Switzerland - Population-based Night Work Exposure Assessment Using Swiss Labour Force Survey Data (1991–2024)

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Identification

SURVEY ID NUMBER
10.16909-dataset-70

TITLE
Population-based Night Work Exposure Assessment Using Swiss Labour Force Survey Data (1991–2024)

ABBREVIATION OR ACRONYM
NW-JEM

COUNTRY

Name	Country code
Switzerland	CHE

SERIES INFORMATION
The NW-JEM provides standardized, population-based estimates of night work exposure, enabling retrospective exposure assignment and facilitating research on the health effects of night work in the absence of direct individual measurements.

ABSTRACT
This project aims to develop and validate a Job-Exposure Matrix for night work (NW-JEM) to support exposure assessment in epidemiological and occupational health research. The JEM is based on data from the Swiss Labour Force Survey covering the period 1991–2024, comprising approximately 1.3 million observations. Night work exposure was defined in three categories (regular, occasional, none) and modelled using ordinal logistic regression. Exposure probabilities were estimated for strata defined by calendar year, sex, age group, and occupation (ISCO-88 classification).
A continuous exposure metric, the Night Work Exposure Index (NWEI), was computed as a weighted combination of predicted probabilities of exposure.
Criterion validity was assessed using external data from the CoLaus|PsyCoLaus cohort. Agreement between JEM-derived and empirical exposure indices at the stratum level was quantified using Spearman's correlation and intraclass correlation coefficients (ICC), showing moderate to good agreement, particularly at finer occupational levels. At the individual level, the binary classification performance of the JEM was evaluated using metrics including sensitivity, specificity, predictive values, Cohen's κ, and AUC. Results indicate good discriminative ability, strong capacity to rule out exposure, and consistent performance across occupational resolutions.

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 (≤39 years; ≥40 years), and year

Version

VERSION DESCRIPTION
Version 1.0: Initial validated public release Job-Exposure Matrix for night work (NW-JEM), based on Swiss Labour Force Survey data (1991–2024). Includes modelled exposure probabilities (regular, occasional, none), derived Night Work Exposure Index (NWEI), and estimates at ISCO 2-digit, 3-digit, and 4-digit levels.

VERSION DATE
2026-05-18

Scope

NOTES
The NW-JEM covers: OCCUPATION: occupations at three granularity levels (2-digit: 32 groups; 3-digit: 129 groups; 4-digit: 419 groups), occupation-specific Night Work Exposure Index, temporal trends by occupation, high-exposure occupational

groups. DEMOGRAPHIC VARIABLES: Individual-level characteristics used for stratification and modelling, including sex (male, female), age group (≤39 years; ≥40 years), and calendar year (1991–2024).

KEYWORDS

Keyword
Night work
Job exposure matrix
Occupational epidemiology
Exposure assessment
ISCO-88

Coverage

GEOGRAPHIC COVERAGE
National coverage

Producers and sponsors

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FUNDING AGENCY/SPONSOR

Name	Abbreviation
Swiss State Secretariat for Economic Affairs	SECO
EU Horizon Health project INTERCAMBIO	INTERCAMBIO
State Secretariat for Education, Research and Innovation	SERI

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Sampling

SAMPLING PROCEDURE
The NW-JEM is not a primary survey but a secondary analytical product derived from the Swiss Labour Force Survey.

Data collection

DATES OF DATA COLLECTION

Start	End
1991/01	2024/12

DATA COLLECTION MODE
The JEM was developed using data from the Swiss Labour Force Survey (SLFS/ESPA) collected between 1991 and 2024. Raw data are available upon request from the Swiss Federal Statistical Office (FSO).

Data Processing

DATA EDITING
Night work exposure estimates were derived from analyses of the Swiss Labour Force Survey data. Data cleaning, harmonization across survey years, statistical analyses, and modeling procedures were conducted using R (version 4.4.2).

Access policy

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ACCESS CONDITIONS
The dataset is available on request for research purpose only.
To get access to data, the following procedure must be followed:
· Create an account (Login → Register)
· Go to the Data Catalog and click on the study of interest (https://doi.org/10.16909/dataset/70)
· Once on the study page, click on the tab Data Access
· Fill in the application form and submit
Important: Before submitting a request, please check whether the data is at all useful for your project. The codebooks with the corresponding information are filed under Documentation and do not require registration.

CITATION REQUIREMENTS
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ACCESS AUTHORITY

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LOCATION OF DATA COLLECTION
Unisanté Data repository

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Metadata production

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Data Dictionary

Data file	Cases	Variables
		