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Graphic Health Warnings on Cigarette Packages: Adolescents' Emotive Reaction toward Smoking

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Abstract: This study aims to identify the prominent role of graphic health warnings on cigarette packets due to mediating evoked fear in impelling smoking considerations and behavior. The quantitatively designed study deployed a probability (simple random) sampling technique to collect the sample size (Yamane method) of 384 adolescents (smokers or non-smokers) living in the Abbottabad district of Pakistan. The study implemented the Hayes Process model for statistical examining the gathered data in SPSS 20. The empirical findings of the study depicted that perceived visibility of the graphic health warning threats has a positive impact in raising evoking emotions (fear, guilt, disgust), while perceived visibility significantly impacts the emotions (fear, guilt, disgust) of adolescents who smoke. Moreover, smoking status moderates the effects of guilty on the personal consideration of smoking. The results indicated the complete mediation for the indirect effect of the independent variable (perceived visibility) through mediators (fear, guilt, disgust) on dependent variables, i.e., personal and other people's attitudes toward smoking and beliefs about secondhand smoke. The novel empirical findings of the study revealed that adolescents who smoke have a higher level of fear and guilt than non-smokers. The study recommends using graphic warnings about the dangers of smoking to efficiently stimulate emotions in adolescents to manage adult smoking behavior.

Keywords: adolescent smoking, emotions, pictorial warnings.

香烟包装上的图形健康警告：青少年对吸烟的情绪反应

摘要：本研究旨在確定香煙包裝上圖形健康警示的突出作用，因為它在促使吸煙考慮和行為中調節誘發的恐懼。定量設計的研究採用概率簡單隨機抽樣技術來收集居住在巴基斯坦阿伯塔巴德地區的384名青少年（吸煙者或非吸煙者）的樣本量（山根方法）。該研究採用海斯法模型對社會科學統計軟件包20中收集的數據進行統計檢查。該研究的實證結果表明，



圖形健康警告威脅的感知可見性對引發情緒恐懼、內疚、厭惡、有積極影響，而感知到的能見度會顯著影響吸煙青少年的情緒（恐懼、內疚、厭惡）。此外，吸煙狀況緩和了內疚對吸煙的個人考慮的影響。結果表明，通過調解因素（恐懼、內疚、厭惡）對因變量（即個人和其他人對吸煙的態度和對二手煙的信念）的自變量（感知可見性）的間接影響進行了完全調解。該研究的新實證結果表明，吸煙的青少年比不吸煙的青少年有更高程度的恐懼和內疚。該研究建議使用關於吸煙危害的圖形警告來有效地激發青少年的情緒，以控制成人吸煙行為。

关键词：青少年吸煙、情緒、圖片警告。

1. Introduction

Tobacco consumption (smoking) is an injurious and crucial cause of human mortality that leads to one of ten deaths globally. To convey and control the fetal impact of tobacco consumption, governments of various countries imposed graphic health warnings on cigarette packs. Smoking packs give excessive exposure to smokers and are possibly revealed to graphic health labels over seven thousand (7000) times per year [20]. Graphic health messages are amongst the most efficient smoking control policies which are ideally examined by smokers and promoted as effectual to increase stronger fatalistic feelings and thoughts about tobacco consumption, and are preferably recognized as a means of inspiration to quit smoking [16].

The World Health Organization's Framework Convention on Tobacco Control (WHO-FCTC) maintained an international level for health warnings and packaging. The WHO made it clear that pictorial warnings must be in place as a minimum 50% of packets. Messages related to Death and Disease show how smokers tolerate serious diseases, such as lung cancer and emphysema, and usually die prematurely [62].

The objective of warnings is to convey the harsh medical realities that occur due to smoking. Mainly, the messages use images, and antisocial graphics to deliver that smoking is a hurdle, instead of a path, to obtain greater inspirational aims [45, 46]. Warning messages may evoke strong reactions. Each emotion is accompanied by a core appraisal theme, which is a mental schema related to the emotion that summarizes the specific harms or benefits related to the elicitor of the emotion [15].

Adult smokers have higher neuroticism than non-smokers [22]. To promote smoking cessation, previous studies have founded that warning content is a powerful verification reinforcing the superiority of graphic messages over text warnings and, hence, it increases health information and perceptions of threats [14, 20, 42, 43].

Graphic health warnings are the initiatives taken to increase quit behavior among smokers. Therefore, the present study tries to understand the influence of graphic health messages on cigarette packages that affect smoking and arouse emotions (i.e. fear, disgust and guilt) among smokers and non-smokers in Pakistan. The motivation behind this study is to assess smokers' intentions about smoking, their reaction toward graphic warnings on cigarette packages, and to highlight important factors that influence them to smoking cessation.

The rest of the paper is categorized as follows. Section 2 contains the literary background and conceptualization of the study. Section 3 discusses the methodology adopted in this study. Section 4 contains a statistical analysis portion of the study. Section 5 portrays the results and discussion portion of the study.

2. Literature Review

2.1. Background on Tobacco Warnings

In Pakistan, smoking kills 0.16 million people yearly, and more than 160,000 are victims of secondhand smoke. It has many negative effects on health and is the cause of diseases such as lung cancer, birth defects, cardiovascular disease, miscarriage, stroke, infertility, and rheumatoid arthritis in active and passive smokers [31]. The new international Framework Convention on Tobacco Control inspires the use of colored picture threats on cigarette packets to illustrate health hazards [19]. In Pakistani men, lung cancer is the leading malignancy. In 2010, 21% of Pakistan's population smoked according to the WHO estimate. If at the same intensity, tobacco control efforts continue, the WHO estimates that in 2025, approximately 24% of the population will be smokers [62].

2.1.1. Graphic Health Warnings and Negative Emotions: Fear, Guilt, and Disgust

Graphic health warnings on cigarette packages should be increased to 50% as ordered by Pakistan's

Ministry of National Health Services and Regulations, issued on December 19, 2017 [40]. According to the instructions, the size of warnings will further increase to 60% coverage in 2019. The warnings “shall be rotated every year or as may be instructed by the Federal Government from time to time [62].

It is estimated that yearly 30% of deaths occur due to cancer and 87% of deaths due to lung cancer are the major contributions of cigarette smoking [30]. The Trans Theoretical Model (TTM) has been contributory in attaining consideration of smoker’s willingness to quit or end as a salient variable. Adolescents, who are trying to quit smoking, are promoted through five stages according to the TTM model. These stages are based on: pre-contemplation, contemplation, preparation, action, and maintenance [18]. Emotions are inherently intuitive and subjective [27].

2.2. Fear

The emotion of fear is evoked when a severe and personally relevant warning is perceived. Pictorial warnings may evoke emotional responses (i.e., fear) directly and are more visceral and graphic without any cognition [69]. Fear control is a process in which evoked fear is controlled by individuals and is motivated through defensive processing and avoidance [34].

