The influence of fear messages on the smoking behaviour of Cameroonian students

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Abstract

Purpose – The aim of this paper is to analyses the influence of fear messages on the smoking behavior of Cameroonian public university students.

Design/methodology/approach – The paper uses responses obtained from a critical incidents approach to interviews with a sample of 2100 Cameroonians students. Informants were asked to identify incidents which affected their perceptions of fear message in prevention campaign. To do this, we applied logistic regression and the chi-square test of independence to data collected from a questionnaire.

Findings – The evaluation of determinants of smoking behavior which the informants named suggest that the smoking status of a student depends on his or her own characteristics. Furthermore, the repetition of fear messages has a positive influence on students' behavior, as does the emission of strong fear messages.

Research limitations/implications – This primarily original paper uses examples from Cameroonians students. Therefore, it is recommended to continue with studies in other socio professional categories, to identify all factor that can motive every smoker to stop or to reduce it firstly, and secondly, to identify the part or the type of message of fear that can convince non-smokers to maintain their status.

Practical implications – In order to improve the level of influence of fear messages in our context, we suggest to the actors in charge of the implementation of prevention campaigns to accompany fear messages with recommendations for quitting smoking, to opt for the repetition of fear messages, and the emission of messages that arouse a strong fear.

Originality/value – The need to analyses the influence of fear messages on the smoking behavior of Cameroonians students reflects a gap in extant literature on persuasive communication. In a context where fear is regularly used in prevention campaigns, this study appears firstly as an evaluation of what has already been done so far for the prevention of smoking and then as a guide to improve the campaigns future prevention through the use of fear.

Keywords: fear message, smoking behaviour, Cameroon.

Introduction

Life expectancy is one of the three indicators used by the UNDP to construct the human development index. This shows the importance of health in the development of nations. In tropical areas, it appears that public authorities and civil society organisations place more emphasis on diseases such as AIDS, cholera and malaria, in view of their awareness campaigns. However, the same enthusiasm is not given to the fight

against tobacco-related diseases, even though the number of victims of smoking is counted in the thousands. The World Health Organisation (WHO, 2022) reports that tobacco causes more than 8 million deaths each year. It estimates the number of smokers in the world at 1.3 billion, with more than 80% living in low and middle income countries. Cameroon, which is part of this group, unfortunately suffers from a lack of recent data on tobacco consumption and harm, yet many organisations have made smoking their focus (the Cameroonian Coalition against Tobacco, the Global Youth Tobacco Survey). Nevertheless, available information shows a strong increase in smoking with a prevalence rate of around 17.5%, of which 28.8% are men and 8.1% are women according to the 2012 Cameroon report on the Framework Convention on Tobacco Control (FCTC). Also, a large part of the population is addicted to this soft drug and the youngest are not spared. Whatever the method of smoking (pipe, cigar, cigarette, electronic cigarettes, use of electronic nicotine inhalers, etc.), the effects of smoking are still deplorable for the health of individuals. Despite the development of new consumption methods by manufacturers in order to reduce the harmful effects (electronic cigarettes, etc.), Courbet (2003) remains formal: what is certain is that smoking reduces life expectancy by four to eight years. Moreover, tobacco will always be a scourge on a global scale and the number of smokers will continue to increase in the most precarious countries in 2025 (Bilano et al, 2015). The magnitude of this scourge therefore justifies civil society's interest in putting an end to it.

The areas of application of marketing go beyond the company. When marketing expertise is extended to the social domain, marketing becomes known as social marketing (Machioli, 2006). Using marketing principles and techniques, it aims to influence a target audience to voluntarily accept, reject, change or abandon a behaviour that benefits an individual, a group or society as a whole (Kotler et al, 2002). The fields of application of this discipline are diverse: environmental protection, cultural promotion, the fight against poverty, corruption, smoking, racism, alcoholism, malaria and AIDS (Gallopel and Petr, 2000). Thus, in the field of health, the development of public health campaigns, also called prevention campaigns, through the mass media is done by means of social marketing (Marchioli, 2006). Moreover, this approach has enabled many organisations such as the National Cancer Institute, the WHO, the US Agency for International Development, the Centers for Disease Control and the United Nations to fight AIDS, malnutrition, tobacco and violence more effectively (ONUSIDA, 1999). It is also important to note that social marketing communication can use a neutral (factual or informative), humorous or threatening tone (Galoppel and Petr, 2000).

