

BIOGRAPHICAL SKETCH

NAME: Ting, Te-Tien

中文姓名：丁德天

INSTITUTE/RESEARCH CENTER: DEPARTMENT OF DATA SCIENCE, SOOCHOW UNIVERSITY

Current POSITION: Associate Professor

EDUCATION (Begin with baccalaureate or other initial professional education)

INSTITUTION AND LOCATION	DEGREE	DURATION MM/YY-MM/YY	FIELD OF STUDY
National Taiwan University	BA	1994-1999	Nursing (Double Degree)
National Taiwan University	BA	1994-1999	Public Health (Double Degree)
Columbia University	MPH	1999-2001	Socio-Medical Science (Research Track)
National Taiwan University	Ph.D.	2006-2014	Epidemiology and Preventive Medicine

EMPLOYMENT (Include postdoctoral training)

INSTITUTION AND LOCATION	POSITION TITLE	DURATION MM/YY-MM/YY	FIELD OF STUDY
Center of Family Research in University of Georgia	Visiting Research Scholar	2015-2015	Sociology
Institute of Sociology, Academia Sinica	Postdoctoral Research Fellow	2014-2016	Sociology
Research Center for Environmental Changes, Academia Sinica	Postdoctoral Research Fellow	2017-2017	Environmental and Social Changes
Big Data Management, Soochow University	Assistant Professor	2017-2020	Data Science (Computer Vision)
Department of Data Science, Soochow University	Assistant Professor	2020-2025	Data Science (Computer Vision and Graph Neural Network Applying in Aging)
Department of Data Science, Soochow University	Associate Professor	2025-Present	Data Science (Computer Vision and Graph Neural Network Applying in Aging)

I. PERSONAL STATEMENT

My research operates at the nexus of public health and data science, with a specialized focus on psychiatric epidemiology, substance use, social behaviors, and health outcomes across the lifespan. By integrating population-based epidemiological designs with advanced computational frameworks—including **graph neural networks (GNNs)** and **topological sort algorithm**—I

investigate the complex interplay between biological, social, and behavioral health determinants (under publication).

My pillar work involves analyzing dynamic social networks to understand how evolving social interactions and shifting network topologies influence behavioral contagion, particularly regarding adolescent substance use and peer influence. This interdisciplinary approach extends into geriatric medicine, where I identify psychosocial and physiological predictors of frailty and dementia, accounting for the protective effects of social engagement. In the realm of medical informatics, I develop machine learning and causal inference algorithms for thyroid cytodiagnosis and dementia risk assessment.

My scholarly contributions are reflected in a robust publication record in high-impact journals such as *Drug and Alcohol Dependence*, the *Journal of Epidemiology*, and the *Journal of Hazardous Materials*. Beyond independent research, I have contributed to the design of national longitudinal surveys addressing mental health and substance use trends in Taiwan. Complementing my research is a steadfast commitment to pedagogical excellence, recognized by the Soochow University **Teaching Excellence Award** (2020).

Through a blend of mentorship and innovative instruction, I aim to equip the next generation of researchers with the tools to bridge the gap between data science and **health equity**. Ultimately, I strive to leverage longitudinal data and dynamic network modeling to develop evidence-based strategies that improve mental health and aging outcomes within both the Taiwanese and global public health landscapes.

II. CONTRIBUTIONS TO SCIENCE

My research lies at the intersection of substance use epidemiology, public health surveillance, and adolescent social network analysis. I focus on integrating advanced analytical methods with population-based data to examine complex behavioral and health dynamics, with the goal of producing both theoretically meaningful and policy-relevant insights.

A central contribution of my work is the development of wastewater-based epidemiology as a real-time surveillance system for substance use. In my 2024 study, I established a high-resolution framework to monitor 68 substances across the Taipei metropolitan area during and after the COVID-19 pandemic. Using systematic daily sampling and segmented regression models, I identified dynamic changes in drug use associated with policy shifts, social restrictions, and cultural events. My findings revealed persistent substance use despite mobility controls, as well as disruptions in drug supply and availability, demonstrating the value of wastewater surveillance as a scalable and objective tool for public health monitoring.

Complementing this ecological approach, my 2023 longitudinal study examined NPS and polysubstance use among high-risk populations in Taiwan. By analyzing over 3,000 urine samples across five years, I constructed robust prevalence profiles of emerging substances. Through principal component analysis and logistic regression, I identified latent behavioral patterns and demonstrated the central role of phenethylamine in polysubstance use. This work provides critical evidence for early warning systems and targeted intervention strategies in rapidly evolving drug markets.

In the area of adolescent mental health, my 2022 study applied stochastic actor-oriented models to longitudinal network data to investigate the interplay between pubertal development, depressive symptoms, and friendship formation. I found that while adolescents tend to select friends with similar depressive symptoms, this effect is attenuated when accounting for pubertal development, highlighting the importance of biological maturation in social network processes. Additionally, I found limited evidence for peer influence on depressive symptoms, suggesting that selection mechanisms are more influential than contagion effects.

