Switzerland - Swiss Job Exposure Matrix for active Tobacco smoking

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Identification

SURVEY ID NUMBER
10.16909-dataset-64

TITLE
Swiss Job Exposure Matrix for active Tobacco smoking

SUBTITLE
A quantitative tool providing smoking probability for occupational groups

ABBREVIATION OR ACRONYM
SJEM-T

TRANSLATED TITLE
Matrice Suisse Emploi-Exposition pour le Tabagisme Actif

COUNTRY

Name	Country code
Switzerland	CHE

SERIES INFORMATION
The Swiss Job-Exposure Matrix for Active Smoking (SJEM-T) is a standalone methodological tool derived from the Swiss Health Survey series. While the SJEM-T itself is not part of a repeated survey series, it is based on data from four waves of the ESS (2007, 2012, 2017, 2022), a nationally representative health survey conducted every five years by the Swiss Federal Statistical Office since 1992. The SJEM-T may be updated in the future as new ESS waves become available, potentially establishing a versioned series of occupational smoking exposure matrices. Current version: v1.0.0 (2025), covering the period 2007-2022.

ABSTRACT
Active smoking remains a major confounding factor in occupational epidemiology studies. When individual smoking data are unavailable or incomplete in registry-based studies or retrospective analyses, indirect adjustment using job-exposure matrices (JEMs) provides an approach to control for smoking confounding based on occupational and demographic characteristics. The Swiss Job-Exposure Matrix for Active Smoking (SJEM-T) is a validated quantitative tool providing smoking probability estimates for specific occupational groups. The SJEM-T was developed using Swiss Health Survey data from four waves (2007, 2012, 2017, 2022), comprising approximately 60,000 workers. Smoking probabilities were estimated using logistic regression with current smoking status as the dependent variable, stratified by occupation (ISCO-88), sex, age group, and year. The matrix provides estimates for 12,160 unique strata. Dual validation (internal and criterion in independent cohorts) was performed.

KIND OF DATA
Aggregate data [agg]

UNIT OF ANALYSIS
Occupational strata defined by the unique combination of occupation (ISCO-88 codes at 2-, 3-, and 4-digit levels), sex (male/female), age group (under 30, 30-39, 40-49, ≥50 years), and year

Version

VERSION DESCRIPTION
Version 1.0.0: Initial validated public release (2007-2022). First public version of SJEM-T providing smoking probability estimates for occupations (ISCO-88) stratified by sex, age, and period, covering 5,737 strata at 4 digits level. Based on ~60,000 workers from Swiss Health Survey (2007, 2012, 2017, 2022). Generated using logistic regression with temporal interactions. Dual validated (internal and external in independent cohorts). Includes probabilities, standard errors, sample sizes, and quality indicators. Suitable for research use requiring indirect smoking adjustment. Future updates planned as new survey waves become available.

VERSION DATE

2025-12-31

Scope

NOTES

The SJEM-T covers:
OCCUPATION: occupations at three granularity levels (2-digit: 29 groups; 3-digit: 121 groups; 4-digit: 380 groups), occupation-specific smoking prevalence, temporal trends by occupation, high-exposure occupational groups.
DEMOGRAPHICS: Sex (male/female), four age groups (under 30, 30-39, 40-49, ≥50 years), age-sex-specific smoking patterns within occupations.
TEMPORAL DIMENSION: Four periods (2007, 2012, 2017, 2022), 15-year temporal trends, period-specific estimates.
SMOKING MEASURES: Current smoking probability estimates (0-1), standard errors, quality indicators, estimation methods (modeled/imputed).
VALIDATION: Internal validation metrics (consistency, fidelity, temporal stability), external validation in independent cohorts, sensitivity analyses by sample size.

KEYWORDS

Keyword
Job-exposure matrix
Active smoking
Criterion validity
Lifestyle
Exposure assessment

Coverage

GEOGRAPHIC COVERAGE

National coverage

UNIVERSE

Workers aged 15 years and older residing in Switzerland

Producers and sponsors

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FUNDING AGENCY/SPONSOR

Name	Role

State Secretariat for Education	Financing
INTERCAMBIO	Financing

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Sampling

SAMPLING PROCEDURE

The SJEM-T is not a primary survey but a secondary analytical product derived from the Swiss Health Survey (ESS).

Data collection

DATA COLLECTION MODE

The SJEM-T was developed using Swiss Health Survey data from four waves (2007, 2012, 2017, 2022). Raw data are available on request : https://www.bfs.admin.ch/bfs/fr/home/statistiques/sante/enquetes/sgb.html

Data Processing

DATA EDITING

The SJEM-T was built by pooling four survey waves (2007, 2012, 2017, 2022), resulting in a dataset of roughly 60,000 workers aged 15 and older with valid ISCO-88 occupation codes. At each ISCO-88 level, occupational strata with at least ten workers in the pooled data were modeled directly, while those with fewer than ten workers were assigned imputed smoking probabilities derived from higher-level ISCO aggregates. Smoking probabilities were estimated using logistic regression models.
Reliability was assessed through a comprehensive validation strategy that combined internal validation using the Swiss Health Survey with criterion validation in two independent Swiss cohorts: CoLaus (n = 3,776) and SHeS-pilot (n = 615).
All analyses and modeling were conducted using the open-source software R, version 4.4.2.

Access policy

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ACCESS CONDITIONS

CITATION REQUIREMENTS

Guseva Canu, I., Djohi, J.E., Marques-Vidal, P. Swiss Job Exposure Matrix for active Tobacco smoking. Unisanté, Center for Primary Care and Public Health & University of Lausanne, Lausanne, Switzerland. Version 1.0 of the licensed dataset

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LOCATION OF DATA COLLECTION
Unisanté Data repository

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Metadata production

DDI DOCUMENT ID
10.16909-dataset-64

Data Dictionary

Data file	Cases	Variables