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GATS core survey in a highly urbanized city

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ABSTRACT

The Core Adult Tobacco Survey (CATS) was developed from the Philippine Global Adult Tobacco Survey (GATS), which was a nationally representative household survey of all non-institutionalized men and women aged 15 years and older to determine smoking prevalence at the city level. Baguio City has no local baseline data to evaluate effectiveness of its anti smoking programs. We investigated the prevalence of tobacco smoking among the residents of Baguio City in the year 2012. There were 100 households included in the study and 162 individual respondents completed the interview. The overall proportion of cigarette smoking was 27.2%. This was similar with the prevalence of smoking in the country (29.7%) in 2009, however has significantly better tobacco control indicators such as lesser exposure at workplace19.4%, (χ^2 = 8.42; p=.002), higher proportion of smokers receiving

brief cessation advice 68% (χ^2=10.77; p <.001), lower proportion of respondents seeing tobacco advertising 34% (χ^2 = 15.61; p<.001) and tobacco promotions 32.1% (χ^2 = 93.70; p=<.001), within the city. This baseline prevalence provides useful information to the policy makers for reviewing policies and program formulation.

Keywords: GATS; Philippines; smoking; Baguio City; Health intervention

1. INTRODUCTION

The WHO Framework Convention on Tobacco Control (WHO FCTC) is successful in decreasing the tobacco smoking prevalence across different regions. The concerted efforts of the global community to fight the tobacco industry in the past decade have been promising in most of the WHO regions except in the Eastern Mediterranean and African region. WHO FCTC is the global treaty that sets the foundation for countries to enforce and manage tobacco control programs to address the growing epidemic joined by 173 countries all over the world (World Health Organization, 2005).

However, deaths due to tobacco continue to overwhelm the globe due to its delayed long term impact to the health of both the smokers and non smokers. Tobacco kills more than 7 million people a year of whom more than 6 million are users and ex users and 890,000 are non smokers exposed to second-hand smoke (World Health Organization, 2019). Countries around the globe must have a strong political will to adopt and enforce the WHO FCTC to finally end the tobacco epidemic. Tobacco industry is doubly making effort aggressively and creatively marketing variety of less toxic appearing products to our children (Perikleous *et al.*, 2018). While the long term effects of these new products are still under investigation, countries should commit to the WHO FCTC obligations. The Philippines is actively participating in the negotiations of the WHO FCTC having signed the Treaty on 23 September 2003 and ratified on 6 June 2005. The Philippines is serious to fulfil its obligations to WHO FCTC and have developed an effective national tobacco control program (World Health Organization, 2010). Since 2008, the country has embarked on working continuously with various government offices and affiliated agencies and societies to promote policies that set standards for 100% smoke-free environments.

MPOWER is a strategy developed by WHO FCTC to aid countries fulfils their obligations in the tobacco control. The MPOWER package is an acronym that is composed of the following six key elements 1) Monitoring tobacco consumption and the effectiveness of preventive measures; 2) Protect people from tobacco smoke; 3) Offer help to quit tobacco use; 4) Warn about the dangers of tobacco; 5) Enforce bans on tobacco advertising, promotion and sponsorship; and 6) Raise taxes on tobacco (Kaleta, Kozieł and Miśkiewicz, 2009). The "M" of this package is the key to the success of the latter "POWER". The extent and character of the tobacco burden can best be tracked through accurate monitoring of tobacco smoking culture in the different countries. The Global Adult Tobacco Survey is a structure designed to aid countries to monitor their tobacco practices. It is a global standard for systematically monitoring adult tobacco use and tracking key tobacco control indicators. This indicates how to tailor fit interventions and policies.

In the Philippines, this survey was first implemented in 2009, and repeated in 2015. During the six year period between the two GATS surveys, “the Philippines has made significant progress in reducing tobacco use and implementing various tobacco control initiatives, including: restructure of excise taxes to increase the tax on tobacco products on an incremental basis; development and implementation by local government units of tobacco ordinances compliant with the Framework Convention on Tobacco Control (FCTC); development of a recognition system “Red Orchid Awards for 100% Tobacco Free Environment” for local government units, government agencies and hospitals complying with FCTC obligations; placement of graphic health information on billboards, tarpaulins, and posters; implementation of 100% smoke free policies on the premises of government agencies, health facilities, educational institutions, public terminals, public conveyances and public places; and, implementation of the total prohibition of tobacco advertising, promotion, and sponsorship by local government units (World Health Organization, 2015).