Due to its economic growth, population and legislative climate, Africa has become a prime market for the tobacco industry (Gilmore et al, 2015). To address this, governments resort to regulation and prevention. The latter is done through fear-mongering, which has become commonplace in public health issues. This type of message has long been the subject of numerous studies (Janis and Fleshbach, 1953; Ripetto and Rogers, 1987; Witte, 1992; Godener, 1999; Girandola and Atkinson, 2003) which have led to sometimes very contradictory results. Indeed, the authors are not unanimous on the intensity of fear to be used (low, moderate, high), nor on the frequency of message dissemination. Faced with the proliferation of this type of message, the problem of evaluating campaigns that use fear appeals against smoking is a major one, particularly in Cameroon.

The scarcity of research on the scope of fear messages in tobacco control in Cameroon reinforces the relevance of this study and reveals the urgency of such an exercise. Given that the need for descriptive and analytical data related to tobacco use is one of the priorities for tobacco control in developing countries (Baris et al, 2000), this study aims to estimate the components of the phobic message (frequency of the message and level of vividness) that would guarantee the effectiveness of anti-smoking prevention campaigns on a vulnerable social stratum: students. The aim being to contribute to the eradication of this scourge on the one hand and to enrich the literature on the other, we find it appropriate to answer the question what is the influence of fear messages on the smoking behaviour of Cameroonian students? Given the variables to be taken into consideration in awareness campaigns using fear, this paper will first present

the situation in Cameroon with regard to smoking. It will then review the main variables to be considered for an effective awareness campaign (intensity of fear messages, frequency of fear messages).

Review of the Literature

2.1. Current state of smoking in Cameroon

The relentlessness shown by developed countries in the fight against tobacco has not been exactly copied by developing countries like Cameroon[1]. The result of this lack of rigour on the part of Cameroon is a ranking as 142nd on the list of countries by smoking rate (SMITH et al, 2017), and only a few works on smoking (Ngahane et al, 2012, 2016; Mangamba, 2018). Ngahane et al (2012) determined the prevalence of smoking among hospital staff and described their attitudes towards smoking. It appears that stress is the main cause of smoking among these people and that the average age of initiation is about 21 years. Among the factors that motivate people to stop smoking are personal initiative, medical advice and illness. Among the means best suited to influence the trend, the media are the best means of raising awareness. This is followed by national anti-smoking campaigns, the development of smoking cessation aids, anti-smoking advertising, raising the price of cigarettes, stopping tobacco production, raising awareness in schools and places of worship, and going door-to-door. Later, Ngahane et al, (2016) also experimented with the effects of smoking, but this time in rural school settings. At the end of this work, it appears that the prevalence of smoking is low in rural areas and among the factors associated with smoking, we have the use of other psychoaffective substances (alcohol, drugs), male gender, and contact with a smoker. In the same vein, Mangamba et al, 2018 determined the prevalence of smoking and associated factors among intercity public transport drivers in Yaoundé. The result was that smokers are nicotine dependent and that the factors associated with smoking are age and alcohol consumption. The issue of fear messages for tobacco control has been the subject of several research studies around the world (Insko and Arkof, 1965; Leventhal and Watts, 1966).   But this frenzy on the issue has not been shared in a Cameroonian context.

Observation of the communication landscape in Cameroon shows that the use of persuasive communication is still in its infancy, yet prevention through the use of fear appeals has proven itself elsewhere. In Cameroon, the Ministry of Transport (MINTRANSPORT) is the one that stands out the most, by using very 'vivid' messages in campaigns against road accidents. It proceeds to a wide dissemination of messages on the dangers of bad driving ("beware, the road kills"), or the multiplication of signs along the roads with inscriptions such as "5 deaths here…".) In the same vein, the Ministry of Communication, in partnership with the Ministry of Public Health, is taking over with the broadcasting of audio messages on the dangers of alcohol, the road, diseases such as malaria or the promotion of vaccines…. In the fight against tobacco, actors use fear messages so that smokers, if they do not stop smoking, reduce their consumption, and that non-smokers do not intend to smoke. Cameroon entered this trend of fear mongering with the joint decree n00016 of the Ministry of State in charge of industrial and commercial development and the Ministry of Public Health (MSP) dated 8 June 1998, ordering the compulsory marking of all packets, boxes and cases of tobacco products with a message showing the negative aspect of tobacco. Since then, the content of the messages has evolved, ranging from the simple words "tobacco kills" (low fear message) to drawings showing shocking images of the consequences of tobacco (high fear message). Current government measures to reduce the demand for tobacco include the creation of smoke-free areas, comprehensive bans on tobacco advertising, significant increases in tobacco taxes, and graphic warnings on packaging.