Overall, my research is characterized by interdisciplinary integration and methodological rigor, combining environmental surveillance, biochemical validation, and advanced statistical and network modeling. By linking individual behaviors with population-level dynamics, my work contributes to more effective public health surveillance systems and evidence-based interventions in both addiction science and adolescent mental health.

III. LIST OF PUBLISHED WORK (last 5 years)

Peer-reviewed Journal Articles

1. Chen TY, Wu SC, Chang SS, Chen LY, Kuo PH, Chen CY, Lin HW, Hsiao PC, Ting TT, Yen CF, Li CY, Yang HJ, Yen CF, Tu YK, & Chen, W. J. (2026). Gender differences in the relationship between alcohol use patterns and health-related quality of life in a population experiencing a recent surge in harmful alcohol use among females: the 2018 National survey in Taiwan. *Quality of Life Research*, 35(1), 18.
2. Ting TT, Chen PC, Chang YC, Chiang PJ, Li HC, Chen SH, Chen PC, Chu HT, Chuang PY, Liu YH, & Chen PS (2024). Wastewater-based epidemiology to monitor 68 NPS/conventional drug use in Taipei metropolitan area in Taiwan during and after COVID-19 pandemic. *Journal of Hazardous Materials*, 476, 135020. (SCI, 4/148)
3. Wu SC, Chen LY, Hsiao PC, Ting TT, Yen CF, Chang SS, Li CY, Yang HJ, Yen CF, Chen CY, Huang JH, Tu YK, & Chen WJ (2024) Illicit Drug Use in Adolescents Versus Adults Among Those With Use of Other Psychoactive Substance or Depressive Symptoms: A Conditional Prevalence Analysis of the 2014 and 2018 National Survey of Substance Use in Taiwan. *Drug and Alcohol Dependence*, 260, 110748 (SSCI, 10/56).
4. Chen HW, Liu HT, Kuo YN, Yang DP, Ting TT, Chen JH, Chiu JY, Jiair YC, Li HC, Chiang PJ, Chen WR, Line MC, Hsu YH, & Chen PS (2023). Rapid and sensitive dilute-and-shoot analysis using LC-MS-MS for identification of multi-class psychoactive substances in human urine. *Journal of Pharmaceutical and Biomedical Analysis*, 233, 115443.
5. Wu SC, Chen LY, Hsiao PC, Ting TT, Yen CF, Chang SS, Li CY, Yang HJ, Yen CF, Chen CY, Huang JH, Tu YK, & Chen WJ (2023). The use of premixed drugs in commodity packets in the population: prevalence and correlates revealed by the 2018 National Survey of Substance Use in Taiwan. *Journal of Epidemiology*, JE20220356.
6. Yang DP, Ting TT, Kuo YN, Chen WR, Liu HT, Chiu JY, Jiair YC, Chen JH, Lin MC, Hsu YH, Chen HW, & Chen PS (2023). The Correlation between NPS and Polysubstance Use in High-Risk Population: a Five-year Longitudinal Study in Taiwan. *International Journal of Mental Health and Addiction*, 1-19. (共同第一作者)
7. Yu YF, Ting TT, Liao JC, Tsai MC, Lin CY, Hsieh YP, & Strong C (2022). The dynamics of adolescents' pubertal maturation, depressive symptoms and friendship networks: stochastic actor-oriented model. *Current Psychology*, 1-14.
8. Hwa HL, Peng FS, Ting TT, Chen HW, Chan HY, Yang DP, Chen PC, Kuo YN, & Chen PS* (2022). Monitoring Phthalates in Maternal and Cord Blood: Implications for Prenatal Exposure and Birth Outcomes. *Environmental Toxicology and Chemistry*, 41(3), 715-725.
9. Huang YC, Wu SC, Hsiao PC, Chen LY, Ting TT, Chen CY, Kuan CL, Tu YK, Huang JH, Yen CF, Yang HJ, Li CY, , Yen CF, & Chen WJ* (2022). Men's decrease and women's increase in harmful alcohol use from the 2014 to 2018 national surveys in Taiwan: A harbinger for an emerging national trend in East Asia?. *International Journal of Drug Policy*, 99, 103441.
10. Wu TL, Ting TT, Chen CY, Su LW, & Chen WJ (2020). Early sexual initiation and risky sexual practices among alcohol-and tobacco-using young adults in Taiwan: mediation analysis of preceding-sex use of illicit drugs. *BMC Public Health*, 20(1), 1-12. [SCI]
11. Tang B, Ting TT, Wu CI, Ma Y, Mo D, Hung WT, & Rozelle S (2020). The Impact of Online Computer Assisted Learning at Home for Disadvantaged Children in Taiwan: Evidence from a Randomized Experiment. *Sustainability*, 12(23), 10092. [SSCI Rank= 51/108]
12. Chiu YL, Tsai WC, Hung RW, Chen IY, Shu KH, Pan SY, Yang FJ, Ting TT, Jiang JY, Peng YS, & Chuang YF (2020). Emergence of T cell immunosenescence in diabetic chronic kidney disease. *Immunity & Ageing*, 17(1), 1-10. [SCI]