Baguio City is one city in the country which has started its anti-smoking campaign even before the FCTC and GATS. It has its own city ordinance prohibiting smoking since 1966 (Polonio, 2016). However, this city has never collected any baseline data to monitor its progress. The city depends on the nationally collected data (GATS) to evaluate effectiveness in the implementation of its city ordinances. In addition, smoking practices in Baguio maybe different with that of other cities/provinces of the countries for the following reasons: Baguio a) is a tourist destination, b) is an education center c) has cool climate (*About Baguio City*, 2019). Therefore this study investigated the prevalence of tobacco smoking in the city and compared results with the national surveys.

2. MATERIALS AND METHODS

This is a cross sectional household survey conducted on April to May 2012 aimed to produce city level estimates. The questionnaire (Core Adult Tobacco Survey) used was developed mainly from Global Adult Tobacco Survey (GATS) and provided by the World Health Organization. The questionnaire consists of two sections: Section A –(Background characteristics) Questions covered the following: sex, age, civil status, education, and work status; Section B – (Core Adult Tobacco Questionnaire); It consists of 9 questions covering the following: current patterns of tobacco use (daily consumption, less than daily consumption, not at all), former/past tobacco consumption (daily consumption, less than daily consumption, not at all), consumption of smokeless tobacco; patterns of smoking inside the houses (daily, weekly, monthly, less than monthly, never); exposure in the last 30 days in the workplace; questions related to advice to quit smoking by health care provider in the last 12 months; reaction to health warning labels on cigarette package; questions regarding exposure to pro-tobacco advertisement on media such as: television, radio, billboards, posters, newspapers/magazines, public walls, and exposure to any kind of promotions connected with tobacco. The reference period for the questions in the media section is within the last 30 days.

Baguio City is a highly urbanized area in Northern Luzon comprising of 129 districts (Philippine Statistics Authority, 2013). Inclusion criteria for participants were: 1) 15 years old and over, 2) residents of Baguio city. Tourists or transient residents were excluded from the study. Sample size determined using a 10% precision, where confidence level is 95% and proportion is at 0.5. One hundred respondents were targeted. Twenty districts were chosen by simple random sampling from a list of 129. Five households from each of the 20 barangays were interviewed. Overall, there were 100 households included in the study from the following districts: Asin Road, Dizon Subdivision, Country Club Village, Camdas, Greenwater Village, Irisan, Lower Quirino Hill, City Camp Proper, Lourdes, San Roque, Bayan Park, Modern Site East, Hillside, P Burgos, Ambiong, Bakakeng, Loakan, Rock Quarry, Happy homes, Happy Hollow, South Drive, and New Lucban.

Statistical analysis

Data were analyzed using IBM Statistical Package for Social Sciences (SPSS). Frequencies and proportions were used to summarize the findings. Chi square was used to compare the smoking prevalence and indicators with the national data.

Ethical consideration

This study was conducted according to the Declaration of Helsinki. Verbal informed consent was obtained from all participants.

3. RESULTS

A total of 162 subjects from 100 households were included in the study (50.6% females). Sociodemographic characteristics of the respondents are summarized in Table 1.

Table 1 Sociodemographic Characteristics (N=162)

Variables	*n*	(%)
Age		
15-24	54	(33.3)
25-44	56	(34.6)
45-64	40	(24.7)
=/>65	12	(7.4)
Gender		
Male	80	(49.4)
Female	82	(50.6)
Civil Status		
Single	68	(42)
Married	84	(51.8)
Separated	4	(2.5)
Widow/Widower	6	(3.7
Educational Level		

Post Graduate	2	(1.2)
College Graduate	65	(40.1)
College Undergraduate	42	(25.9)
High School Graduate	37	(22.8)
High School Under Graduate	9	(5.6)
Elementary	7	(4.3)
Work Status		
Private Sector	53	(32.7)
Government Sector	14	(8.6)
Student	28	(17.3)
Housekeepers	27	(16.6)
Retired	10	(6.2)
Self-employed	21	(12.9)
Unemployed but able to work	9	(5.6)

Proportion of Tobacco Smoking

Among adults 15 years or older, 27.2% were current tobacco smokers. (Figure 1) Men (42.5%) were more likely than women (12.2%) to smoke tobacco. Overall, 24.7% were daily tobacco smokers. For men, 40% were daily smokers (representing 94.1% of all male current smokers) and 9.8% of women were current daily smokers (representing 80% of all female current smokers). One hundred percent of smokers are using the manufactured type of tobacco and nobody is using smokeless tobacco.