In addition to the regulations that govern the actions of the tobacco industry, prevention through social marketing directly affects the target population. In terms of public health, and more specifically in the fight against smoking, we can observe on stickers, home accessories, umbrellas and many other tools, "cigarettes seriously harm the health of smokers and those around them: tar 14mg, nicotine 1.2mg". Civil society is also mobilising to counter this social phenomenon and among the actors in Cameroon, we have the C3T

(Cameroonian Coalition Against Tobacco), the GYTS (Global Youth Tobacco Survey).

Persuasive communication through fear appeals: what kind of message?

Many behaviours targeted by prevention have additive effects and are more resistant to change (Milhabel and Priolo, 2002). For example, it is more difficult to get people to stop smoking than it is to sell off a stock of cigarettes. Thus, when faced with public health challenges, campaigns do not hesitate to traumatise their target (Lavoisier-Mérieux, 2000) by means of fear appeals. For a long time, it was believed that it was enough to pass on information for people to change their behaviour. However, it is not enough for people to be aware of the problem. It is not enough for individuals to be exposed to preventive messages or actions to obtain a change in their behaviour that will be more or less lasting (Girandola, 2002; Milhabel and Priolo, 2002). Elements such as the content of the message, the intensity of the fear, the frequency of the messages and the target in question, to name but a few, are to be taken into account in the process of designing an effective communication campaign. To this day, authors who agree that fear messages have a positive impact on the behaviour of the target are not unanimous on the determinants of the effectiveness of campaigns using fear appeals.

The target audience is an element to be taken into consideration when designing the communication campaign. Generally, prevention messages and campaigns are addressed to a large audience. This wide distribution will not encourage the involvement of individuals, as they will feel that they are not very concerned (Meyer and Delhomme, 2000). The characteristics of individuals can justify the failure or success of a fear message. For Wood et al (1995), it is advisable to define a target with a lot of knowledge about the theme of the campaign because it is more sensitive to the quality of the arguments of a message. The more the behaviour is part of the self-image, the more difficult it will be to modify it since its modification calls into question the target's identity (Courbet, 2003). To preserve its identity, the target will reject the campaign (Witte, 1992). In addition, this threat must be likely to be experienced by the target of the prevention message. The more a target is used to performing a behaviour on a daily basis, the more difficult it will be to change it, as it is automatic (Girandola, 2003). The fact of being a smoker or not, the level of dependence on tobacco, self-esteem, the subject's anxiety and familiarity with the dangers are variables likely to moderate the reaction elicited by a preventive message based on fear (Chapman, 1992). The influence of peers, group phenomena, the impact of opinion leaders, or the testimony of former alcoholics or smokers on certain targets have been the subject of very few attempts to verify their potentially positive effects. Leventhal and Watts (1966) suggest that the impact of fear on the target depends on whether the target is a smoker or non-smoker. They conclude that fear is effective on non-smokers and not on smokers. Kapferer (1990) believes that the behaviour adopted by the target will depend on his or her characteristics, beliefs, ideals and values on the one hand and on the other hand on the type of social phenomenon being combated. For him, some people are more sensitive to certain social issues than others and may react differently when they are addressed. The same is true for Witte (1992), for whom the perception of fear resulting from the advertiser's message is a function of the target's characteristics (age, sex, social framework, beliefs, ideals, degree of involvement of the target). For Janis and Fleshbach (1953), it is the characteristics of the target that influence its perception and behaviour, and which are at the origin of the adaptation or not to the advertiser's message. We conclude at this level that the failure or success of a campaign using fear may be inherent to the characteristics of the target. Therefore, this leads us to the following proposition:

H1: Students' own characteristics influence their smoking status.

For Rice and Atkin (2012), maximising the rate of repetition, the media plan for a public health communication campaign is to deliver the same message to the same target audience several times. As in all types of communication, the frequency of dissemination of fear messages in a prevention campaign is essential. Contrary to an experimental context where individuals are exposed only once to a phobic message,

