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SELF-EFFICACY AND PROACTIVE COPING IN ADOLESCENT SMOKING CESSATION: A CORRELATIONAL STUDY

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ABSTRACT

Background: Adolescence is a critical developmental stage marked by emotional, social, and environmental challenges that may increase susceptibility to smoking. Many adolescents perceive smoking as a coping mechanism for stress and peer pressure. Psychological resources such as self-efficacy and proactive coping are considered important protective factors in smoking prevention and cessation. **Objective:** This study aimed to examine the association between self-efficacy and proactive coping in smoking cessation among adolescents. **Methods:** A quantitative correlational study with a cross-sectional design was conducted among 125 junior high school students aged 13–16 years in West Java, Indonesia. Participants were selected using proportional and simple random sampling techniques. Data were collected using the Smoking Self-Efficacy Questionnaire-12 and the Proactive Coping Smoking Cessation questionnaire. Statistical analysis was performed using the Spearman rank correlation test with a significance level set at 0.05. **Results:** The findings showed that most participants demonstrated high levels of self-efficacy (78.4%) and proactive coping (68.8%). A significant positive correlation was identified between self-efficacy and proactive coping ($r = 0.548$; $p < 0.05$), indicating that adolescents with stronger confidence in resisting smoking were more likely to engage in proactive coping behaviors, such as avoiding high-risk situations and seeking social support. **Conclusion:** Self-efficacy is positively associated with proactive coping in adolescent smoking cessation. Strengthening both psychological confidence and adaptive coping skills should be prioritized in adolescent smoking prevention and cessation programs.

Keywords: adolescent smoking; self-efficacy; proactive coping; smoking cessation; health behavior

INTRODUCTION

Adolescence marks a critical transition from childhood to adulthood, during which individuals encounter numerous developmental challenges, one of the most significant being stress. Many adolescents struggle to manage this stress effectively and may turn to smoking as a coping mechanism. They often believe that smoking helps relieve tension, especially in academic settings, without fully recognizing the health

risks involved (Purwanti et al., 2021). This habit, once formed, can lead to broader consequences such as psychological dependence and a decline in school performance. Adolescent smokers are more likely to experience academic disengagement, reduced motivation, and increased absenteeism (A J Rifiana et al., 2023). Beyond behavioral impacts, smoking in adolescence brings serious physiological risks. Nicotine, the addictive chemical in cigarettes, fosters dependency, while other harmful substances, such as tar, increase mucus production in the lungs, and carbon monoxide may cause blood poisoning (Yulianti et al., 2023). These dangers are often overlooked by adolescents, who may begin smoking due to a combination of internal and external influences. Internal factors include curiosity, low awareness of smoking's risks, and emotional stress, while external pressures come from peers, advertisements, family environment, and social norms (Suryawati & Gani, 2022).

The urgency of this issue is especially apparent in Indonesia, which has the highest smoking prevalence among ASEAN countries at 46.16%. The Global Youth Tobacco Survey (2020) reported that 40.6% of Indonesian adolescents have used tobacco products, with two-thirds of boys and one in five girls participating. In West Java, particularly Bogor Regency, smoking rates remain high due to easy access to cigarettes and a permissive environment. Without intervention, the number of adolescent smokers is projected to increase significantly over the next decade (A J Rifiana et al., 2023). These trends highlight the need for effective psychological and behavioral approaches to reduce smoking behavior in this population.

One critical factor that may help adolescents resist or quit smoking is self-efficacy. Based on Bandura's theory, self-efficacy refers to an individual's belief in their capacity to perform actions required to manage future situations (Ningsih et al., 2023). Adolescents with high self-efficacy are more confident in their ability to resist smoking, even when facing social or emotional pressures. On the other hand, those with low self-efficacy are more likely to succumb to external influences (Hadiyani et al., 2022).. Complementing self-efficacy is the use of proactive coping strategies actions taken in anticipation of future stressors rather than in reaction to them. Proactive coping enables adolescents to prepare mentally and behaviorally to avoid situations where smoking may be tempting or reinforced (Ibrahim et al., 2022).. For youth seeking to quit smoking, positive proactive coping plays a vital role by encouraging healthy behavioral choices, enhancing stress management, and preventing (Hadiyani et al., 2023). This study aims to examine the correlation between self-efficacy and proactive coping in reducing smoking behavior among adolescents.

METHOD

Study Design

This study employed a quantitative correlational design using a cross-sectional approach to examine the relationship between self-efficacy and proactive coping in adolescent smoking cessation. The design was selected to explore the association between psychological variables measured at a single point in time without manipulation of the study environment.

