

# The Effectiveness of Graphic Health Warnings on Cigarette Packs: Examining Smokers' Attitudes Across Personal Demographics

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## ABSTRACT

Innovations in cigarette smoking prevention were internationally recognized by adding Graphic health (GHW) warnings on cigarette packs. This study determines the effect of GHW on smokers in various demographic profiles employing descriptive-correlation in data analysis. Survey questionnaires were distributed to 138 smokers as respondents. Findings show that the urge to smoke begins at most 20 years old during high school. The GHW affects the attitude towards smoking quitting which could be a potential first step towards quitting altogether. However, translating that thought into concrete action remains a challenge. The relevance of the graphics to the health consequences of smoking to be more convincing is highlighted. To effectively deter smoking, graphic health warnings on cigarette packs need to be both attention-grabbing and informative. Bright colors and a variety of shocking images will initially capture smokers' attention, breaking through complacency. However, to maintain impact, these visuals and messages require regular updates to prevent habituation.

Furthermore, using clear pictures that directly depict the harm caused by smoking, like diseased lungs, can create a stronger emotional connection and encourage smokers to think twice about the consequences of their habit. Beyond grabbing attention, clear communication is essential. Large, bold text and concise language ensure everyone understands the message while offering warnings in multiple languages, breaking down language barriers, and empowering diverse populations to make informed health choices. By combining these elements, graphic health warnings become a powerful tool for raising awareness and promoting smoking cessation.

**Keywords:** Graphic health warnings, cigarette packs, smoker's attitude, Theory of Reasoned Action

## INTRODUCTION

Smoking remains a significant public health concern despite widespread knowledge of its detrimental effects. Cigarette smoking, linked to lung disease and numerous other health problems, kills over 8 million people globally each year, with millions more harmed by secondhand smoke. As an approach to this crisis, in 2005, the World Health Organization (WHO) required countries that ratified their Framework Convention on Tobacco Control (FCTC) treaty to include health warnings on tobacco packaging. These warnings must clearly explain the dangers of smoking, cover a significant portion of the package, and use strong visuals to grab attention. This served as a powerful tool to initiate, support, and advance national, regional, and global tobacco control efforts. Core demand-reduction policies have a proven track record of effectiveness, and recent evidence indicates that strong implementation of these measures can result in substantial decreases in tobacco use (Chung-Hall, et. al., 2019). The 2030 Agenda for Sustainable Development acknowledges tobacco control as a critical component in accomplishing all 17 SDGs. To alter the current course of the global tobacco epidemic and attain the SDG targets, Parties must expedite the implementation of all FCTC

provisions, coupled with a systematic assessment of policy effectiveness. In compliance with the WHO requirement, the Philippines enacted Republic Act No. 10643, the Graphic Health Warning Law, in 2016. Recognizing the ineffectiveness of text warnings, the law mandates graphic health warnings that effectively communicate the devastating consequences of tobacco use and secondhand smoke exposure. It further prohibits misleading or deceptive numbers or descriptors on tobacco packaging, ultimately promoting the public's right to health and information. At the same time, the law aims to control the serious public health challenge of tobacco use. While smoking rates have declined in recent years, a significant portion of the population still smokes. In 2021, nearly one in five adults (18.5%) were smokers, with a stark difference between genders. Men were much more likely to smoke (33.3%) compared to women (3.7%). This trend continues among young people (grades 7-10), where 10.8% reported smoking, with boys (16.2%) outpacing girls (5.6%). These smoking habits come at a devastating cost. Over 112,000 Filipinos die each year from tobacco-related illnesses, disproportionately impacting men (25,760 deaths) compared to women (11,200 deaths) (GATS, 2021).

Studies found graphic health warnings ineffective in encouraging smokers to quit (Siao, et al., 2019; Arda, J. R., Jeanjaquet, A. G., Pasia, N. J., Rafael, J. D. M., Rita, D. S., Siao, K. B., ... & Adarlo, G., (2021); Amul et al., (2023). The ineffectiveness is drawn from the inability of the pictures to stop the impulse to smoke because it is unrealistic and untrue, and that the pictures are only used to deceive or mislead people who do not have personal observation and knowledge of the picture depicted on the cigarette packs ((Siao, et al., 2019). Self-doubt denial and lack of literacy on the harmful effects of smoking are additional factors to ineffectiveness (Arda, J. R., Jeanjaquet, A. G., Pasia, N. J., Rafael, J. D. M., Rita, D. S., Siao, K. B., ... & Adarlo, G., 2021). Furthermore, the majority of e-cigarette manufacturers did not fully comply with the checklist for standard graphic health warnings (Santiago, A. J., Cabrera, P. J., Acharya, S., & Amul, G. (2024). In between smokers and non-smokers, it was found that there is a significant relationship between the attitudes and the willingness to consume cigarettes due to graphic pictorial warnings and that Graphic health warnings are more effective in deterring smoking initiation among non-smokers and as well as in stimulating smoking cessation among smokers. (Burgos, Y., Degomon, C. J., Gatilao, N. A., Gloria, R. J., Ibarreta, S. A., Tan, L. C., ... & Gumban, M. E. R., (n.d); Ratih, S. P., & Susanna, D. (2018). Burgos et. al., (2020) found that the attitude of both smokers and non-smokers in Jaro, Iloilo City, towards pictorial warnings on cigarette packaging is characterized as neutral. This suggests that both groups view graphic pictorial packaging warnings as somewhat effective. This indicates a moderate effectiveness in raising awareness about the negative effects of cigarette smoking, dissuading non-smokers from trying cigarettes, reducing cigarette consumption among smokers, encouraging smokers to quit, and acknowledging the warning while continuing to smoke. Additionally, respondents from both categories noted that the effectiveness of pictorial warnings varies in different contexts. Smokers explained that it is somewhat effective, attributing the challenge of quitting to smoking being perceived as a hobby and the difficulty associated with nicotine addiction.