in the real environment, this is not the case: in their daily lives, citizens are exposed several times to the same persuasive message, for example for smoking cessation (posted or televised prevention campaigns, anti-smoking messages on cigarette packs). The question can then be asked about the impact of these repetitions (Courbet, 2003; Pavic, 2018). Concerning the repetition of this type of message, many studies consider that it contributes to undermining the expected effectiveness: (Courbet et al, 2001; Hastings and McFayden, 2002). Indeed, repetition will lead to weariness among the target audience, limiting the effects, and even rejecting the message (Hasting and McFayden, 2002). Presentations that are more limited in time seem to be more effective (Rossiter and Thornton, 2004; Courbet et al, 2001). Moreover, the long-term effects of these messages seem very limited for the individuals concerned by the risks presented. These different results seem to be unfavourable to the repeated use of messages that rely on the use of fear, yet these repetitions are very frequent. However, it turns out that not all authors share this opinion. Courbet (2003), for example, believes that the optimum effectiveness is found when the message generates a strong fear and is repeated at least five times. He adds that repetition plays an important role on behavioural intention; however, this effect depends on the vividness of the message. This lack of unanimity among authors regarding the frequency of fear messages inspires us to formulate our second hypothesis as follows:

H2: The repetition of fear messages negatively influences the behaviour of the target.

The effectiveness of the campaign can also depend on the content of the message. Indeed, the vividness of the message, the presence of recommendations and the level of fear are all elements whose presence or absence can impact on the effectiveness of the communication campaign. Vividness, which is the concrete and realistic representation of the danger, is particularly interesting from a theoretical point of view insofar as Sherer and Rogers (1984) have shown that this single variable has an effect on the perceived severity of the message and on the fear triggered in the receivers. Indeed, Leventhal and Watts (1966) have shown that the presence of pictures or the use of a film is effective in increasing the perceived severity of the threat presented to the prospect. To make the prospect feel concerned about the severity of the danger, psychology and marketing authors advise using actors who resemble the prospects (same age, same socio-demographic characteristics) in order to create empathy in the intended target (Bagozzi and More, 1994; Rahubir and Menon, 1998). Another way to increase the likelihood of the threat occurring is to address the target person directly by showing them, with figures from an official body, that the dangers mentioned can happen to them if they do not change their habits (Block and Keller, 1996). This will be more relevant if the recommendation aspect is emphasised.

To reassure the individual about his or her ability to change his or her behaviour, Leventhall (1982) suggests presenting smoking cessation aids (relaxation, nicotine substitutes, group aids, alternative methods, smoking consultations). Thus, to avoid a "boomerang" effect, fear appeals should always include effective and feasible recommendations in order to reduce vulnerability and increase the feeling of self-efficacy (Witte and Allen 2000). In addition, there is the question of the intensity of fear needed to persuade prospects.

Authors are not unanimous about the optimal threshold of fear activation in a campaign using fear appeals. While some argue that high fear communication is the most effective campaign, others argue for low or moderate fear. Some neuroscience research shows that while messages that are too scary do attract attention, they will not be remembered and will therefore limit the impact of the message. If the objective of the campaign is to promote detection behaviour, a message that generates low fear will be more effective (Girandola and Atkinson, 2003). In detection campaigns, a strong fear appeal is far from the best solution (Leventhal and Cameron, 1987; Ripetto and Rogers, 1987). If the fear is strong or moderate, an individual is motivated to protect himself (Witte, 1992). Janis and Fleshbach (1953) highlighted the fact that a strong perception of fear could have a negative effect on the target of the message. This preference for low intensity fear messages is not shared by all.

Pavic (2018) He believes that the communications that could have the most persuasive impact would be

those that are able to evoke maximum fear. He notes that preventive messages in the field of tobacco or road safety are considered to have high fear or vividness. Like him, Leventhal et al. (1965) shows that a very threatening message is more effective in persuading people to be vaccinated against tetanus than a very non-threatening message. Godener (1999) adds that a communication that generates a high level of fear is more effective than one that generates a low level of fear. The higher the perceived threat level, the more motivated individuals will be to evaluate the effectiveness of recommendations (Wittes, 1993; 1994). He concludes that frightening a target is effective if the message shows a high level of threat on the one hand, and the effectiveness and ease of application of the means to combat a harmful behaviour on the other. He also identifies three levels of fear that can be caused by these types of messages (low, moderate, and high intensity fear). Thus, by incorporating these authors' views on the optimal threshold for fear activation, three dimensions of the fear message were identified: the low, moderate and high fear message. Therefore, we formulate the following hypothesis:

H3: Anti-smoking messages that generate a strong fear emotion significantly influence prospects' smoking behaviour.

Research Methodology

The objective of this chapter is to highlight the approach adopted to estimate the nature of the relationship between fear messages and students' smoking behaviour in Cameroon. We will explain the general approach we used in this research. We will successively determine the population of our study, our method of sampling, data collection and data analysis.

