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Socioeconomic, Environmental, Psychological, And Policy Factors Associated with Adolescent Vaping: Basis for Health Advocacy Program

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Abstract- ***This study examines the growing public health concern of adolescent vaping, which has shown increasing prevalence globally and in the Philippine context. Guided by the need to understand the interplay of socioeconomic, environmental, psychological, and policy-related determinants, the study aimed to identify the factors associated with vaping behavior among adolescents in selected barangays in Urdaneta City, Pangasinan. A descriptive-correlational research design was employed to determine relationships among variables without manipulation. The study involved 105 adolescent respondents selected through purposive-incidental sampling, ensuring that they had direct experience with vaping and represented early, middle, and late adolescence. Data were gathered using a researcher-developed structured questionnaire validated by experts and approved by the ethics and academic committees. The instrument included sections on respondents' profile and perceived influences of socioeconomic, environmental, psychological, and policy factors on vaping behavior.Findings indicate that adolescent vaping is primarily influenced by external factors, particularly policy-related, socioeconomic, and environmental conditions, with psychological factors playing a secondary role. The respondents' profile reflected a predominance of males from economically constrained households, with vaping behavior commonly facilitated through peer networks and characterized by the use of accessible disposable devices. The study concludes that adolescent vaping is a multifactorial behavior shaped by interacting structural and social determinants, highlighting the need for comprehensive and coordinated interventions. It is recommended that multi-sectoral strategies be strengthened through stricter policy enforcement, school- and community-based monitoring, parental education, peer-led advocacy, and accessible psychological support services. Future research is encouraged to adopt longitudinal and mixed-methods approaches, expand sampling across diverse settings, and further examine additional behavioral and environmental variables to inform better targeted, sustainable health advocacy programs.***

Index Terms- ***Socioeconomic, Environmental, Psychological, Policy Factors, Adolescent Vaping, Health Advocacy Program***

I. INTRODUCTION

Background of the Study

In recent years, the use of electronic cigarettes (e-cigarettes) or vaping products among adolescents has escalated into a major global public health concern. Evidence shows a steady rise in vaping among youth across different regions, raising alarms among health authorities. According to the World Health Organization (2023), a large portion of adolescents aged 13–15 years have tried or are currently using e-cigarettes, sometimes surpassing the rate of traditional cigarette smoking. Likewise, recent data from the Centers for Disease Control and Prevention (2023) reveal that e-cigarette use remains common among middle and high school students in the United States. These trends suggest that vaping has become a widespread behavioral phenomenon that significantly influences adolescent health outcomes.

The increasing prevalence of adolescent vaping interplays with socioeconomic, environmental, psychological, and policy-related determinants. Socioeconomic status (SES) remains a critical factor influencing health behaviors. Adolescents from economically disadvantaged backgrounds may experience increased vulnerability to vaping due to limited access to health education, heightened exposure to stress, and reduced parental supervision. Conversely, those from higher-income households may engage in experimentation driven by greater purchasing capacity, social influence, and perceptions of vaping as a contemporary or socially desirable activity (Hammond et al., 2020). These contrasting dynamics demonstrate that vaping behavior

transcends socioeconomic boundaries, although underlying motivations differ.

Environmental influences further contribute to the normalization and accessibility of vaping among adolescents. The widespread availability of e-cigarette products in retail establishments and online platforms, often with weak age-verification systems, reduces barriers to acquisition (Williams et al., 2021). In addition, digital marketing strategies, particularly through social media, frequently portray vaping as appealing, socially acceptable, and less harmful than traditional smoking. Such messaging increases exposure among adolescents and reinforces favorable attitudes toward vaping (Vassey et al., 2022). Communities with higher densities of vape retailers and weaker regulatory enforcement may further amplify youth exposure, increasing the likelihood of initiation and continued use.

Psychological and social factors also play a significant role in shaping adolescent vaping behaviors. During adolescence, individuals are particularly sensitive to peer influence and social acceptance. Empirical studies consistently demonstrate that peer use strongly predicts individual vaping behavior, as adolescents often perceive vaping as a means of social integration (Westling et al., 2022). Moreover, some adolescents use vaping as a way to cope with stress, anxiety, or academic pressures. These practices are really alarming because nicotine exposure during adolescence can disrupt brain development and increase the risk of addiction as well as mental health disorders (U.S. Department of Health and Human Services, 2020).

