

Effectiveness of Health Promotion Audiovisual Materials in Reducing Nicotine Dependence Among Young Adults

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Abstract

Nicotine dependence is an addiction to tobacco products caused by drug nicotine. The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 7 million people a year. In spite of all the efforts and interventions made by the government to curb smoking, there seemed to be a steady growth in the number of smokers through the years. The purpose of this study is to determine the effects of health promotion audiovisual material in reducing nicotine dependence among young adults. A quasi-experimental pretest-posttest design was used to know the effectiveness of audiovisuals in decreasing nicotine dependency among young adults. The study population consisted of 50 young adult smokers, 25 in the experimental and 25 in the control group, ages 18-35 years old. Fagerstrom Test for Nicotine Dependence Assessment Toolkit was used for both groups. Experiential videos were presented to the experimental group for 5-10 minutes. Independent T-test was used in comparing the pre-test scores of control and experimental group; however, to analyze the whole collated data, ANCOVA was utilized. There is a significant decrease between the post-test mean scores of the experimental group as compared to their pre-test scores ($p=.014$) and nicotine dependence of the experimental group significantly reduced after the intervention. Comparatively, there was no significant decrease within the pre-test and posttest scores ($p=.104$) of the experimental and the control group. The audiovisuals were presented to the experimental group that stated topics about cigarette smoking. There were significant differences between the pretest and posttest scores of the experimental and control groups which indicate that the audiovisuals utilizing the health promotion model were effective in reducing nicotine dependence among young adults.

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Long-term intervention and research about nicotine dependence may be implemented in future study. There were significant differences between the pretest and posttest scores of the experimental and control groups which indicate that the audiovisuals utilizing the health promotion model were effective in reducing nicotine dependence among young adults. Long-term intervention and research about nicotine dependence may be implemented in future study.

Keywords: Audiovisuals; Health Promotion Model; Nicotine Dependence; Young Adults.

1. Introduction

The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 7 million people a year [31]. More than 6 million of those deaths are the result of direct nicotine use while around 890,000 are the result of non-smokers being exposed to secondhand smoke. Around 80% of the 1.1 billion smokers worldwide live in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest. In the Philippines, twenty-eight percent or 17.3 million Filipino adults age 15 years and older are current tobacco smoker [14]. Almost half (48 percent or 14.6 million) of adult males and 9 percent (2.8 million) of adult females are current smokers. Moreover, 23 percent of Filipino adults are daily tobacco smokers: 38 percent for males and 7 percent for females. Filipinos mainly smoke cigarettes, which include manufactured cigarettes and hand-rolled cigarettes. On the average, male daily smokers consume 11 cigarettes per day while female daily smokers consume 7 cigarettes per day [10]. Addiction to nicotine does not happen quickly, after using tobacco once or twice; it develops over time and is actually a “gateway drug” which are among the first substances being consumed. Most smokers go through a series of steps from experimentation to regular use on their way to becoming addicted. Particularly in the industrialized countries, most people addicted to nicotine initiated smoking during adolescence. As many as one-third to one-half of young people who experiment with smoking go on to become regular smokers [31]. It is believed that it already became their norm to abuse cigarette smoking, and even alcohol and drugs was already classified as social needs. Tobacco dependence among youth, described that the first attempts at smoking as requiring cigarettes in order to function socially [11]. In youth social context, it is important for them to smoke with or in front of their friends as a process of social identification or self-categorization to seek acceptance. The reasons of smoking for youth always associated with curiosity, peer pressure or influence from the same or different sex, stress about study or school and the isolation [12]. Chronic smokers display greater cravings and higher dependence on nicotine than smokers who successfully quit, which indicates a need for novel interventions that address cravings. A profound study was conducted that included learning and communication theories. It helped understand the development of audiovisual which might contribute smoker’s efforts to alter bad health habits and shift to healthier lifestyle. According to the results presented, the addition of text messages combined with attractive pictures was favorable to increase motivation levels and it also contributed to the efficiency of videos’ messages. Also, the videos become an effective way to smoking cessation treatment [21]. To bring about an effective change, awareness as well as attitudinal and behavioral changes are required. Keeping in lieu with the above, an interventional study was carried out to assess the effect of anti-tobacco audiovisual spots on attitudinal change towards smoking and smokeless forms of tobacco use of adult subjects [18]. Smoking is prohibited in enumerated indoor public places and workplaces such as government facilities, healthcare and educational

institutions, and facilities frequented by minors while, in other public places and workplaces, including bars and nightclubs, designated smoking areas are allowed. Smoking is also prohibited in public land transport, aircraft, and public transport terminals; however, public watercraft may have designated smoking areas. Sub-national jurisdictions may enact smoke free laws that are more stringent than the national law. Republic Act No. 9211, also known as the Tobacco Regulation Act of 2003, is an omnibus law regulating smoking in public places, tobacco advertising, promotion and sponsorship, and sales restrictions, among other requirements. The Inter-Agency Tobacco-Committee issued Implementing Rules and Regulations of the Tobacco Regulation Act of 2003. The Committee's Implementing Rules and Regulations are comprehensive and cover a broad range of topics on tobacco control. In addition to the advertising, promotion and sponsorship provisions in Republic Act No. 9211 and the Implementing Rules and Regulations, the Consumer Act of the Philippines which is also known as R.A. No. 7394 addresses false, deceptive, or misleading advertising in general [8]. In spite of all the efforts and interventions made by the government to curb smoking, there seemed to be a steady growth in the number of smokers through the years. Smoking cessation is the most important, cost-effective promotive maintenance that nurses can offer patients who smoke [2]. The concept of health promotion was developed to emphasize the community-based practice of health promotion, community participation and health promotion practice based on social and health policies [16]. In health promotion by nurses can lead to many positive health outcomes including adherence, quality of life, patients' knowledge of their illness and self-management [5]. Through the use of Health Promotion Model, the researchers aimed to determine the effectiveness of testing audiovisuals in decreasing the nicotine dependence among young adults. The audiovisuals can reduce the nicotine dependence of the participants.

