Missed opportunities for tobacco cessation advice in Vietnam: A cross-sectional national analysis of health system responsiveness

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ABSTRACT

INTRODUCTION Tobacco use remains highly prevalent in Vietnam, yet little is known about the extent to which smokers receive cessation support during health visits. Understanding these patterns is essential for improving health system responsiveness and meeting World Health Organization Framework Convention on Tobacco Control (WHO FCTC) Article 14 objectives.

METHODS We conducted a cross-sectional analysis of the 2021 WHO STEPwise (STEPS) survey in Vietnam, including 4436 adults aged 18–69 years and 1086 current smokers. Outcomes were receipt of cessation advice and any behavioral counseling (diet, salt, physical activity, weight, sugary drinks) in the past year. Weighted prevalence and multivariable logistic regression were used to identify predictors, reported as adjusted odds ratios (AORs) with 95% confidence intervals (CIs).

RESULTS Only 25.6% of smokers received cessation advice. Young adults (18–29 years) had markedly lower odds (AOR=0.04; 95% CI: 0.04–0.05) compared with those aged ≥50 years. Smokers with hypertension (AOR=1.37; 95% CI: 1.36–1.38) or high cholesterol (AOR=1.44; 95% CI 1.43–1.45) were more likely to be counselled, while those with diabetes (AOR=0.53; 95% CI 0.53–0.54) and alcohol users (AOR=0.83; 95% CI: 0.82–0.84) were less likely. Overall, 60% reported no behavioral counseling.

CONCLUSIONS Tobacco cessation advice in Vietnam is delivered inconsistently, especially among young smokers and alcohol–tobacco dual users. Embedding brief cessation counseling into all primary care encounters could strengthen responsiveness to WHO FCTC Article 14 and advance national NCD goals. These findings highlight missed opportunities for integrating cessation counseling within Vietnam's primary health-care system.

INTRODUCTION

Tobacco use is the leading preventable cause of death globally, responsible for over 8 million deaths annually[1,2]. More than 80% of smokers live in low- and middle-income countries (LMICs), where cessation services remain underdeveloped[3]. In Vietnam, 35.3% of adult men were current smokers in 2024 according to the Provincial Global Adult Tobacco Survey (PGATS), among the highest in South-East Asia[4]. The WHO Framework Convention on Tobacco Control (FCTC) Article 14 requires that cessation advice be systematically integrated into health systems[1]. Brief advice from health workers is highly cost-effective, raising quit success rates by 40%[5] while other cessation supports such as pharmacotherapy and e-cigarettes are also effective[6]. Yet, coverage remains poor in LMICs: in China, only 29% of smokers reported advice[7]; in India and Indonesia, fewer than one-third received cessation support[8,9]. This reflects what has been described as the 'prevention paradox'[2], where systems respond reactively to older adults with comorbidities but miss younger smokers[2], despite their greater long-term risk. Vietnam has strengthened tobacco control through taxation, smoke-free policies, and adoption of the WHO PEN package[10]. However, little is known about whether smokers receive cessation advice in practice, or whether advice is equitably distributed across groups, despite recent evidence on quit

intentions and cessation behaviors in Vietnam[11-14]. Studies from Bangladesh[15], China[7], India[8], and Indonesia[9] suggest inequities by age, comorbidity, and socioeconomic status. This study, therefore, examined who receives quit advice in Vietnam, and whether advice is integrated with other forms of behavioral counseling.

METHODS

Study design and data source

This study is a secondary analysis of the 2021 Vietnam WHO STEPwise Approach to Surveillance (STEPS) survey, a nationally representative cross-sectional survey designed to assess noncommunicable disease (NCD) risk factors among adults aged 18–69 years. The STEPS survey follows a standardized WHO methodology consisting of three components: Step 1 (behavioral risk factor questionnaire), Step 2 (physical measurements), and Step 3 (biochemical assessments). Detailed STEPS protocols have been described elsewhere and were adhered to throughout data collection[16].

Sampling and participants

A multistage, geographically clustered probability sampling design was used. In the first stage, clusters were selected proportional to population size. Households were sampled in the second stage, and one eligible adult was selected per household using the Kish method. A total of 4436 individuals completed Step 1. Data collection was carried out by trained field teams using standardized WHO instruments. Interviewers were trained centrally, and supervisors conducted routine quality checks. Measurement devices were calibrated daily WHO data-cleaning guidelines were followed prior to analysis.

For this analysis, we included respondents who were current smokers, defined as reporting daily or occasional smoking at the time of the survey (n=1086). All analyses used sampling weights provided by WHO to account for differential selection probabilities, nonresponse, and population structure.

Ethical approval

The Vietnam STEPS survey received ethical approval from the Ministry of Health Ethics Committee. All participants provided informed consent. This study involved analysis of publicly available, de-identified data and therefore did not require additional institutional review.

Measures

Primary outcomes included the receipt of cessation advice, defined as self-report of receiving advice from a healthcare provider to quit smoking within the past 12 months (yes, no) and the receipt of any behavioral counseling defined as reporting at least one type of lifestyle counseling in the past year, including advice on diet, salt reduction, physical activity, weight management, or sugary drink reduction.