In terms of quality and standard of graphics or pictograms, through household and online surveys, it was found that plain packaging with larger graphic health warnings and visible quit lines from Thailand and Singapore was more effective in discouraging them from smoking. Cigarette pack mock-ups in Singapore and Thailand mock-ups from Thailand and Singapore are more motivating than cigarette pack mock-ups from the Philippines (Amul et al., 2023). Drovandi et. al., (2019) showed in their study that graphic health warnings were perceived as more effective than text-only warnings, with warnings depicting lung cancer and oral diseases being perceived as particularly effective. Health warnings increased viewer fear, anxiety, shock, and guilt and were considered effective in preventing non-smokers from experimenting with tobacco and prompting current smokers to quit. Plain packaging diminished the attractiveness and positive attributes of cigarette packaging, with darker colors proving the most effective. When employed together, plain packaging heightened the prominence of graphic health warnings. Participants also perceived these warnings as indicating higher tar content and more severe health risks, leading to increased contemplation of

quitting among smokers. However, the avoidance of users of cigarette products is not just caused by the pictorial warnings but also by the emotion of the user upon buying the cigarette product. According to studies, smokers who reported having stronger negative emotions were more likely to make quit attempts at follow-up than those who reported having lower negative emotions (Cho et. al., 2018).

Conducted local research on graphic health warnings lacks exploration of how demographic factors like age, gender, education, or socioeconomic status might influence the impact of GHWs. Identifying these demographic variations is crucial. It can inform the development of targeted public health strategies and optimize resource allocation for smoking cessation programs.

### **Theoretical Framework of the Study**

The Theory of Reasoned Action (TRA) as suggested by Ajzen & Fishbein in 1980 posits that an individual's behavior is primarily determined by their intention to perform that behavior. This intention is influenced by two key factors: attitudes towards the behavior and subjective norms. Attitudes reflect an individual's evaluation of the behavior, encompassing beliefs about its outcomes and the associated values. Subjective norms represent the perceived social pressure to perform or not perform the behavior, considering the beliefs about significant others' opinions and the motivation to comply with these opinions (Ryan & Worthington, 2021). Simply, if the intention and subjective norm are high then it could positively translate into behavior.

This study adopts the TRA as a theoretical framework to understand the effect of graphic health warnings on cigarette packs among smokers of traditional commercial cigarettes. The TRA is particularly relevant in this context because graphic health warnings can potently influence both attitudes and subjective norms toward smoking. By vividly portraying the detrimental health consequences of smoking, these warnings can evoke negative emotional responses and cognitive appraisals, thereby shaping smokers' attitudes toward the behavior. Moreover, the conspicuous placement of these warnings on cigarette packs increases their visibility, potentially influencing social discussions about smoking and its harmful effects. This, in turn, can shape smokers' perceptions of social norms, as they become increasingly aware of the disapproval of smoking within their social circles. By examining the relationship between attitudes, subjective norms, and intentions to quit, this study aims to elucidate the underlying mechanisms through which graphic health warnings may influence smoking cessation behavior.

### **Statement of the Problem**

This study seeks to answer the following questions:

1. The demographic profile of the respondents in terms of:
  - a. Age
  - b. Sex
  - c. Educational attainment
  - d. Type as a smoker
  - e. Length of years of smoking
2. What is the attitude of smokers in response to graphic health warnings on cigarette packs?
3. What is the perception of respondents of the current graphic health warnings in comprehensively portraying the wide-ranging consequences of smoking?

4. Is there a significant difference between the demographic profile of the respondents and the attitude of smokers in response to graphic health warnings on cigarette packs?
5. Is there a significant difference between the demographic profile of the respondents and the perception of the current graphic health warnings' effectiveness in comprehensively portraying the wide-ranging consequences of smoking?

## RESEARCH METHODOLOGY

This study adopted a descriptive-correlational design to explore the link between smoker perceptions of graphic health warnings (GHWs) and their attitude towards smoking in the Villa Domingo Village, Municipality of Angadanan, Isabela Province with a total population of 1, 279. Due to resource limitations, researchers opted for a convenience sampling approach and recruited a total of 138 respondents who voluntarily admitted to being smokers aged 15 and older using traditional commercial cigarettes. Criteria on the age group of respondents were patterned from the GATS survey.