From a health standpoint, vaping poses both immediate and long-term risks. Studies have linked e-cigarette use to respiratory complications, cardiovascular effects, and nicotine dependence among youth (Xie et al., 2020). Additionally, emerging evidence supports the “gateway” hypothesis, suggesting that adolescents who initiate vaping are more likely into transition to combustible cigarette use and other substances over time (Hair et al., 2022). These findings challenge the misconception that e-cigarettes are safer alternative and underscore their potential harm to adolescent health.

In the Philippine context, adolescent vaping reflects similar global trends and presents growing public health concerns. Data from the Department of Health (2022), supported by the Global Youth Tobacco Survey, indicate that a notable proportion of Filipino adolescents have used e-cigarettes, with increasing rates observed in recent years. This trend suggests a shift in nicotine initiation patterns, with vaping emerging as a primary entry point. Despite the enactment of Republic Act No. 11900, which regulates vaporized nicotine and non-nicotine products, enforcement challenges persist, particularly in online sales and digital marketing.

At the local level, authorities have implemented policy interventions to address tobacco and vaping-related risks. In Urdaneta City, the Comprehensive Smoke-Free Ordinance (City Ordinance No. 5, Series of 2022–2025) prohibits the use, sale, and promotion of tobacco and vaping products in designated areas. This ordinance aligns with national frameworks such as the Tobacco Regulation Act of 2003 (Republic Act No. 9211) and the Local Government Code of 1991 (Republic Act No. 7160), which empower local governments to safeguard public health. While such policies represent proactive governance, gaps in enforcement and compliance remain evident, particularly in community and online settings where adolescents continue to access vaping products.

Given these challenges, healthcare professionals, particularly nurses, play a vital role in translating policy into practice. Through school and community-based interventions, health education, and early screening, nurses contribute to reducing adolescent exposure to vaping and promoting healthier behaviors. However, effective intervention requires a comprehensive understanding of the multifaceted factors influencing vaping behavior.

Thus, this study seeks to examine the socioeconomic, environmental, psychological, and policy-related factors associated with adolescent vaping in Urdaneta City. By situating adolescent behavior within both individual and structural contexts, the study generated evidences that informed the development of a targeted health advocacy program. Such an approach is essential to address the growing vaping

epidemic and to promote sustainable health outcomes among adolescents.

Conceptual/Theoretical Framework

This study is anchored on Pender's Health Promotion Model (HPM) and draws on Orem's Self-Care Deficit Nursing Theory and Neuman's Systems Model. These frameworks collectively explain adolescent vaping as a behavior influenced by personal characteristics, psychosocial factors, environmental conditions, and policy contexts. They also guide the organization of the study variables, particularly the relationship among the independent variables, the dependent variables, and the emergent output.

Pender's Health Promotion Model emphasizes that individual attributes and perceptions within a specific context shape health behavior. In this study, respondents' profile variables namely; sex, age, family monthly income, order of birth, parents' educational attainment, school type, and vaping behavior serve as independent variables that influence how adolescents perceive the benefits and risks of vaping. These perceptions, along with situational factors such as accessibility of vaping products and exposure to social and environmental influences, are reflected in the socioeconomic, environmental, and psychological domains.

Orem's Self-Care Deficit Nursing Theory complements this view by suggesting that engagement in vaping may result from limited self-care capacity. Adolescents who lack adequate knowledge, coping skills, or guidance may be more likely to engage in risk behaviors. Factors such as family background and school environment may influence their ability to make informed health decisions, reinforcing the role of socioeconomic and psychological variables.

Neuman's Systems Model further explains adolescent vaping as a response to various stressors. Psychological factors represent intrapersonal stressors, peer and family influences reflect interpersonal stressors, while environmental access and policy enforcement correspond to extra-personal stressors. These interacting factors are considered independent variables that influence behavior.