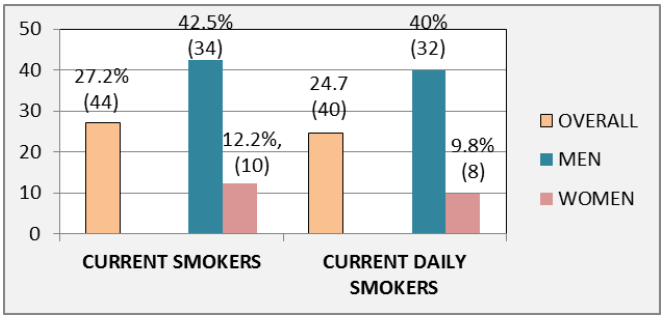

Figure 1 Percent Distribution of Adults 15 years and older by Smoking status and Gender

Daily smoking was highest among males, aged 15-24, high school graduates, and working in private establishments (Table 2).

Table 2 Percentage distribution of adults 15 years and older according to smoking status by selected socio demographic characteristics (N=162)

Characteristics	Whole Sample	Smoking Status		
		Daily n (%)	Occasional n (%)	Current Non smokers n (%)
Overall		40 (24.7)	4 (2.45)	118 (72.85)
Gender				
Male	80	32 (40)	2 (2.5)	46 (57.5)
Female	82	8 (9.75)	2 (2.4)	72 (87.8)
Age (years)				
15-24	54	14 (25.9)	1 (1.85)	39 (72.25)
25-44	56	11 (19.6)	3 (5.35)	42 (75.05)
45-64	40	13 (32.5)	0 (0)	27 (67.5)
>/=65	12	2 (16.7)	0 (0)	10 (83.3)

Education				
Elementary Graduate	7	2 (28.6)	1 (14.3)	4 (57.1)
High school Undergraduate	9	1 (11.1)	1 (11.1)	7 (77.8)
High school graduate	37	14 (37.8)	1 (2.7)	22 (59.5)
College Undergraduate	42	11 (26.2)	1 (2.4)	30 (71.4)
College Graduate	65	12 (18.5)	0 (0)	53 (81.5)
Post Graduate	2	0	0	2 (100)
Work Status				
Private Sector	53	15 (28.3)	2 (3.8)	36 (67.9)
Government Sector	14	3 (21.4)	0 (0)	11 (78.6)
Student	28	6 (21.4)	0	22 (78.6)
Housekeepers	27	8 (29.6)	0	19 (70.4)
Retired	10	2 (20)	0	8 (80)
Self employed	21	3 (14.3)	1 (4.8)	17 (80.9)
Unemployed but able to work	9	3 (33.3)	1 (11.1)	5 (55.6)

Exposure to Second hand smoke

Among adults in Baguio City, 45.1% reported daily exposure to second hand smoke inside their homes, 6.2% reported at least weekly exposure, less than 1% reported at least monthly and 3.7% reported less than monthly exposure. Almost half of the respondents reported that smoking is not allowed inside their homes (Figure 2).

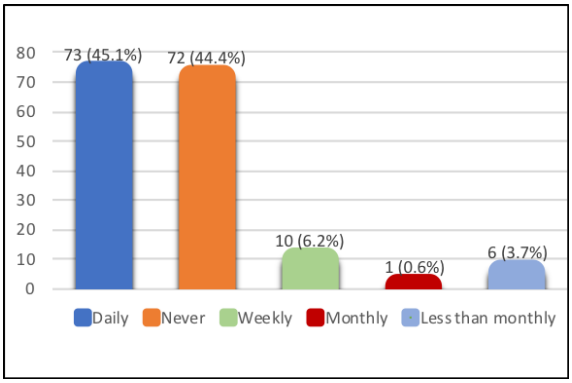

Figure 2 Second-hand smoke exposure at home

Exposure at home

Almost half of the respondents disclosed exposure to tobacco smoking at home (Figure 2). Majority of the current daily smokers are also exposed to daily second hand smoke at home (32, 80%). Among the non smokers, 33.1% are exposed to daily second hand smoke at home (Table 3).