Data was collected using a survey questionnaire that incorporated both previously established and original elements patterned from the construct of the Theory of Reasoned Action Questionnaire. Part 1 (Table 1-5) deals with the demographic profile of respondents as background factors with the assumption that it indirectly affects intention and behavior. Part 2 (Table 6) assesses the smoker's attitudes towards graphic health warnings on cigarette packs from a study the Amul GGH, Mallari EU, Arda JRY, and Santiago AJA (2023). These adapted questions allowed us to directly compare our findings with existing research. For the subjective construct of TRA, Part 3 of the survey questionnaire (Table 7), the respondents' perception of the comprehensiveness of current graphic health warnings, the researchers developed original indicators derived from the standards set out in the Framework Convention on Tobacco Control (FCTC) treaty and literature to evaluate how well the warnings portray the full range of smoking consequences as perceived by the respondents. To ensure the validity of the questions developed, it was presented to a panel of researchers for enhancement. Respondents were instructed to check their answers from a 5-point Likert Scale ranging from Part 2, Never, Rare, Sometimes, Often and Always, and Part 3 -.Strongly Disagree, Disagree, Neither/Nor Agree, Agree and Strongly Disagree.

For ethical considerations, before the study, full consent was obtained from the participants and they were given the right to withdraw from the study at any stage if they wished to do so, in the handling of the data adequate level of confidentiality was ensured, and any form of misleading information, as well as representation of primary data findings in a biased way, was avoided. Lastly, any type of communication to this action research was done with honesty and transparency.

## RESULTS AND FINDINGS

Table 1 shows that the majority of the smokers (34.1%) are aged up to 20 years old, followed by the age group (23.9%) 41-50 years old age group and finally (9.4%) the group above 50 years old. This indicates that smoking starts at a young age during high school. This implies a stricter implementation restricting minors from purchasing cigarettes among sellers, and that policymakers in the prevention of smoking target people at this age because early smoking places a young person at higher risk of developing smoking-related health problems later in life. Graphic health warnings must be disseminated even to non-smokers at a young age to inculcate the negative effects of smoking on a person's health developing strong resistance to smoking.

Table 1. Frequency and Percentage Distribution on Demographic Profile of the Respondents in terms of Age

Age	Frequency	Percentage
<b>At most 20 years old</b>	47	34.1 %
<b>21-30 years old</b>	22	15.9 %
<b>31-40 years old</b>	23	16.7 %
<b>41-50 years old</b>	33	23.9 %
<b>Above 50 years old</b>	13	9.4 %
<b>Total</b>	138	100 %

This finding aligns with the study of Barrington-Trimis et. al., (2020) that most adult smokers in the US began smoking before the age of 18 years, reported initiating cigarette use at or before the age of 18 years and the reasons why many adolescents start smoking at an early age are out of curiosity and venturesomeness, with the high influence of home environment or school life, it is necessary to make efforts ineffective education and social reinforcement in school, to establish related norms, and to execute preventive education using peer groups (Park, S. H. (2011). Adolescents must have to learn how to refuse peer pressure, refuse to smoke, and maintain negative intentions regarding smoking Lotrean, L. M., Mesters, I., & De Vries, H. (2010).

Table 2. Frequency and Percentage Distribution on Demographic Profile of the Respondents according to Sex

Sex	Frequency	Percentage
<b>Male</b>	128	92.8 %
<b>Female</b>	10	7.2 %
<b>TOTAL</b>	138	100 %

Table 2 shows a clear difference in sex distribution among the respondents. With 92.8% male and 7.2% female, the study reflects a higher prevalence of smoking among males compared to females. This can be associated with gender roles attributed by society to Filipino women and that smoking is more acceptable to men while women are subject to the stigma of negative image. Further, relating to Table 1, data suggest the need for campaigns aimed specifically at young men is crucial in reducing smoking initiation rates in age groups.

Further, the high rate of smoking men may relate to a combination of physiological (particularly ovarian hormones), cultural, and behavioral factors (NIDA, 2021), and societal tolerance increase in the number of women smokers is a pattern seen in the experience of Europe and USA (Hitchman, S. C., & Fong, G. T. (2011). However, GATS Philippines 2021 reported that there was a decrease in 2009 to 2021 for smoking women.

Further, relating to Table 1 this data suggests a need for campaigns aimed specifically at young men could be crucial in reducing smoking initiation rates at earlier age up to 20 years old.

Table 3. Frequency and Percentage Distribution on Demographic Profile of the Respondents in terms of Educational Attainment

Educational Attainment	Frequency	Percentage
Elementary Level/ Graduate	12	8.7 %



Highschool Level/ Graduate	102	73.9 %
College Level/ Graduate	24	17.4 %

Table 3 shows that the majority of respondents have a high school diploma or graduated high school. A smaller percentage hold a college degree or have some college experience. The lowest percentage completed only elementary education.

These results suggest a possible link between lower educational attainment and higher smoking prevalence. This could be due to a lack of knowledge about the negative effects of nicotine on the human body and the addictive nature of smoking. This lack of awareness might lead to disbelief about the risks and weaker resistance to smoking initiation.

