

# Evaluation of the Educational Impact of Illustrated Health Warnings on Cigarette Packets for Tobacco Fighting in the DRC

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## Abstract

The World Health Organization (WHO) has been concerned for more than a decade with the fight against tobacco at the global level by implementing the Framework Convention on Tobacco Control (FCTC). More than 190 countries around the world have adhered to this convention by strengthening their internal policies to reduce tobacco consumption and protect their populations against the harmful effects of this very dangerous substance for health “TO-BACCO”. The DRC joined the framework convention on June 28, 2004, and ratified it on June 28, 2005, to implement an internal policy to combat smoking throughout its national territory. To this end, a ministerial decree on measures applicable to the consumption and use of tobacco, tobacco products and its derivatives was signed in October 2007. The guidelines in this order require the tobacco industry to include health warnings on cigarette packages, including: “Smoking is harmful to your health (1), Warning: smoking kills (2), tobacco seriously harms your health (3), smoking is highly addictive (4) specifying the tar and nicotine content”. These warnings should play a great educational and awareness-raising role in discouraging tobacco users and ipso facto reducing tobacco consumption as a preventive strategy of Communication for the change of anti-tobacco behavior. This study evaluates the educational impact of health illustrations to strengthen the implementation of the framework convention and protect the population against the harmful effects of tobacco, tobacco products and its derivatives in the DRC.

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## Keywords

Educational Impact of Health Warnings, A Policy to Combat Smoking in the DRC: Cross-Sectional Evaluation among Drivers in the City of Kinshasa

## 1. Introduction

Smoking is a major public health problem worldwide and is responsible for several harmful consequences today. The harmful effects of tobacco consumption in all its forms are well documented today; all forms of tobacco are addictive and deadly.

Primary lung cancer is certainly the disease with the strongest causal link to smoking. 85% of lung cancers are attributable to tobacco. Tobacco is also implicated in the occurrence of bladder, kidney, pancreatic, and cervical cancers. Tobacco is a risk factor for cardiovascular diseases such as high blood pressure, coronary artery disease, chronic arterial disease of the lower limbs, and erectile dysfunction (WHO FCTC, 2023) [1].

To implement this international treaty, the Minister of Public Health, Hygiene and Prevention of the DRC signed the decree mentioned above, asking tobacco producers to include health illustrations on cigarette packets (Figure 1).

Différentes illustrations du danger sur les paquets de tabac en RDC



(Source: PNLCT/Ministry of Health DRC) [2]

**Figure 1.** Different illustrations on tobacco packets in the DRC (Source: PNLCT/DRC).

However, since the said decree came into force, tobacco establishments are rubbing their hands at having met the requirements of the Congolese Government, although tobacco consumption is only increasing, especially among ado-

lescents and young people where it is currently estimated at 18.5% in 2023 (DaYTA study, Development Gateway among young people aged 10 to 17 in the DRC) [3].

According to the Demographic Health Survey (EDS, 2023) in the DRC [4], the prevalence of smoked tobacco (cigarettes) among adults was 13.4% among men compared to 0.2% among women. And for smokeless tobacco, the prevalence was respectfully 17.6% among men, compared to 1.8% among women, representing an increase in the consumption of smokeless tobacco (electronic cigarettes and nicotine products), a very worrying situation.

According to the same survey, the prevalence of smoked tobacco among young people was 11.5% among boys and 3.4% among girls, which reveals the increase in cigarette consumption among girls.

The 2008 Global Youth Tobacco Survey (GYTS) revealed that 15.7% of students in Kinshasa and 15.9% in Lubumbashi had friends who smoked [5].

Also in 2021, approximately 19.8% of Congolese men were regular smokers (<https://rc.tobaccocontroldata.org/en>) [6].

No assessment had been made to analyze whether the population read its warnings? Why do they continue to consume tobacco, a substance reported to be toxic to their health? Do its warnings really have an impact on education and behavior change among consumers? These are the questions for which a scientific study was conducted in Kinshasa among 723 drivers in order to respond to all these concerns, and finally, in light of the results, to consider other preventive public health actions in this area.

## 2. Research Objectives

The aim of this study was to evaluate the educational impact of illustrated health warnings on cigarette packages for tobacco control among drivers in the city of Kinshasa.

From this goal arise the following specific objectives.

- ✓ Determine the proportion of drivers reading health warnings in Kinshasa.
- ✓ To assess the level of knowledge acquired about the harmful effects of cigarettes through health warnings.
- ✓ Analyze and draw conclusions with a view to proposing public health policy action based on research evidence in Kinshasa.

## 3. Hypotheses

We found that a small proportion of drivers in the city of Kinshasa read the health warnings on cigarette packets, and that the understanding of the messages about the dangers of tobacco through these warnings would be questionable and without any educational impact on many drivers.

