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Risk perception of cigarette and alcohol consumption: Korea and Cameroon public assessment views

KyungHee Kim1,Tinyami Erick Tandi*1, 2,JaeWook Choi1, 3

1Institute for Occupational and Environmental Health, Korea University, Seoul, South Korea; 2Ministry of Public Health Yaounde, Yaoude Cameroon; 3Department of Preventive Medicine, College of Medicine, Graduate School of Public Health Korea University, Seoul South Korea.

ABSTRACT

Introduction: There is a strong risk perception of personal knowledge on both cigarette-and alcohol-related harm. One possible factor contributing to this may be greater availability and access of cigarette and alcohol in the communities especially in developing settings. The causes of the difference in psychological factors that affect the public with high risk perception of cigarette and alcohol consumption was analysed. A higher perception of cigarette and alcohol availability is not only likely to increase supply but also to raise awareness of the different brands of alcohol, create a competitive local market that reduces product costs, and influence local social norms relating to cigarette and alcohol consumption. This paper assess risk perception with respect to the association between psychological paradigms of alcohol and cigarette use in both Korea and Cameroon nationwide.

Methods: Using questionnaire survey a cross sectional study on risk perception regarding cigarette and alcohol consumption was assessed among some 2,181 men and 2,203 women from Korea and Cameroon who were over the age of 20 nationwide. Descriptive statistics were performed in order to analyse the sociodemographic characteristics of South Korea and Cameroon. Student's t-test was performed to test the difference between risk perception and the psychometric paradigm. Correlational analysis was performed to analyse the relationship between risk perception and psychometric paradigm for each country. In order to analyse the components that affect risk perception, multivariate regression analysis was conducted.

***Correspondence to Author:**

T.E. Tandi and J.W.Choi

Institute for Occupational and Environmental Health, Graduate School of Public Health,Korea University, Seoul, Korea.126-1, Anam-dong 5 ga, Seongbuk-gu, Seoul 136-701, Korea.

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Results: The analysis results indicated that for Koreans, the risk perception from smoking was the highest 5.49 ± 1.37 which was beyond controllability and the perceived risk from alcohol consumption was the highest for Cameroonians 6.21 ± 1.22). The results indicated that both South Koreans and Cameroonians indicated a strong risk perception based on cigarette and alcohol consumption with regards to their personal knowledge, scientifically proven evidence, dread consequences and harm to future generations that were statistically significant.

Conclusions: In this study we demonstrated the importance of risk perception of cigarette smoking and alcohol consumption using psychological factors based on gender, age and region. Our expectation is that this study could shape the way public views could be integrated in the effective risk communication and implementation strategies towards the control of cigarette smoking and consumption within different communities around the world.

Keywords: Alcohol, cigarette, psychometric variables, risk perception, South Korea, Cameroon.

Introduction

Concerns over the importance of public opinion regarding risk perception in different aspects in our daily life have not been widely exploited despite a call for the need of the consideration of a “common man” view in decision making [1, 2]. Globally, tobacco and alcohol use continue to pose a major public health threat and are among some of the leading causes of preventable morbidity and mortality [3].The consumption of these products have been side-line by the World Health Organisation (WHO) to account for more than 70% of the worlds’ non-communicable diseases [4], with tobacco and alcohol projecting as the second and third leading causes or morbidity respectively [5].