2. Literature Review

2.1.1 Nicotine Dependence

Nicotine dependence is an addiction to tobacco products caused by drug nicotine. Nicotine produces physical and mood altering effects in your brain that are temporarily pleasing. These effects make you want to use tobacco and lead to dependence [18]. As cigarette smoking continues to be the most common form of tobacco use among young adults The majority of adult smokers begin using cigarettes during adolescence and young adulthood, making these developmental periods quite important in understanding the factors that influence individuals to use cigarettes [13]. Because cigarette smoking usually begins at age 12-13 years and most smokers begin smoking by age 18 years, tobacco prevention programs typically target children and adolescents. There is growing concern that smoking initiation may be increasing in young adults, especially because this subgroup is often overlooked by tobacco control programs [30]. Substantive and psychometric considerations strongly support four new criteria for further testing and potential inclusion in the DSM-5. These criteria concern smoking heaviness that subjects take 10 or more cigarettes per day, latency to smoke upon awakening which would last for 5-60 minutes, craving to smoke, and withdrawal severity. Moderate-to-heavy chronic smokers both negative and positive urgency were related to severity of nicotine dependence. Only positive urgency influences level of nicotine dependence early in the developmental process of tobacco addiction. Higher levels of urgency have been found to be predictive of nicotine dependence severity [14, 27]. However, among established smokers who are later in the developmental trajectory of tobacco addiction, it is possible that

negative urgency becomes increasingly relevant to the expression of nicotine dependence, on par with positive urgency [25].

2.1.2 Audiovisuals

Audiovisuals improve one's critical and analytical thinking. They are memorable, thought provoking, stimulating and appealing to many people. Through audiovisuals, a person can present videos, programs and films in a more effective way for it helps retain information and makes the concepts better. A training guide about smoking and the dangers of smoking was used and it included the definition of cigarettes, information about harmful ingredients in cigarettes, the dangers of cigarettes, active and passive smoking, and laws related to smoking. In the similar study, audiovisual devices such as posters, computers and projectors are some of the resources that were used in presenting the topic regarding dangers of smoking [1]. The study helped in decreasing the number of students who were smoking. Explored strategies for adult daily smokers who are not motivated to quit smoking to identify and match pictures of pros and cons of smoking [8]. The study resulted in 30 pro-con picture pairs matched on valence, arousal and complexity. Training tasks was used to explore and change cognitive biases regarding pros and cons of smoking. This may consequently influence the perceived pros and cons of smoking and yield positive effects with regard to the motivation to quit smoking [17]. In 2017, Phipps, a newly developed intervention was found wherein a video addressing issues of tobacco smoke avoidance, including smoking cessation was provided to pregnant women who are smoking. Within the video, tailored messages were subtly delivered to the participant along with other prenatal topics [26]. Public health messages delivered in video format are the mainstay of smoking-cessation campaigns that have contributed to the decline in smoking prevalence in the US [29]. It helped in decreasing environmental tobacco smoke among pregnant women and to those who are exposed to the smoke of others, and later, their infants. Another study explored computer-tailored smoking cessation intervention wherein subjects receive personalized feedback on their smoking behavior and how quitting can be best achieved. It was found that a video-based computer-tailored smoking cessation intervention can be effective for achieving prolonged abstinence for smokers. The use of video activities, both visual and verbal channels, reduces cognitive effort and increases a better understanding and processing of information [4]. Research articles revealed that audiovisuals about smoking can effectively decrease the smoking habits of the people involved in the studies. This study is essential because providing information regarding smoking and its bad effects to the health of a person can help in reducing nicotine dependence among young adults. Nurses have big impact in helping these young adults in the progress of reducing their perception in nicotine dependence.

2.1.3 Young Adults

Young adults are people between 18 to 35 years of age [16]. The average attention span of healthy young adults is not more than 20 minutes [4]. Tobacco smoking is clearly one of the chief preventable causes of death in the world. The World Health Organization cites that cigarettes are responsible for about five million deaths every year and that if current smoking patterns continue, that number could double by 2020 [31]. Youth cigarette smoking is a major public health concern in Southeast Asia. A suspected determinant of youth smoking is perceived peer behavior. Cigarette smoking is found out to be the number one cause of preventable loss of life