## 4. Methodology

To better understand the didactic and educational impact of illustrated health

warnings on cigarette packets in the DRC since 2007, we opted for a cross-sectional descriptive evaluation among drivers of vehicles commonly known as the 207 estimated.

According to the Congolese Drivers Association, Kinshasa has 22,718 drivers, including 7230 taxi-bus drivers, commonly known as 207.

Starting from the total number of taxi-bus drivers 207, we have reasonably considered 10% of the total number according to the WHO to estimate the sample size. Thus the size of our sample was calculated according to the following formula:  $n = 10 * 7230/100 = 723$  drivers to be surveyed. To constitute our sample, the selection of drivers and parking lots was done randomly.

Inclusion criteria:

- Being a taxi-bus driver 207
- Be in the parking lot on the days of the survey
- Be between 18 and 50 years old
- Having agreed to answer our questions

Data analysis was supported by the following techniques:

1. A survey questionnaire was sent to drivers in the parking lots and in strict compliance with the selection criteria.

2. This questionnaire has been tested at the Smokers' Health League for its validity and specificity.

Attached: the questionnaire.

## 5. Main Results of the Evaluation

Referring to **Table 1**, it is clearly noted that among the drivers who participated in the study, drivers aged between 20 and 30 years were more representative of our sample compared to other age groups. This proved the fact that minors are prohibited from driving.

**Table 1.** Distribution of drivers by age.

Drivers by age group	Numbers	%
10 YEARS - 14 YEARS	1	0.13
15 YEARS - 19 YEARS	68	9.40
20 YEARS - 25 YEARS	255	35.2
26 YEARS OLD - 30 YEARS OLD	393	54.3
30 YEARS+	6	0.8
<b>Grand total</b>	<b>723</b>	<b>100%</b>

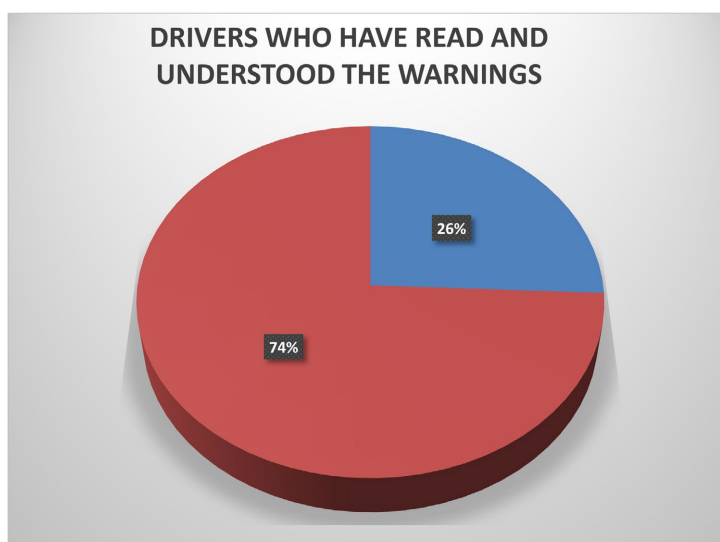
**Table 2** represents the number of those who are aware of the existence of health warnings on cigarette packets by age group, so we were curious to see that drivers read health warnings, although the age group between 26 and 30 years did so at 44% (as age increases, so does the curiosity to read).

**Table 2.** Description of awareness of the existence of health warnings on cigarette packets by drivers in Kinshasa.

10 YEARS - 14 YEARS		15 YEARS - 19 YEARS		20 YEARS - 25 YEARS		26 YEARS OLD - 30 YEARS OLD		30 YEARS+	
YES	NO	NO	YES	NO	YES	NO	YES	NO	YES
<b>1</b>	<b>0</b>	<b>24</b>	<b>44</b>	<b>60</b>	<b>195</b>	<b>78</b>	<b>315</b>	<b>1</b>	<b>5</b>
<b>0.1</b>	<b>0</b>	<b>3.3</b>	<b>6</b>	<b>8.2</b>	<b>27</b>	<b>10.7</b>	<b>44</b>	<b>0.1</b>	<b>0.6</b>

As shown in **Figure 2**, out of 560 drivers who read the health warnings, 413 did not understand the importance of the warnings, i.e. 74% and at least 147 interpreted that the warnings show the danger of smoking, i.e. 26% (the educational impact is not well perceived).

26% of drivers had read and understood that the illustrations warn of the dangers of smoking. The largest number of drivers did not understand anything about the health illustrations, with 74% not understanding the dangers of smoking.

