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Supplementary file

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Supplementary Tables

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Activity-specific social participation and multiple dimensions of smoking behavior among older adults in China: a cross-sectional secondary analysis of CHARLS 2020

Table S1. Variable-level missingness before complete-case exclusion among Chinese adults aged 60 years or older with classifiable smoking status: cross-sectional secondary analysis of CHARLS 2020 (N=10631)

Variable	Denominator	Missing, n	Missing, %
Interacting with friends	10631	0	0.0
Mahjong/chess/cards/community club	10631	0	0.0
Providing help to non-co-residents	10631	0	0.0
Sport/social/other club	10631	0	0.0
Community-related organization	10631	0	0.0
Voluntary or charity work	10631	0	0.0
Education or training course	10631	0	0.0
Other social activity	10631	0	0.0
Age	10631	0	0.0
Sex	10631	0	0.0
Education	10631	0	0.0
Marital status	10631	0	0.0
Residence	10631	12	0.1
Hukou	10631	0	0.0
Chronic-condition count	10631	0	0.0
ADL impairment	10631	1	<0.1
Self-rated health	10631	1,177	11.1
Night-time sleep	10631	288	2.7
Current alcohol use	10631	0	0.0

Denominator is the 10631 age-eligible respondents with classifiable smoking status. Smoking status itself was unclassifiable for 23 of 10654 age-eligible respondents (0.2%). ADL: activities of daily living.

Table S2. Comparison of participants included in and excluded from the current-versus-never smoking analysis among Chinese adults aged 60 years or older: cross-sectional secondary analysis of CHARLS 2020 (eligible N=8889; included N=7804; excluded N=1085)

Characteristic	Included (N=7,804)	Excluded (N=1,085)	Available N included/excluded	p-value	Absolute SMD
Age, years	68.15 (6.16)	73.76 (9.33)	7804/1085	<0.001	0.71
Men	3197 (41.0%)	382 (35.2%)	7804/1085	<0.001	0.12
Elementary school or lower	5883 (75.4%)	891 (82.1%)	7804/1085	<0.001	0.17
Rural residence	5189 (66.5%)	688 (63.9%)	7804/1077	0.090	0.05
Current smoker	2376 (30.4%)	238 (21.9%)	7804/1085	<0.001	0.19
Any social activity	3606 (46.2%)	319 (29.4%)	7804/1085	<0.001	0.35
Mahjong/chess/cards/community club	1157 (14.8%)	77 (7.1%)	7804/1085	<0.001	0.25
Sport/social/other club	467 (6.0%)	22 (2.0%)	7804/1085	<0.001	0.20
ADL impairment	2159 (27.7%)	456 (42.1%)	7804/1084	<0.001	0.31
Chronic-condition count	2.76 (2.11)	2.96 (2.25)	7804/1085	0.007	0.09
Current alcohol use	2399 (30.7%)	241 (22.2%)	7804/1085	<0.001	0.19

Values are mean (SD) or n (%). Two-sided Welch t tests were used for continuous variables and Pearson chi-square tests for categorical variables. SMD: standardized mean difference. Rural residence was available for 1077 excluded participants; ADL impairment was available for 1084 excluded participants.

Table S3A. Multicollinearity diagnostics for the eight social activity indicators in the current-versus-never smoking model among Chinese adults aged 60 years or older: cross-sectional secondary analysis of CHARLS 2020 (complete-case N=7804; 444 communities).

Activity indicator	R-squared	VIF
Interacting with friends	0.086	1.09
Mahjong/chess/cards/community club	0.059	1.06
Providing help to non-co-residents	0.104	1.12
Sport/social/other club	0.074	1.08
Community-related organization	0.123	1.14
Voluntary or charity work	0.094	1.10
Education or training course	0.042	1.04
Other social activity	0.010	1.01

Each VIF was calculated by regressing the activity indicator on all remaining predictors in the fully adjusted current-versus-never design matrix. Maximum VIF=1.14; the prespecified concern threshold was 5.00.

Table S3B. Negative-binomial count-model diagnostics among current smokers aged 60 years or older: cross-sectional secondary analysis of CHARLS 2020 (N=2376; 427 communities).

Diagnostic	Result
Negative-binomial dispersion parameter, alpha	0.44
Negative-binomial log likelihood	-8664.70
Poisson log likelihood	-13383.51
Likelihood-ratio statistic	9437.62
Likelihood-ratio p-value	<0.001

The likelihood-ratio comparison used 1 degree of freedom and strongly favored negative binomial over Poisson regression. Model N=2376 current smokers.

Table S4. Sex interactions and sex-stratified associations of the two main social activity items with current versus never smoking among Chinese adults aged 60 years or older: cross-sectional secondary analysis of CHARLS 2020 (complete-case N=7804; 444 communities)

Activity	Interaction p-value	Men aOR (95% CI)	Men p-value	Women aOR (95% CI)	Women p-value
Mahjong/chess/cards/community club	0.065	1.65 (1.34-2.03)	<0.001	2.27 (1.64-3.15)	<0.001
Sport/social/other club	0.446	0.62 (0.42-0.91)	0.014	0.50 (0.27-0.94)	0.031

The two sex-by-activity product terms were entered simultaneously into the fully adjusted current-versus-never model. Sex-stratified models retained the full covariate set except sex. Neither interaction p-value was below 0.05. AOR: adjusted odds ratio; CI: confidence interval.

Table S5. Distribution of approximate time since smoking cessation among former smokers aged 60 years or older: cross-sectional secondary analysis of CHARLS 2020 (former smokers N=1742; valid timing N=1643)

Measure	Value
Valid cessation-timing data	1643 (94.3% of former smokers)
Missing or invalid cessation-timing data	99 (5.7% of former smokers)
Median years since cessation (IQR)	8 (2-20)
0-1 year	313 (19.1% of valid timing data)
2-5 years	401 (24.4% of valid timing data)
6-10 years	256 (15.6% of valid timing data)
11-20 years	343 (20.9% of valid timing data)
>20 years	330 (20.1% of valid timing data)

Approximate years since cessation were calculated as current age minus reported age at quitting or 2020 minus reported calendar year of quitting. Unknown, negative, and internally inconsistent values were treated as missing. Percentages for duration categories use the 1643 participants with valid timing data and may not total 100% because of rounding. IQR: interquartile range.