Study population and data source

This study focuses on the population of students enrolled in the universities of Yaoundé 1, Yaoundé 2, Dschang and Douala. Several factors justify our choice of these state universities: in Cameroon, as in several other states, the education sector is experiencing the investment of private investors with the creation of schools and universities, not always meeting the regulatory conditions. Given our inability, as an embryonic researcher, to discern those that meet all the regulatory conditions, we have limited our study to state universities. Given the amount of fees charged by some private universities, their choice would not have allowed us to reach students from all social strata. Also, as student attitudes may differ from one city to another, private universities in Cameroon are concentrated for the most part in metropolitan cities. Selected on the basis that the student population is more numerous in Yaoundé, Douala and Dschang, we will consequently have a plethora of mentality. The University of Dschang being bilingual, we will find Anglophones and Francophones. Yaounde being the capital of the country, we will find students from all over the country. Douala being the economic capital of Cameroon, it is the headquarters of the tobacco industry, and consequently, there will be many outlets selling cigarettes.

The data we used are both primary and secondary sources, collected simultaneously in the universities and in the documents of some administrative institutions. The universities did not yet have information on the total number of students. Based on the enrolment figures from previous years, we estimated the total population of the universities concerned using the information available on the website of the Ministry of Higher Education (MINESUP). To do this, we began by determining the rate of change of each of the total enrolments, which allowed us to estimate the total population of the study (187 203 students).

Sampling method

A convenience sample is one in which "all persons who could be contacted on the basis of the characteristics sought are approached". Convenience sampling consists of selecting the sample on the basis of the opportunities that presented themselves to the researcher, without any selection criteria being defined

in advance. It has the advantage of facilitating and accelerating the collection of desired information. The choice of a sample of convenience in marketing responds to the concern to reduce the bias of the selection effect which depends on the representation of the sample in relation to the population studied. Given that this study focuses on the influence of fear messages on student smoking behaviour, we are called upon to determine our sample size in a context of a growing student population. To do this, we opted for a convenience sample.

After estimating the total population, we found that the sample size was large (187,203 students). Unable to work with a representative sample of our population (at least 10% of the total population, as recommended by marketing sampling techniques), we limited our sample to 2100 students, i.e. 700 students in each city concerned (1.12% of the total population). For this reason, we opted for a convenience sample. In order to ensure that the population was representative, we interviewed students in all corners of the selected universities (canteens, classrooms, at the entrance to the universities and in the places where university fees are paid). The structure of this sample is as follows.

Table 1: Sample structure

City	University	student population
YAOUNDE	– YAOUNDE 1	350
	-YAOUNDE 2	350
DOUALA	DOUALA	700
DSCHANG	DSCHANG	700
TOTAL		2100

Source : Authors

3.3. Variable specification and data processing methodology

Variable specification

This study seeks to understand the influence of fear messages on students' smoking behaviour. The aim here is to highlight the appropriate models for the analysis of our data, through the identification and operationalisation of the study variables. It should be noted that the variables used were inspired by Rogers' PMT (1983) and Witte's EPPM (1992) models, and by experiments carried out by authors such as Courbet (2003), Gallopel and petr (2000).

Indeed, the EPPM posits that the prospect's exposure to a strong threat triggers an emotion of fear that affects the perception of danger by overestimating it. This perception of fear from the advertiser's message is a function of the target's characteristics. Furthermore, the more receivers are repeatedly exposed to highly threatening texts, the more they intend to quit smoking, provided they control their fear. Rogers' PMT model states that a message generating a phobic emotion is effective if the threat is sufficiently strong, likely to occur and if, in addition, the solutions are deemed effective and feasible for the prospect. These models add that a subject may react differently to a message. Following these authors, the behaviour incriminated in this study is the action of smoking. The problem of the influence of fear messages on behaviour necessitated the choice of several variables in this context.

Choice of explained variables

The main dependent variable is the smoking behaviour of students. Indeed, the expectations of tobacco control actors in terms of behaviour are based on:

– Cessation of cigarette consumption

– Reducing cigarette consumption

– The decision not to smoke cigarettes for non-smokers

A subject who reacts negatively to fear messages about smoking will choose one of these behaviours, hence these other variables.

– Continued use

– Indifference to the prevention message

The other variable explained is the status associated with the student's smoking behaviour. A student may have

– Smoker status

– Non-smoker status.