Alcohol consumption and cigarette smoking have been seen to be interwoven, studies in high income countries have indicated that persons who smoke are more likely to drink alcohol and vice versa within and beyond their communities [6, 7]. Also, some have shown that socially deprived populations are more likely to report higher tobacco and alcohol consumption and may leads to death due to related causes [7, 8]. The consumption of alcohol and tobacco may lead to devastating consequences either when used together or separately. Some of these effects may range from; liver disease, cancers, cardiovascular disease, acute alcohol poisoning as well as traumatic injury and death [9]. However, the combined risk may be greater than the risk associated with either substance when taken separately. Behaviours that may account for alcohol and tobacco consumption may be multifaceted and strongly influenced by social, cultural and environmental factors [8]. With the influence of the availability of many alcohol and tobacco brands in the communities which favours competition and reduction in cost, may encourage the consumption of the products especially in socially deprived communities [10-12]. Not until recently, many researchers have focused on assessing alcohol and tobacco smoking behaviours on separate platforms. This has been seen as problematic as tobacco and alcohol outlets often operates together as well as evidence that showed related behaviours also occurring together [13]. Combined, smoking and alcohol intake are two of the most important preventable causes of ill-health and premature death in Korea and Cameroon, as in Korea an estimated 8.9 % of deaths are related to alcohol consumption [14] while, 41.4 % of men and 25.8 % of women consume alcohol regularly in Cameroon [15].Similarly, another study conducted on cigarette smoking estimated that 42.1 % of males and 4.6 % of females at least smoke in Korea [16] and 11.2 % males and 5.3 % females smoke in Cameroon [17]. The trend in alcohol and tobacco related health risk consequences are not only unique to Korea or Cameroon and the assessment of public perception regarding this attitude may be

fundamental in shaping the understanding in a global context on how national levels public risk perceptions may aid in the development of suitable policies geared towards tobacco and alcohol consumption control.

Taking into consideration that population health is an integral approach in the reflection of how different factors and forces shape an individual's health, it is therefore a major topic in health research and social reform policy to redirect suitable indicators of risk that will benefit both the population and their environment [18]. Distancing itself from previous perspectives that focused on biology and the physical environment, a broader approach for the evaluation of population health research has gained more momentum in the 1990s and 2000s by including individual factors involving lifestyle and social forces as well as the physical features of the environment as health determinants [19-20].This recent change in approach and the public education of risk issues, which has led to a growing attention focused on both the environmental and social consequences of health risks, may have accounted for this change in the focus of population health.

By using the psychometric variables of Slovic in 1987 [21], and Outrage factors of Sandman in1993 [22], the aim of this study was to assess and document the differences in public perception of alcohol and tobacco use health risks and to investigate psychological factors related to the acceptability of the health risk factors with a view of generating a harmonious data for the primary prevention of its related non-communicable diseases among the population.

Methodology

Material and method

Participants

For South Korea, the population of this study were men and women between the ages of 20 and 59 years from 13 regions in South Korea. 3,317 individuals were selected based on region, age, and gender to represent the South Korean population. The sample error was ±1.70 % under 95% confidence. The survey was conducted from April 16th to May 6th, 2015 through a web-based survey where the participants were sent a link of the questionnaire. The survey was conducted by the research company Korean Data Network. For Cameroon, the participants were Cameroonians of both genders aged ≥ 20 years from within 10 regions of the nation. A total of 1,067 participants were sampled, taking into account the national population proportional quotas based on age and gender. Prior to administering the questionnaire, the interviewer explained the purpose of the study to all respondents, making clear of participants anonymity, as the questionnaire did not collect names, before obtaining their signed consent to participate. The questionnaire was conducted in both French and English languages based on the respondents' choice which are the official languages of the nation on a one-to-one bases, from the 17th of June, 2015 to the 30th of August, 2015, nationwide.

Risk Factors

Smoking cigarette and drinking alcohol were selected for this paper as risk factors that influence health behavior and health promotion.

Analysis of public health risk perception was based on Slovic's 1987 psychometric paradigm and outrage of Sandman in 1993. The psychometric paradigm variables used in this study were "personal knowledge", "risk known to scientists", "controllability", "harm to future generations", "dread", and "societal accountability" which are proven to have statistically significant effects on risk perception. The above components were presented in a 7-point Likert scale conducted using a questionnaire.

