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Prevalence and Characteristics of Smoking Behavior Among Health and Recreation Students at Universitas Negeri Padang

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Abstrac: This study described the prevalence and characteristics of smoking behavior among students of the Department of Health and Recreation at Universitas Negeri Padang. A quantitative descriptive survey involved 100 active students selected purposively. Data were collected using a structured questionnaire, observation, and documentation and analyzed with frequencies, percentages, mean scores, respondent achievement levels, item-total correlations, and Cronbach's alpha. Forty-four percent of respondents smoked. Among the 44 smokers, daily smoking predominated; most consumed 5-10 cigarettes per day, initiated before age 18, and smoked mainly while gathering with friends. All smokers had friends who smoked, and most had smoking parents. The 13-item scale showed satisfactory item validity and high internal consistency (Cronbach's alpha = .92). Smoking was strongly embedded in peer and family environments. Integrated cessation support, peer-norm interventions, stress-management alternatives, and consistent smoke-free campus enforcement are recommended.

Keyword: Prevalance, Quantitative Descriptive, Smoking Behavior, Students

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INTRODUCTION

Smoking remains a major public-health concern because tobacco use exposes smokers and nearby non-smokers to toxic substances associated with preventable disease, disability, and premature death. Nicotine reinforces dependence, while repeated exposure to tobacco smoke contributes to cardiovascular, respiratory, and carcinogenic processes. The persistence of smoking despite widespread risk information shows that tobacco use is not determined by knowledge alone; motivation, stress, social modeling, perceived norms, environmental access, and habitual routines may all sustain the behavior (WHO, 2023). The Indonesian context makes this issue particularly important. The Global Adult Tobacco Survey Indonesia Report 2021, released in 2024 by the Ministry of Health and the World Health Organization, estimated that 34.5% of adults, or approximately 70.2 million people, used tobacco. Tobacco use was markedly higher among men, while exposure to second-hand smoke remained common in workplaces and public settings. These national conditions strengthen the need for prevention, accessible cessation assistance, and effective enforcement of smoke-free environments, including educational institutions (WHO, 2024).

University students occupy a transitional stage between adolescence and adulthood. Greater autonomy, expanding peer networks, academic pressure, and changing social identities may encourage experimentation or maintain smoking that began earlier (Ahmed et al., 2021). Recent university-based studies have reported substantial variation in smoking patterns across countries and have repeatedly identified sex, peer smoking, social context, and cessation barriers as relevant correlates (Jarelnape et al., 2023). Consequently, findings from one institution cannot be assumed to represent another.

Students in the Department of Health and Recreation at Universitas Negeri Padang study health, fitness, recreation, and physical activity and are therefore expected to understand and model healthy behavior (Karadağ et al., 2021). Health-oriented education, however, does not automatically produce tobacco-free behavior. Studies among university populations have documented a knowledge-behavior gap, persistent nicotine dependence, and smoking intentions shaped by attitudes, social norms, and perceived control (Rachmawati et al., 2023). Preliminary observation reported in the source study nevertheless showed that smoking remained visible in the departmental environment. This contradiction is relevant to students' health, professional identity, and institutional credibility (Supriyanto & Damayanti, 2023).

Smoking behavior is multidimensional. Prevalence identifies how many students smoke, but frequency, daily consumption, duration, age at initiation, smoking situations, motives, quit attempts, and social exposure are needed to distinguish occasional experimentation from established use. A department-level profile that combines these dimensions can provide more actionable evidence than a single prevalence estimate. Social environments are repeatedly identified as central to smoking initiation and maintenance (Nuha et al., 2023). Friends may normalize smoking through invitations, shared routines, and visible behavior, while parental smoking can model tobacco use and increase access to cigarettes (Fithria et al., 2021). Recent Indonesian qualitative, observational, and meta-analytic evidence indicates that peer smoking, parental smoking, and stress can reinforce smoking initiation and maintenance (Nurhalimah et al., 2024).