Fear applications are considered to be encouraged by frightening adolescents into varying behavior by displaying a warning to their fitness or well-being [48]. It is anticipated that because fear character playing is more preferably to break through the defensive facade that can secure an attitude than is cognitive job playing, it will be more efficient for the moderation of smoking attitudes and behavior [37]. Messages with fear applications may actually upturn awareness of threats of harmful practices for example smoking, therefore serving to generate smoking termination [17]. Fear application has been extensively used in communal promotion to decrease risky activities for example smoking, hazardous and liquor abuse [10, 23, 38, 59, 61]. The meta-investigation expects that the management of the vivid level of the image rightly affects aroused fear. Sequentially, this aroused fear would definitely associate with tobacco users’ objectives to leave smoking, so that the fear element may intervene in the impacts of graphic depiction of warnings on smoker’s objectives [29, 67]. The Extended Parallel Process Model (EPPM) reselects fear a fundamental place, but in this model, fear has an adverse effect on encouragement [70]; excessive fear projects to refusal of the warning [61].

2.3. Guilt

Guilt is described as an emotion that one has experienced or is harboring due to a somewhat immoral act and is involved in conduct that is dishonest and injurious to others [6]. It is experienced when

individuals appraise negative outcomes to their behavior that they have engaged in smoking. It is a sense that is aroused due to committing something wrong or act in a way that harms one’s conscience [9].

The prospective effects of accountability warnings on adolescents also increase moral concerns. Adolescents may respond to them with emotions of guilt, embarrassment, or obstruction when they realize that they cannot embrace the suggested practices [17]. Furthermore, both guilt and disgrace are feelings of embarrassment aroused by self-reflection and self-assessment, and they together assist in self-directive [9, 63]. Guilt helps as an inspiring aspect in reparative behavior replying to communal ideals. Injunctive standards warnings that smoking in the existence of others is an undesirable behavior in humanity could encourage smokers to change their behavior [32]. Smoking is the foremost reason for a range of cancers. Thus, cancer patients who are smoking are probable to be a greater threat for emotions of guilt and criticism, which are undesirable concerns of stigmatization. Smoking is also a problem for relatives of cancer patients, as it is concluded that every patient detected with cancer has two relatives who are smokers. A relative who is a smoker may feel blamable for bringing about a cancer to a patient or even face guilt from the survivor [57]. Reactions to companions’ smoking involve efforts to encourage guilt by emphasizing child fitness complications, demonstrating the strains that smoking nearby children can provoke and imitate [55]. Guilt has a positive influence in exchanging intentions and attitudes when combined with text warnings than text-graphic warnings. Guilt application is mainly effective in boosting healthy activities while decreasing risky conduct [32].

2.4. Disgust

It has been conceptualized that disgust is different from guilt and fear. It is defined as being repulsed or nauseated by an entity or a behavior [52]. Graphic health warnings evoking disgust would be more operative than fitness anxiety at disturbing stimulated consideration toward smoking cue [8]. The researcher [52] suggested that disgust can be assumed as an approach for dealing with a growing variety of threats [52].

Threat application and disgust-based graphics are absolutely inspirational and are significant features of warning content [34]. Graphic health warnings provoke various feelings, and the definite feelings are quite suitable for drop appetitive inspirations. Labels mix the feelings they provoke, since together disgust and fear progress to encourage prevention; it is problematic in detecting which might be the greatest influence to inhibit with courage attention procedures illustrating dependence on nicotine [8]. Pictorial messages deliver more perfect knowledge and create smoking more disgusting and therefore are more probable to urge

smokers to quit smoking [66]. Blend of smoking signs and disgust pictures in a solitary enemy of tobacco message brought about cautious message preparing. Smoking signals and disgust pictures impact acknowledgment memory, passionate reactions, smoking inclinations, and goals to stop smoking [7].

2.5. Personal Consideration of Smoking

Smoking is the absolutely the most preventable reason for lung tumors and it is essential for the wellbeing of a smoker. Now, look at components that may encourage or ruin smokers' disease data chasing, using the risk perception attitude (RPA) system to research the significance of such individual hazard and adequacy convictions (counting both reaction efficacy and correspondence efficacy) in smokers' growth data chasing [50, 51].

A meta-examination of distributed cross-sectional investigations on wellbeing corresponds to scruples detailing that smoking was more typical among individuals with low contrast and high honesty [22]. Critics also note that wellbeing messages that stress the significance of moral duty are politically good with the 'belief system of an individual; the worldview that thinks about the individual, as opposed to social structure, as the suitable focal point of general wellbeing efforts [17]. The researcher [36] explained a model where individuals travel by phases of readiness to turn into a smoker, or keeping up tobacco usage [11].

When a severe and personally associated threat is perceived, the emotion of fear is aroused. Graphic images displayed on the cigarette packages reveal dangerous physical health outcomes of smoking (e.g. lung cancer, addiction). The fear is evoked when smokers are disclosed to graphic health warnings and has a negative effect on smoking and a positive effect on smoking cessation. This increases the memory of the pictorial warnings and reduces the desire to smoke [28]. While some studies propose that the relationship among individuals and smoking is stronger among women than men, other research reported no gender variations [22].

2.6. Others Consider Smoking

Each day, more than two thousand adolescents smoke cigarettes for the first time. Nicotine has a soothing and calming effect on adolescent smokers as it does on adults so many turn to cigarettes to gain relaxation [24]. Adolescent smokers have greater extraversion, greater neuroticism, and less carefulness personality rate than non-smokers. Beginning into smoking is related directly with greater extraversion and less conscientiousness, although decline to smoking between ex-smokers is linked with greater neuroticism [22].

Most adolescents who smoke endure smoking into maturity, growing threat for early death, and disease.

Individuals have usually revealed that indications of stress. Nervousness leads to smoking conduct such as; smoking beginning, substantial smoking, and nicotine dependence, even though not absolutely [39]. It is concluded that the smoking and miserable ideation of the adolescent is probable due to mutual psychosocial reasons instead of a causative path from smoking to miserable ideation [26]. Among adolescent smokers, warnings of unhappiness and nervousness in teenagers significantly vary in the development of smoking and expect progress to nicotine dependency, further than college ages. Teens who had consistency in smoking stated high-rank indications of unhappiness or nervousness and had almost two-fold threat of nicotine dependency in adolescents, associated with regular smoking peers with low levels of indications of depression and nervousness [39].

Depression and miserable indications have been recognized as combined antecedents and concerns of teenagers smoking and contribute to the beginning and change into consistent smoking. Sustained emotions of sorrow or depression, common hopelessness symptoms, are associated with teenage smoking, and it is significant to recognize the probable paths by which desperateness influences smoking, particularly for the reason that smoking is a significant threat reason for the main chronic illnesses [41]. Teens are the foremost important age when smoking tobacco is started, and as a result, as proved through research, it leads to addiction. The research [56] stated that an assessment (65%-70%) of teenagers will smoke earlier as they leave high school.

2.7. Secondhand Smoke

Secondhand smoke (SHS) may lead to various infections and ailment states. Despite of this, cigarette smoking leftovers are a shared habit with the highest occurrence of smoking happening in lower-medium-income nations, as stated by the World Health Organization [62]. Exposure to secondhand smoke amongst adolescents is a significant matter. Secondhand smoke is accounted for about 331 000 deaths in 2013 and equal to 28% of all deaths affected by secondhand smoke happen in children [1]. Comprehensive smoking regulatory agencies can lessen secondhand smoke revelation of teen-agers indirectly, with strategies designed at decreasing youngsters smoking frequency or consumption, for example, cigarette tariffs, adolescent access limitations, and broadcasting counter-marketing promotion, or positively related to smoking prohibitions in the areas where teen-agers are exposed.

