

Supplementary Material file

Supplementary Table S1. Rotated component matrix of factors related to smoking cessation motivation among HCWs in Kirkuk, Iraq, January–August 2025 (n = 1618)

Variable (Item)	Factor 1: Health-Driven Motivation	Factor 2: Support-Oriented Motivation
Reason for quitting smoking		
Family/ Friend influences	0.84	0.19
Financial reasons	0.79	0.24
Health concerns	0.21	0.77
Support to quit smoking		
Health education and awareness of smoking risk	0.28	0.81
Medical consultation	0.33	0.74
Pharmacological aids	0.25	0.69

Extraction method: **Principal Component Analysis**

Rotation method: **Varimax with Kaiser normalization**

Rotation converged in 5 iterations.

Note: **Bold values (≥ 0.40) indicate significant loadings.**

Supplementary Table S2. Summary of extracted motivational factors and variance explained from principal component analysis among HCWs in Kirkuk, Iraq, January–August 2025 (n = 1618)

Factor	Items Included	Eigenvalue	% Variance Explained	Label
1	Reasons for quitting smoking – Health concerns, Financial reasons	2.41	40.2%	Health-Driven Motivation
2	Reasons for quitting smoking – Family/friend influences; Support to quit smoking – Health education and awareness, Medical consultation, Pharmacological aids	1.76	29.3%	Support-Oriented Motivation
Total variance explained	-	-	69.5%	-

Supplementary Methods: Sample Size Calculation

The necessary sample size was determined using the single population proportion formula:

$$n = (Z^2 \times p \times (1 - p)) / d^2$$

Where:

- n = minimum required sample size
- Z = 1.96 (corresponding to a 95% confidence level)
- p = estimated prevalence of smoking among HCWs from previous studies (0.20) [10, 11].
- d = desired margin of error (0.03)

By substituting the values:

$$n = (1.96)^2 \times 0.20 \times (1 - 0.20) / (0.03)^2 = 683.2$$

After adjusting for a design effect of 1.5 to improve representativeness and account for cluster sampling, and adding an additional 10% to account for potential non-responses, the final calculated sample size was around 1,067. However, to further enhance the statistical power and precision of the study, a total of 1,618 participants were ultimately included.

Supplementary Material – Questionnaire

Survey Instrument: Smoking Behavior and Motivational Factors among Healthcare Workers in Kirkuk, Iraq

This questionnaire was used to collect data for the study “*Determinants and Motivational Factors of Smoking Behavior Among Healthcare Workers: A Cross-Sectional Study.*” Participation was voluntary, and all responses were anonymous.

Section A: Workplace Information

1. **Name of healthcare institution:**
 - Hospital
 - Primary Healthcare Center (PHC)
 - (Please specify name: _____)
-

Section B: Sociodemographic and Occupational Characteristics

2. **Gender:**
 - Male
 - Female
3. **Age group:**
 - 20–29 years
 - 30–39 years
 - 40–49 years
 - ≥50 years
4. **Marital status:**
 - Single
 - Married
 - Divorced
 - Widowed
5. **Professional category:**
 - Physician
 - Dentist
 - Pharmacist
 - Nurse

- Laboratory staff / Medical technologist
 - Administrative or support staff
 - 6. **Educational level:**
 - Diploma
 - Bachelor's degree
 - Postgraduate degree
 - 7. **Years of employment in healthcare:**
 - <5 years
 - 5–10 years
 - >10 years
-

Section C: Smoking Status and Tobacco Use

- 9. **Smoking status:**
 - Current smoker
 - Former smoker
 - Non-smoker
 - 10. **If you are a current or former smoker, which tobacco product(s) have you used?**
(You may select more than one option)
 - Cigarettes
 - Hookah (shisha)
 - Electronic cigarettes (vape)
 - 11. **Duration of smoking (for current or former smokers):**
 - <5 years
 - 5–10 years
 - >10 years
 - 12. **Average number of cigarettes smoked per day (for cigarette smokers):**
 - <10 cigarettes
 - 10–20 cigarettes
 - >20 cigarettes
 - 13. **If you are a former smoker, when did you quit smoking?**
 - <6 months ago
 - 6–12 months ago
 - >1 year ago
-

Section D: Reasons for Smoking and Smoking Cessation

14. **What are the main reasons that drive you to smoke?**
(You may select more than one option)
- Stress and psychological pressure
 - Social influence (friends or family)
 - Self-perceived addiction (feeling dependent on smoking)
15. **Have you ever attempted to quit smoking?**
- Yes
 - No
16. **If yes, what was the outcome of your quit attempt?**
- Successfully quit
 - Relapsed
17. **What factors motivated you to attempt quitting smoking?**
(You may select more than one option)
- Health concerns
 - Financial reasons
 - Family or social influence
 - Workplace policies or regulations
-

Section E: Smoking Environment, Awareness, and Support

18. **Do you have a family member or close friend who smokes?**
- Yes
 - No
19. **Is smoking allowed in your workplace?**
- Yes
 - No
20. **Are you aware of the adverse health effects of smoking?**
- Yes
 - No
21. **Do you believe that smoking among healthcare workers negatively affects their professional role as health models?**
- Yes
 - No
22. **Which smoking cessation support methods do you consider helpful?**
(You may select more than one option)
- Medical consultation
 - Pharmacological treatment (e.g. nicotine replacement therapy)
 - Health education and awareness programs