– Choice of causal variables

As for the explanatory variables of the smoking behaviour of a prospect subjected to fear, the literature review presents us with a panoply of variables of which only three have retained our attention in the framework of this study:

– The intensity of fear provoked by the message broadcast

– The frequency with which fear messages are broadcast

As explanatory variables of the students' smoking status, we used

– The students' own characteristics

Overall, these are the variables derived from the operationalization of the fear appeal concept seen in Chapter 2. This being the case, we can express our main dependent variable as a function of the explanatory variables according to the following model: P = f (the intensity of fear provoked by the broadcast message; the frequency of broadcasting fear messages). Our second dependent variable can be expressed as a function of the explanatory variable according to the following model: P = f (of students' own characteristics). We summarise the essence of our variables in the following table:

Methodology : Logistic regression

Logistic regression is used to study the relationship between a binary response and several explanatory variables. Let us consider a binary explanatory variable Y. It records events as Y=1 if there is success and Y=0 if there is failure. It records events as Y=1 if there is success and Y=0 if there is failure.

Let X1, X2… Xk be a set of qualitative or quantitative variables whose effects on Y are to be studied. If x is binary, as is the case for this study, it takes the value o if the factor is absent and 1 if the factor is present.

For this purpose, Px = proba (Y = 1/x). From Px, we define a logit quantity Px = log (Px/1-Px). It has been shown that there is a binary relationship between logitPx and several explanatory variables, and one can write the logistic function of the phenomenon under study as follows:

Logit P(x) = log Px/1-Px = B0 + B1x1 + … Bpxp. The problem that arises concerns the estimation of the ? coefficients and their interpretation in terms of logitPx. For this purpose, the understanding of the quantities P(x+1)/Px, denoting the odds ratios, is fundamental. It is this odd ratio that constitutes the final result sought in the logistic regression for each of the explanatory variables. The coefficients are estimated by the maximum likelihood method, knowing that log Px/1-Px = a +Bx. Knowing also that

The odd ratio =(odd1)/(odd0)=(P1/1-P1)/ (P0/1-P0), its interpretation is simple. In general, the result of a binary observation is called a "success" or "failure". An odd ratio greater or less than 1 indicates an association between X and Y.

If the odd ratio > 1 then the study variable is in favour of the phenomenon under study.

If the odd ratio < 1, then the study variable does not support the phenomenon under study.

The hypothesis test in logistic regression concerns the quality of the model and the aim is to find out whether the explanatory variables have an influence on the variable to be explained as a whole.

Table 2:1 variables

Hypotheses	Variables	Terms
Hypothesis 1	Smoking Sex Age (in years) Level of study University town	Smoker ; Non-smoker Female; male 15-20; 21-25; 26-30; 31 and over 1; 2; 3; 4; 5 and more Yaoundé, Douala and Dschang
Hypothesis 1 and 2	**VARIABLES EXPLAINED** – Giving up cigarette smoking – Reduction of cigarette consumption – Decision not to smoke cigarettes -The continuation of consumption – Indifference to the prevention message	Yes No Yes No Yes No Yes No Yes No

Hypothesis 2	**EXPLANATORY VARIABLES** A message of fear A repetition of messages of fear	Yes No Yes No
Hypothesis 3	**EXPLANATORY VARIABLES** strong fear message Moderate fear message lowfear message	Yes No Yes No Yes No

Source: Authors

Results

Results of the test of the first hypothesis

Our first hypothesis states that students' own characteristics influence their smoking status. In order to test this hypothesis, we performed the chi-square test of independence and the results are presented in Table 3. The reading of these tables requires an explanation of the meaning of the elements of the table. Pr is the probability under the null hypothesis of obtaining the value found. The Pearson chi-square is the calculated variable of the statistic used for the Pearson test. The interpretation of these tables is based on the value of Pr: if Pr<0.5, we reject H0 and accept H1, otherwise we accept H0.

It can be seen from these results that all Pr<0.5 (Pr = 0.000). Therefore, the decision to smoke or not to smoke depends on the sex, age, level of study and even the university town of the student. In fact, it was found that male students smoke more than female students. As far as age is concerned, it was found that students in the 21-25 age group smoke much more than others. The number of smokers decreases above this age group, which in our sample is justified by the low number of students over 25 years old. With regard to the city, students in Dschang smoke more than those in Douala who in turn smoke more than those in Yaoundé.

The classification of students' smoking behaviour by level of study shows that level 3 students smoke more than all others. The reason for this may be that they correspond to students aged between 21 and 25 years. Students in level 1 smoke more than those in level 2. This may be due to the reduced intensity of parental control. The number of students who smoke in the second cycle is decreasing. In view of this, we validate our hypothesis and assert that the students' own characteristics influence their smoking status.