Health-promoting efforts have targeted parents and relatives to decrease children's secondhand smoke exposure in cars or homes [55]. Secondhand smoke (SHS), also called as environmental tobacco smoke, is a recognized human pulmonary carcinogen by numerous monitoring organizations and administrative

consultants [4]. Secondhand smoke –has since been related to various opposing effects throughout early-life containing miscarriage, preterm birth, little birth mass, inherited abnormalities, new and child mortality, asthma, and breathing infections. Additionally, modern studies associate youth secondhand smoke disclosure in the improvement of no infectious illnesses in later life. 40% of children worldwide are habitually open to secondhand smoke [3]. Children living in smoking families are at a danger of poor health. Smoking amongst adolescents is related to a smoking family. The revelation to secondhand smoke (SHS) in the antenatal period is related to low birth mass in babies and with problematic behavior in adolescents [58].

3. Methodology

The research methodology was quantitatively designed. The 7-Point Likert scale research questionnaire was adopted from the study of [12, 21, 29, 44, 47]. Probability (simple random) sampling technique was adopted to collect responses of 400 adolescents (smokers and non-smokers) living in Abbottabad District of Pakistan to check adolescents' emotive reaction toward graphic health warnings on cigarette packages and intentions for smoking cessation.

This questionnaire has two sections: the first section includes the demographic information of the adolescents such as age, gender, smoking adults in households, siblings are smokers, a number of close friends that smoke, or if they had smoke in the last thirty (30) days and the second section included 16 questions which were measured on 7 point scale. It included 2 questions on evoked fear and evoked guilt, 1 question on evoked disgust, 4 questions on perceived visibility, 2 questions on personal consideration of smoking, and other considered smoke, 3 questions on

the secondhand smoke. Smoking status was measured as if the participants had smoked a cigarette in the past 30 days. If so, “smoker” (coded as =1), and “non-smoker” (coded as a =0). Several demographic control variables were collected, including age, gender (1=male, 0=female), education (FSC 1st = 1), (FSC 2nd=2), (BDS 1st=3), if there was a smoking adult in the household (1=yes, 0=no), if any siblings were smokers (1=yes, 0=no), and the number of close friends if (no one smoke coded as =1), (1 to 2 =2), (3 to 4 =3), (5 to 6 =4), and (7 above=5) that smoked. On the basis of classification among 384 adolescents, 268 adolescents were categorized as smokers and 116 as non-smokers.

Personal consideration of smoking, others teens smoke, secondhand smoke were dependent variables, perceived visibility was independent variable, fear, guilt, and disgust were used as mediating, and smoker status acted as a moderating variable in this study.

Initially, a pilot study was conducted using an experimental design in which a pool of pictures was selected and rated by the adolescents. Among these, nine high-rated graphics, each for three different cigarette warning themes were selected. Each participant was randomly assigned a single package containing one of the nine pictorial warnings and relevant warning text associated with three themes of cigarettes causing fatal lung disease, tobacco being addictive, and secondhand smoke harming children. The sample size for this was 50 young people of Abbottabad district with ages limited to 18–29 years old. Respondents were randomly assigned different warnings of themes and were asked to rate the graphics based on the basis of effecting their emotions. Out of these nine graphic warnings, three visual effective warnings, each for one theme, were selected for the main study.

Fig. 1 shows the research model.

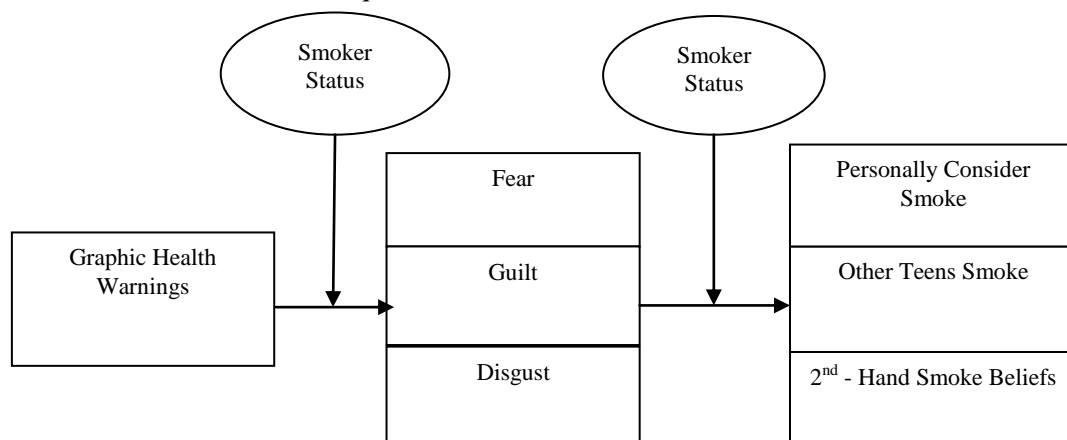


Fig. 1 Proposed research framework

3.1. Hypotheses

This study aims to analyze the impact of graphic health warnings on cigarette packages and adolescents emotive reaction toward smoking.

H_1 : Current smoking status moderates the effect of the level of visibility on evoked fear. The effect of the

graphic level on fear will be stronger (more positive) for adolescent smokers than non-smokers.

H_{2a} : the following exposure to a graphic visual warning, the level of evoked guilt is higher (lower) for current adolescent smokers (non-smokers).

H_{2b} : The graphic level of the visual warning is

positively related to evoked guilt.

H_{2c} : Current smoking status moderates the effect of the level of visibility on evoked guilt. The effect of the graphic level on guilt will be stronger (i.e., more positive) for adolescent smokers than non-smokers.

H_{3a} : Following exposure to a graphic visual warning, the level of evoked disgust is lower (higher) for current smokers (non-smokers).

H_{3b} : The graphic level of the warning is positively related to evoked disgust.

H_{3c} : Current smoking will moderate the effect of visibility on evoked disgust. The effect of the graphic level on disgust will be weaker (i.e., more negative) for adolescent smokers than non-smokers.

H_{4a} : Current smoking status will moderate the effect of fear on personal consideration of smoking. The effect of fear on personal consideration will be stronger (i.e., more positive) for adolescent smokers than non-smokers.

H_{4b} : Current smoking status will moderate the effect of guilt on personal consideration of smoking. The effect of guilt on personal consideration will be stronger (i.e., more positive) for adolescent smokers than non-smokers.

H_5 : Current smoking status will moderate the effect of fear on other adolescents' consideration of smoking. The effect of fear on other adolescents' considerations will be stronger (i.e., more positive) for adolescent smokers than non-smokers.

H_6 : Current smoking status will moderate the effect of guilt on the belief that secondhand smoke harms children. The effect of guilt on secondhand smoke harms children will be stronger (i.e., more positive) for adolescent smokers than non-smokers.

H_7 : The combined elicited emotions mediate the role of graphic warning level on the adolescent smoking outcome variables. The IBM SPSS 20.0 was used for statistically analyzing the data and to draw inferences for the study. On demographic variables, frequency analysis test is applied.