Questionnaire Items

The dependent variable for this study was "risk perception" while the independent variables were derived from the psychometric paradigm. The questionnaire items consisted of measurements for "risk perception", "personal knowledge", "risk known to scientists",

"controllability", "harm to future generations", "dread" and "societal accountability". These were: Risk Perception: "How much of a risk do you think smoking and drinking are to one's health?" Personal knowledge: "How much do you know about the risks of smoking and drinking to one's health?" Risk known to scientists: "How much do you think the risk of smoking and drinking to one's health is scientifically proven?" Controllability: "How much to you think the risks from smoking and drinking can be controlled through individual will and action?" Harm to future generations: "How much do you think the risks of smoking and drinking will affect future generations?" Dread: "What is the extent of social hostility and outrage when accident occur due to smoking and drinking"? Societal accountability: "How much responsibility do you think the government has on the prevention and management of smoking and drinking?"

Statistical Analysis

Student's t-test was performed to test the difference in risk perception and the psychometric paradigm between South Korea and Cameroon. The correlation for risk perception and the psychometric paradigm between the two countries were analyzed through the Spearman correlation coefficient. Linear regression analysis was conducted to analyze the factors that influence risk perception on smoking and drinking. The difference in the regression coefficient was tested using the t-test from Devereua & Schiantarelli's study (1989). All data were analyzed under significance level 0.05 using SPSS 21.0

Results

Socio-Demographic Characteristics of the participants

The participants of this study were 2,181 men and 2,203 women from both countries over the age of 20, and these demographic characteristics include: gender, age, and education. For gender, 1,671 (50.4 %) were men, and 1,646 (49.6 %) were women for Korean participants and 510 (47.8 %) men and 557 (52.2 %) women for Cameroonian participants. For age groups, 22.2 % were in their 20s, 25.4 % in their 30s, 28.4 % in their 40s, 23.9 % in their 50s for Koreans, and 25.7 % were in their 20s, 34.5 % in their 30s, 26.0 % in their 40s, and 13.9 % in their 50s for Cameroonians. Based on education, 2,745 (82.8 %) of participants had at least a college education and above in Korea, while 408 (38.2%) with same level of education participated for Cameroon. For the average monthly income, 1,085 (32.7 %) had between 2001- 3009 dollars in Korea and 472 (44.2 %), less than or equal to 100 US dollars in Cameroon, all representing the highest number of participants. A total participants of 720 (21.7 %) smoke, 1,730 (52.2 %) drink alcohol and 245 (23.0 %) smoke, 677 (63.0 %) drink alcohol in Korea and Cameroon respectively (Table 1).

Differences in risk perception and level of psychometric factors between Korea and Cameroon.

A student t-test was performed to assess the differences in risk perception of the population of Korea and Cameroon based on psychological characteristics with respect to tobacco smoking and alcohol consumption. The analysis results indicated that for Koreans, the risk perception from smoking was the highest (5.49 ± 1.37) as compare to alcohol consumption (5.44 ± 1.34), while the perceived risk from alcohol consumption was the highest for Cameroonians (6.21 ± 1.22). For the analysis of the psychometric variables, generally both countries scored perceived risk factors for "personal knowledge" "scientifically proven ", "controllability" and "harm to future generation" on an average to be high. However, Cameroon has a relatively higher perception of the various psychometric factors over their Koreans counterpart. All factors were statistically significant at $p<0.001$ Table 2.

Correlation of risk perception and psychometric factors on smoking between Korea and Cameroon

Table 1. Sociodemographic characteristics of South Korea and Cameroon (N = 4,384)

Variable	Country	South Korea (n = 3,317)			Cameroon (n = 1,067)		
		N	%		N	%	
Gender	Male	1,671	50.4		510	47.8	
	Female	1,646	49.6		557	52.2	
Age	20-29	738	22.2		274	25.7	
	30-39	843	25.4		368	34.5	
	40-49	943	28.4		277	26.0	
	50-59	793	23.9		148	13.9	
Education	Less than middle school	32	1.0		453	42.5	
	High School	540	16.3		206	19.3	
	College and above	2,745	82.8		408	38.2	
Income	South Korea (10,000 won)	< 200	406	12.2	< 50,000	472	44.2
		< 400	1,085	32.7	< 200,000	219	20.5
	Cameroon (fcfa)	< 600	1,082	32.6	< 500,000	266	24.9
		≥ 600	744	22.4	≥ 500,000	110	10.3
Smoking	Smoker	720	21.7		245	23.0	
	Non-smoker	2,597	78.3		822	77.0	
Alcohol	Drinker	1,730	52.2		677	63.4	
	Non-drinker	1,587	47.8		390	36.6	