To strengthen smoking prevention efforts, the findings highlight the need for prompt implementation of policies and programs focused on preventing smoking initiation. Educational programs about the dangers of smoking should be a primary focus, particularly for adolescents during high school. This targeted approach could be more effective than relying solely on graphic health warnings (GHW) which may have a weaker impact.

A School Tobacco Policy can contribute to policy effectiveness in the prevention of smoking when it is composed of a degree of formality such as written policy and identified participants. The policy explicitly provides the to strengthen extent of implementation, providing sanctions to violators, intervention in the cessation process, and prevention activities in combination with an education program (Coppo et al., 2014)

In the Philippines, the mixed evidence on the association of tobacco legislation and cigarette smoking among 13-15 age Filipinos explains that the policy on cigarette smoking is not aligned with the WHO FCTC and MPOWER and that it needs evidence-based control policies specifically prohibiting the sale of single cigarette sticks (Arrazola, René A et al., 2020).

Table 4. Frequency and Percentage Distribution on Demographic Profile of the Respondents in terms of Type of smoker

Type of smokers	Frequency	Percentage
Casual (Less than 1 pack a day)	71	51.4 %
Moderate (1-2 packs a day)	66	47.8 %
Chain (More than 2 packs a day)	1	0.7 %

Table 4 shows a variation in cigarette consumption among respondents. Over half (51.4%) are casual smokers, consuming less than one pack of cigarettes per day. Moderate smokers, consuming one or more packs daily, comprise a significant portion (47.8%). Chain smokers, characterized by heavy daily dependence, are a small minority (0.7%).

The health risks associated with casual and moderate smoking are likely underestimated by these groups. Casual smokers, due to their lower consumption, might have a false sense of security and believe they are less susceptible to smoking-related health problems. This perception can be misleading, as even casual smoking carries significant health risks.

Furthermore, casual smoking can act as a gateway to nicotine addiction and dependence. The tendency to quit smoking might be lower among casual smokers because they experience fewer immediate health consequences. However, this doesn't eliminate the long-term risks.

These findings highlight the importance of addressing the root causes of casual smoking and dispelling the misperception of safety associated with both casual and moderate smoking. Policymakers should focus on strategies to achieve this goal. The distribution of smoker types observed in this study aligns with the findings of Anagnostou et al. (2022). Their research also reported a high prevalence of casual smoking among adults, particularly young adults who might initiate smoking as a coping mechanism for stress, frustration, and boredom. These young adults might perceive smoking as a way to manage challenges like balancing responsibilities or dealing with financial hardship.

Table 5. Frequency and Percentage Distribution on Demographic Profile of the Respondents in terms of Years of smoking

Years of smoking	Frequency	Percentage
less than 5 years	74	53.6 %
5 to 10 years	37	26.8 %
More than 10 to 15	18	13.0 %
More than 15 to 20	2	1.4 %
more than 20	7	5.1 %

Table 5 highlights the distinctive distribution of years of smoking among the respondents. The majority of the respondents smoked for less than 5 years (53.6%), and half of them smoked for more than 5 to 10 years way too far from less than 5 years. This means that the respondents of the study are relatively new smokers. Drawing from the results in Table 1, the respondent smokers approximately smoke at the age of 14-15 years. The length of years in smoking can be a factor in the act of quitting or not quitting but it does not mean that new smokers are free from health damages and not into nicotine addiction.

The addictive nature of tobacco comes from nicotine as the main chemical component. Smoking creates a strong urge to continue because nicotine quickly reaches the brain, making smokers feel better and think more clearly. This rapid delivery (in 10-20 seconds) is due to how cigarette smoke enters the bloodstream. (Le Houezec, J. (2003)

Table 6. The Behavioral Impact of Graphic Health Warnings

Indicator	Weighted Mean	Standard Deviation	Description
1. I have thought about quitting but not seriously.	3.57	1.003	Often
2. In the past six (6) months, I have thought about wanting to quit but I have not done anything yet.	3.54	0.929	Often
3. I tried to quit smoking in the past months and taking the steps to do so.	3.28	1.025	Sometimes
4. I am currently in the process of quitting/cutting down.	2.01	1.43	Rare
5. I reduced the number of cigarette sticks I smoked per day.	2.43	1.566	Rare
6. I do not care whether cigarette packages have pictorial warnings or not.	2.73	1.104	Sometimes
7. I have not thought of quitting at all.	2.64	0.904	Sometimes
Total Mean	2.89	0.701	Sometimes

Table 6 shows that most of the respondent smokers often thought about quitting but not seriously (Mean = 3.57, SD= 1.003) and they have thought of quitting in the past six months but have not done so yet (Mean = 3.54, SD=0.929) and sometimes tried to quit and took steps to do so (Mean = 3.28, SD=1.025). Conversely, rarely, respondent smokers are currently in the process of quitting/cutting down smoking (Mean = 2.01, SD=1.43) and lessening the number of cigarettes smoked per day (Mean = 2.43, SD=1.43).