4. Results of Data Analysis

In this study, we tried to determine the impact of seven demographic factors on the adolescents' emotive reaction toward smoking and graphic health warnings on cigarette packages. The data were collected from 384 adolescents in Abbottabad. Out of 384 adolescents, 61 were female and 323 were male. Out of 384 adolescents, 202 students were of 18 years, and 182 students were of 19 years. Among 384 adolescents, 161 were students of FSC-1st, 195 adolescents from FSC-2nd, and 28 adolescents were of BDS Department students of the first semester. Considering the responses by adolescents, it was declared that, 190 adolescents did not have smoking adults in their house, whereas 194 adolescents had smoking adults in their house. Respondents declared that, 246 adolescents did not have smoker siblings, whereas 138 adolescents had

siblings who did smoke. On the basis of the response rate by adolescents, it was declared that, 116 were non-smokers, whereas 268 adolescents responded as smokers. The results showed that 84 adolescents responded that they did not have friends who did smoke, 155 adolescents responded that they had 1 to 2 friends who were smokers, 69 adolescents responded that they had 3 to 4 friends who were smokers, 44 adolescents responded that they had 5 to 6 smoker friends, whereas 32 responded that they had 7 above friends who did smoke.

4.1. Descriptive Analysis

Descriptive statistics shows average responses. The first column shows the total number of respondents. The range shows the difference between the maximum and minimum values. Dependent variables include personal consideration of smoking (mean is 4.8607 and standard deviation is 1.4706), others consider smoke (mean is 4.7813 and standard deviation is 1.5042), and secondhand smoke are (meaning thereby 5.5859 and standard deviation is 1.3373). Perceived Visibility is an independent variable, which means that it is 4.9160 and the standard deviation is 1.1975. Other mediating variables include fear (mean is 4.6458 and standard deviation is 1.6059), guilt (mean is 5.0742 and standard deviation is 1.5713), and disgust (mean is 5.2109 and standard deviation is 1.4397). Smoker Status acts as a moderating variable and its (maximum value is 1.00, minimum value is 0.00, which means 0.6979 and standard deviation is 0.45976).

4.2. Correlation

A positive and a significant ($p = 0.01$) correlation exists between smoking adults in households and sibling smokers ($r = 0.416^{**}$), the degree of response is 41.6%. It is found that there is a weak negative correlation between smoking adults in households and fear ($r = -.003$), and the degree of response is -0.3%. A negative and weak correlation exists between sibling smokers and fear ($r = -.041$), and the degree of response is -4.1%.

A weak negative correlation occurs between smoking adults in households and guilt ($r = -.016$) degree of response is -1.6%. Similarly, the negative and a weak correlation between siblings smokers and guilt ($r = -.006$) degree of response is -0.6%. The strong positive and significant ($p = 0.01$) correlation between evoked guilt and fear among the adolescents who are smokers ($r = 0.662^{**}$) degree of response is 66%; it means that the impact of graphic health warnings causes these emotive reactions such as (guilt, fear) to evolve among adolescents (smokers, non-smokers) by seeing the pictorial warnings.

Results showed a negative correlation between smoking adults in households and disgust ($r = -.050$) degree of response is -5%. According to the results, there is a weak, negative correlation between sibling

smokers and disgust ($r = -.038$) degree of response is -3.8%. Also, a positive and significant ($p = 0.01$) correlation occurs between disgust and fear ($r = 0.513^{**}$) among the adolescents. The degree of response is 51.3%, which means that the impact of graphic health warnings causes these emotive reactions such as (disgust, fear) to evolve among adolescents (smokers, non-smokers), by seeing the pictorial warnings. Similarly, the strong positive and significant ($p = 0.01$) correlation between disgust and guilt among the adolescents ($r = 0.621^{**}$) degree of response was 62%. This means that the impact of graphic health warnings causes these emotive reactions such as (disgust, guilt) to evolve among adolescents (smokers, non-smokers) by seeing the pictorial warnings.

A positive and a significant ($p = 0.01$) correlation occurs between smoking adults in households and perceived visibility ($r = 0.173^{**}$) degree of response is 17.3%. Results show that there is a positive correlation between sibling smokers and perceived visibility ($r = .076$) degree of response is 7.6%. The strong positive and significant ($p = 0.01$) correlation between perceived visibility and fear ($r = 0.540^{**}$) degree of response was 54%. This means that the impact of graphic health warnings causes the emotive reaction, i.e., fear to evolve among adolescents (smokers, non-smokers) while seeing the pictorial warnings. Likewise, there is also a positive and significant ($p = 0.01$) correlation between perceived visibility and guilt ($r = 0.511^{**}$) degree of response was 51%. This means that the impact of graphic health warnings causes this emotive reaction i.e. (guilt) to evolve among adolescents (smokers, non-smokers) by sighting the pictorial warnings. Similarly, a strong positive and significant ($p = 0.01$) correlation occurs between perceived visibility and disgust ($r = 0.529^{**}$) degree of response was 52.9%. This means that the impact of graphic health warnings causes emotive reaction, i.e. disgust to evolve among adolescents (smokers, non-smokers) while seeing the pictorial warnings.

According to the results, there is a positive correlation between smoking adults in households and personal consideration of smoking ($r = .094$), the degree of response is 9.4%. A weak, negative correlation occurs between siblings smokers and personal consideration of smoking ($r = -.021$), and the degree of response is -2.1%. Results show a positive and significant ($p = 0.01$) correlation between personal consideration of smoking and fear ($r = 0.467^{**}$). The degree of response is 46.7; this significance defines that fear is elicited in adolescents (smokers, non-smokers) by personal consideration of smoking. Similarly, a positive and significant ($p = 0.01$) correlation is found between personal consideration of smoking and guilt ($r = 0.463^{**}$). The degree of response is 46.3%. This significance defines that guilt is evoked in adolescents (smokers, non-smokers) by personal consideration of smoking. Also, a positive correlation occurs between

personal consideration of smoking and disgust ($r = 0.402^{**}$). The degree of response is 40.2%. Significance value defines that personal consideration of smoking influences disgust among adolescents (smokers, non-smokers). From the results, a positive and significant ($p = 0.01$) correlation occurs between personal consideration of smoking and perceived visibility among the adolescents who are smokers ($r = 0.541^{**}$), and the degree of response is 54.1%.

A positive and significant ($p = 0.05$) correlation occurs between smoking adults in households and other considered smoke ($r = 0.100^*$) degree of response is 10%. Findings show a positive weak correlation between sibling smokers and other considered smoke ($r = .013$) degree of response is 1.3%. Similarly, there is also a positive and significant ($p = 0.01$) correlation between others considered smoke and fear among the adolescents who are smokers ($r = 0.351^{**}$), the degree of response is 35.1%. Like so, there is also a positive and significant ($p = 0.01$) correlation between others consider smoke and guilt ($r = 0.333^{**}$), the degree of response is 33.3%. Significant ($p = 0.01$) positive correlation occurs between other considered smoke and disgust ($r = 0.332^{**}$), and the degree of response is 33.2%. Thus, there is also a positive and significant ($p = 0.01$) correlation between other considered smoke and perceived visibility ($r = 0.455^{**}$), the degree of response is 45.5%. The results show also a positive and significant ($p = 0.01$) correlation between others considering smoke and personal consideration of smoking ($r = 0.490^{**}$). The degree of response is 49%.