Table 2. Difference in risk perception and level of psychometric factor between South Korea and Cameroon Unit = mean (SD)

Variable	Smoking			Drinking		
	S. Korea	Cameroon	*P* *	S. Korea	Cameroon	*P* *
Risk Perception	4.83(1.67)	6.17(0.72)	< 0.001	4.40(1.42)	6.21(1.22)	< 0.001
Personal Knowledge	4.99(1.28)	6.07(0.89)	< 0.001	4.79(1.18)	5.83(1.05)	< 0.001
Scientifically proven	5.12(1.27)	6.11(1.06)	< 0.001	4.90(1.18)	5.92(1.44)	< 0.001
Controllability	5.49(1.37)	3.72(1.84)	< 0.001	5.44(1.31)	3.78(1.69)	< 0.001
Harm to future generations	5.08(1.42)	6.35(0.72)	< 0.001	4.74(1.34)	5.20(1.85)	< 0.001
Dread	4.07(1.75)	5.21(1.82)	< 0.001	3.93(1.59)	5.73(1.00)	< 0.001
Social accountability	4.63(1.53)	4.02(2.03)	< 0.001	4.40(1.47)	4.75(2.01)	< 0.001

* Statistical analysis by student`s t-test

Table 3. Correlation of risk perception and psychometric factors on smoking between South Korea and Cameroon Unit = coefficient of correlation

S.Korea / Cameroon	Risk perception	Personal knowledge	Scientifically proven	Controllability	Harm to future generations	Dread	Social accountability
Risk perception	1.000	0.346†	0.282†	0.123†	0.300†	0.382†	0.207†
Personal knowledge	0.063*	1.000	0.491†	0.276†	0.277†	0.230†	0.112†
Scientifically proven	-0.077*	0.007	1.000	0.385†	0.324†	0.185†	0.131†
Controllability	-0.001	-0.089†	0.036	1.000	0.243†	-0.018	0.053†
Harm to future generations	0.337†	0.195†	0.027	-0.223†	1.000	0.292†	0.245†
Dread	-0.073*	-0.011	0.182†	0.176†	-0.173†	1.000	0.276†
Social accountability	-0.122†	-0.109†	0.206†	0.179†	-0.202†	0.264†	1.000

* $P < 0.05$, † $P < 0.01$

Table 4. Correlation of risk perception and psychometric factors on drinking between South Korea and Cameroon Unit = coefficient of correlation

S.Korea / Cameroon	Risk perception	Personal knowledge	Scientifically proven	Controllability	Harm to future generations	Dread	Social accountability
Risk perception	1.000	0.268†	0.239†	0.070†	0.273†	0.418†	0.218†
Personal knowledge	0.177†	1.000	0.460†	0.285†	0.257†	0.208†	0.144†
Scientifically proven	0.240†	0.167†	1.000	0.366†	0.266†	0.182†	0.137†
Controllability	-0.045	0.057	0.001	1.000	0.164†	-0.086†	0.041*
Harm to future generations	0.019	0.229†	0.006	0.108†	1.000	0.319†	0.254†
Dread	0.135†	0.178†	0.072*	-0.034	-0.008	1.000	0.285†
Social accountability	0.102†	0.147†	0.306†	-0.003	0.157†	0.058	1.000

* $P < 0.05$, † $P < 0.01$

Table 5. Relationship between risk perception on smoking with psychometric paradigms for South Korea and Cameroon Unit = β (SE)