Psychological and behavioral mechanisms are also relevant. Recent applications of the Theory of Planned Behavior indicate that attitudes, subjective norms, and perceived behavioral control are useful for interpreting smoking and quit intentions among students (Diah et al., 2024). In this framework, peer approval may strengthen subjective norms, whereas stress-related use, low refusal confidence, and repeated failed quit attempts may reflect limited perceived control (Rachmawati et al., 2023).

A specific research gap remains. Recent Indonesian research has examined adolescent smoking perspectives, tobacco advertising exposure, product accessibility, and youth smoking determinants, while international studies have commonly focused on broad student populations or policy implementation (Megatsari et al., 2023; Rosilawati et al., 2024). These studies do not provide a complete local account of smoking intensity, initiation, motives, cessation history, awareness, and peer-family exposure among Health and Recreation students at Universitas

Negeri Padang. The department also has a distinctive expectation of health-oriented role modeling. Separate investigation was therefore necessary to generate a credible baseline for targeted departmental education, cessation services, peer intervention, and smoke-free policy implementation (Septiono et al., 2022; Stubbs, 2021).

This study aimed to describe the prevalence and characteristics of smoking behavior among students of the Department of Health and Recreation at Universitas Negeri Padang. It examined smoking frequency, daily consumption, duration, age at initiation, smoking situations, motives, quit attempts, health-risk awareness, and peer and family exposure. It also evaluated the validity and internal consistency of the questionnaire used to measure awareness and peer influence.

METHOD

Research Design

This study used a quantitative descriptive survey design because the objective was to describe the distribution and characteristics of smoking behavior rather than test a causal intervention or compare experimental groups. The study was conducted in 2026 in the Department of Health and Recreation, Faculty of Sports Science, Universitas Negeri Padang.

Participant

The target population comprised active students in the department. Purposive sampling was used because the study required respondents who were active during the data-collection period and relevant to a department-specific profile, including smokers and non-smokers. The final sample consisted of 100 respondents from the 2022-2025 cohorts. This number was considered adequate for the intended descriptive analysis because it enabled stable percentage reporting across the principal categories and representation of four cohorts; it was not intended to support university-wide prevalence estimation or causal inference. All respondents contributed demographic and smoking-status data, while detailed smoking questions were answered by the 44 respondents who identified as smokers. Before data collection, institutional research permission was issued by the Faculty of Sports Science, Universitas Negeri Padang (Research Permit No. 3604/UN35.3/AK/2026, dated June 8, 2026). Participation was voluntary, and respondents' anonymity and confidentiality were maintained throughout the study.

Instruments and Data Collection

Data were collected using a structured questionnaire containing categorical items on demographic characteristics and smoking patterns and 13 Likert-type statements on health-risk awareness and peer-environment influence. Responses were scored from 1 (strongly disagree) to 5 (strongly agree). Eight statements measured awareness of smoking hazards, and five measured peer influence; one peer item was negatively worded and was interpreted accordingly. Item validity was examined using Pearson item-total correlations, with r-table = .197 as the criterion. The obtained correlations ranged from .614 to .820. Internal consistency was high, with Cronbach's alpha = .92, exceeding the study's minimum criterion of .60.

The questionnaire was administered to eligible students after they received an explanation of the study purpose, procedures, voluntary participation, confidentiality, and their right to decline or discontinue participation without penalty. Respondents provided informed consent before completing the questionnaire, and each respondent completed it once. Observation was used to document the general campus context in which smoking behavior occurred, while documentation supported the recording and verification of the research process. Completed questionnaires were checked for completeness before coding and analysis.

Data Analysis

Categorical variables were summarized using frequencies and percentages. Likert responses were summarized using total scores, means, percentages, and respondent achievement level (TCR). Following the source study, TCR values of 81%-100% were interpreted as very good, 61%-80% as good, and values below 60% as below the good threshold. Instrument

quality was reported through item-total correlations and Cronbach's alpha. The analysis was descriptive; no causal relationship or independent predictor was inferred from the observed distributions.