worldwide. It is the root of about 6 million recorded deaths in a year and it is anticipated that there are 8 million accounted deaths annually by the year 2030 [6]. Twenty-eight percent or 17.3 million Filipino adults age 15 years and older are current tobacco smokers [10]. Almost half (48 percent or 14.6 million) of adult males and 9 percent (2.8 million) of adult females are current smokers; moreover, 23 percent of Filipino adults are daily tobacco smokers: 38 percent for males and 7 percent for females. Anti-smoking videos on Youtube, a popular, interactive social media site [25]. This research tested the ability of health messages to reduce the social acceptability of peer smoking on YouTube despite enhancing its perceived prevalence. In an online experiment with 999 adolescents, participants were randomly assigned to view one of two videos: (a) a mosaic displaying a variety of YouTube videos of adolescents smoking followed by a message about the mortality risk to those smokers, or (b) a control video on a health topic unrelated to smoking and mortality risk to those smokers. They found that a control video on a health topic unrelated to smoking and mortality risk to those smokers enhanced beliefs and attitudes regarding the harms of cigarette smoking in ways noteworthy for their generality [24]. Filipinos mainly smoke cigarettes, which include manufactured cigarettes and hand-rolled cigarettes. On the average, male daily smokers consume 11 cigarettes per day while female daily smokers consume 7 cigarettes per day [6]. Even with young adults, it has been identified that depression, anxiety disorders, and stress-related illnesses are ones of the most recognized causes of smoking. Smoking has been shown to harm nearly every organ of the body, and science shows that most adult smokers first start smoking even during adolescence, said lead study author Rene Arrazola of the Office of Smoking and Health at the CDC. Young people who begin to smoke at an earlier age are more likely to develop long-term nicotine addiction than those who start at older ages, Arrazola said by email. Therefore, efforts to prevent youth tobacco use are critical to prevent another generation of adults who smoke and suffer from smoking-related death and disease [20].

2.2 Research Hypotheses

The researchers aim to validate through empirical evidences that:

H1: There is a significant difference between the pretest and post-test scores of both control and experimental groups.

H2: There is a significant difference within the pretest and post-test scores of experimental group.

H₀3: There is no significant difference within the pretest and post test scores of the control group.

2.3 Operational Definitions

- Nicotine Dependence. It is an addiction to tobacco products caused by drug nicotine. In this study, it refers to the variable that was tested through the use of Fagerstrom Test. The participants who get 7 to 10 points is highly dependent; 4 to 6 points is moderately dependent; less than 4 points is minimally dependent.
- Young Adults. They are people between 18 to 35 years of age. In this study, they refer to subjects targeted for the research who are aged 18 and above. These young adults are currently smokers with at least 1 cigarette per day on 3 or more days of the week or have smoked ≥ 100 cigarettes.

- Audiovisuals Therapy. It is used as a training guide which discusses about smoking and the dangers of smoking and it included the definition of cigarettes, information about harmful ingredients in cigarettes, the dangers of cigarettes, active and passive smoking, and laws related to smoking. In this study, audiovisuals showing the negative effect of smoking to a person's health and body presented. The audiovisuals that last for 6-10 minutes.
- Health Promotion. Promotion of health by spreading awareness and knowledge using various experiential audiovisuals to young adults who are nicotine dependent to be able to apply it to their daily lives and also share it to their family, acquaintances, loved one, peers, etc. It is a way to prevent diseases or complications on dependency to nicotine and to promote better lives and achieve health which is the perceived outcome.

2.4 Theoretical Framework

2.4.1 Nola Pender's Health Promotion Model

"Nola Pender's Health Promotion Model" is the primary theory used in this study. The Health Promotion Model is a complementary counterpart to models of health protection which defines health as a "positive dynamic state not merely the absence of disease". It focuses on the individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. These variables can be modified through nursing actions and are geared towards achieving a particular behavioral outcome or change which is commitment to a plan of action, immediate coping demands and preferences, and health-promoting behavior. The model has the assumptions that individuals seek to actively regulate their own behavior and health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life span. Health promoting behaviors should result in improved health, enhanced functional ability and better quality of life at all stages of development [23]. Comprehensive and active awareness of the population through the health promotion strategies are the primary tools for smoking prevention and cessation. Public education is an integral part of the efforts to both prevent the initiation of smoking use and encourage smoking cessation. Reaching the mass public by social marketing and mass media interventions, reaching the individual by peer education, whilst approaching the community via community mobilization and changing the environment by media advocacy and setting based intervention seemed to be an extremely effective method of inducing smoking prevention and cessation [8]. Endpoint or action outcome directed toward attaining positive health outcome such as optimal well-being, personal fulfillment, and productive living [23]. It states that every single has a personal and unique characteristics or experiences in their lives that somehow affect the actions and decisions they take. Health promotion model was used to determine effectiveness of health education through multimedia on the physical activity of patients [10]. The interventions focused on the subjects themselves, his or her family members and peers, whom can be a support system and received the research's material for intervention. In this manner, the people that surround the subject are included in the promoting activity of health. Using the Health Promotion Model, the researchers have found out that the subjects who were included in the interventions had a lower level of barrier to action and higher levels of self-efficacy, health status, benefits, and support system. High level of self-efficacy, more prior related behaviors, fewer perceived barriers, and fewer competing demands are more likely to help a person or a subject in achieving his perceived outcome in the study which used Health