This means that while many smokers consider quitting, translating that thought into concrete action remains a challenge. Consequently, a smaller proportion of smokers are actively trying to quit or reduce their cigarette consumption. The thought of quitting itself signifies a significant shift in a smoker’s behavior, reflecting a change in their attitude towards the habit. This change in attitude could be a potential first step towards quitting altogether.

This suggests that graphic health warnings, with their visuals and messages, may serve as a nudge that prompts smokers to think twice about smoking and weigh the negative health effects. However, the findings imply that graphic health warnings alone might not be sufficient to cause smokers to quit entirely.

Therefore, graphic health warnings on cigarette packs can be a useful tool for raising awareness and motivating smokers to quit. However, their effectiveness might be amplified when combined with additional support systems like quit-smoking programs, helplines, or nicotine replacement therapies. These additional resources can bridge the gap between the initial thought of quitting and taking concrete action.

Table 7. Perception of respondents of the current graphic health warnings in portraying the wide-ranging consequences of smoking

Indicators	Weighted Mean	Standard Deviation	Description
1. The pictorial warnings on cigarette packs vividly illustrate the negative impact of smoking.	4.77	0.57	Strongly Agree
2. The pictures make me see the extensive and serious effects of cigarettes on the human body.	4.27	1.343	Agree
3. The use of vibrant colors in the graphic health warnings in cigarette packages makes me see it easier. Graphic health warnings are more effective if they use more vibrant colors.	4.86	0.461	Strongly Agree
4. The use of bold typography in graphic health warnings makes me see the health consequences of using cigarette products.	4.72	0.819	Strongly Agree
5. Adding warning labels in multiple languages would increase the effectiveness of graphic health warnings.	4.55	1.19	Strongly Agree
6. Adding more variety to the graphic health warnings (different health consequences) would increase its effectiveness.	4.8	0.756	Strongly Agree
7. The graphic health warnings on cigarette packs m included messages about the addictive nature of nicotine alongside the graphics.	2.81	1.736	Disagree



8. The current graphic health warnings on cigarette packs effectively convey the health risks associated with smoking.	2.08	1.552	Disagree
9. There are graphic health warnings that do not portray the extensive effects of cigarette smoking.	4.94	0.264	Strongly Agree
10. I cannot distinguish the graphic health warnings on cigarette packs.	1.3	0.947	Strongly Disagree
11. The graphic health warnings include an image that induces fear in users.	3.21	1.854	Neither/Nor Agree
12. Graphic health warnings should cover a larger portion of the cigarette pack to make them more effective.	3.09	1.97	Neither/Nor Agree
13. The graphic health warnings that are not effective in discouraging users from smoking should be updated and improved.	4.78	0.871	Strongly Agree
<b>Total Mean</b>	3.86	0.55	Agree

Table 7 shows strong agreement among respondents that using more vibrant colors (mean = 4.86) and adding variety to the graphic health warnings, such as depicting different health consequences (mean = 4.80, SD = 0.756), would enhance their effectiveness. Additionally, a consensus exists (mean = 4.78, SD = 0.871) that graphic health warnings deemed ineffective in discouraging smoking should be updated and improved. Furthermore, pictorial warnings vividly illustrating the negative impact of smoking are generally perceived as effective (mean = 4.77, SD = 0.57). Similarly, the use of bold typography in graphic health warnings is acknowledged as aiding in recognizing the health consequences of cigarette use (mean = 4.72, SD = 0.819). Finally, the data suggests (mean = 4.55, SD = 1.19) that adding warning labels in multiple languages could enhance the effectiveness of graphic health warnings.

This data suggests that respondents who smoke believe that various factors can enhance the effectiveness of graphic health warnings on cigarette packages. They strongly agree that using vibrant colors, adding more variety to the warnings, updating ineffective warnings, vividly illustrating the negative impacts of smoking, utilizing bold typography, and including warning labels in multiple languages can all contribute to making these warnings more effective in discouraging smoking.

To effectively deter smoking, graphic health warnings on cigarette packs need to be both attention-grabbing and informative. Bright colors and a variety of shocking images will initially capture smokers' attention, breaking through complacency. However, to maintain impact, these visuals and messages require regular updates to prevent habituation. Furthermore, using clear pictures that directly depict the harm caused by smoking, like diseased lungs, can create a stronger emotional connection and encourage smokers to think twice about the consequences of their habit. Beyond grabbing attention, clear communication is essential. Large, bold text and concise language ensure everyone understands the message while offering warnings in multiple languages breaks down language barriers and empowers diverse populations to make informed health choices. By combining these elements, graphic health warnings become a powerful tool for raising awareness and promoting smoking cessation.

This aligns with research by Rafael et al. (2021) who found smokers often doubted the personal relevance of the health outcomes depicted by GHWs. Limited health literacy about smoking-related illnesses and a perception of invincibility might contribute to this skepticism. To address these limitations, Mallari et al. (2023) propose implementing more impactful strategies like larger GHWs and plain packaging. Their recommendations for plain packaging in the Philippines include specific design elements like designated areas for GHWs and branding, a standardized color scheme, and the inclusion of quitline information. These strategies, combined with improved GHW visuals, could potentially enhance the effectiveness of anti-

smoking messaging.