Table 3 Percentage Distribution of adults 15 years and older who are exposed to tobacco smoke at home by current smoking status (N=162)

Current Smoking Status	Whole Sample	Frequency of exposure to second hand smoke at home				
		Daily n (%)	Weekly n (%)	Monthly n (%)	Less than monthly n (%)	Never n (%)
Daily	40	32 (80)	2 (5)	1 (2.5)	0	5 (12.5)
Less than daily	4	2 (50)	1 (25)	0	0	1 (25)
Not at all	118	39 (33.1)	7 (5.9)	0	6 (5.1)	66 (55.9)

Exposure at work

Out of the 162 residents, ninety-nine were working. However, thirty-two of these were either working as housekeepers or as self-employed. Sixty-seven were among those working either in the government or in private sectors, and, about 19.4% of them (13) reported that they were exposed to tobacco smoke at their indoor workplace (Figure 3).

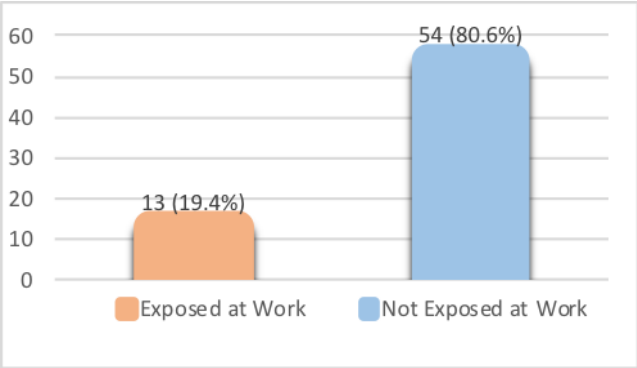

Figure 3 Second-hand exposure at work in an enclosed are (N=67)

One out of four workers in private establishments are exposed to second hand smoke (13, 24.5%), but no one from the government reported smoking exposure. These private establishments include call centers, computer shops, construction and water delivery establishments (Table 4).

Table 4 Percentage of workers exposed to second hand smoke at work (N=67)

Smoking at work	Whole Sample	Yes n (%)	No n (%)
Private Sector	53	13 (24.5)	40 (75.5)
Government Sector	14	0	14 (100)

Cessation

Among the smokers (44), 97.8% or 43 of them noticed health warnings on cigarette packages during the past 30 days. All men noticed the health warnings and 92.3% of the women noticed the health warnings (Figure 4).

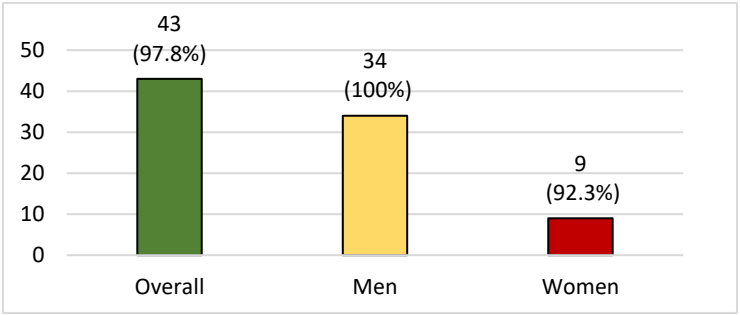

Figure 4 Percent Distribution of Current Manufactured Cigarette Smokers who noticed Health Warnings on Cigarette Packages

Sixty percent of these smokers reported that the warning labels on cigarette packages led them to think about quitting and 40% reported that it did not lead them to thinking of quitting (Figure 5).

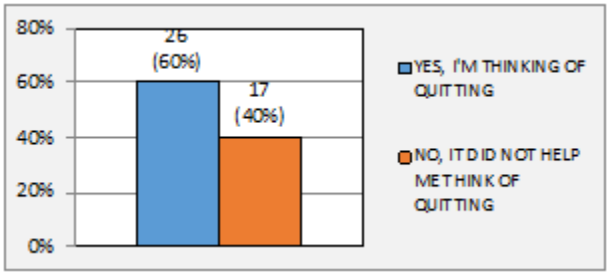

Figure 5 Percentage of smokers' response on the Health warnings on cigarette packages

Among the smokers, only 56.8% % (25) visited any healthcare worker in the past 12 months. Among these 25 smokers, 68% (17) received brief cessation advice from a healthcare worker while the 32% (8) did not receive any cessation advice (Figure 6).

