX). With a Cramer's V coefficient (0.462; P value =0.000) shows the strength of this link in adolescents.

**Table XI :** Relationship between self-esteem and the attitude of adolescents towards shisha consumption

| | Attitude towards shisha | | | | | |
|---|---|---|---|---|---|---|
| **Educational level of participants** | **Favorable attitude n (%)** | **Unfavorable attitude n (%)** | $X^2$ | ***V de Cramer*** | ***P value*** | **Total** |
| **Very low self-esteem** | 6 (100) | 0 (35) | | | | 6 (100) |
| **Low self-esteem** | 34(87,2) | 5 (12,8) | **20,48** | **0,462** | **0,000** | 39 (100) |
| **Average self-esteem** | 13 (61,9) | 8 (38,1) | | | | 21 (100) |
| **Strong self-esteem** | 12 (40) | 18 (60) | | | | 30 (100) |
| **Total** | 65 | 31 | | | | 96 (100) |

### 3.1.10. Relationship between the representation of cancer risk and the attitude of adolescents towards the consumption of shisha

Underestimation of cancer risk was more observed among adolescents with a favorable attitude towards shisha consumption. Among the 53 participants who underestimated the risk of lung cancer, 46 presented a favorable attitude to shisha consumption, a raté of 86.8%. On the other hand, among the 43 participants with a normal estimate of the risk of lung cancer, 19 had a favorable attitude to water pipe consumption, a raté of 44.2%. The results of the chi-square test (X2= 49.815; p=0.000) attest to the existence of a link between the representation of cancer risk and the attitude towards the consumption of shisha. Specifically, the significance of this relationship is attested by Cramer's V (0.453; p= 0.000).

**Table X :** Relationship between the representation of cancer risk and the attitude of adolescents towards the consumption of shisha

| | Attitude towards shisha | | | | | |
|---|---|---|---|---|---|---|
| **Educational level of participants** | **Favorable attitude n (%)** | **Unfavorable attitude n (%)** | $X^2$ | ***V de Cramer*** | ***P value*** | **Total** |
| **Underestimation of risk** | 46 (86,8) | 7 (13,2) | | | | 53 (100) |
| **Normal risk estimate** | 19 (44,2) | 24 (55,8) | **19,71** | **0,453** | **0,000** | 43 (100) |
| **Total** | 65 | 31 | | | | 96 (100) |

### 3.2. Discussion

The study of the attitude of adolescents in the commune of Yopougon (Abidjan) towards the consumption of shisha attempted to evaluate the links between this mental disposition and the psychosocial parameters that were the level of study, self-esteem and representation of cancer risk. The proportion of adolescents with a favorable attitude towards shisha was 67.7%. This strong attraction of adolescents for the water pipe reported by the study is in line with the work of Bouquet (2019). For the author, 62% of Le Havre adolescents whose average age was 14.2 years had tried tobacco for the first time through shisha. The latter's preferred place of consumption was with friends, with an average session duration estimated at 56 minutes. The results of NGO MBAG's work carried out in the communes

of Bamako highlight that 67.6% of adolescents aged 15 to 17 are regular users of shisha, with a high proportion of girls.

The results of the study highlighted an absence of the relationship between the level of study and the attitude towards the consumption of shisha. The adolescents were distributed heterogeneously in the different categories of educational levels. These results could be attributed to adolescents' poor knowledge of the dangers of water pipes. Indeed, the great attraction of adolescents for this shisha is not always countered by information highlighting the harmfulness of this new tobacco product.

The results of the study showed that the low self-esteem observed in adolescents was linked to a favorable attitude towards shisha consumption. Thus, these results are in agreement with those of this work by Michel et al. (2006) on the practice of risky sports among adolescents. The authors report that the choice to practice risky sports is motivated to a certain extent by the existence of intrapsychic conflicts that the latter try to hide. Low self-esteem therefore leads these adolescents to be interested in opting for sports whose practice exposes them to high risks (Miller et al., 2008). On the other hand, the work of Fergusson and Horwood (2008) suggests that self-esteem cannot be considered as à causal factor of psychopathological and behavioral difficulties. For the latter, self-esteem would be an indicator of the presence of other associated factors, which may play a role in the evolution of consumption behavior towards a problematic level (Boden & al., 2008).

The results of the study report the existence of a link between the underestimation of the risk of lung cancer by adolescents and their attitude towards the consumption of Hookah. This suggests the importance of adolescents' indifference to the consequences of shisha consumption and their favorable mental disposition towards it. These results are in line with those of Lapierre (2018), reflecting the importance of interpersonal sensitivity as an important influencing factor on the style of psychotropic drug consumption among adolescents. For the author, the higher the interpersonal sensitivity, the more likely adolescents are to initiate the consumption of psychotropic substances. Furthermore, the work of Agnew and Brezina (1997) maintains that, unlike male subjects, who tend to develop deviant behaviors, such as the consumption of psychotropic substances, when confronted with failures in terms of life objectives (failures school, financial problems, etc.), it is tensions and problems within interpersonal relationships that push adolescent girls and women to develop such behaviors.

## 4. CONCLUSION

The study of the attitude of adolescents in the commune of Yopougon towards the consumption of shisha revealed a significant rate of the latter. In fact, 67.7% of adolescent girls are hookah consumers. The evaluation of self-esteem and the representation of the risk of lung cancer in connection with the attitude of adolescents towards shisha, allowed a tangible appreciation of the importance of this scourge in Abidjan.

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