Promotion Model in development of assessment tool to determine predictors which affect subjects' behavior [10]. The researchers have developed a questionnaire following the logic and features of HPM in order to assess the predictors or factors that affect the behavior of persons towards breakfast consumption. It was also found out that the prior behavior has the most significant effect on the process of health promotion however, emotions and other experiences which are revealed on the part of behavior specific knowledge have a help on developing and promoting the perceived outcome. On the other hand, self-efficacy also affects the behavior of the subject in continuing or doing the process in order to achieve the outcome. Health promotion model by Nola Pender showed that previous behaviors of people and health responsibility are very influential in individuals' future change in their behaviors [9]. Factors and aspects supported by HPM such as behavioral, psychological or mental, social, and personal factors contribute to promote health through nursing interventions. In a study wherein the researchers used HPM for their nursing intervention to explore positive changes in behaviors of women towards early detection of breast cancer, the fact that individual responsibility is high in women increases their motivation [9]. Health promotion is a community empowerment working on improving the quality of life of people in the community in terms of their health [23]. Great aspect of this is participation. They should be able to identify their aspirations, satisfy their needs, and favorably modify the environment to achieve a high state of physical well-being, mental, social, and spiritual. Thus, it is not only on the part of the health practitioners or sectors that responsibility to modify quality of life in order to improve depends rather it is more on the part of the individual to have his health be improved. In their study entitled, "Promoting self-care in clients on hemodialysis: application of the Nola Pender's diagram", behavior that leads to promote the participants' health, from the interrelationship of these three main points: a) the individual characteristics and experiences; b) specific cognitions and affects behavior, which is considered to be the most important among three and; c) behavioral outcome which is the desired result or change in the behavior and perception of the individual. According to the result of the study, desired promotion behavior of health such as well-being, personal fulfillment, and productive life stand out and revealed as the main aspect recorded in the study which present that the participants accept and understand the transformation, their responsibility on their new life plan, a life represented by self-care, responsibility to the treatment regime and most specially love of life and self-respect. In Nola Pender's HPM perceived benefits of action are positive perceptions and insights of the individual towards a change of behavior. In the video, negative effects such as bone demineralization, cancer, diabetes, immunodeficiency, and autoimmune diseases were highlighted that if smoking is not stopped these effects would greatly affect the individual's body and health. Therefore, smokers have been exposed to the possible effects of nicotine and a perceived benefit of action was developed with them because the fact that smoking is stopped, smokers will experience a direct positive effect since smoking is a modifiable factor or situation. It was said that cessation of smoking is still the best management to reduce and prevent occurrence of these diseases and other negative effects of smoking. Lastly, a man who stopped smoking because he got an esophageal cancer and it affects his family and they loss their house and they need to relocate, this served as his wake up call. Like in Nola Pender's Health Promotion Model, Situational Influences have shown in the part of the video that they loss their properties because of the esophageal cancer caused by nicotine dependence.

3. Methods

3.1 Research Design

A quasi-experimental pretest-posttest design used to know the effectiveness of audiovisuals in decreasing nicotine dependency among young adults. A quasi-experimental design involves manipulation of an independent variable but may lack randomization. Purposive sampling, or also referred to as judgmental sampling, used to determine the subjects. It is a conscious selection of subjects to include in the study by the use of sampling criteria. 50 subjects are to be selected in order to avoid attrition bias which happens when a number of withdrawals are noted after the study has been conducted [11], 25 was assigned to the experimental group while, the remaining 25 was for the comparison group. The researchers used a pretest-posttest design which means that the data is collected before and after the intervention which is the audiovisuals.

3.2 Subjects and Setting

The locus of this study is located in a community which was coordinated with Simbahayan. Subjects for the study are going to be chosen through the use non-probability sampling specifically purposive sampling, also known as judgment sampling, in which the researchers used their personal judgment when choosing the subjects for the study [5]. The researchers are also going to seek help to the barangay officials to find young adults who do smoking. The researchers opted to conduct the study in this institution seeing that it is the most convenient site for the study, in terms of the location and accessibility. The study was conducted inside the four walls of a barangay hall setting with a well-ventilated and well-lit environment. In 2015, Brgy. Tabuyuc of Apalit, Pampanga has 9,819 population in which aged 20-24 years old are 993 and is considered to be the largest population in terms of age. Considering the effects of smoking especially second- and third hand smoking, it is not only the smoker himself that is affected or the people proximate to the person but everyone in the community is affected through chemicals that stay in the surroundings coming from the nicotine and also the social influences brought about by people smoking. Many studies say that one factor of engaging in smoking is social or peer pressure and curiosity which greatly affect and influence others in a specific community. The subjects were based on the following inclusion criteria: 1) age is within the range of 18-35 years old, 2) smokers who take 10 or more cigarettes per day [12], 3) competent and willing to cooperate, and 4) has an intention to quit 5) Able to read and to write. The researchers have 50 subjects in order to avoid attrition bias which happens when a number of withdrawals are noted after the study has been conducted [10]. Exclusion Criteria: 1) Current enrollment in another smoking cessation or research program in the next 12 months day [10]. 2) Plan to use other nicotine substitutes or smoking cessation treatments in the next 12 months day [10]. 3) Current medical for which nicotine is contraindicated such as history of kidney and/or liver disease, uncontrolled hypertension [10]. 4) Have serious or unstable disease within the past 6 months [10].

3.3 Research Instruments and Tool

The researchers opt to adapt a tool entitled “Fagerström Test for Nicotine Dependence” (FTND) developed by Karl-Olov Fagerström. The FTND is copyrighted by Taylor and Francis Ltd., but may be reproduced without permission, as available from the source reference [16]. The FTND enables researchers to assess the intensity of physical addiction to nicotine. This tool has acceptable levels of internal consistency, and is closely related to biochemical indices of heaviness of smoking [21]. The FTND is proved to be highly reliable with a Cronbach’s alpha of 0.64 [27]. The test was designed to provide an ordinal measure of nicotine dependence related to

cigarette smoking. It contains six questions that aim to evaluate the quantity of cigarette consumption, the compulsion to use, dependence, and frequency of use. In scoring, the Fagerstrom Test for Nicotine Dependence uses a score of 0 to 1 for yes/no items and 0 to 3 are used for multiple-choice item. The items are summed to produce a total score of 0 to 10. A score of 0 to 3 indicates that the subject's level of perception in nicotine dependence is still low and that you should act now before subject's level of dependence increases. A score of 4 to 6 indicates that subject's level of perception nicotine dependence is moderate and if subjects don't quit soon, their level of dependence on nicotine increase until you may be seriously addicted. Lastly, a score of 7 to 10 indicates that their level of perception nicotine dependence is high. The higher the total Fagerström score, the more intense is the patient's physical dependence on nicotine. For the interventions, the audiovisuals comprise of various experiential videos about 5-10 minutes which was shown to the experimental group.