Variable	South Korea	Cameroon	t-test§
Personal knowledge	0.268(0.023)†	0.005(0.024)	7.912†
Scientifically proven	0.118(0.024)†	-0.050(0.020)*	5.378†
Controllability	0.006(0.020)	0.031(0.012)†	-1.072
Harm to future generations	0.136(0.020)†	0.355(0.031)†	-5.936†
Dread	0.247(0.016)†	-0.008(0.013)	12.369†
Social accountability	0.070(0.017)†	-0.024(0.011)*	4.642†
Gender(0=Male, 1=Female)	0.082(0.054)	0.122(0.046)†	-0.564
Age	-0.156(0.024)†	0.007(0.021)	-5.111†
Education	0.091(0.064)	-0.050(0.023)*	2.073*
Income	-0.055(0.027)*	0.002(0.020)	-1.696
Smoking(0=smoker, 1=non-smoker)	-0.133(0.067)	-0.011(0.050)	-1.459
R^2	0.259	0.213	

* $P < 0.05$, † $P < 0.01$, § $t = [(\beta - \beta_{분}) - 0]/[SE(\beta)^2+SE(\beta_{분})^2]^{1/2}$

Table 6. Relationship between risk perception on drinking with psychometric paradigms for South Korea and Cameroon

Unit = β (SE)

Variable	South Korea	Cameroon	t-test§
Personal knowledge	0.151(0.021)†	0.133(0.038)†	0.415
Scientifically proven	0.108(0.022)†	0.179(0.027)†	-2.039*
Controllability	0.008(0.018)	-0.037(0.021)	1.627
Harm to future generations	0.100(0.018)†	-0.013(0.021)	4.086†
Dread	0.289(0.016)†	0.115(0.037)†	4.316†
Social accountability	0.066(0.016)†	0.008(0.019)	2.335*
Gender(0=Male, 1=Female)	0.090(0.046)	0.104(0.082)	-0.149
Age	-0.073(0.021)†	-0.024(0.037)	-1.152
Education	0.025(0.056)	0.012(0.040)	0.189
Income	-0.025(0.024)	-0.014(0.034)	-0.264
Drinking(0=drinker, 1=non-drinker)	-0.091(0.046)	-0.095(0.076)	0.045
R^2	0.238	0.104	

* $P < 0.05$, † $P < 0.01$, § $t = [(\beta - \beta) - 0]/ [SE (\beta)^2+SE(\beta)^2]^{1/2}$

To investigate the relationship between risk perceptions and psychometric variables, two-tailed t-test was use to analyse the correlations between each of the items. As shown in Table 3, most of the correlations were statistically significant. A total of 49 correlations were listed in Table 3, and 36 of these were statistically significant at $p<0.01$, indicating that the degree of the participants' health risk perception towards smoking was correlative to some extent. The highest correlation was 0.385. In addition, there were very few negative correlations: the highest negative correlation was 0.223. Risk perception and personal knowledge about tobacco smoking were positively correlated with each other in this study. With the exception of controllability, harm to future generation said to correlate with others psychometric factors significantly. Overall, the present survey yielded high correlations between psychometric factors on smoking risk perceptions between Korea and Cameroon Table 3.

Correlation of risk perception and psychometric factors on alcohol consumption between Korea and Cameroon

As shown in Table 4, the risk perception and psychometric factors based on alcohol consumption were significantly correlated with each other for both countries. Of these factors 32 had a statistically significant value at $p < 0.01$. Risk perception, personal knowledge, scientifically proven psychometric variables were more closely correlated than other factors with respect to alcohol consumption in both nations. However, controllability, dread and accountability had negative correlation which was not statistically significant. The perception of the participants towards alcohol consumption were largely significant at $p< 0.01$ level (t-tailed).