Findings show a negative correlation between smoking adults in households and secondhand smoke ($r = -.034$) degree of response is 3.4%. A significant ($p = 0.01$) negative correlation occurs between sibling smokers and secondhand smoke ($r = -.142^{**}$), and the degree of response is -14.2%. Like this, there is also a positive and significant ($p = 0.01$) correlation between the second-hand smoke and fear ($r = 0.247^{**}$), the value of significance shows that secondhand smoke causes fear among the adolescents who are smokers or non-smokers. The degree of response is 24%. The positive and significant ($p = 0.01$) correlation occurs between the secondhand smoke and guilt ($r = 0.334^{**}$) degree of response is 33.4%. Like so, the results show a positive and significant ($p = 0.01$) correlation between the secondhand smoke and disgust ($r = 0.259^{**}$), the degree of response is 25.9%. Similarly, the positive and significant ($p = 0.01$) correlation between the secondhand smoke and perceived visibility ($r = 0.297^{**}$), the degree of response was 29.7%. Also, a positive and significant ($p = 0.01$) correlation occurs between the secondhand smoke and personal considering smoking ($r = 0.321^{**}$) degree of response is 32.1%. The results show that there is also a positive and significant ($p=0.01$) correlation between the secondhand smoke and other considered smoke ($r = 0.312^{**}$), the value of significance defines that

secondhand smoke influences other considerations of smoking. The degree of response is 31.2%.

A significant ($p = 0.01$) correlation occurs between smoking adults in household and smoker status ($r = 0.359^{**}$) degree of response was 35.9%. The results reveal that there is a positive and significant ($p = 0.01$) correlation between sibling smokers and smoker status ($r = 0.363^{**}$) degree of response is 36.3%. Results show a negative and significant ($p = 0.01$) correlation between if you had smoked a cigarette in the last 30 days and fear ($r = -0.138^{**}$). This defines that fear is produced in adolescents who are smokers by seeing the graphic health warnings. The degree of response is -13.8%. Also a negative and significant ($p = 0.01$) correlation occurs between if you had smoked a cigarette in the last 30 days and guilt ($r = -0.150^{**}$). This defines that guilt is caused in adolescents who are smokers by sighting the graphic health warnings. The degree of response is -15%. Similarly, a negative and significant ($p = 0.05$) correlation occurs between if you had smoked a cigarette in the last 30 days and disgust ($r = -0.124^*$). This defines that disgust is evoked in

adolescents who are smokers by seeing the graphic health warnings. The degree of response is -12.4%. Likewise, there is also a negative correlation between if you had smoked a cigarette in the last 30 days and perceived visibility ($r = -0.028$). The degree of response is -2.8%. Also, a negative and significant ($p = 0.01$) correlation occurs between if you had smoked a cigarette in the last 30 days and personal consideration of smoking ($r = -0.169^{**}$), and this significant value shows that smoker status influences personal consideration of smoking. The degree of response is -16.9%. The results show that there is also a positive correlation between if you had smoked a cigarette in the last 30 days and other considered smoke ($r = 0.004$). The degree of response was 0.4%. Results show a negative and significant ($p = 0.01$) correlation between if you had smoked a cigarette in the last 30 days and secondhand smoke ($r = -0.174^{**}$). This significance defines that smoker status affects secondhand smoke, which is harmful to children. The degree of response is -17.4%.

Table 1 Correlation analysis

	Smoking adults in household	Sibling smoker	Fear	Guilt	Disgust	Perceived visibility	Personal consideration of smoking	Others consider smoking	Secondhand smoke	Smoker Status
Smoking adults in household	1									
Sibling smoker	.416**	1								
Fear	-0.003	-0.041	1							
Guilt	-0.016	-0.006	.662**	1						
Disgust	-0.05	-0.038	.513**	.621**	1					
Perceived visibility	.173**	0.076	.540**	.511**	.529**	1				
Personal consideration of smoking	0.094	-0.021	.467**	.463**	.402**	.541**	1			
Others consider smoking	.100*	0.013	.351**	.333**	.332**	.455**	.490**	1		
Secondhand smoke	-0.034	-.142**	.247**	.334**	.259**	.297**	.321**	.312**	1	
Smoker status	.359**	.363**	-.138**	-.150**	-.124*	-.028*	-.169**	0.004	-.174**	1

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

4.3. Regression Analysis

We first mean-centered all predictor variables and used these mean-centered variables to create product terms with the smoker status variable. We then estimated regression models with all predictors in the model for the dependent measures of personally consider smoking, others consider smoking, and secondhand smoke harms children. Then, to formally test the degree to which the evoked emotions mediate the effect of visibility on the dependent variables of personally considering smoking, Others consider smoking, and secondhand smoke harms children, the multiple mediator process approach recommended by Hayes in 2013 was conducted.

R^2 (0.540) shows that perceived visibility was positively associated with among adolescents' smokers ($\beta = .724$, $t = 12.543$, $p < .01$). R^2 (0.567) shows that there is a positive association between Visibility, Smoking, and Smoker Visibility on Fear. The adjusted R square value is .316, which shows that 31.6% of variability in the dependent variable is because of an independent variable. Our hypothesis (H_1) that being a

smoker would moderate (strengthen) the effect of visibility on fear was supported ($\beta = .349$, $t = 2.897$, $p < .01$). Thus, there is a positive and significant effect of visibility on fear between adolescent smokers. As hypothesized, R (0.528) shows that being a smoker resulted in slightly guilt than being a non-smoker, supporting H_{2a} . The adjusted R square value is .275, so 27.5% of variability in the dependent variable is because of an independent variable ($\beta = -0.462$, $t = -3.107$, $p < .01$). R^2 (0.511) shows that there is a positive association between Visibility and Evoked guilt. The adjusted R^2 value is .259, which shows that 25.9% of variability in the dependent variable is because of an independent variable. Visibility had a positive effect on evoked guilt ($\beta = .670$, $t = 11.608$, $p < .01$).

The moderation predicted in H_{2c} was also supported and has a significant result; being an adolescent smoker strengthened the effect of visibility on evoked guilt ($\beta = .270$, $t = 2.236$, $p < .05$). The adjusted R square value is .283, which shows that 28.3% of variability in the dependent variable is because of an independent variable. Supporting H_{3a} , R (0.540) shows, smokers

were less likely to be disgusted by higher perceived graphic levels than non-smokers. ($\beta = -.343$, $t = -2.537$, $p < .01$). R^2 (0.529) shows that there is a positive association between visibility and evoked disgust. Supporting H_{3b} , the graphic level had a positive effect on disgust ($\beta = .636$, $t = 12.171$, $p < .01$). However, the effect for H_{3c} was significant. Being a smoker moderates the effect of visibility on disgust ($\beta = .237$, $t = 2.163$, $p < .05$). The adjusted R^2 value is .294, which shows that 29.4% of variability in the dependent variable is because of an independent variable. Via regression, we included the effects of visibility and a smoker visibility interaction on fear, guilt, and disgust. We also included in this model the effects of fear, guilt emotions, and their interactions with smoker status as predictors of personal consideration of smoking, other considerations of smoke, secondhand smoke.