Sociodemographic variables that were included were age (18–29, 30–49, and ≥50 years), sex (male, female), education level (none, primary, secondary, tertiary), and socioeconomic status (SES), defined as the WHO-derived asset-based wealth quintiles[17], and residence (urban, rural).

Clinical and behavioral risk factors

All clinical measurements were collected following WHO STEPS protocols [ref missing] and included hypertension (systolic BP ≥140 mmHg, diastolic BP ≥90 mmHg, or current antihypertensive use), diabetes (fasting plasma glucose ≥126 mg/dL or self-reported diagnosis), high cholesterol (total cholesterol ≥200 mg/dL), alcohol use (any alcohol consumption in the past 30 days), as per the WHO and STEPS criteria[18].

Statistical analysis

We calculated weighted prevalence estimates for cessation advice and behavioral counseling. Multivariable logistic regression was used to examine associations between sociodemographic/clinical factors and each outcome. Results are reported as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Models were adjusted for sex, age, SES, comorbidities, and alcohol use. Sampling weights and analyses accounted for the complex survey design and were performed using IBM SPSS version 29. A $p<0.05$ was considered statistically significant.

RESULTS

The analytic sample comprised 1086 smokers, predominantly men (98.7%). Nearly half were aged 30–49

Table 1. Characteristics of current smokers in Vietnam, WHO STEPwise (STEPS) Survey 2021 (N=1086; weighted)

Characteristics	% (95% CI)
Sex	
Men	98.7 (98.6–98.8)
Women	1.3 (1.2–1.4)
Age (years)	
18–29	28.0 (27–29)
30–49	45.0 (44–46)
≥50	27.0 (26–28)
Health status	
Hypertension (≥140/90 mmHg or treatment)	19.0 (18–20)
Diabetes (self-reported or FPG ≥126 mg/dL)	11.0 (10–12)
High cholesterol (≥200 mg/dL)	24.0 (23–25)
Alcohol use (past 30 days)	59.0 (58–60)

FPG: fasting plasma glucose. Weighted percentages are based on survey sampling weights (wstep1).

Table 2. Prevalence of tobacco-cessation advice received from healthcare providers among current smokers in Vietnam, WHO STEPwise (STEPS) Survey 2021 (N=1086; weighted)

Subgroup	Receiving quit advice % (95% CI)
Overall	25.6 (24.5–26.7)
Age (years)	
18–29	4.0 (3.5–4.5)
30–49	42.6 (41.0–44.2)
≥50 (ref.)	43.9 (42.1–45.7)
Hypertension (yes vs no)	28.6 (27.0–30.2)
Diabetes (yes vs no)	10.0 (8.8–11.2)
High cholesterol (yes vs no)	25.4 (23.8–27.0)
Alcohol users (yes vs no)	14.0 (13.0–15.0)

Weighted estimates account for complex survey design.

Table 3. Adjusted logistic-regression predictors of receiving quit-smoking advice among current smokers in Vietnam, WHO STEPwise (STEPS) Survey 2021 (N=1086; weighted)

Predictor	AOR	95% CI
18–29 vs ≥50	0.04	0.038–0.039
30–49 vs ≥50	0.87	0.87–0.88
Hypertension (yes vs no)	1.37	1.36–1.38
Diabetes (yes vs no)	0.53	0.53–0.54
High cholesterol (yes vs no)	1.44	1.43–1.45
Alcohol use (yes vs no)	0.83	0.82–0.84
Primary vs university education (ref.)	3.27	3.23–3.32

AOR: adjusted odds ratio. Models adjusted for sex, age, socioeconomic status, quintile, comorbidities, and alcohol use.

years, 28% were 18–29 years, and 27% were ≥50 years. Nineteen percent reported hypertension, 11% diabetes, and 24% high cholesterol. Nearly 60% reported alcohol use (Table 1). Characteristics of current smokers in Vietnam 2021 STEPS (n=1086, weighted) shows that only 25.6% of smokers reported receiving quit advice. Prevalence was lowest among smokers aged 18–29 years (4%) and highest among those ≥50 years (43.9%). Advice was more common among those with hypertension or cholesterol, but less common among those with diabetes (Table 2). Prevalence of quit advice among smokers, by subgroup (n=1086, weighted) as shown in regression models, suggests that younger smokers had substantially lower odds of quit advice (AOR=0.04 for 18–29 vs ≥50 years). Hypertension

Table 4. Predictors of receiving any behavioral counseling among current smokers in Vietnam, WHO STEPwise (STEPS) Survey 2021 (N=1086; weighted)

Predictor	AOR	95% CI
Men vs women	2.15	2.15–2.16
Age 18–29 vs ≥50	2.17	2.15–2.18
Age 30–49 vs ≥50	0.84	0.835–0.842
Hypertension (yes vs no)	2.45	2.43–2.46
Diabetes (yes vs no)	2.61	2.59–2.64
High cholesterol (yes vs no)	3.96	3.93–3.99
Alcohol use (yes vs no)	1.14	1.13–1.14
Education (per level)	1.12	1.12–1.12
SES quintiles	~1.00	-

SES: socioeconomic status. AOR: adjusted odds ratio. Weighted logistic models adjusted for all listed covariates.