Relationship between risk perception on smoking with psychometric paradigms for South Korea and Cameroon

To analyse for any existing relationship for risk perception on smoking and psychometric variables in Korea and Cameroon a t-test analysis was performed. The analysis results showed that the risk perception from smoking tobacco among Koreans were statistically significant based on personal knowledge, scientifically proven evidence, harm to future generation, dread, social accountability age and income with age and income being negative. While assessing the relationship between risk perception among Cameroonians, scientifically proven evidence, controllability harm to future generation, social accountability gender and education were statistically significant based on the risk from smoking tobacco. Generally, the relationship between perceived risk and psychometric factors for both countries showed a significant differences based on scientifically proven evidence, harm to future generation and social accountability for tobacco smoking as shown on Table 5.

In assessing the relationship between risk perception on drinking with psychometric paradigms for Korea and Cameroon, a t-test was performed. The results indicated that for South Koreans their perception of personal knowledge, scientifically proven evidence, harm to future generations, socially accountability and age were statistically significantly for drinking alcohol, while among Cameroonians, personal knowledge, scientifically proven evidence and dread were statistically significant for alcohol consumption. However, by comparing both South Korea and Cameroon, scientifically proven evidence and dread factors were statistically significant for both Table 6.

Discussion

Literatures on smoking cigarettes and on alcohol consumption indicates that the decision of their used is based on an individual's expectancies of the resulting consequences associated. Taking into account this theoretical view, the populations of South Korea and Cameroon perceived their reasons for the use of the substances for either fun, pleasure, relaxation, to facilitate and or fortify their social relationships, coping with stress, boredom and, for temporary escape from troubling issues.

This study found that, individuals' understanding of, and assessment of alcohol and tobacco-related harm associated with smoking and drinking is determined by the perceived reasons and consequences for using these products based on the psychometric paradigms and dreads factors put forward by Slovic and Sandman. This is congruent with some findings that have subjectively evaluated the positive and negative impact results from tobacco and alcohol use and its role in risk perception [23-25].

To our knowledge this study is a first attempt to compare substances use across two nations in different continents of Asia and Africa using demographic characteristics and psychometric paradigms variables. It assessed individuals' perceptions across the different regions of the nations based on their views on alcohol drinking and cigarette smoking by using gender, age, educational level, and income with respect to their personal appraisal of perceived risk, scientifically proven, controllability, harm to future generations, dread and social accountability to the population.

This is also the first study performed in Asia and in Sub-Saharan African to report on the relationship between risks of alcohol consumption and cigarette smoking using psychometric paradigms variables and Outrage factors of Slovic, 1987; Sandman, 1993 respectively. Generally, with the differences in risk perception and differences of psychometric characteristics factors between South Korea and Cameroon, Cameroonians significantly perceived the risk from smoking cigarette and drinking alcohol relatively higher than Koreans. This observation is supported with the findings that, smoking cigarette and alcohol consumption are inextricably linked to poverty and deprivation [26] as both nations have different economic status. Furthermore, research findings have postulated that socially deprived populations are more likely to report heavier smoking and drinking behaviours [27] which is in line with this study and population may experience some casualties as a result from related causes due to their used [28, 29].

By using a representative population-based sample to analyzed public perception of alcohol and tobacco use and its associated factors with psychometric variables in Korea and Cameroon, an overall, 720 (21.7 %) smoke, 1,730 (52.2 %) drink alcohol and 245 (23.0 %) smoke, 677 (63.0 %) drink alcohol in Korea and Cameroon respectively which is quite a representative risk among the population. These results are to some degree different from findings that have been conducted based on restricted area and similar national surveys. For example, in 2009 Korea National Health and Nutrition Examination Survey, which shared the same definition of yearly drinking and high-risk drinking with this study, the overall prevalence of past-year alcohol use among adults was slightly higher, at 75.7% [30]. Also, due to the dearth of information in this area of study in Cameroon, a study conducted among college students on smoking habits indicated that the prevalence of cigarette smoking was 11.2 %. The main predictors of cigarette smoking were having friends who smoke, male sex, age, parental smoking and attending general education [31].