R^2 (0.482) shows that there is a weak positive relationship between Fear, Smoking, and Smoker Fear and Personally Consider Smoking. The adjusted R^2 value is .226, so 22.6% of variability in the dependent variable is because of an independent variable. The results for hypothesis H_{4a} suggested that smoker status did not moderate the effect of fear on personal consideration of smoking ($\beta = .123$, $t = 1.227$, $p > .1$). R^2 (0.485) shows that there is a weak positive relationship between Guilt, Smoking, and Smoker Guilt and Personally Consider Smoking. The adjusted R^2 value is .229, so 22.9% of variability in the dependent variable is because of an independent variable while H_{4b} moderates the effect of guilt on personal consideration of smoking ($\beta = .214$, $t = 2.321$, $p < .05$). The same regression approach for personal considerations about smoking was used for the other adolescents' consideration of the smoking variable. R^2 (0.351) shows that fear was directly related to the others consider smoking variable ($\beta = .328$, $t = 7.320$, $p < .01$). R^2 (0.362) shows that there is a weak positive relationship between Fear, Smoking, and Smoker fear and Others Consider Smoking. The adjusted R^2 value is .124, which shows that 12.4% of variability in the dependent variable is because of an independent variable.

Being a smoker did not moderate the effect of fear on others' consideration of smoking ($\beta = .167$, $t = 1.536$, $p > 0.1$). R^2 (0.357) shows there is a weak positive relationship among Guilt, Smoking, and Smoker Guilt and secondhand smoke Harms Children. The adjusted R^2 value is .121, which shows that 12.1% of variability in the independent variable is because of the dependent variable. Results show that smoking status did not moderate the effect of guilt on secondhand smoke, which harms children ($\beta = .032$, $t = 0.354$, $p > .1$).

4.4. Mediation Analysis

The above results show that visibility had significant effects on evoked fear, evoked guilt and evoked disgust. Whereas fear has an insignificant effect on personal consideration of smoking and others consider smoke. Guilt has a significant effect on personal consideration of smoking, and an insignificant effect on the secondhand smoke. We now use a multiple-mediator regression approach via the Hayes process to examine whether the emotions mediate the effect of visibility on all dependent variables.

To address H7, we used a multiple mediator parallel process model to assess the indirect effects on visibility through evoked fear, guilt, and disgust, for each of the three dependent variables. The test results in four values: p- value, standard error, test statistics, and unstandardized beta (β) coefficient. The mediation effect is significant, if the p -value lies less than the alpha value of ($\alpha=0.05$).

4.4.1. Direct Effects

Table 2 shows the direct effects. As 0 is not lying between the upper and lower limits of bootstrapping, which means the results are significant. The direct relationship of perceived visibility on personal consideration of smoking ($\beta = .5876$, $p = .0000$ at 95% CI), other considerations of smoking ($\beta = .4272$, $p = .0000$ at 95% CI), and on the secondhand smoke ($\beta = .2292$, $p = .0077$ at 95% CI) were significant for smokers.

Table 2 Direct effects

Constructs	Effect	S.D	t-value	p-value	LLCI	ULCI	
PG → PCS	0	0.279	0.106	2.636	0.009	0.071	0.488
	1	0.588	0.080	7.355	0.000	0.431	0.745
PG → OCS	0	0.464	0.120	3.874	0.000	0.229	0.700
	1	0.427	0.090	4.726	0.000	0.249	0.605
PG → SHS	0	0.184	0.113	1.619	0.106	-0.039	0.407
	1	0.229	0.086	2.681	0.008	0.061	0.397

Notes: Perceived visibility (PG); personal consideration of smoker (PCS); secondhand smoke (SHS)

4.4.2. Indirect Effects

Table 3 shows the indirect effect of perceived visibility through fear ($\beta = .0648$ at 95% CI), guilt ($\beta = .0650$ at 95% CI), and disgust ($\beta = .0605$ at 95% CI) on personal consideration of smoking, respectively. As 0 is lying between the upper and lower limits of

bootstrapping, which means the results are insignificant.

We conclude that the effect of visibility became insignificant for personal consideration of smoking and it did not evoke fear and guilt among adolescent smokers.

Moreover, Table 3 also depicts the indirect effect of perceived visibility through fear ($\beta = .0990$ at 95% CI) and guilt ($\beta = -.0351$ at 95% CI); we conclude that the effect of visibility became insignificant for other considered smokes and it did not evoke fear and guilt among adolescents' smoker; therefore, the results are insignificant. However, the indirect effect of perceived visibility through disgust ($\beta = .1219$ at 95% CI) became significant for other considered smokes and it evoked disgust among adolescent smokers; therefore, the indirect effect of perceived visibility is significant.

Furthermore, Table 3 also depicts the indirect effect of perceived visibility through fear ($\beta = -.0052$ at 95% CI), guilt ($\beta = .1046$ at 95% CI), and disgust ($\beta = .0269$ at 95% CI) on the secondhand smoke. As 0 is lying between the upper and lower limits of bootstrapping, which means the results are insignificant.

We conclude that the effect of visibility became insignificant for secondhand smoke and it did not evoke fear, guilt, and disgust among adolescent smoker; therefore, it is insignificant.

Table 3 Indirect effects/mediation

Constructs	Effect	BoostSE	BootLLCI	BootULCI	
PG → Fear → PCS	0	0.109	0.090	-0.060	0.287
	1	0.065	0.048	-0.027	0.159
PG → Guilt → PCS	0	0.118	0.075	-0.038	0.255
	1	0.065	0.050	-0.025	0.169
PG → Disgust → PCS	0	-0.096	0.074	-0.240	0.053
	1	0.061	0.041	-0.018	0.141
PG → Fear → OCS	0	-0.017	0.093	-0.200	0.172
	1	0.099	0.054	-0.010	0.201
PG → Guilt → OCS	0	0.118	0.057	0.003	0.233
	1	-0.035	0.065	-0.160	0.094
PG → Disgust → OCS	0	-0.135	0.077	-0.300	0.006
	1	0.122	0.049	0.025	0.220
PG → Fear → SHS	0	-0.058	0.065	-0.188	0.069
	1	-0.005	0.052	-0.099	0.104
PG → Guilt → SHS	0	0.160	0.062	0.053	0.296
	1	0.105	0.054	-0.006	0.205
PG → Disgust → SHS	0	-0.031	0.078	-0.191	0.118
	1	0.027	0.048	-0.065	0.124

Note: Perceived visibility (PG); personal consideration of smoker (PCS); secondhand smoke (SHS)

4.4.3. Combined Effects

Table 4 shows the model summary of the moderation mediation effect of perceived visibility through fear ($\beta = .7243$, $p = .0000$ at 95% CI), guilt as ($\beta = 0.6701$, $p = .0000$ at 95% CI), and disgust ($\beta = .6355$, $p = .0000$ at 95% CI) on personal consideration of smoking.

As 0 is not lying between the upper and lower limits of bootstrapping, which means the results are significant. We conclude that the effect of visibility became significant for personal consideration of smoking and it evoked fear, guilt, and disgust among adolescent; thus, hence moderation mediation effects are significant.