Study Setting and Sample

The study was conducted from 15 to 20 November 2023 at Junior High School in West Java, Indonesia. The study population consisted of adolescents enrolled in grades VIII and IX. A total of 125 respondents were included, with the sample size determined using the G*Power application to ensure adequate statistical power.

Sampling was carried out using a multistage sampling technique. Proportional sampling was first applied to determine classroom clusters, followed by simple random sampling within each selected cluster to ensure representative participation.

Inclusion criteria were adolescents aged 13–16 years, currently enrolled in grades VIII or IX, having exposure to smoking behavior (active or passive), owning a smartphone, and providing informed consent. Exclusion criteria included students on leave during data collection or those diagnosed with severe illnesses such as pulmonary tuberculosis.

Research Instruments

Data were collected using two standardized and validated self-report questionnaires. The Smoking Self-Efficacy Questionnaire-12 (SEQ-12) was used to assess adolescents' confidence in resisting smoking in various situations. Proactive coping was measured using the Proactive Coping Smoking Cessation (PCSC) questionnaire, which evaluates anticipatory coping behaviors aimed at preventing smoking initiation or relapse.

Data Collection Procedure

Prior to data collection, ethical approval and permission from the school administration were obtained. Participants and their guardians received information regarding the study objectives and procedures. Questionnaires were administered in a supervised setting to ensure completeness and clarity of responses.

Data Analysis

Data analysis was conducted using statistical software. Descriptive statistics were used to summarize participant characteristics. Since the data were not normally distributed, the Spearman rank correlation test was employed to examine the relationship between self-efficacy and proactive coping, with a significance level set at $p < 0.05$.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Commission of STIKep PPNI West Java (No: 939/UN6.KEP/EC/2023). Participation was voluntary, informed consent was obtained from all respondents, and confidentiality and anonymity were strictly maintained throughout the study.

RESULTS

The analysis covers their demographic background, self-efficacy in smoking cessation, proactive coping strategies, and the statistical relationship between these two psychological variables. The outcomes are detailed in the following tables.

Table 1 Characteristics of Respondents

Variable	Frequency (f)	Percentage (%)
Gender		
Female	68	54.4
Male	57	46.6
Age		
13	10	8.0
14	75	60.0
15	36	28.8
16	4	3.2
Family Members Smoke		
Yes	117	93.6
No	8	6.4
Number of Cigarettes/Day		
>10	41	32.8
10-20	5	4.0
No-smoker	79	63/2
First Time Smoking		
Elementary School	15	12.0
Junior High School	31	24.8
Never	79	63.2

Table 1 presents the demographics of 125 adolescents. Most were 14 years old (60.0%) with a balanced gender distribution (54.4% female, 46.6% male). The majority (93.6%) had family members who smoked. Regarding smoking habits, 32.8% smoked fewer than 10 cigarettes daily, 4.0% smoked 10–20, and 63.2% did not smoke. The age of first smoking was elementary school (12.0%), junior high (24.8%), while 63.2% had never smoked.

Self-Efficacy Among Adolescents

Table 2 presents adolescent self-efficacy in smoking cessation based on SEQ-12 scores. The mean internal and external self-efficacy scores were 25.58 ± 6.54 and 25.99 ± 6.26, respectively, with a combined mean of 51.50 ± 12.80. This indicates generally high self-efficacy among respondents. Most adolescents (78.4%) fell into the high self-efficacy category, while only a small proportion showed low (9.6%) or moderate (12.0%) self-efficacy, suggesting a strong confidence in resisting smoking-related temptations.

Table 2 Self-Efficacy In Smoking Cessation

Dimension	f(%)	Mean ± SD	Range (Min–Max)
Internal Self-Efficacy		25.58 ± 6.54	6–30
External Self-Efficacy		25.99 ± 6.26	6–30
Self-Efficacy		**51.50 ± 12.80**	**12–60**
Low	12 (9.6%)		
Moderate	15(12.0%)		
High	98 (78.4%)		

Proactive Coping Smoking Cessation (PCSC)

Table 3 shows the distribution of proactive coping strategies among adolescents in their efforts to quit or avoid smoking. The highest mean score was observed in **support-seeking coping** (mean = 34.75 ± 9.88), which consisted of 11 items, indicating that respondents frequently rely on help and encouragement from others as part of their coping approach. This was followed by **reflective coping** (7 items; mean = 24.60 ± 5.63) and **strategic coping** (6 items; mean = 19.46 ± 5.78), suggesting that adolescents tend to think carefully about their actions and use planned strategies to resist smoking. **Proactive coping** (6 items; mean = 18.58 ± 5.73) also showed moderate use, reflecting their ability to anticipate and prepare for smoking-related challenges. On the other hand, **avoidance coping** (3 items; mean = 10.06 ± 2.65) and **preventive coping** (3 items; mean = 9.82 ± 2.77) had lower scores, indicating less frequent use of avoidance and preemptive strategies. The overall PCSC mean score was 117.27 ± 32.44, with most respondents (68.8%) categorized as having high proactive coping abilities. These findings suggest that adolescents in this study predominantly rely on interpersonal support and reflective thinking rather than avoidance in coping with smoking-related situations.