RESULT

Respondent Characteristics

The study involved 100 students. As shown in Table 1, male respondents represented 78% of the sample, while female respondents represented 22%. The largest age group was 22 years (31%), followed by 21 years (28%) and 20 years (23%). Students from the 2022 cohort accounted for the largest proportion (37%). This distribution indicates that the sample was dominated by male students and by students in the later years of their undergraduate study.

Table 1. Demographic Characteristics of Respondents (N = 100)

Characteristic	Category	n	%
Sex	Male	78	78
	Female	22	22
Age	18 years	5	5
	19 years	3	3
	20 years	23	23
	21 years	28	28
	22 years	31	31
	23 years	10	10
Cohort	2022	37	37
	2023	24	24
	2024	22	22
	2025	17	17

Smoking Prevalence and Intensity

Table 2 shows that 44 students (44%) identified as smokers and 56 students (56%) as non-smokers. Although non-smokers formed a slight majority, the proportion of smokers was substantial for a student population in a health-related department. Among the 44 smokers, 28 (64%) smoked every day. A further 18% smoked three to six times per week, while only 18% combined reported smoking one to two times per week or rarely. Daily smoking therefore represented the dominant pattern.

Table 2. Smoking Status, Frequency, and Daily Consumption

Indicator	Category	n	%
Smoking status	Smoker	44	44
	Non-smoker	56	56
Frequency (n = 44)	Every day	28	64
	3-6 times/week	8	18
	1-2 times/week	3	7
	Rarely	5	11
Cigarettes/day (n = 44)	1-4 cigarettes	16	36
	5-10 cigarettes	23	52
	11-20 cigarettes	5	11

Daily cigarette consumption was concentrated in the moderate range. Twenty-three smokers (52%) consumed 5-10 cigarettes per day, 16 (36%) consumed 1-4 cigarettes, and five (11%) consumed 11-20 cigarettes. No category above 20 cigarettes was recorded in the results table. The combination of daily frequency and 5-10 cigarettes per day suggests that smoking was not merely experimental for many respondents.

Duration and Age at Initiation

Smoking had often begun before university. Table 3 shows that 32 of the 44 smokers (72%) started before age 18: 16 respondents began before age 15 and another 16 began at ages

15-17. The remaining 12 began at ages 18-20, and no respondent reported beginning after age 20. Regarding duration, 17 respondents (39%) had smoked for 3-4 years and 15 (34%) for 1-2 years. These figures are consistent with initiation during adolescence followed by continued use into university.

Table 3. Duration of Smoking and Age at Initiation (n = 44)

Indicator	Category	n	%
Duration	Less than 1 year	6	14
	1-2 years	15	34
	3-4 years	17	39
	More than 4 years	6	14
Age at initiation	Below 15 years	16	36
	15-17 years	16	36
	18-20 years	12	27
	Above 20 years	0	0

Situations, Motives, and Quit Attempts

Social gatherings were the most common situation for smoking. Twenty-seven smokers (61%) reported smoking most often while gathering with friends. Smoking after meals was reported by 20%, while smoking when alone and when stressed each accounted for 7%. The most frequently reported primary reason was that smoking had become a habit (39%), followed by stress reduction (32%). Curiosity accounted for 20%, and direct invitations from friends accounted for 9%. These findings show that both social routines and psychological reinforcement were involved.

Table 4. Common Situations and Primary Reasons for Smoking (n = 44)

Indicator	Category	n	%
Situation	Gathering with friends	27	61
	Alone	3	7
	Under stress	3	7
	After meals	9	20
	Other	2	5
Primary reason	Invitation from friends	4	9
	Curiosity	9	20
	Stress reduction	14	32
	Established habit	17	39
	Other	0	0

Most smokers had attempted to quit. Thirty-nine respondents (89%) reported a previous quit attempt, whereas five (11%) had never tried. Health was the dominant reason for wanting to stop (68%), followed by economic considerations (18%), family requests (9%), and other reasons (5%). The high proportion of quit attempts suggests that many smokers recognized a reason to change, even though they continued to report current smoking.