In this study it was observed that both countries perceived smoking cigarette to be of greater health risk than alcohol consumption. This may be explain by the assumption that the rate of alcohol consumption could be insignificant when taken in smaller quantities with claims that it can easily be eliminated from their system by diluting with a proportion of drinking water and frequent exercises as some argue that smoking cigarette gradually coat the walls of the lungs and can't be easily eliminated from the system. Also, research have also argue that the assessment of alcohol among the population has been less studied than smoking thus creating awareness over the other [32]. This may have played a significant role among the study participants.

Based on the study findings, the significant concern over the increase of personal knowledge, scientifically proven evidence, harm

to future generation, and dread consequences resulting from the involvement in smoking and alcohol use habits could be accounted for by the related increase in risk perception from cigarette smoking and alcohol consumption for both countries. However, the degree of controllability and accountability by officials of the risk emanating from accidents as a resulting of cigarette and alcohol usage failed to provide a statistically significant evidence in this study. Research findings have shown that the degree of individuals' knowledge and perceived risk are interwoven when it come to the assessment of some risk factors, and that a high degree of knowledge may increase risk perception [33, 34].

It will be of importance to mention that the way the public view and assess risks may be due to their collection of daily experiences. However, risk perception of the public may be different from expert's views and assessment not because the public lack scientific knowledge of occurrences but based their opinion of risks on their own rationality which experts and the authorities may underestimate. Scientific evidence are good, but the issue regarding risks from cigarette smoking and alcohol consumption among the population cannot be fully control based singly on scientific evidence but having a holistic approach involving public opinion can be ideal. The non-aggressive actions from governmental bodies and companies in the control of cigarette smoking and alcohol consumption and effects could widen the dreadful consequences among the various population regarding the use of these products. Although some efforts have been made by the governments signalling warning on the consumption and use of these products, more communication and implementation strategies are needed to fully address this concerns to the public.

Our study assessment was based on risk perception of cigarette smoking and alcohol consumption using limited psychosocial factors. The concept of risk perception is complex in itself in relation to variation in both socioeconomic and cultural factors including psychosocial factors [35, 36]. Also, risk perception from Koreans and Cameroonians from cigarette smoking and alcohol consumption is also influenced by complex actions involving psychological variables of the public who perceives the health risks from these products from production companies, governmental policies and different cultural variables depending on the sense of value and world views. Despites the attempts by the World Health Organisation to establish some recommended control strategies for cigarette smoking and alcohol consumption, due to differences in cultural and socioeconomic factors, it is difficult to implement a risk communication strategy for these products in countries based on a single study on risk perception.

Conclusion

In order to effectively assess and communicate risk strategy as a consequence of cigarette smoking and alcohol consumption, we concluded that, necessary standard suggestions and direction for risk perception regarding the use of these products based on a continuous study and communication on the risk factors irrespective of the geographic location and cultures by taking example from similar study performed on food risk perception in European Union [36]. In this study we demonstrated the importance of risk perception of cigarette smoking and alcohol consumption using psychological factors based on gender, age and region. The analysis of psychometric paradigm variables were also performed and these results are expected to contribute to the basis for developing a standardize risk communication strategy that will cut across different geographic regions and cultures and also as a preliminary study for future studies on public risk perception across regions regarding cigarette smoking and alcohol consumption. Our expectation is that this study could shape the way public views could be integrated in the effective risk communication and implementation strategies towards the

control of cigarette smoking and consumption within different communities around the world.

Ethical consideration

Prior to the implementation of this study, an Ethical and Administrative approvals were obtained from both the National Ethics Committee for Human Health Research (No. 2015/05/587/CE/CNERSH/SP) and the Ministry of Public Health (No. D30-412/L/MINSANTE/SG/DROS/DTLC) of Cameroon and a written informed consent was collected from each participant. Ethical Clearance was also obtained from the Institutional Review Board of Korea University **number 1040548-KU-IRB-16-79-A-1.**

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