Table 3: Chi-square test of independence

	Pearson Chi2	**P-value**
Smoking vs Sex	15.7777	0.0000
Smoker vs age	23.2355	0.0000
Smoker vs college	16.6775	0.0000

Smoker vs level of study	25.2932	0.0000

Results of the test of the second hypothesis

Our second hypothesis states that the repetition of fear messages negatively influences the behaviour of the target. In order to test this hypothesis, regression tests were performed as follows and the results are presented in Table 4.

Table 4: Logistic regression, effect of number of fear messages on reduction in smoking

	Reduction of consumption	Stopping smoking	decision not to smoke
	(1)	(2)	(3)
lecmeap	0.9871		
	(0.4608)		
repemes1	4.2388***		
	(2.0014)		
mesapeu		1.2043	1.4183
		(0.3163)	(0.4071)
repemes		1.6270*	1.4324
		(0.3163)	(0.4192)
Observations	179	299	597
LR chi2	20.93	6.41	8.39
Pr>Chi2	0.0000	0.000	0.000
Notes : *p<0.1 ; ***p<0.01. Standard deviations in parentheses			

The reading of these computer outputs requires an explanation of the meaning of the elements of the table. Indeed, the odds ratios represent the chances of the event occurring. std. Err represents the standard deviation which measures the dispersion of the variable around the mean. Z is the calculated statistic of the normal distribution. (95% conf. interval) represents the interval in which the true value of the odds ratio lies. We will use the odds ratios to interpret the computer output, knowing that an odd ratio greater or less than 1 indicates an association between the behaviour adopted and the frequency of the fear message.

From these results, we can see that the odds ratios relating to the repetition of fear messages are higher than those relating to the reception of a single fear message. In fact, students who receive several fear messages are 4.23 times more likely to reduce their cigarette consumption than those who receive only one message (0.98 times less likely to reduce their cigarette consumption). Concerning the explained variable "quitting smoking", students who receive several fear messages are 1.62 times more likely to quit smoking compared to those who receive one fear message (odd ratio = 1.20).

Finally, non-smokers who receive several fear messages are 1.43 times more likely to never try smoking, compared to those who receive few fear messages. In addition, non-smokers exposed to a single fear message are 1.41 times more likely to never smoke. In view of all these odds ratios, all of which are more

significant for the "message repetition" variable, we reject our second hypothesis and say that the repetition of fear messages positively influences the target's behaviour.

Results of the third hypothesis test

This hypothesis states that anti-smoking messages that generate a strong emotion of fear significantly influence prospects' smoking behaviour and the results are displayed in Table 5.

As in our second hypothesis, we will use odds ratios to interpret our computer outputs, as the statistical tool used at this level is still logistic regression. Nevertheless, we should remember that an odd ratio greater or less than 1 indicates an association between the behaviour adopted and the type of fear message. Our results show that: for the dependent variable "reduction in consumption", a low level of fear is not significant (odds ratio =0.489). Moderate and high levels of fear are significant (odds ratio = 3.77 and 12.81). Therefore, student smokers subjected to high fear messages are 12.81 times more likely to cut down on smoking than those not subjected to high fear messages. Student smokers subjected to moderate fear are 3.77 times more likely than other students to cut down on smoking.

The test on the behavioural variable "quitting smoking" establishes that a low level of fear is not significant (odds ratio =0.196). Moderate and high levels of fear are significant (odds ratio = 2.106 and 6.94). Therefore, student smokers subjected to strong fear messages are 6.94 times more likely to quit smoking than students who are not subjected to strong fear messages. Student smokers subjected to moderate fear are 2.106 times more likely than other students to quit smoking.

For the dependent variable "never try cigarettes" for non-smokers, the result is that the low and moderate levels of fear are not significant (odds ratio =0.468 and O.522). Only a high level of fear is significant (odds ratio = 2.40). Therefore, non-smoking students subjected to high fear messages are 2.40 times more likely to never try smoking than students who are not subjected to high fear messages. The test on the dependent variable "continued smoking" shows that the high and moderate fear levels are not significant (odds ratio =0.33 and 0.31) and the low fear level is the only significant one (odds ratio =2.59). Therefore, student smokers subjected to high fear messages are 0.33 times less likely to continue smoking than other students.