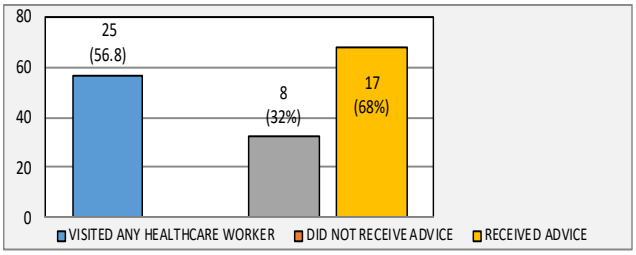

Figure 6 Percentage of smokers who received brief cessation advice from a healthcare worker

Media

Overall, 34% of adults noticed pro-cigarette marketing in the last 30 days (Figure 7). Having seen pro-cigarette marketing advertisement was higher among men (37.5%) than women (30.5%).

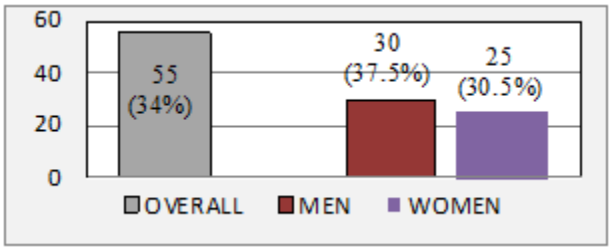

Figure 7 Percent of Respondents by Gender who noticed Pro-tobacco Advertisements

Overall, 32.1% of adults in Baguio city noticed any tobacco sponsorship or promotion in the last 30 days, (Figure 8). Men (35%) were more likely than women (29.3%) to notice any tobacco promotion.

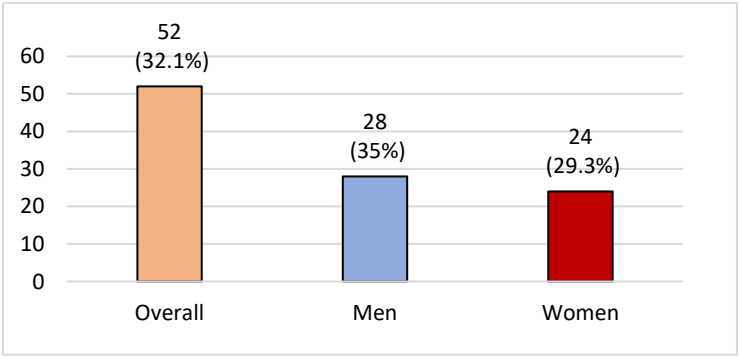

Figure 8 Percent of Respondents who noticed Cigarette Sponsorship or Promotion

Table 5 Comparison of GATS 2009, 2015 and CATS 2012 tobacco control indicators

Characteristics/indicators	CATS 2012	GATS 2009	X^2	GATS 2015	X^2
Prevalence of current smokers	27.2%	29.7%	.349	23.8%	.565
Second-hand smoke exposure at home	45.1%	54.4%	3.56	34.7%	4.68*
Second-hand smoke exposure at work	19.4%	32.6%	8.42*	21.5%	1.79
Proportion of current cigarette smokers who thought of quitting smoking because of health warnings in cigarette labels	60%	37.4%	39.9**	44.6%	9.6*
Proportion of smokers who received brief cessation advice	68%	51.6%	10.77**	56.5%	5.38*
Proportion of respondents who noticed cigarette advertising in the last 30 days	34%	53.7%	15.61**	40.5%	1.753
Proportion of respondents who noticed cigarette promotion in the last 30 days	32.1%	74.3%	93.70**	58.6%	29.165**

*$p < .05$. **$p < .001$

4. DISCUSSION

Tobacco smoking among adults showed higher proportion among males (42.5%) as compared to females (12.2%), with an overall prevalence of 27.2%. These findings were consistent with the national estimates done in 2009 and 2015. One out of four are smokers and that males have higher proportion as compared to females (WHO, 2015).