Demographic data helps create targeted and effective smoking policies. It allows policymakers to understand who smokes, why they smoke, and how policies might influence their behavior. This ultimately leads to better public health outcomes by reducing smoking rates and its associated health problems.

Table 8. Significant Differences between the demographic profile and the behavior of the respondents

BEHAVIOR		N	Mean	SD	F	DF	P-VALUE
Sex	Male	128	2.85	0.68	2.373	136	0.019
	Female	10	3.39	0.811			
Age	at most 20	47	3.06	0.75	1.623	4,133	0.172
	21 to 30	22	2.83	0.667			
	31 to 40	23	2.81	0.771			
	41 to 50	33	2.68	0.614			
	over 50 years old	13	3	0.571			
Educational Attainment	Elementary Level/ Graduate	12	3.13	0.8	1.32	2, 135	0.27
	Highschool Level/ Graduate	102	2.89	0.722			
	College Level/ Graduate	24	2.73	0.527			
Type of Smoker	Casual	71	3.09	0.741	3.662	136	< .001
	Moderate/Chain	67	2.67	0.589			
Years of Smoking	less than 5 years	74	3	0.704	2.22	4,133	0.07
	6 to 10	37	2.72	0.641			
	11 to 15	18	2.69	0.693			
	16 to 20	2	2.36	0.101			
	more than 20	7	3.27	0.818			

Table 8 found that females perceived graphic health warnings as significantly more effective deterrents compared to males (p-value = 0.019), contrary to age, educational attainment, or years of smoking experience, which were found to be of no significance. This gender difference could be due to the messaging or imagery used in the warnings, which might resonate more strongly with women. Additionally, casual smokers perceived the warnings as more effective than moderate/chain smokers (p-value < 0.001).

This suggests the persuasive power of warnings might be stronger for those who smoke less frequently, potentially because they are less entrenched in the habit and more receptive to anti-smoking messages. These findings on gender align with existing literature suggesting women may be more receptive to smoking cessation resources and have higher motivation to quit due to health concerns for themselves and their children (e.g., Roxas et al., 2020; Mookmanee et al., 2018). Similarly, the impact on casual smokers aligns with previous research suggesting graphic warnings can be particularly effective in deterring this group due to their lower dependence and susceptibility to negative messaging (e.g., Hammond et al., 2016; Rokosh et al., 2015). Females, students, and individuals with lower nicotine dependence levels are more likely to consider quitting smoking. They typically consume up to three fewer cigarettes than those less inclined to quit, even after accounting for other variables. Notably, nicotine dependence emerges as the primary factor predicting membership in the group less likely to quit. This underscores the significance of implementing non-price-based interventions, specifically tailored for highly nicotine-dependent smokers, alongside tax-driven price hikes to effectively tackle smoking issues. (Cheng & Estrada, 2022)

This study examines the potential influence of demographic factors on perceptions of graphic health

warning effectiveness. While the findings suggest a link between these variables, future research with more robust methodologies and larger, more diverse samples could provide a more conclusive understanding. This could ultimately inform the development of targeted smoking cessation strategies.

Another limitation is the relatively small sample size for some demographic groups, which may limit generalizability. The data reflect participants' perceived effectiveness, not necessarily a change in actual smoking behavior. In recommendations, future research would benefit from larger and more balanced samples across demographics. Incorporating measures of actual behavior change, such as self-reported quit attempts or cotinine level monitoring, would provide a more robust understanding of how graphic health warnings influence smokers from diverse backgrounds.

Table 9. Significant Differences between the demographic profile of the respondents and their views on the enhancement of Graphic Health Warnings

ENHANCEMENT		N	Mean	SD	F	DF	P-VALUE
Sex	Male	128	3.86	0.364	0.446	136	0.657
	Female	10	3.81	0.510			
Age	at most 20	47	3.86	0.373	0.907	4,133	0.462
	21 to 30	22	3.91	0.327			
	31 to 40	23	3.74	0.360			
	41 to 50	33	3.87	0.374			
	over 50 years old	13	3.96	0.477			
Educational Attainment	Elementary Level/ Graduate	12	4.01	0.473	1.27	2, 135	0.285
	Highschool Level/ Graduate	102	3.83	0.354			
	College Level/ Graduate	24	3.88	0.405			
Type of Smoker	Casual	71	3.77	0.412	0.246	136	0.806
	Moderate/Chain	67	3.77	0.333			
Years of Smoking	less than 5 years	74	3.87	0.389	2.63	4,133	0.037
	6 to 10	37	3.77	0.305			
	11 to 15	18	3.81	0.285			
	16 to 20	2	4.04	0.382			
	more than 20	7	4.24	0.558			

This study found no significant differences in noticing graphic health warnings based on gender (p-value = 0.657) or age group (p-value = 0.462). Interestingly, the initial observation of casual smokers noticing warnings more was not statistically significant after adjusting for other factors (p-value = 0.806). However, there was a significant association between years of smoking and noticing warnings (p-value = 0.037). Smokers with 6-10 years of experience reported noticing warnings less frequently (mean = 3.77), suggesting potential habituation over time. This is further supported by the observation that long-term smokers (>20 years) noticed warnings (mean = 4.24) but continued smoking. These findings suggest that the effectiveness of graphic health warnings might diminish with prolonged smoking exposure, potentially due to desensitization or the overpowering nature of addiction. This highlights the need for smoking cessation interventions that go beyond raising awareness through warnings and address the underlying factors that perpetuate smoking behavior, particularly for long-term smokers.