3.4 Data Collection Procedure

In the first stage of data gathering, the experimental and comparison underwent the pretest. For the next stage, only the experimental group underwent the intervention. Then, both groups underwent a post-test to determine the effectiveness of the intervention and the amount of cigarettes they consume was measured. The next stage for data collection and finally, the last stage allotted for analyzing the data. The researchers recruited the subjects using the door-to-door method with the help of the barangay health worker. The subjects were given enough time to answer the questionnaire to which the researchers collected after they are done answering. The study was conducted for three weeks, mainly in a Saturday-Sunday schedule. During Saturday and Sunday, the researchers presented audiovisuals related to smoking cessation in order to supply the subjects' knowledge and enforce their urge to quit smoking and to reduce their nicotine dependents. The pretest was given on the first day of the study. For the post-test, the researchers gave a 6-item questionnaire to the subjects every after intervention which is on the second day of each week to facilitate the learning and monitor the intent to quit and behavioral changes of each subject towards smoking. The subjects were informed that they have the freedom to withdraw from the study; hence, the researchers asked for the reason of the withdrawal of the subject. There were incentives for the subjects that participated in the research after answering the post-test.

3.5 Data Analysis

On 3 weeks of interventions, pre-test conducted on the very first day on the 1st week to establish a baseline of the nicotine dependence scores of the subjects using the Fagerstrom Test for Nicotine Dependence to both comparison and experimental group. Post-test conducted on the 2nd day of each week. Therefore, there were 1 pre-test and 3 post-tests. In this manner, either inclination or declination on nicotine dependence of subjects identified every week for 3 weeks. However, to establish comparability between the comparison group and experimental group on the start of intervention at the same time, Independent T-test was utilized. On the other hand, audiovisuals were serve as the independent variable, nicotine dependence as the dependent variable. However, extraneous or confounders can affect at a certain level the relationship and results. Therefore, ANCOVA was used to eliminate these variables to establish a more accurate result between independent and dependent variables.

3.6 Ethical Considerations

The researchers applied the Principle of Informed Consent by providing full disclosure of the study including the complete information on the nature of the study, subject's right to refuse to participate in the study, as well as the risks and the benefits that may be incurred. The researchers obtained the informed consent of subjects aged eighteen (18) years above. The names of the subjects would not be obtained nor included in the questionnaires provided to observe the Principle of Anonymity that honors the privacy and confidentiality of the subjects by not allowing the researchers to relate the gathered response to the subjects. Keeping track, as well as the identification of the subjects and the gathered data is through the use of placing control numbers on the questionnaires and the informed consent. The data gathered would remain confidential and the anonymity of the subjects was respected. The subjects' autonomy upheld and respected so as to honor the dignity of the subjects. After obtaining their permission, the researchers started to conduct the data-collection in a span of 3 weeks. The Principle of Beneficence upheld since the intervention aimed to do good by decreasing the subjects' dependence to nicotine. The main risk of the subjects is psychological harm since there were scenes from the clips wherein the effects of smoking physiologically is shown. Psychological harm can be difficult to operationalize because it can depend upon the person and it can be difficult to detect, both the participants and the researchers may not know that participants have been harmed psychologically. However, that being said, researchers can do their utmost to prevent any undue stress for their participants. Video is a powerful medium: it can make a point or convince people in ways that other media cannot. Researchers must decide what constitutes a finding and how best to use video to convince others of their research results. This also has the potential for misrepresentation. For example, providing numerical summaries of video events may provide a fake sense of "objectivity" about what has occurred. The benefit of the subjects is that they acquired knowledge on smoking, alternative methods to gratify one's oral fixation, and negative effects of nicotine in their body. These benefits make up for the possibility of acquiring smoking-related diseases and other health issues. Researchers ensured the safety measures were implemented throughout the study since the subjects are not obliged to do any strenuous physical activities nor be placed in areas where their safety may be compromised. The subjects are free to withdraw from the study at any time when deemed uncomfortable or derogatory with the study being conducted.

4. Results

The aim of the study was to determine the effectiveness of testing audiovisuals using Health Promotion Model in reducing the nicotine dependence among young adults. The presentation of the study following the research questions as stated in the previous chapter:

A. What are the pre-test and posttest mean scores of the experimental and control on the Fagerstrom Test on Nicotine Dependence Assessment Toolkit?

Table 1: within-Group Comparison of FAGERSTROM TEST ON NICOTINE DEPENDENCE ASSESSMENT TOOLKIT (N=50)

	Pre-test (n=50)		Posttest 1 (n=50)		Posttest 2 (n=50)		Posttest 3 (n=50)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Experimental Group	5.4800	1.73494	4.2000	1.87083	3.2000	1.44338	3.3600	2.07926
Control Group	6.4400	.71181	6.2800	1.27541	6.2400	.83066	6.8400	1.06771