The second hand exposure at home is 45.1% while 19.4% at workplace. Exposure at home is not different with the national estimates in the year 2009, however, is significantly different as compared to the national estimates in 2015 χ^2 = 4.68 p value (<.05). Exposure at workplace is significantly lower as compared to the national estimate in 2009 χ^2 = 8.42 p value (.002). This is also lower as compared with the national estimates in 2015. This may be due to the strict implementation of the smoke-free policy within the government offices as respondents working here reported no exposure. Comparing results from national survey second hand smoke among workers has dropped from 32.6% in 2009 to 21.5% in 2015 (WHO, 2015). The proportion of smokers who thought of quitting smoking because of health warnings on cigarette packages and who received brief cessation advice was highest among respondents in CATS 60% and 68% respectively, as compared with GATS, 2009(χ^2 = 39.9; p value <.001), (χ^2=10.77; p value <.001), and GATS, 2015 (χ^2 = 9.6; p value <.05) χ^2 = 5.38; p value (<.05) (table 5).

The proportion of smokers who noticed cigarette advertising in the last 30 days was lower among respondents in CATS as compared to GATS in 2009 χ^2 = 15.61; p value (<.001). The proportion of smokers who noticed cigarette promotion in the last 30 days was lowest among respondents in CATS as compared to GATS in 2009 χ^2 = 93.70; p value (<.001), and GATS in 2015 χ^2 = 29.165 p value (<.001). A decreasing trend can be noted in the proportion of tobacco smoking and second hand exposure at home throughout the six years in all the three survey conducted. However, results show a better tobacco control indicators as compared to GATS in terms of the four key elements of the MPOWER. Protection against the tobacco smoke at the workplace is better. Quitting from smoking was offered to majority of the smokers by the healthcare personnel they visited. Graphic health warning in the cigarette labels brought majority of the smokers thought of quitting. Tobacco advertising and promotions were seen by a third of the respondents. Comparing GATS 2009 and 2015 alone, remarkable success can be seen in the changes of the control indicators. During the six year period from the first GATS survey in 2009, the country has made a progress in its fight against the tobacco epidemic.

As only half of the smokers who went for healthcare visit received the brief cessation advice in the studies, there is a greater potential to decrease the numbers if more smokers are given the brief cessation advice and offered help. WHO FCTC recommends in Article 14 that Parties implement best practices to promote cessation of tobacco use and implement the treatment of nicotine addiction. Relative to Program" as well as the "Smoking Withdrawal Clinics" under the DOH (Republic of the Philippines, 2003). To capture the real proportion of those given cessation advice, survey must also be conducted in the hospitals and clinics

(Pirompanich *et al.*, 2017). The tobacco dependence management is still developing among healthcare professionals. They must be well versed with all the different approaches currently available as combination therapy has higher success quitting rate (Cetinkaya *et al.*, 2018). The Health care workers of Baguio city must include smoking history as part of the medical consultation and physical examination. The Department of Health should conduct local trainings for doctors of the city to be equipped with the latest strategy of tobacco control. A specific local referral system should be outlined and implemented. Other tobacco control indicators not included in the GATS could also be explored like number of interested smokers in quitting, the number of quit attempts made, successful strategies done by ex-smokers, second hand smoke exposure in public places and the awareness of the presence of smoke cessation clinics in the city

The result of the survey shows that 97.7% of Baguio residents noticed health warnings on cigarette packages during the past 30 days. Yet, only 60% reported that the warning labels on cigarette packages led them to think about quitting. The country during this time has yet to comply with the obligation to FCTC's provisions for implementation of the graphic health warning. These health warnings are perceived as an effective tool in deterring non smokers to initiate smoking as well as stimulating smoking cessation among smokers (Ratih and Susanna, 2018).

This survey shows lower percentage of respondents who noticed tobacco advertisements and promotion as compared with both national surveys. However, one third of the respondents still noticed advertising and promotion. Implementation of complete advertising bans slowed after 2007, and tobacco industry is getting more successful in circumventing the bans (Hiilamo and Glantz, 2017). There should be a task force to monitor this ban within the city.

5. CONCLUSION

The results of this survey conclude that the overall proportion of cigarette smoking was similar with the prevalence of smoking in the country but the control in this city is far better than the latest national estimates. This survey however has a small sample size thus a larger study population is recommended in future studies to include and compare the rich and the poor districts. It should include the 'R' part of the MPOWER which was not covered in this survey, or the Raise in the tobacco tax, investigating average monthly expenditures on manufactured cigarettes.

Authors' Contribution

Jo Ann Andoy Galvan- Principal Investigator
Donnabel Tubera-Panes- Co-investigator

Conflict of Interest

Authors hereby declare that they have no conflict of interest. This study was conducted according to the Declaration of Helsinki. Verbal informed consent was obtained from all participants.

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