Table 3 Proactive Coping Smoking Cessation (PCSC) Scores

Variable	f(%)	Mean ± SD	Range (Min–Max)
Support-Seeking Coping		34.75 ± 9.88	11 – 44
Reflective Coping		24.60 ± 5.63	7 – 28
Strategic Coping		19.46 ± 5.78	6 – 24
Proactive Coping		18.58 ± 5.73	6 – 24
Avoidance Coping		10.06 ± 2.65	3 – 12
Prevention Coping		9.82 ± 2.77	3 – 12
PCSC		**117.27 ± 32.44**	**36 – 144**
Low	12 (9.6%)		
Moderate	27(21.6%)		
High	86(68.8%)		

Correlation Between Self-Efficacy and PCSC

There is a statistically significant positive correlation between self-efficacy and proactive coping smoking cessation among adolescents ($p < 0.05$). The correlation coefficient (r = 0.548) indicates a moderate and positive relationship, meaning higher self-efficacy is associated with stronger proactive coping behaviors.

Table 4. Correlation Between Self-Efficacy and Proactive Coping Smoking Cessation (PCSC)

Table 4 Correlation Between Self-Efficacy and Proactive Coping Smoking Cessation (PCSC)

Variable	Correlation Coefficient (r)	p-value
Self-Efficacy-PCSC	0.548	0.000

DISCUSSION

The high level of self-efficacy observed in 78.4% of adolescent respondents reflects a strong psychological readiness to resist smoking, both in internal conviction and in managing external pressures. This is especially significant considering the respondents' demographic background—most were 14 years old and lived in environments where smoking behavior was normalized, with 93.6% reporting family members who smoked. Despite this exposure, a majority had never smoked, suggesting that belief in one's ability to resist smoking plays a critical role in shaping behavior, even in high-risk settings. These findings align with Bandura's theory, which highlights self-efficacy as a key mechanism in behavior regulation. Empirical evidence supports this perspective: (Gallus et al.,

2023) found that higher levels of self-efficacy significantly increased the odds of successful smoking cessation among adolescents in Italy. Similarly, (Loukili et al., 2024) identified self-efficacy as a strong predictor of quitting intentions among Moroccan youth, reinforcing the global relevance of this psychological factor. Furthermore, the integration of digital health tools has emerged as an effective strategy for enhancing self-efficacy. (Rajani et al., 2021) reported that adolescents using mobile-based smoking cessation apps experienced substantial gains in motivation and self-belief. Given the youth demographic's familiarity with technology and their developmental openness to behavioral shaping, interventions that incorporate digital support, along with school-based and family-engaged programs, may further strengthen self-efficacy. These approaches hold promise in helping adolescents maintain non-smoking behaviors, even when exposed to environmental risk factors.

The results of this study revealed that most adolescents demonstrated high levels of proactive coping in smoking cessation, particularly in support-seeking, reflective, and strategic coping dimensions. This trend can be better understood when examined in conjunction with the demographic characteristics of the respondents. The majority were 14 years old, an age where social influence is particularly strong, and 93.6% reported having family members who smoked. Despite this high-risk environment, 63.2% of the adolescents had never smoked, suggesting the presence of strong internal and external protective factors. One of these key factors, as highlighted in the data, is the use of support-seeking coping strategies, where adolescents turn to others for help in avoiding smoking behavior. This aligns with findings by (Islam et al., 2023), who emphasized that adolescents embedded in supportive social environments are more likely to exhibit health-promoting behaviors due to enhanced self-efficacy and stronger peer relationships. The tendency toward reflective and strategic coping also suggests that many adolescents can evaluate smoking risks and plan their actions accordingly, even if they are surrounded by smoking role models within their families. (Mitchell J. Raper, 2021) further supported the effectiveness of proactive coping training in reducing relapse, highlighting that such cognitive-behavioral approaches strengthen adolescents' long-term decision-making and self-control. The lower scores in preventive and avoidance coping might be explained by the fact that these strategies require foresight or environmental control, which adolescents may lack due to limited autonomy in their daily lives. Nonetheless, the significant correlation between self-efficacy and proactive coping observed in this study confirms that adolescents with higher confidence in resisting smoking are more likely to adopt proactive behaviors, especially

those involving reflection and social support. Given that a large portion of respondents had been exposed to smoking either passively or through family, the ability to maintain high proactive coping levels is promising. This finding supports the need for interventions that strengthen adolescents' coping mechanisms not by isolating them from risk, but by enhancing their skills in managing and resisting it. As noted by (Choi et al., 2021), adolescents engaged in structured behavioral therapy were significantly more successful in smoking cessation efforts, underscoring the value of proactive, skill-based interventions.