It should be noted that fear messages do not always influence students. For example, students who smoked and were subjected to moderate fear messages were 2.92 times more likely to remain indifferent than those subjected to other types of fear messages. Also, students subjected to low fear messages were 1.35 times more likely to remain indifferent than those subjected to high fear messages. On the other hand, students subjected to high fear messages were 0.6 times less likely to remain indifferent than other students. The conclusion is obvious:Considering the fact that students subjected to high fear messages are more likely to quit, reduce their smoking or never try smoking compared to those subjected to low and moderate fear messages, we can validate our hypothesis in our context and say that high fear prevention messages significantly influence students' smoking behaviour.

Table 5: Logistic regression of the effect of tobacco control messages on tobacco consumption reduction

	Reduction of consumption	stopping smoking	decision not to smoke	continue to smoke
	(1)	(2)	(3)	(4)
ftepeu	12.8157***	6.9465***	0.4685**	0.6337
	(5.2418)	(2.5274)	(0.1483)	(0.1927)

peumoder	3.7744***	2.1064	0.5223**	2.9244***
	(1.5403)	(0.7355)	(0.1371)	(0.8401)
fblepeu	0.4890	0.1665***	2.4026***	1.3524
	(0.2406)	(0.0937)	(0.6411)	(0.4968)
Observations	231	254	423	359
LR chi2	62.52	55.34	41.28	25.17
Pr>Chi2	0.0000	0.0000	0.0000	0.0000
Notes : *p<0.1 ;**p<0.05 ; ***p<0.01. Standard deviations in parentheses				

Discussion

Our first hypothesis stated that students' own characteristics influence their smoking status. The results of our tests allowed us to affirm this hypothesis which reflected the thinking of authors such as Kapferer (1990) and Witte in his EPPM model. Therefore, we can, like Witte (1992), say that the failure or success of a campaign is inherent to the characteristics of the target. As for our second hypothesis, it stated that the repetition of fear messages negatively influences students' smoking behaviour. This hypothesis, which was inspired by Witte's model, was not confirmed in our hypothesis. It should be noted that our results are in line with those of Courbet (2003) on French students. Indeed, an analysis of variance ANOVA showed that repetition plays an important role on the behavioural intention. Subjects were more likely to intend to stop after five readings (M = 2.85), than they were to intend to stop after one reading. Regarding our third hypothesis, it stated that anti-smoking messages, generating a strong emotion of fear, significantly influence prospects' smoking behaviour. The regression tests for this proposition allowed us to validate it. This acceptance of the alternative hypothesis is consistent with Witte's model. Moreover, this hypothesis had already been tested by a collective expertise initiated by Gallopel (2000), in the context of tobacco control, using the Kruskal-Wallis test. Indeed, these authors experimented with low, high and moderate fear prevention materials on 489 French students. The Kruskal-Wallis test indicated to them that the preventive brochure that leads to the most positive attitude is the one that generates a strong phobic intensity. Arkoff and Insko (1965) came to the same conclusion when they used an anti-smoking campaign with 144 students.

Conclusion

Based on the literature review in general and Witte and Rogers' EPPM and PMT models in particular, we formulated three hypotheses related to our specific objectives. H1: Students' characteristics influence their smoking status. H2: Repetition of fear messages negatively influences students' smoking behaviour. H3: Anti-smoking messages that generate a strong fear emotion significantly influence prospects' smoking behaviour. These hypotheses were subjected to empirical testing.

From a convenience sample of 2100 students, we collected data using a questionnaire. Thus, tests of the formulated hypotheses were done using the logit model and chi-square tests of independence. These tests, performed in SPSS, provided us with several results.

Firsly, strong fear messages are the ones that most influence the smoking behaviour of Cameroonian students. Furthermore, it is the repetition of fear messages that most influences the smoking behaviour of Cameroonian students. The decision to smoke or not to smoke depends on the students' own characteristics. In sum, to answer our research question, we would say that, depending on the students' own characteristics, repetition of strong fear messages ensures the adoption of the promoted behaviour among Cameroonian students. These results confirm certain postulates on the use of fear appeals from, for example, the PMT

and EPPM models. Despite this, precautions must be taken to generalise our results.

in view of these results, we recommend that tobacco control actors take into account the characteristics of their prospects, while favouring the repetition of strong fear messages. they should also review the recommendation aspect, to ensure the eradication of the scourge of smoking with the help of fear messages. The computer outputs of this research work revealed that it is also due to lack of financial means that some students do not smoke. Therefore, the government should move the tobacco industry's product taxation policy upwards. This would enable the tobacco industry to raise the price of tobacco products and, in turn, would definitely discourage students who lack the financial means to indulge in tobacco consumption.

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Foot note

[1]The anti-smoking law has not yet been adopted by the elected representatives of the people.