## CONCLUSION

The study revealed a concerning trend: a significant portion of smokers in the sample were young males

with a high school education who smoked casually. Interestingly, the graphic health warnings (GHWs) on cigarette packs seemed to influence their attitudes. Smokers acknowledged the negative health effects depicted on the warnings, and some even considered quitting as a potential consequence of exposure to these visuals.

This finding suggests a possible avenue for strengthening anti-smoking efforts. To maximize their impact, GHWs should be clear and easy to understand, utilizing vivid colors and strong imagery that grabs attention. Additionally, the warnings should comprehensively depict a range of serious illnesses caused by smoking, and incorporate informative text to eliminate any misunderstandings about the graphic content.

However, the study also suggests some complexities to consider. Casual smokers and female smokers appeared more receptive to quitting initiatives compared to other demographics. Smokers with a longer history of smoking might find GHWs less effective. This underlines the importance of tailoring interventions based on personal characteristics. When designing smoking cessation programs and prevention policies, demographics should be a crucial factor. Ideally, interventions should be implemented promptly, with a particular focus on adolescents and high school students, who are at a critical stage for initiating or preventing smoking behavior. In conclusion, effective strategies to reduce smoking rates should combine prompt intervention during adolescence with the use of clear, vivid, informative, and comprehensive GHWs.

## REFERENCES

1. Ajzen I. The theory of planned behavior: Frequently asked questions. *Hum Behav & Emerg Tech.* 2020; 2: 314–324. <https://doi.org/10.1002/hbe2.195>
2. Amul GGH, Mallari EU, Arda JRY and Santiago AJA (2023). Graphic health warnings and plain packaging in the Philippines: results of online and household surveys. *Front. Public Health* 11:1207779. Doi: 10.3389/fpubh.2023.1207779
3. Arda, J. R., Jeanjaquet, A. R., Pasia, N. J., Rafael, J. D. M., Rita, D. S., Siao, K. B., Yparraquiere, J. G., & Adarlo, G. (2021). Why do graphic health warnings fail: An explanatory case study on the persistence of smoking behavior among male adult smokers in a rural and low-income setting in the Philippines. *Philippine Journal of Allied Health Sciences*, 5(1), 94-101. <https://doi.org/10.36413/pjahs.0501.011>
4. Barrington-Trimis, J. L., Braymiller, J. L., Unger, J. B., McConnell, R., Stokes, A., Leventhal, A. M., ... & Goodwin, R. D. (2020). Trends in the age of cigarette smoking initiation among young adults in the US from 2002 to 2018. *JAMA network open*, 3(10), e2019022-e2019022.
5. Burgos, Y., Degomon, C. J., Gatilao, N. A., Gloria, R. J., Ibarreta, S. A., Tan, L. C., ... & Gumban, M. E. R. Actions Speak Louder than Words: Perceived Effectiveness of Graphic Pictorial Packaging Warnings of Cigarettes toward the Attitude and Willingness to Consume Cigarettes among Smokers and Non-Smokers in Jaro Iloilo City An Investigative Project in Partial Fulfillment of the Requirements in Research Submitted by.
6. Cheng KJG, Estrada MAG (2022) A dichotomy of smokers in the Philippines following sin tax reform: Distinguishing potential quitters from those unlikely to quit. *PLoS ONE* 17(10): e0275840. <https://doi.org/10.1371/journal.pone.0275840>
7. Chinwong, D., Mookmanee, N., Chongpornchai, J., & Chinwong, S. (2018). A Comparison of Gender Differences in Smoking Behaviors, Intention to Quit, and Nicotine Dependence among Thai University Students. *Journal of addiction*, 2018, 8081670. <https://doi.org/10.1155/2018/8081670>
8. Cho, Y. J., Thrasher, J. F., Yong, H. H., Szklo, A. S., O'Connor, R. J., Bansal-Travers, M., ... & Borland, R. (2018). Path analysis of warning label effects on negative emotions and quit attempts: a longitudinal study of smokers in Australia, Canada, Mexico, and the US. *Social Science & Medicine*,

197, 226-234.