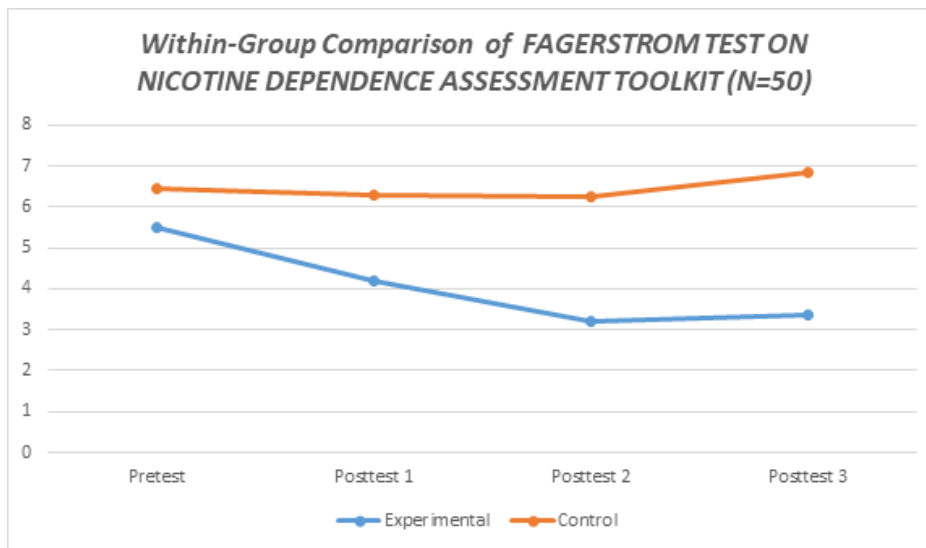


Figure 1: Using the FAGERSTROM TEST FOR NICOTINE DEPENDENCE ASSESSMENT TOOLKIT, the researchers computed for the pretest mean scores of the experimental to determine the level of perception on nicotine dependence of the subjects before the intervention and health teachings were implemented for the control group. While, the posttest mean scores were obtained by the researchers to determine the effects to the level of perception on nicotine dependence after the intervention and health teaching were implemented to the subjects.

Figure 1 reflects the pre-test and posttest mean average scores of the experimental and control groups of young adults who are nicotine dependent. Using the **FAGERSTROM TEST FOR NICOTINE DEPENDENCE ASSESSMENT TOOLKIT**, the experimental group has a Pre-test (mean score=5.480 sd= 1.73494), posttest 1 (mean score= 4.2000 sd= 1.87083), posttest 2 (mean score=3.2000 sd= 1.44338), posttest 3 (mean score= 3.3600 sd=2.07926) which indicate that from the first week of being moderately dependent it went to minimal dependent for the second and third week. Using audiovisuals to decrease perceived nicotine dependence to the experimental group is effective than the control group who only received health teachings. With these results for the experimental group, the researchers believed that audiovisuals are helpful intervention to young adults' nicotine dependence. Also, the results of this study provide evidence that a video- based smoking cessation intervention can be effective for achieving prolonged abstinence for both lower and higher socio-economic

status smokers [28] and they found that a control video on a health topic unrelated to smoking and mortality risk to those smokers enhanced beliefs and attitudes regarding the harms of cigarette smoking in ways noteworthy for their generality [22]. While for the control group, it has a pre-test (mean score= 6.4400 sd=.71181), posttest 1 (mean score= 6.2800 sd= 1.27541) which indicate that from the first two weeks of being moderately dependent it went to highly dependent third week. These findings revealed that after the control group have received the health teaching only there is decreased minimally in the post-test 1 and post-test 2, on the other hand there was a slight increase during the post-test 3. With these findings, the researchers believed that audiovisuals are more important in informing the subjects than giving health teachings only. A study conducted by Stancyk in 2015, the effectiveness of video- and text-based computer-tailored intervention among people with lower socioeconomic status (LSES) which is more effective than those who have received the text condition received multiple tailored feedbacks via text-based messages (without any graphics or animations).

B. Is there a significant difference between the pre-test and post-test scores of both control and experimental group?

Table 2: Between-Group Comparison of Fagerstrom Test on Nicotine Dependence Assessment toolkit

	Control (n=25)		Experimental (n=25)		t-value	p-value	Significance
	\bar{x}	sd	\bar{x}	sd			
Pre-test	6.4400	.71181	5.4800	1.73494	2.560	.014	Significant
Post-test 1	6.2800	1.27541	4.2000	1.87083	4.593	.000	Significant
Post-test 2	6.2400	.83066	3.2000	1.44338	9.127	.000	Significant
Post-test 3	6.8400	1.06771	3.3600	2.07926	7.444	.000	Significant

*Significant at ≤ 0.05 level

** Significant at ≤ 0.01 level

Table 2 presents the comparison between the pre-test and post-test scores of the control and experimental group. Based on the mean score, findings revealed that the experimental group has a decreasing trend after giving intervention every week. The group, from being moderately dependent adapted and have reduced their dependence to only minimal. However, the control group has an increasing trend after only giving health teachings. The group went from being moderately dependent to highly dependent in the last week. The group has a score on the pre-test (t-value = 2.560, p-value = .014), post-test 1 (t-value =4.593, p-value = .000), post-test 2 (t-value = 9.127, p-value = .000) and post-test 3 (t-value = 7.444, pvalue = .000) which indicate that every week, there was a significant difference between the group This means that using audiovisuals to decrease perceived nicotine dependence to the experimental group is effective than the control group who only received health teachings. Public health messages delivered in video format contributed to the decline in smoking prevalence in the US [29]. The results are consistent with the study wherein a newly developed intervention was found wherein a video addressing issues of tobacco smoke avoidance, including smoking cessation was

provided to pregnant women who are smoking [20]. The intervention helped in decreasing environmental tobacco smoke among pregnant women. The effectiveness of the audiovisuals may be due to the fact that the use of video activities, both visual and verbal channels, reduces cognitive effort and increases a better understanding and processing of information [3].