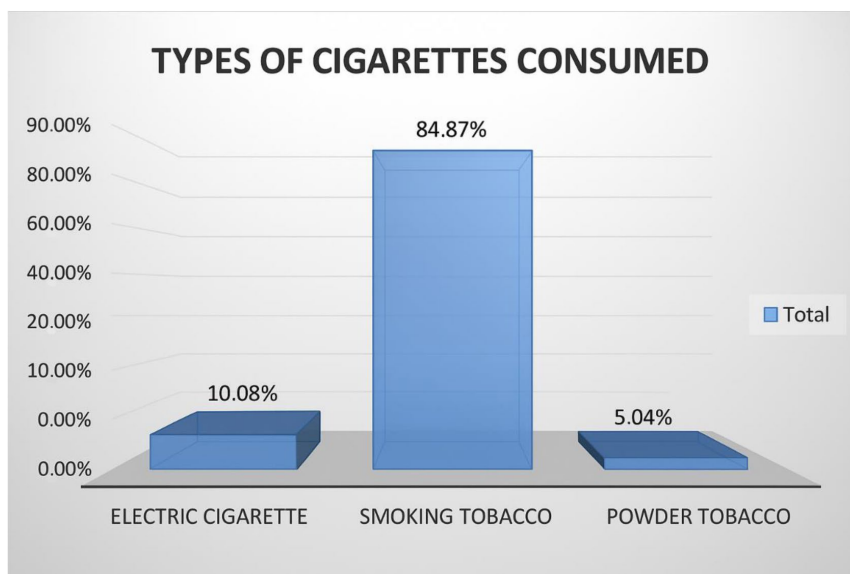
**Figure 2.** Description of the understanding of the ban on smoking cigarettes through reading the health illustrations on the packets.

**Table 3** explains that 64.5% of drivers in Kinshasa smoke cigarettes, compared to 35.4% of the sample we recorded. Since they provide public transport, a large number of passive consumers are also exposed to smoking, not to mention families, friends and acquaintances...

**Table 3.** Level of cigarette consumption by drivers in Kinshasa.

Drivers	(All)
<b>Cigarette consumption</b>	<b>723</b>
NO	35.4
YES	64.4
Grand total	100.0%

The result clearly indicated in **Figure 3** shows the forms of cigarettes consumed and their consumption rates; however, we see that powder tobacco (chewed, inhaled) represents the smallest percentage and is at the bottom of the scale with 5.04%, which clearly proves that powder tobacco is not consumed much compared to other forms of tobacco.



**Figure 3.** Description of the shapes of cigarettes consumed by drivers.

The electronic cigarette represents 10.8% of the sample while it is prohibited from circulation in the DRC.

And the cigarette stick is the most consumed form of tobacco according to the survey of drivers in Kinshasa, all ages combined, with 84.87%, which means that drivers consume and expose customers to passive smoking which is currently so dangerous.

As indicated in **Table 4**, compared to other studies cited above, many drivers in Kinshasa smoke cigarettes, without information regarding the harm (illnesses) linked to it, the danger it represents for their health, the community around them, as well as for their profession.

**Table 4.** Description of knowledge of information on the harmful effects of tobacco.

Drivers	(All)
<b>Knowledge of the harmful effects of cigarettes</b>	<b>Percentage</b>
NO	51.3%
YES	48.7%
<b>Grand total</b>	<b>100.0%</b>

## 6. Discussion

Educational impact is an important factor sought in all teaching and is the goal of every educational discipline. We educate to achieve behavior (communicate to

change behavior) [7].

The use of health warnings has been a widely criticized policy worldwide in recent decades. Several countries are switching to plain packaging to combat smoking. In the DRC, the use of health warnings should support tobacco control by encouraging consumers to change their smoking habits.

Unfortunately, this was not the case; the DRC, when using this policy, had never evaluated the educational impact of health illustrations on smokers.

Out of 723 drivers (207), only 26% had read and understood that the illustrations warn of the dangers of smoking. The largest number of drivers do not understand anything through the health illustrations, namely 74% who do not understand the dangers of smoking. What then is the impact of this policy, when we know that smoking exposes people to serious non-communicable diseases such as cardiovascular diseases, lung diseases and their complications [8].

A survey conducted prior to this study had already revealed that 40% of the population lacked understanding of the health implications of smoking. Some students interpreted the message “smoking is bad for your health” as meaning “smoking is good for your health”.

We discovered in this study that: the warnings are even read by a large number of cigarette users without understanding anything. Especially the harmful message. However, the desired educational impact is to change behavior by avoiding smoking [9].

It is imperative to change this policy by using either plain packaging or graphics or pictograms encouraged by the World Health Organization through the Framework Convention on Tobacco Control.

The use of images of illnesses, for example, better educates the consumer who sometimes wonders why smoking has become this way.

To strengthen health illustrations, the ministries involved should work in synergy to communicate and influence behavior change. A conceptual framework for improving the educational impact of tobacco control health illustrations in the DRC is presented in Appendix 1.