Within this framework, the independent variables include respondents' profile namely; sex, age, family monthly income, order of birth, parent's highest educational attainment, school type, and vaping behavior. The dependent variables are the levels of influence of socioeconomic, environmental, psychological and policy factors on adolescent vaping behavior. The interaction of these variables served as basis for the study's output: a proposed health advocacy program to reduce vaping and promote healthier practices among adolescents.

Statement of the Problem

This study determined the levels to which socioeconomic, environmental, psychological, and policy factors influence adolescent vaping.

Specifically, it sought to answer the following problems;

1. What is the profile of the respondents, along:
   a. sex;
   b. age;
   c. monthly family income;
   d. order of birth;
   e. parents' highest educational level; and,
   f. school type; and,
   g. vaping behavior?
2. What is the level of influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping?
3. Is there a significant difference in the influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping across their profile variables?
4. Is there a significant relationship between the level of influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping and their profile variables?
5. Based on the findings of the study, what advocacy program can be proposed to address the risks associated with vaping among adolescents.

Null Hypotheses

The following hypotheses stated in their null form were tested at 0.05 level of significance:

1. There are no significant differences in the levels of influence of socioeconomic, environmental,

psychological, and policy factors on adolescent vaping across their profile variables.
2. There are no significant relationships between the levels of influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping and their profile variables

II. METHODOLOGY

Research Design and Strategy

The descriptive-correlational design is appropriate for this study because it allows the researcher to examine how socioeconomic, environmental, psychological, and policy factors are associated with adolescent vaping as they naturally occur. This approach supports the simultaneous presentation of respondents' demographic profile alongside the measurement of variables related to vaping behavior, providing a comprehensive view of the conditions surrounding the phenomenon (Creswell & Creswell, 2021).

Through this design, the study can systematically organize and analyze data to determine the degree of relationship between each factor and adolescent vaping. It enables the identification of patterns, trends, and variations across different groups of respondents without manipulating any variables (Polit & Beck, 2021). As a result, the researcher can observe how differences in socioeconomic status, family environment, psychological conditions, and exposure to policies correspond with variations in vaping behavior.

Furthermore, the design allows the use of statistical methods to examine relationships among variables, enabling an objective assessment of which factors are more or less strongly associated with adolescent vaping. This analytical approach is particularly useful when multiple variables interact, as it clarifies each factor's contribution within the overall set of influencing factors.

Overall, the descriptive-correlational design provides a structured, empirical means of analyzing the interplay among relevant factors, making it suitable for generating evidences to inform the development of targeted interventions and health advocacy initiatives to address adolescent vaping.

Population and Locale of the Study

The study encompassed 105 adolescent respondents from barangays and secondary schools in Urdaneta City, Pangasinan. The majority were enrolled in public schools, with smaller proportion attending private institutions. This distribution accurately reflects the adolescent population within the selected areas, encompassing both public and private institutional settings.

The respondents were identified from areas with known adolescent population and observable vaping behavior, in coordination with school staff and community leaders. All participants met the inclusion criteria of being within the adolescent age range and having prior or current vaping experience, ensuring the sample was directly relevant to the phenomenon under investigation.

A purposive sampling method combined with incidental sampling technique was employed, allowing the researcher to intentionally select respondents who possess the required characteristics while also including those who are readily accessible within the identified study areas. This method suits behavioral research that requires the respondents to have specific experiences related to the study variables (Etikan & Bala, 2020). Incidental (or convenience) sampling was also used during data collection by including respondents who were easily accessible within the chosen schools and barangays, as long as they met the set criteria. The researcher obtained informed consent from respondents' parents or guardians, in accordance with ethical considerations regarding minors.

This sampling approach is appropriate because it ensures that the respondents in the study have direct exposure to vaping behavior, thereby providing relevant and meaningful data for analysis. Including adolescents from different developmental stages further strengthens the study by capturing possible variations in vaping behavior and the influencing factors across age groups. This inclusion contributes

to a more comprehensive assessment of the variables under investigation.

The researcher conducted the study during the second semester of the academic year 2025–2026 in selected schools and barangays in Urdaneta City, Pangasinan. These locations are identified as suitable study sites because they host adolescent populations who provided pertinent insights into vaping behaviors and the associated socioeconomic, environmental, psychological, and policy factors. Selecting these settings supports the efficient and appropriate collection of data in alignment with the study's objectives.