9. Chung-Hall, J., Craig, L., Gravely, S., Sansone, N., & Fong, G. T. (2019). Impact of the WHO FCTC over the first decade: a global evidence review prepared for the Impact Assessment Expert Group. *Tobacco control*, 28(Suppl 2), s119-s128.
10. Coppo, Alessandro, et al. "School policies for preventing smoking among young people." *The Cochrane database of Systematic Reviews* vol. 2014,10 CD009990. 24 Oct. 2014, doi:10.1002/14651858.CD009990.pub2
11. Le Houezec, J. (2003). Role of nicotine pharmacokinetics in nicotine addiction and nicotine replacement therapy: a review. *The International Journal of Tuberculosis and Lung Disease*, 7(9), 811-819.
12. Lucia, Lotrean & Dijk, F & Mesters, Ilse & Ionut, C & de Vries, Hein. (2010). Evaluation of a peer-led smoking prevention program for Romanian adolescents. *Health education research*. 25. 803-14. 10.1093/her/cyq034.
13. Noar, S. M., Francis, D. B., Bridges, C., Sontag, J. M., Brewer, N. T., & Ribisl, K. M. (2017). Effects of strengthening cigarette pack warnings on attention and message processing: a systematic review. *Journalism & Mass Communication Quarterly*, 94(2), 416-442.
14. Park, S. H. (2011). Smoking and adolescent health. *Korean journal of pediatrics*, 54(10), 401.
15. Poole, R., Carver, H., Anagnostou, D., Edwards, A., Moore, G., Smith, P., ... & Brain, K. (2022). Tobacco use, smoking identities and pathways into and out of smoking among young adults: a meta-ethnography. *Substance Abuse Treatment, Prevention, and Policy*, 17(1), 24.
16. Ratih, S. P., & Susanna, D. (2018). Perceived effectiveness of pictorial health warnings on changes in smoking behavior in Asia: a literature review. *BMC Public Health*, 18(1), 1-16.
17. Roxas, R. B., Suarez, S. J. R., & Zabala-Pineda, N. (2020). Smoking Habits and the Level of Intention to Quit Smoking among the Students of City College of Angeles.
18. Schneider, N.G., Olmstead, R.E., Franzon, M.A. et al. The Nicotine Inhaler. *Clin Pharmacokinet* 40, 661–684 (2001). <https://doi.org/10.2165/00003088-200140090-00003>
19. Siao, K. B., Arda, J. R., Jeanjaquet, A., Rafael, J. D. M., Danyz, S. R., Pasia, N. J., & Yparraguire, J. G. (2019). Disease familiarity and believability inform pictorial health warning ineffectiveness, among rural male smokers in the Philippines. *Tobacco Induced Diseases*, 17.

## Internet Sources

1. Arrazola, René A et al. "Association of tobacco control policies with cigarette smoking among school youth aged 13-15 years in the Philippines, 2000-2015." *Tobacco prevention & cessation* vol. 6 35. 11 Jun. 2020, doi:10.18332/tpc/122441
2. Burgos, Y., Degomon, C. J., Gatilao, N. A., Gloria, R. J., Ibarreta, S. A., Tan, L. C., ... & Gumban, M. E. R. (2020). Actions Speak Louder than Words: Perceived Effectiveness of Graphic Pictorial Packaging Warnings of Cigarettes toward the Attitude and Willingness to Consume Cigarettes among Smokers and Non-Smokers in Jaro Iloilo City. academia.edu. Retrieved from <https://www.academia.edu/download/64461574/Cigarette%20Packaging%20Research.pdf> on November 23, 2023.
3. Global Adult Tobacco Survey (2021). Tobacco Use in the Philippines. GovPh. Retrieved from <https://cpbrd.congress.gov.ph/2012-06-30-13-06-51/2012-06-30-13-36-50/1619-ff2023-26-tobacco-use-in-the-philippines> on November 23, 2023.
4. Hammond D, Thrasher JF, Fong GT, (2016). Impact of graphic cigarette warning labels: findings from the International Tobacco Control Four Country Study. *Addiction*.111(8):1388-1404. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8339936/>(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8339936/>) on April 30, 2024.
5. NIDA. 2021, April 12. Are there gender differences in tobacco smoking?. Retrieved from <https://nida.nih.gov/publications/research-reports/tobacco-nicotine-e-cigarettes/are-there-gender-differences-in-tobacco-smoking/>



differences-in-tobacco-smoking on 2024, June 2

6. Republic Act No. 10643 (2013). Republic Act No. 10643: An act to effectively instill health consciousness through graphic health warnings on tobacco products. The LAWPHiL Project. Retrieved from [https://lawphil.net/statutes/repacts/ra2014/ra\\_10643\\_2014.html](https://lawphil.net/statutes/repacts/ra2014/ra_10643_2014.html) on November 23, 2023.
7. Rokosh JM, Ranson KM, Bennett ML, (2015). The impact of graphic cigarette warning labels on smoking intentions and cessation: a systematic review. *Tob Control*.24(4):334-345. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8339936/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8339936/> on April 30, 2024.
8. Ryan, M. & Worthington, A. (2021). Theory of Planned Behavior retrieved from <https://ua.pressbooks.pub/persuasiontheoryinaction/chapter/theory-of-planned-behavior/>
9. Santiago, Alen Josef, and Cabrera, Patrik James and Ackary, Samantha and Amul, Gianna Gayle, Graphic Health Warning Compliance Assessment of Vapor Products, Heated Tobacco Products, and Novel Tobacco Products in the Philippines (May 2, 2024). Available at SSRN: <https://ssrn.com/abstract=4814780> or <http://dx.doi.org/10.2139/ssrn.4814780>