Family and Peer Environment

The social environment was highly saturated with smoking. Among the 44 smokers, 38 (86%) had parents who smoked, and all 44 (100%) had friends who smoked. The universal exposure to smoking peers is particularly important when considered alongside the finding that 61% most often smoked during social gatherings. Table 5 summarizes cessation indicators and environmental exposure.

Table 5. Quit Attempts and Smoking Exposure in the Social Environment (n = 44)

Indicator	Category	n	%
Ever attempted to quit	Yes	39	89
	No	5	11
Main reason for quitting	Health	30	68
	Economic	8	18
	Family request	4	9
	Other	2	5
Parent smokes	Yes	38	86
	No	6	14
Friend smokes	Yes	44	100
	No	0	0

Awareness, Peer Influence, and Instrument Quality

The health-risk awareness items covered knowledge of nicotine, tar, and carbon monoxide; awareness of heart and lung disease; the danger of second-hand smoke; avoiding smoking near other people; motivation to avoid or stop smoking; the absence of health benefits; and support for a smoke-free campus. Item-level TCR values ranged from 49.125 to 55.750. Under the classification specified in the research method, these values remained below the 61% threshold for the good category. This indicates that awareness was present but not consistently strong across the measured statements.

Peer-influence item TCR values ranged from 74.8 to 81.2. This range spans the good and very good categories and indicates strong recognition of peer effects. Respondents acknowledged that invitations from friends, having close friends who smoke, frequent exposure to smoking environments, and the smoking habits of others could shape smoking behavior. The contrast between lower awareness achievement and high peer-influence scores supports the view that social context can outweigh health knowledge in everyday decision-making.

Table 6. Summary of Scale Results and Instrument Quality

Measure	Result	Interpretation
Health-risk awareness TCR	49.125-55.750	Below the good threshold specified in the method
Peer-influence TCR	74.8-81.2	Good to very good / strong peer influence
Item-total correlations	0.614-0.820	All 13 items exceeded r-table = 0.197
Cronbach's alpha	0.92	Highly reliable; exceeded the 0.60 criterion

All 13 questionnaire items were valid. The calculated item-total correlations ranged from 0.614 to 0.820, clearly exceeding the r-table value of 0.197. The instrument also demonstrated high internal consistency, with Cronbach's alpha of 0.92. These results support the use of the scale for descriptive measurement in this sample.

DISCUSSION

The findings indicate that smoking was substantial within this health-related student population (Ahmed et al., 2021). This is important because formal exposure to health and fitness concepts did not eliminate tobacco use. Recent international campus studies similarly show that smoking prevalence and product-use patterns vary by demographic composition, institutional context, and local norms (Jarelnape et al., 2023). The present results should therefore be interpreted as a department-specific baseline rather than a university-wide estimate (Karadağ et al., 2021).

The male-dominated sample may have contributed to the prevalence observed. National tobacco surveillance reports a pronounced sex difference in Indonesia, with tobacco use far more common among men than women (WHO, 2024). However, the present descriptive design did not test sex as an independent predictor, so this explanation remains contextual rather than causal.

Regular daily use and consumption concentrated in the 5-10-cigarette range suggest that smoking was established for many respondents rather than limited to experimentation. Research among university students indicates that habitual frequency and consumption patterns are closely related to nicotine dependence, which can make cessation more difficult (Supriyanto & Damayanti, 2023). Campus programs should therefore include practical assistance for current smokers, not only general prevention messages for non-smokers. The initiation and duration patterns indicate that smoking commonly began before university and continued into young adulthood (Fithria et al., 2021; Liang et al., 2022). Early initiation allows tobacco use to become connected with identity, social belonging, meals, breaks, and emotional regulation. Regional and Indonesian evidence shows that peer exposure, parental smoking, tobacco accessibility, and advertising can sustain smoking initiation and progression. Prevention should therefore begin before university while cessation services remain available after enrollment (Septiono et al., 2022).