Data Gathering Tool

The primary instrument for data collection was a structured questionnaire survey developed through an extensive review of related literature on socioeconomic, environmental, psychological, and policy factors associated with adolescent vaping. The researcher designed the questionnaire to elicit relevant and reliable information aligned with the study's objectives.

The questionnaire was composed of two parts. Part I collected respondents' profiles, including sex, age, vaping behavior, family monthly income, birth order, parents' highest educational attainment, and school type. Part II assessed the level of influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping.

To ensure content validity, a panel of experts, including the City Health Officer and two Adolescent Program Coordinators with research experience, evaluated the questionnaire. Their feedback focused on the clarity, relevance, and appropriateness of the instrument's items. The researcher made the revisions accordingly, based on their recommendations, to improve the questionnaire's quality and suitability.

In addition, the researcher submitted the final questionnaire to the University Research Ethics Committee for ethical review and approval. It was likewise endorsed to the Dean of the Institute of Graduate and Advanced Studies to ensure that the instrument complied with institutional standards and academic requirements before its administration.

Data Gathering Procedure

Upon approval of the research proposal, the researcher submitted a formal request letter to the Dean of the Institute of Graduate and Advanced Studies for permission to conduct the study. In addition, the researcher submitted the study to the University Research Ethics Committee for review and approval, ensuring compliance with institutional ethical standards before data collection. After obtaining the necessary approvals and permissions, the researcher secured informed consent from the parents or guardians of the selected respondents. They ensured their awareness and approval of their child's participation. At the same time, the researcher obtained adolescent assent from the respondents to confirm their voluntary participation in the study.

The researcher ensured that ethical principles guided the study to protect the respondents throughout the research process. They applied beneficence by clearly explaining the purpose of the study and safeguarding respondents' well-being; they upheld respect for persons by maintaining respondents' autonomy, dignity, and voluntary participation; they promoted justice by providing fair and equal treatment to all respondents; they maintained confidentiality by protecting the privacy and personal information of respondents; and they observed non-coercion by allowing respondents to withdraw from the study at any time without penalty. The researcher also secured both parental awareness and adolescent assent in accordance with ethical research standards.

Treatment of Data

The collected data were analyzed using SPSS Statistics to ensure accuracy, consistency, and reliability of the findings. Data processing followed a chronological sequence of editing, coding, and tabulation to verify completeness and correctness. The researchers consulted a statistician to guide the appropriate selection and application of statistical techniques and to support the accurate interpretation of results. They also observed ethical standards throughout the analysis to maintain integrity and

objectivity. Descriptive statistics, including frequencies, percentages, and means were used to summarize respondents' profiles and to determine the influence of socioeconomic, environmental, psychological, and policy factors on adolescent vaping. The researcher appropriately applied inferential statistics to the study objectives.

For Problem 1, the researcher described the respondents' demographic profiles using frequency counts and percentages.

For Problem 2, the researcher determined the level of influence of the identified factors using a weighted mean based on responses from a five-point Likert Scale.

A five-point Likert Scale was used in the analysis.

Point Value Classification	Mean Range	Descriptive Equivalent	Transmuted Value
5	4.50-5.00	Strongly Agree	High Influence
4	3.50-4.49	Agree	Influence
3	2.50-3.49	Neutral	Moderately Influence
2	1.50-2.49	Disagree	Slightly Influence
1	1.00-1.49	Strongly Disagree	No Influence

For Problems 3 and 4, the researcher used the t-test and one-way ANOVA to compare group differences and applied Pearson's correlation to examine relationships among variables. Results of these analyses were utilized in the development of the proposed health advocacy program.

III. RESULTS AND DISCUSSIONS

Respondents' Profile

Table 1 presents the distribution of the respondents according to selected profile variables. The findings highlight several dominant characteristics within the sample.

Sex. The majority of respondents are male (83, 79.0%), while females account for 22 (21.0%). The finding indicates that the sample is predominantly male. Gender differences may influence behavioral tendencies, as recent studies show that adolescent boys are more likely to engage in risk-related behaviors compared to girls due to differences in socialization and behavioral patterns (Adigwe, 2024).