(AOR=1.37; 95% CI: 1.36–1.38) and cholesterol (AOR=1.44; 95% CI: 1.43–1.45) increased odds, while diabetes was negatively associated (AOR=0.53; 95% CI: 0.53–0.54). Alcohol users were less likely to receive advice (AOR=0.83; 95% CI: 0.82–0.84). Primary education level was associated with higher odds than university level (AOR=3.27). SES quintiles showed no gradient (Table 3). When considering any behavioral advice, 40% of smokers reported some form, while 60% received none. Only 15% reported multiple types (Table 4). In regression models, men (AOR=2.15; 95% CI: 2.15–2.16), young smokers (AOR=2.17; 95% CI: 2.15–2.18), and smokers with comorbidities were more likely to receive any advice, with cholesterol the strongest predictor (AOR=3.96; 95% CI: 3.93–3.99). Alcohol users were slightly more likely to receive any advice (AOR=1.14; 95% CI: 1.13–1.14). Socioeconomic status (SES) quintiles showed no gradient (Table 4).

DISCUSSION

This is one of the first national analyses of cessation advice in Vietnam, and the findings reveal a variably implemented system. Only one in four smokers reported receiving quit advice, a coverage level similar to that reported in China[7], India[8], and Indonesia[9]. A particularly concerning finding is the neglect of younger smokers. Those aged 18–29 years were 96% less likely to receive quit advice, despite being the group with the most to gain from early cessation. Qualitative research also indicates that Vietnamese men face structural and cultural barriers in accessing cessation support[16], underscoring that weak system responsiveness[17] compounds individual-level challenges. Similar neglect of youth has been observed in China[7], India[8], and Bangladesh[15], reflecting a broader LMIC pattern of reactive rather than preventive counseling[2]. Comorbidity-driven counseling was

inconsistent. Hypertension and cholesterol increased the odds of advice, but diabetes reduced the odds. This mirrors evidence from Bangladesh[15] and stands in contrast to strong evidence that smoking worsens diabetes outcomes[18]. This gap suggests insufficient emphasis on tobacco in diabetes management protocols[17,18]. Alcohol–tobacco dual users were less likely to receive quit advice, despite clear evidence of synergistic risks[19] and the high prevalence of dual use in South-East Asia[20]. Missing this group represents a blind spot for Vietnam's NCD strategy. This blind spot is particularly concerning given that simulation models suggest comprehensive tobacco control in Vietnam[21] could avert hundreds of thousands of deaths[15]. Finally, general behavioral advice (diet, exercise, weight) was more common than tobacco advice, particularly for younger smokers. This reflects a siloed approach inconsistent with WHO PEN[5,10], which calls for integration of tobacco counseling into every NCD contact[10,22]. Unlike findings from the Global Adult Tobacco Survey that show wealthier smokers are more likely to receive advice in some LMICs[22], we observed no SES gradient in Vietnam. This suggests a universal failure: cessation advice is inconsistently delivered across all groups, rich and poor alike. Policy implications could be that Vietnam must strengthen the implementation of FCTC Article 14[1,23]. Quit advice should be universalized at every patient encounter. Younger smokers should be prioritized to prevent decades of harm[5,24]. Tobacco counseling should be integrated into all NCD counseling sessions, especially those addressing diet and exercise. Health workers require systematic training in brief advice[22,25]. Finally, dual users of alcohol and tobacco should be recognized as a high-priority group. Embedding brief cessation advice into all primary-care contacts is essential to align Vietnam's health system with WHO FCTC Article 14.

Limitations

This analysis relied on self-reported data, which may introduce recall and social desirability bias. Residual confounding is possible, and the cross-sectional design limits causal inference. Nevertheless, findings are nationally representative and provide a benchmark for improving system responsiveness.

CONCLUSIONS

Vietnam's health system delivers fragments of behavioral counseling, but too often omits the most important message: quit smoking. With only one in four smokers receiving cessation advice, and young adults and alcohol–tobacco dual users systematically neglected, the system is failing to meet its prevention mandate. To fulfil WHO FCTC Article 14 obligations and reduce the long-term tobacco burden, cessation advice must become a standard component of every primary care encounter. This requires not only integrating brief advice into all NCD services, but also training health workers and establishing accountability mechanisms to ensure delivery. Without decisive action, Vietnam risks perpetuating a fragmented response that leaves millions of smokers unsupported and undermines progress toward national and global tobacco control goals.

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ETHICAL APPROVAL AND INFORMED CONSENT
The Vietnam STEPS survey received ethical approval from the Ministry of Health Ethics Committee. All participants provided informed consent. This study involved analysis of publicly available, de-identified data and therefore did not require additional institutional review.

DATA AVAILABILITY
The data supporting this research are publicly available from the World Health Organization's NCD Microdata Repository. Researchers may request access through the WHO portal (https://extranet.who.int/ncdsmicrodata/index.php/home).

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