The strong concentration of smoking in social gatherings can be interpreted through observational learning and social reinforcement. When cigarettes are offered, shared, and positively associated with friendship, smoking may become a learned group routine. Qualitative and meta-analytic evidence supports the importance of peer modeling and perceived peer norms in smoking behavior (Nuha et al., 2023). The finding that all smokers reported smoking friends is therefore consistent with the observed dominance of social smoking. Parental smoking provides another modeling pathway. Repeated observation at home may normalize tobacco as an adult behavior, increase access, and reduce the credibility of anti-smoking messages. Recent Indonesian evidence links parental smoking and parental influence with adolescents' smoking behavior and exposure (Nurhalimah et al., 2024). The coexistence of smoking friends and smoking parents in the present sample suggests that social learning may occur across both family and peer settings.

Habit and perceived stress reduction can be interpreted through the Theory of Planned Behavior. Habitual use may reflect stable behavioral cues, while stress-related smoking and difficulty refusing cigarettes may reduce perceived behavioral control. Recent student research supports the relevance of attitudes, subjective norms, perceived control, and academic stress to smoking or quitting intentions (Diah et al., 2024). The high occurrence of previous quit attempts indicates that many smokers had motivation to change, but motivation was not always translated into sustained abstinence. Campus cessation literature indicates that multilevel support should combine individual counseling with peer, service, and policy components rather than rely on motivation alone (Berg et al., 2021). Persistent exposure to smoking friends, familiar social settings, and stress-related cues may therefore undermine quit attempts. Cessation services should combine motivation with refusal skills, trigger management, follow-up, and access to appropriate health support.

The awareness findings illustrate a knowledge-behavior gap. Students may recognize tobacco hazards without possessing sufficiently negative attitudes, supportive subjective norms, or control over smoking situations. University studies show that knowledge of tobacco harms and support for smoke-free rules do not necessarily translate into compliance or abstinence (Trirasetya et al., 2024). Risk education remains necessary, but information alone is unlikely to change behavior when cigarettes are socially reinforced. Communication should increase personal relevance and self-efficacy and should be accompanied by changes in peer norms and the campus environment. Taken together, the Theory of Planned Behavior and observational-learning perspectives provide complementary interpretations. The first explains how attitudes, perceived norms, and control may shape smoking and quitting intentions; the second explains how behavior can be observed, modeled, and reinforced within peer and family networks. Recent evidence on peer, parental, stress, and intention-related factors supports using these frameworks cautiously (Nuha et al., 2023). These theories were not directly tested by the descriptive design, so they should be treated as explanatory frameworks rather than confirmed causal mechanisms.

Institutional policy is an essential environmental component. A consistently enforced smoke-free campus can reduce smoking cues, protect non-smokers from second-hand smoke, and establish a visible health norm (Farran et al., 2021; Gnonlonfin et al., 2024). Systematic

reviews and campus evaluations indicate that effective tobacco-free policies require clear communication, visible boundaries, consistent enforcement, monitoring, and cessation support (Gnonlonfin et al., 2024; Yang et al., 2022). The results also have implications for curriculum and student services. Courses that discuss health behavior can use local survey data to make learning more concrete (Babaoğlu & İlter, 2025). Student counseling services can screen for tobacco use and stress-related smoking, while sports and recreation activities can reinforce tobacco-free identities. Student involvement and peer engagement can strengthen policy legitimacy and communication, and recent campus research also shows the value of assessing students' knowledge, behavior, and policy attitudes (Harsamizadeh Tehrani et al., 2023).

Practical Implications for Campus Health Promotion

The findings suggest that campus tobacco control should be designed as a coordinated program rather than a single awareness event. First, the department can establish a routine screening and brief-intervention pathway. Students could be asked about current smoking, daily consumption, previous quit attempts, and readiness to stop during health-service or counseling contacts. Smokers who express interest could receive a short, structured conversation about triggers, coping strategies, and available professional support. Evidence-based campus tobacco control is most coherent when cessation services, policy, and student support are linked (Berg et al., 2021). Because 89% of smokers had previously tried to quit, the program would respond to an existing demand rather than attempt to create motivation from the beginning.