C. Is there a significant difference between the pre-test and post-test scores of the control groups?

Table 2: Pre-Test And Post-Test Scores Of Control Group

	\bar{x}	sd	F value	P value	Significance
Pre-test	6.4400	.71181	2.411	.097	Not significant
Post-test 1	6.2800	1.27541			
Post-test 2	6.2400	.83066			
Post-test 3	6.8400	1.06771			

*Significant at ≤ 0.05 level

** Significant at ≤ 0.01 level

Table 3 shows the difference between the nicotine dependence of the subjects on the control group. The researchers wish to retain or to increase the perception on nicotine dependence of this group. On the first and second week of the study, the mean scores of the subjects were decreased. The topics discussed on those weeks were the definition, causes, and effects of smoking which may have led to the decrease of their perception in nicotine dependence. However, on the third week of the study there was an increase in their mean scores. The topic discussed on that week was focused on preventive measures of smoking. The sudden increase may be due to the fact that health teachings are easier to forget since they are only heard and no actual pictures were shown to the subjects. Results showed that audiovisual training demonstrates superiority over auditory-only training [15]. Also, a proposed audiovisual aid is an effective tool since there is a substantial lack of basic knowledge among schoolteachers. Findings reveal that there is no significant difference between the pretest and posttest of the subjects. This is due to the fact that the group did not receive the audiovisual based intervention, however, health teachings were still provided. Using technical audiovisual aid is more effective than the traditional method of teaching [24]. Audiovisual devices such as posters, computers, and projectors that were used in presenting the dangers of smoking helped decrease the number of students who were smoking [2]. This supports the results of the study since the lack of audiovisual presentation may have contributed to the scores of the control group.

D. Is there a significant difference between the pre-test scores and post-test scores of the experimental groups?

Table 2: Pre-Test And Post-Test Scores Of Experimental Group

	\bar{x}	sd	F value	p value	Significance
Pretest	5.4800	1.73494	2.339	.104	Not significant
Post-test 1	4.2000	1.87083			
Post-test 2	3.2000	1.44338			
Post-test 3	3.3600	2.07926			

*Significant at ≤ 0.05 level

** Significant at ≤ 0.01 level

Table 4 shows the difference between the nicotine dependence of the subjects before and after the 3 weeks of intervention. The researchers aim to decrease the nicotine dependence of the subjects in the experimental group through the use of audiovisuals. The audiovisuals were patterned on the health promoting behaviors of Nola Pender. On the first and second week of the study, there was a decrease in nicotine dependence of the subjects. The topics tackled on the audiovisuals during the first two weeks were about smoking, its effects to smokers' health, and experiential videos of smokers. On the third week of the study, there was a slight increase in the mean of the experimental group which may be because the duration or interval of the study was too long that the reduction of nicotine dependence cannot be maintained or too short which is in need for further evaluation. The subjects on this were observed within two weeks and results showed that the use of audio-visual materials was more interactive and lively as compared to lecture-based classes. Also, the use of audiovisuals brought variation in the class which removed the monotony of lecture-based class and helped the teachers draw the attention of the students [18]. Findings reveal that there were no significant difference between the nicotine dependence of the subjects before and after the audiovisual based intervention was provided. The mean of the pre-test scores and post-test scores are not statistically significant within the experimental group, however, the intervention used in the group can still be considered as effective since the mean scores are decreasing. Implicit pictorial tasks are often used to explore cognitive biases [11]. Their study explored strategies for adult daily smokers who are not motivated to quit smoking such as identifying and matching pictures of pros and cons of smoking. It was found that the pictures representing the pros of smoking were rated as significantly more pleasant and the pictures representing the cons of smoking were rated as significantly more exciting. The results of our study contradict their findings since, the mean scores of the experimental group decreased after audiovisual presentations showing the negative effects of nicotine dependence.

5. Discussion

Using the FAGERSTROM TEST FOR NICOTINE DEPENDENCE ASSESSMENT TOOLKIT, the researchers computed for the pretest mean scores of the experimental group to determine the level of perception on nicotine dependence of the subjects before the intervention and health teachings were implemented for the control group. The posttest mean scores were obtained by the researchers to determine the effects to the level of

perception on nicotine dependence after the intervention and health teaching were implemented to the subjects. Figure 1 reflects the pre-test and posttest mean average scores of the experimental and control groups of young adults who are nicotine dependent. Using audiovisuals to decrease nicotine dependence to the experimental group is effective than the control group who only received health teachings. With these results for the experimental group, the researchers believed that audiovisuals are helpful intervention to young adults' nicotine dependence. Also, the results of this study provide evidence that a video-based smoking cessation intervention can be effective for achieving prolonged abstinence for both lower and higher socio-economic status smokers [26] and they found that a control video on a health topic unrelated to smoking and mortality risk to those smokers enhanced beliefs and attitudes regarding the harms of cigarette smoking in ways noteworthy for their generality [21]. While for the control group, it shows that from the first two weeks of being moderately dependent it went to highly dependent third week. These findings revealed that after the control group have received the health teaching only there is decreased minimally in the post-test 1 and post-test 2, on the other hand there was a slight increase during the post-test 3. With these findings, the researchers believed that audiovisuals are more important in informing the subjects than giving health teachings only. A study conducted the effectiveness of video- and text-based computer-tailored intervention among people with lower socioeconomic status (LSES) which is more effective than those who have received the text condition received multiple tailored feedbacks via text-based messages (without any graphics or animations) [21]. Table 2 presents the comparison between the pre-test and post-test scores of the control and experimental group. Based on the mean score, findings revealed that the experimental group has a decreasing trend after giving intervention every week. The group, from being moderately dependent adapted and have reduced their dependence to only minimal. However, the control group has an increasing trend after only giving health teachings. The group went from being moderately dependent to highly dependent in the last week. This means that using audiovisuals to decrease nicotine dependence to the experimental group is effective than the control group who only received health teachings. This is congruent with the study which revealed that using public health messages delivered in video format contributed to the decline in smoking prevalence in the US [29]. The results are consistent with the study wherein a newly developed intervention was found wherein a video addressing issues of tobacco smoke avoidance, including smoking cessation was provided to pregnant women who are smoking [19]. The intervention helped in decreasing environmental tobacco smoke among pregnant women. The effectiveness of the audiovisuals may due to the fact that the use of video activities, both visual and verbal channels, reduces cognitive effort and increases a better understanding and processing of information [3]. Table 3 shows the difference between the nicotine dependence of the subjects on the control group. The researchers wish to retain or to increase the perception on nicotine dependence of this group. On the first and second week of the study, the mean scores of the subjects were decreased. The topics discussed on those weeks were the definition, causes, and effects of smoking which may have led to the decrease of their perception in nicotine dependence. However, on the third week of the study there was an increase in their mean scores. This can be supported by a study wherein results showed that audiovisual training demonstrates superiority over auditory-only training [14]. A proposed audiovisual aid is an effective tool since, there is a substantial lack of basic knowledge among schoolteachers [23]. Table 4 shows the difference between the nicotine dependence of the subjects before and after the 3 weeks of intervention. The researchers aim to decrease the nicotine dependence of the subjects in the experimental group through the use of audiovisuals. The audiovisuals were patterned on the health promoting