The findings of this study indicate a statistically significant and moderately strong correlation between self-efficacy and proactive coping ($r = 0.548$; $p < 0.05$), suggesting that adolescents with greater confidence in their ability to resist smoking are more likely to implement proactive strategies. These may include preparing for difficult situations, seeking guidance or support, and setting personal goals to maintain a smoke-free lifestyle. This interplay demonstrates the synergy between psychological conviction and behavioral planning in managing health-related challenges.

Recent studies have similarly identified self-efficacy as a key facilitator of action-oriented coping strategies. (Xue & Lin, 2024) found that among college students, higher self-efficacy reduced cognitive distortions and promoted active efforts to adopt healthful behaviors, such as smoking cessation. (Huo et al., 2023) highlighted that the combination of strong self-efficacy and adaptive coping mechanisms explained over 55% of the variance in sustained abstinence among young adults in cessation programs. Supporting this, a study by (Didarloo et al., 2023) showed that adolescents who participated in coping skills training experienced higher refusal self-efficacy and a greater likelihood of avoiding peer pressure to smoke.

Additionally, interventions that focus on both psychological empowerment and behavioral skill-building have proven effective in adolescent populations. (Yu et al., 2024) reported that school-based programs incorporating self-efficacy enhancement and stress coping strategies significantly lowered the intention to smoke among junior high students. Furthermore, (Ichimiya et al., 2022) emphasized that digital interventions combining goal-setting, progress tracking, and peer interaction improved adolescents' proactive responses to smoking-related triggers.

These results underscore the need for holistic approaches that move beyond information delivery. Programs should aim to build both internal belief systems and practical coping capacities to enhance adolescents' resilience against smoking influences—especially important given the environmental risk factors prevalent in this study's respondent group.

Clinical Implications

The findings of this study have important implications for adolescent health promotion and smoking prevention programs. The significant association between self-efficacy and proactive coping suggests that interventions aimed at reducing adolescent smoking should prioritize strengthening both psychological confidence and adaptive coping skills. School nurses, community health nurses, and public health practitioners can integrate self-efficacy–enhancing strategies, such as goal-setting, refusal skills training, and positive reinforcement, into routine health education programs.

Given the high exposure to smoking within family environments, interventions should not focus solely on risk avoidance but rather on empowering adolescents to effectively manage and resist social and environmental pressures. Incorporating peer-led initiatives, family engagement, and digital health tools, such as mobile applications or online counseling platforms, may further enhance proactive coping and reinforce smoke-free behaviors. Early identification of adolescents with low self-efficacy and limited coping strategies can allow targeted preventive efforts, potentially reducing smoking initiation and supporting long-term cessation.

Study Limitations

Several limitations should be acknowledged. First, the cross-sectional design restricts causal interpretation between self-efficacy and proactive coping. Second, data were collected from a single junior high school, which may limit the generalizability of findings to other adolescent populations. Third, reliance on self-reported questionnaires may introduce response bias or social desirability effects. Additionally, the study did not assess other psychological variables, such as stress levels, peer pressure intensity, or parental monitoring, which may influence smoking behavior. Future research employing longitudinal designs, multi-site sampling, and comprehensive psychosocial assessments is recommended to strengthen evidence and guide intervention development.

CONCLUSION

This study confirms a significant positive relationship between self-efficacy and proactive coping in adolescent smoking cessation. Adolescents with higher self-efficacy were more likely to adopt proactive strategies to resist smoking, even when exposed to peer or family influences. These findings highlight the dual role of internal belief and behavioral coping in preventing smoking initiation. Interventions should focus on enhancing both self-efficacy and proactive coping skills through practical programs such as skills training, parental involvement, peer-led initiatives, and digital tools. These strategies can be directly implemented

by health educators, schools, and public health practitioners to effectively support smoking prevention and cessation among adolescents.

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Author Contributions
Wini Hadiyani contributed to the study conception and design, data collection, data analysis, and manuscript drafting.

Atika Nur Vicry contributed to data interpretation, critical revision of the manuscript, and supervision of the research process.

Both authors read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Conflict of Interest
The authors declare that there are no conflicts of interest associated with this study.

Data Availability Statement
The data supporting the findings of this study are available from the corresponding author upon reasonable request, in accordance with ethical and confidentiality requirements.

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