Moreover, the results exhibit the moderation mediation effect of perceived visibility through fear ($\beta = .7243$, $p = .0000$ at 95% CI), guilt ($\beta = .6701$, $p = .0000$ at 95% CI), and disgust ($\beta = .6355$, $p = .0000$ at 95% CI) on the Others Consider Smoking. As 0 is not

lying between the upper and lower limits of bootstrapping, which means the results are significant.

We conclude that the effect of visibility became significant for Others Consider Smoking and it caused fear, guilt, and disgust among adolescent; thus, hence the moderation mediation effect is significant (Table 4).

Furthermore, Table 4 exhibits the findings of the moderation mediation effect of perceived visibility through fear ($\beta = .7243$, $p = .0000$ at 95% CI), guilt ($\beta = .6701$, $p = .0000$ at 95% CI), and disgust ($\beta = .6355$, $p = .0000$ at 95% CI) on secondhand Smoke. As 0 is not lying between the upper and lower limits of bootstrapping, which means the results are significant.

We conclude that the effect of visibility became significant for secondhand smoke and it caused fear, guilt, and disgust among adolescent; thus, hence the moderation mediation effect is significant.

Table 4 Indirect effects/moderation

Constructs		β	S.D.	t-value	p-value	LLCI	ULCI	R2	Adj. R2	F
PG, SG*Fear → PCS	Constant	1.085	0.292	3.714	0.000	0.511	1.655	0.5401	0.292	157.328
	PG	0.724	0.058	12.543	0.000	0.611	0.838			
PG, SG*Guilt → PCS	Constant	1.780	0.264	7.898	0.000	1.567	2.606	0.511	0.261	134.760
	PG	0.670	0.058	11.608	0.000	0.557	0.784			
PG, SG*Disgust → PCS	Constant	2.087	0.264	7.898	0.000	1.567	2.606	0.5286	0.279	148.100
	PG	0.636	0.052	12.171	0.000	0.533	0.738			

Continuation of Table 4

PG, SG*Fear → OCS	Constant	1.085	0.292	3.714	0.000	0.511	1.659	0.5401	0.292	157.300
	PG	0.724	0.058	12.543	0.000	0.611	0.838			
PG, SG*Guilt → OCS	Constant	1.780	0.292	6.096	0.000	1.206	2.354	0.5107	0.261	134.800
	PG	0.670	0.058	11.608	0.000	0.557	0.784			
PG, SG*Disgust → OCS	Constant	2.087	0.264	7.898	0.000	1.567	2.606	0.529	0.2794	148.130
	PG	0.636	0.052	12.171	0.000	0.533	0.738			
PG, SG*Fear → SHS	Constant	1.085	0.292	3.714	0.000	0.511	1.659	0.540	0.292	157.300
	PG	0.724	0.058	12.543	0.000	0.611	0.838			
PG, SG*Guilt → SHS	Constant	1.780	0.292	6.096	0.000	1.206	2.354	0.511	0.261	134.800
	PG	0.670	0.058	11.608	0.000	0.557	0.784			
PG, SG*Guilt → SHS	Constant	2.087	0.264	7.898	0.000	1.567	2.606	0.529	0.279	148.100
	PG	0.636	0.052	12.171	0.000	0.533	0.738			

Notes: PG – perceived visibility; PCS – personal consideration of smoker; SHS – secondhand smoker

Table 5 Effects of evoked emotions and the moderating role of smoking status

	Model 1	Model 2	Model 3	Model 4 (a)	Model 4(b)	Model 5	Model 6
Constant	1.545 (3.945)***	2.034 (5.185)***	2.260 (6.338)***	3.074 (5.080)***	3.452 (5.781)***	3.098 (4.705)***	3.76 (6.482)***
Visibility	0.486 (4.931)***	0.484 (4.902)***	0.473 (5.268)***				
Fear				0.319 (3.619)***		0.206 (2.144)**	
Guilt					0.271 (3.543)***		0.246 (3.309)***
Smoker Status	-1.737 (-3.658)***	-1.473 (-3.096)***	-1.232 (-2.848)***	-0.937 (-1.844)*	-1.451 (-2.865)***	-0.638 (-1.154)	-0.537 (-1.091)
Smoker Graphic*	0.349 (2.897)***	0.270 (2.236)**	0.237 (2.163)**				
Smoking Fear*				0.123 -1.227		0.167 -1.536	
Smoking Guilt*					0.214 (2.321)**		0.032 -0.354
R-Square	0.322	0.288	0.300	0.232	0.235	0.131	0.128

Notes: Model 1: Fear; Model 2: Guilt; Model 3: Disgust; Model 4a: Personal Consideration of Smoking; Model 4b: Personal Consideration of Smoking; Model 5: Other adolescent consider smoking; Model 6: Secondhand smoke harms children; T-values for coefficients are shown in parentheses after the coefficients; For Smoking Status, smokers are coded as (1), and non-smokers as (0); *** p < 0.01; ** p < 0.05; * p < 0.1

Table 6 Mediating role of evoked emotions: indirect effects via the emotions mediators

Indirect effects through emotions	Standard error	Indirect effect (β)	95% confidence interval
Graphic health warning – Fear – Personal consideration of smoking	0.048	0.0648	-.02 to .15
Graphic health warning–Guilt – Personal consideration of smoking	0.0501	0.065	-.02 to .16
Graphic health warning – Disgust – Personal consideration of smoking	0.0405	0.0605	-.01 to .14
Graphic health warning – Fear – Other Consider Smoking	0.0535	0.099	-.00 to .20
Graphic health warning – Guilt – Other Consider Smoking	0.0653	-0.0351	-.16 to .09
Graphic health warning – Disgust – Other Consider Smoking	0.0492	0.1219	.02 to .21
Graphic health warning –Fear – Secondhand Smoke Harms Children	0.0515	-0.0052	-.09 to .10
Graphic health warning – Guilt – Secondhand Smoke Harms Children	0.062	0.1601	.05 to .29
Graphic health warning – Disgust – Secondhand Smoke Harms Children	0.0482	0.0269	-.06 to .12

Notes: ** p < 0.05

5. Discussion

The main aim of graphic health warnings on cigarette packages is to evoke emotive reactions in affecting adolescents' intentions toward smoking consideration and cessation in an effective and an efficient way.

Messages with fear applications may actually upturn awareness of threats of harmful practices for example smoking, therefore serving to generate smoking termination [17]. Pictorial warnings may evoke emotional responses (i.e., fear) directly and are more visceral and graphic without any cognition [69]. Apart from the impact of fear and negative health beliefs, it has been concluded that pictorial health warnings and a

smoking rate interaction have gradual effects on quit thoughts [42]. The Results show that graphic health warnings have a positive and significant effect in evoking fear emotion among the adolescents (smokers). Hence H₁ is accepted.

Guilt helps as an inspiring aspect in reparative behavior replying to communal ideals. Injunctive standards warnings that smoking in the existence of others is an undesirable behavior in humanity could encourage smokers to change their behavior [32]. Threat visual warnings (TVWs) with a high-risk level are critical and effective. They also increase negative feelings such as fear, guilt, and shame and behavioral or attitudinal intentions conducive to smoking cessation

[13]. The results show that being a smoker leads to more guilt supporting H_{2a} where graphic health warnings have a positive effect on guilt, supporting H_{2b} . However, being a smoker strengthened the effect of visibility on guilt hence H_{2c} is accepted.