behaviors of Nola Pender. On the first and second week of the study, there was a decrease in nicotine dependence of the subjects. The topics tackled on the audiovisuals during the first two weeks were about smoking, its effects to smokers' health, and experiential videos of smokers. On the third week of the study, there was a slight increase in the mean of the experimental group which may be because the duration or interval of the study was too long that the reduction of nicotine dependence cannot be maintained or too short which is in need for further evaluation. Based on the study which aimed to determine the effectiveness of audio-visuals aids in language teaching [19]. The subjects on this were observed within two weeks and results showed that the use of audio-visual materials was more interactive and lively as compared to lecture-based classes. Also, the use of audiovisuals brought variation in the class which removed the monotony of lecture-based class and helped the teachers draw the attention of the students [19].

5.1 Conclusion

The audiovisuals were proven to be effective in reducing the perception on nicotine dependence of the experimental group. There was a significant difference between the scores of the experimental group and the control group. The findings indicate that the post test scores each week of the experimental group were decreasing compared to the post test scores of the control group. Although the pretest and post test scores within the experimental group and control group were not significant, the results suggest that the nicotine dependence between the experimental group and control group has a significant difference that signifies that the audiovisuals which were presented to the experimental group for 3 weeks were effective in reducing their perception on nicotine dependence.

5.2 Limitations

The study was conducted in a community for 3 weeks. A total of fifty (50) subjects was chosen of being a nicotine dependent young adults of a selected barangay, since based on a study 50 subjects are to be selected in order to avoid attrition bias which happens when a number of withdrawals are noted after the study has been conducted [12]. A quasi-experimental design was used in assigning subjects to experimental and control group. The study aimed to identify the effect of the intervention to young adults who are nicotine dependents in a community; impediments in the aspects of the intervention that is created by beginner researchers are being seen. Audiovisuals that was used as an intervention to young adults who are nicotine dependent consist of experiential videos of people who are nicotine dependent and also persons that quitted from smoking. This included documentary on how they have fought against the consequences of smoking, its effect to their lives and loved ones, and inspirational lessons and messages by the people in the audiovisuals. Utilizing the Fagerstrom Test for Nicotine Dependence, researchers assessed the level of dependence of the subjects. Pre-test was done at the start of the first meeting to establish baseline scores and post-test on every after meeting on the 2nd day in each week to evaluate change in nicotine dependence level. Independent T-test is going to be used in comparing the pre-test of comparison and experimental group; however, to analyze the whole collated data, and ANCOVA utilized.

5.3 Recommendations

5.3.1 To nursing practice

1. Promote proper awareness and dissemination of the effects to self, others, and surroundings of the nicotine from cigarettes.
2. Aside from audiovisuals, explore, identify, and apply other independent or nursing interventions that may help reduce the perception on nicotine dependence of young adults and other population.

5.3.2 To nursing education

1. Technology has been greatly effective to promotion of health through health teachings. Aside from audiovisuals social media, text messaging, calls, etc. may be used for nursing education to reduce the nicotine dependence.
2. Encourage verbalization of insights and feelings for each subject has his own reason for smoking. It is important also to prevent before implementing the intervention to the nicotine dependence. Health education builds subjects' knowledge, skills, and positive attitudes about health. It motivates people to improve and maintain their health, prevent disease, and reduce risky behaviors. Giving health education through the use of the audiovisual may help the subjects reduce their nicotine dependence.

5.3.3 To nursing research

1. Future researchers should include other factors and demographic data such as economic status, educational attainment, and industrial area that can affect the perception on nicotine dependence aside from anxiety, peer pressure, stress, etc. These factors may be analyzed to improve and be focused on the interventions that future researchers are planning to do.
2. It is important that the population of future researches can understand easily the tool and intervention. Even if they understand English or Filipino, it is still recommended that mother tongue is used.
3. For the future researchers, audiovisuals are effective to lessen the dependence of young adults in a community setting thus, may be incorporated or improved in future researches.
4. It is vital that intervention should already be started to the younger population for minimum age of nicotine dependence has been decreasing rapidly. Using the audiovisuals in a larger population may help in preventing tobacco addiction and achieving cessation.

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