In some countries like Kenya, their educational policies already include not only the fight against tobacco, but also the fight against all drug addictions in general [10].

## 7. General Conclusion

The issue of evaluating educational impact is an important topic in tobacco control. Evaluations are needed to make evidence-based policy decisions.

This study is of capital importance and will launch discussions that will encourage reform of tobacco control policy in the DRC.

Based on this assessment, we find that the warnings currently used in the DRC do not have the desired educational impact; it is therefore necessary to revisit the decree on measures applicable to the use, consumption and circulation of tobacco, tobacco products and its derivatives.

On this, we recommend to the Congolese government:

1) The amendment of decree 010 concerning measures applicable to the use, consumption and marketing of tobacco, tobacco products and its derivatives to integrate, instead of health illustrations, graphics and shocking images of the harmful effects of tobacco (smoker's body, lung cancer, smoker's lung).

2) Require the smoker's body with diseases translated into four national languages (Lingala, Swahili, Kikongo and Tshiluba).

3) The amended decree incorporating the above-mentioned amendments must be published in the official journal and popularized nationally.

4) The decree must also be integrated into the primary and secondary education curriculum in the DRC.

As in the fight against malaria, a diploma in TOBACCOLOGIST must be created, the training of which will be provided at the Higher Institute of Medical Techniques in Kinshasa (ISTM/Kinshasa) with the support of the non-governmental organization FOKIKIM/DRC.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix 1

Conceptual framework for improving the educational impact of tobacco control health illustrations in the DRC.

[https://drive.google.com/drive/folders/1eKeNhRUD-cFMiYMD5qbWyN\\_J4VZaSy-3D?usp=drive\\_link](https://drive.google.com/drive/folders/1eKeNhRUD-cFMiYMD5qbWyN_J4VZaSy-3D?usp=drive_link)

## Appendix 2

QUESTIONNAIRE FOR EVALUATING THE EDUCATIONAL IMPACT OF HEALTH WARNINGS ILLUSTRATED ON CIGARETTE PACKETS AMONG 207 DRIVERS IN KINSHASA

N°/Ref/PNLCT/...../DN/2022

Parking Name:.....and administered only once.

### (1) Identification of the respondent:

- a) Age: 10 years - 14 years  15 years - 19 years  20 years - 25 years  26 - 30+
- b) Address: Health zone: .....Municipality: ..... District: .....  
Driver 1 YEAR  2 YEARS  3 YEARS  4 YEARS  AND MORE
- c) Level of education: Primary:  D6:  G3:  L2:  Others:

### (2) Evaluation of the educational impact of health warnings on cigarette packages

1) Are you aware of the existence of health warnings found on cigarette packets?

YES  NO

2) If yes, have you ever read these health warnings?

YES  NO

3) How many times?

Once  Twice  More than twice

4) In your opinion, why are these warnings written on the package important?

a).....

.....

b).....

.....

c).....

.....

d).....

.....

5) Have you ever used tobacco or other tobacco products?

Yes  No

6) If so, in what form?

a) Smoking tobacco: Cigarette  Stems:  Cigars:

b) Smokeless tobacco powder: Chewed:  Inhaled:

c) Electronic Cigarette:  Shisha:  Others:

7) How many times a day? >10  >20  >30  More:

8) How long have you been smoking?

1 year  2 years  3 years  More than 3 years:

9) Where did you start smoking?

At school:  at home:  at the club in a nightclub

In the city:  In the street:

Other specify .....

10) What are your reasons for using tobacco?

To sleep:  to lose weight:  looking for sexual power:  for pleasure:

Nervousness:  Anxiety:

Others to be specified:.....

11) What time of day do you think about your cigarette?

a) Upon waking:

b) Before the meal:

c) After the meal:

d) Before sleeping:

(3) Knowledge of the harmful effects of tobacco, smoking treatment and PNLCT:

12) Are you informed about the harmful effects of tobacco on your health?

Yes  No  Name 3 misdeeds:

1.....2.....3.....

13) If yes, how do you receive information on the harmful effects of tobacco?

Radio:  TV:  Family:  Posters and leaflets:  Others:

.....  
.....

14) Have you ever heard that there is a treatment to quit smoking?

Yes  No

15) If yes, did you want to stop smoking one day?

Yes  No

16) What do you think is the reason you want to quit smoking?

Protecting health:  losing money:  protecting the health of others

Others to be specified

.....

17) Since you started smoking, have you ever felt any discomfort in your body?

Yes  No

What type of discomfort have you ever experienced:

.....

18) Are you familiar with the National Drug Addiction Control Program (PNLCT)?

Yes:  No:

If yes, what does it represent for you?

.....  
**Investigator's comments:**

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**Name, Position Name of Investigator**

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**Signature**