Second, intervention content should address the situations identified in this survey. The dominant context was gathering with friends, and all smokers had smoking peers. Refusal-skills practice, peer discussion, and tobacco-free social activities may therefore be more relevant than general lectures alone. Student organizations, sports clubs, and cohort leaders could be involved in establishing group agreements that discourage cigarette sharing and promote smoke-free meeting spaces. Participatory campus research supports meaningful student engagement in policy development and communication (Harsamizadeh Tehrani et al., 2023).

Third, stress-related smoking requires practical alternatives. Although stress was not the most frequently selected smoking situation, stress reduction was the second most common reason for smoking. Academic stress has been associated with smoking behavior among university students, supporting the inclusion of practical coping alternatives (Diah et al., 2024). The department can integrate short stress-management activities into student development programs, including physical activity, breathing exercises, sleep education, time management, and access to counseling. These alternatives should be presented as skills that can be used at the same moments when students would ordinarily reach for a cigarette.

Fourth, smoke-free policy should be visible and consistently implemented. Clear boundaries, signs, communication during student orientation, and fair procedures for responding to violations can reduce ambiguity. Enforcement should be paired with assistance so that the policy is not perceived only as punishment. Evaluations of campus policies emphasize that implementation quality, not signage alone, determines whether restrictions influence behavior (Farran et al., 2021). Monitoring should include locations where students commonly gather, because these areas may contain the strongest social cues for smoking.

Finally, program evaluation should use measurable indicators. The current study provides a baseline prevalence of 44%. Future monitoring can examine changes in smoking status, daily frequency, quit attempts, awareness scores, perceived peer norms, and exposure to smoking on campus. Systematic reviews recommend repeated monitoring of compliance, attitudes, exposure, and cessation-related outcomes to evaluate tobacco-free campus policies over time (Gnonlonfin et al., 2024). Anonymous annual or biennial surveys would allow the department to identify whether interventions are reaching students and whether the social environment is changing.

Limitations and Future Research

Interpretation of the results should remain within the limits of a descriptive survey. The sample was selected purposively from one department, so the percentages describe the

participating students and should not be treated as estimates for all students at Universitas Negeri Padang. The male-dominated composition may also influence the observed prevalence. A stratified sampling design across departments and cohorts would provide a stronger basis for university-level estimates. The data were self-reported. Respondents may underreport smoking because of social expectations or may estimate frequency and consumption imperfectly. Future research could strengthen measurement by using an anonymous questionnaire, a validated nicotine-dependence instrument, and clearly defined reference periods. Biochemical verification would provide additional accuracy, although it requires ethical, financial, and logistical consideration.

The study identified strong peer and family exposure but did not test statistical associations or causal pathways. Subsequent studies could compare smokers and non-smokers using regression analysis to examine whether sex, age at initiation, parental smoking, peer smoking, stress, and awareness independently predict smoking status or intensity. Longitudinal research would be especially valuable for determining whether changes in peer networks or campus policy precede changes in smoking behavior. Qualitative interviews could also explore why previous quit attempts failed and what forms of support students would consider acceptable.

CONCLUSION

Smoking was a meaningful and established behavior among the participating Health and Recreation students. The pattern was characterized by early initiation, routine use, social smoking, habit, perceived stress relief, repeated quit attempts, and extensive exposure to smoking peers and family members. These findings show that knowledge of health risks alone is insufficient when tobacco use is embedded in daily routines and socially reinforced environments. The findings are consistent with the interpretation that peer and family modeling strengthen perceived smoking norms, while limited behavioral control may obstruct cessation. Because the design was descriptive, these mechanisms should not be treated as statistically confirmed causes. Nevertheless, they provide a rational basis for moving beyond one-way health education.

The department and university should implement an integrated tobacco-control strategy consisting of accessible cessation counseling, refusal-skill and stress-management training, peer-led norm change, tobacco-free student activities, and consistent enforcement of smoke-free campus rules. Anonymous periodic monitoring should be used to evaluate change. Future studies should apply probability sampling, validated dependence and stress measures, and inferential or longitudinal designs to identify predictors of smoking and successful quitting.

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