The more alarming and aversive visual threat, the powerful negative feelings elicited (disgust, fear), and more preferably individuals will be inspired to quit and stop smoking initiations [13]. Persons appealing in the negative conduct may also be involved in self-justifying or rejection handling of disgusting graphic content than those not appealing in the conduct [49]. Smoking signals and disgust pictures each have impact on acknowledgment memory, passionate reactions, smoking inclinations, and goals to stop smoking [7]. Results shows that, being a smoker leads to less disgusted, supporting H_{3a} , where graphic health warnings have a positive effect on disgust, supporting H_{3b} . However, being a smoker strengthened the effect of visibility on disgust hence H_{3c} is accepted.

Referring to the Extended Parallel Process Model (EPPM), it is noted that message rejection by adolescents is due to a high level of fear arousal [68]. According to researcher [36, 53, and 54] fear tends to be troublesome by the product of the intellectual handling of a message. The study [70] revealed that EPPM reselects fear a fundamental place, but in this model, fear has an adverse effect on encouragement. Excessive fear projects to refusal of the warning effect on adolescents [61]. The result shows that, fear is not evoked in the individuals who do smoke due to excessive exposure to health warnings and has an insignificant effect hence H_{4a} is rejected.

Guilt appeals when an individual is associated as being blamable for the negative consequence i.e. smoking addiction [5]. Furthermore, both guilt and disgrace are feelings of embarrassment aroused by self-reflection and self-assessment, and they together assist in self-directive [9, 63]. The prospective effects of warnings on adolescents also increase moral concerns. Adolescents may respond to them with emotions of guilt when they realize that they cannot embrace the suggested practices [17]. The results show that guilt is evoked in the individuals when they are exposed to health warnings and it has a positive significant effect on adolescents (smokers), hence H_{4b} is accepted.

Adolescents think that cigarettes will help them lose weight, and some teens think it looks cool or elegant or make them look independent. Parents who smoke also motivate a teen's decision in the support of smoking. Many adolescents today are subjected to anxieties and stress because of their hectic and busy schedule. Nicotine has a soothing and calming effect on adolescent smokers as it does on adults so many turn to cigarettes to gain relaxation [24]. Content studies propose that smoking happens in as many as 80% of new movie releases and that smoking in movies is

related to young vigor, healthiness, nice looks, and individual and professional approval. The optimistic representations of smoking in movies appear mainly expected to have an emotional impact on the adolescents who are inclined to be easily influenced. It is assessed that the average adolescent goes to the movies almost once a month and watches two feature films a week on TV. Teenagers who smoke secretly regularly and who show great signs of unhappiness and nervousness had an excess of three-fold threat of nicotine dependency among adolescents [39]. To get relief from stress, nervousness, and unhappiness, teens are addicted to smoking and do not have an emotion of fear from its hazards. Persistent with the notion that adolescent sighted cigarettes as prohibited fruit, the film scenes with smoking formed higher points of positive stimulation. As expected, the scenes also improved onlookers' opinions of a smoker's stature and improved their intentions toward smoking [46]. The results shows that, the emotion of fear is not evoked in teens who are smokers and it has an insignificant effect on them as they are exposed to smoking conduct, hence H_5 is rejected.

Research has shown that the adolescents' often first experiment of smoking with friends and that youth are at risk for smoking when they bond with peers who smoke. Youth may be more likely to smoke because they have close friends who smoke, or youth who smoke may be more likely to choose friends who also smoke. They feel that smoking is obviously associated with relaxation and pleasure. To establish stronger links with their peers, they are inhibited to smoking act [71]. Secondhand smoking is perceived as a pleasurable, relaxing, and helpful behavior. The major influence on the initiation of smoking is from peers and parents. Cigarettes are often referred to as a best friend that is dependable through both happy and difficult times [60]. The results shows that, the emotion of guilt is not evoked due to secondhand smoking and has an insignificant effect on adolescents smokers as they are exposed to smoking conduct hence H_6 is rejected.

In promoting smoking cessation, warning content is a powerful verification reinforcing the superiority of graphic messages over text warnings, and increasing health information and perceptions of threats. Graphic health messages although contain images, that arouse fear and elicit negative feelings and emotions (disgust, guilt, shame). Empirical research clarifies that fear-arousing warnings are preferably to change perceptions about the hazards of smoking, and over-all appropriateness of tobacco goods [14, 20, 42, and 43]. To define the impact of greater fear-arousing pictorial warning labels contrast to text warnings or to lower fear arousing, researchers concluded that negative feeling reactions such as disgust and fear motivate perceived vulnerability to smokers, perceptions about disadvantages and harmful health hazards of tobacco

usage and passive smoking, and views of smoking cessation, which in order motivate smoker's behavior [13, 29, 42, 64]. The results show that the indirect effect of perceived visibility through these emotions (fear, guilt, disgust) were significant for outcome variables (personal consideration of smoking, others consider smoking, secondhand smoke beliefs). The results support H_7 for the combined effect of the mediation role of emotions. Emotions such as fear, guilt, and disgust show full mediation on the dependent variable, hence H_7 is accepted.

6. Conclusions and Recommendations

The novel findings of the study proposed that pictorial health warnings hold advantageous effects for adolescents. The effectiveness of graphic health warnings evokes three strong negative emotions (fear, guilt, disgust) in adolescents who are smokers. Teenagers who smoke are likely to feel more guilty and fearful with respect to non-smokers. The significant results were obtained, which depicted a significant positive relationship between perceived visibility, fear, guilt, and disgust. Guilt and smoker status have a significant relationship with personal consideration of smoking. Whereas fear and smoker status have an insignificant relationship with personal consideration of smoking and other considers of smoke. Guilt and smoker status also has also an insignificant relation with secondhand smoke beliefs. The findings showed that the indirect effect of perceived visibility through these emotions (fear, guilt, disgust) were significant for outcome variables (personal consideration of smoking, others consider smoking, secondhand smoke beliefs). From the demographic variables of the adolescents, it is proven that male adolescents are more inclined toward smoking than females. Graphic health warnings hold a significant positive effect on adolescent smoking consideration. They evoke strong negative feelings that reduce their attraction toward smoking and lead them to cessation.

Using high levels of visibility with different health warning themes is helpful in evoking emotions such as fear, guilt, and disgust among the adolescents. This leads to smoking cessation. The warnings shall be rotated every year or the Federal Government may instruct from time to time [25]. By changing graphic health warnings yearly, negative emotions among the adolescents increase, which result in a reduction in smoking intentions. An excessive level of fear in graphics leads to refusal of warning. Thus, a moderate level of fear should be depicted in graphics to increase the effectiveness. The film scenes with smoking formed higher points of positive stimulation, which stirred adolescents' intentions toward smoking. These scenes should be prohibited and should be less exposed to adolescents. Avoid clear, unambiguous promotions on the behalf of the tobacco industry using traditional values that support smoking.

7. Limitations of the Study

We focused on specific health warnings such as tobacco being addictive, secondhand smoke harming children, and cigarettes causing fatal lung disease. This study only focuses on the adolescents of Abbottabad aged 18-29 and neglects the other age group of adolescents.

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