BIOGRAPHICAL SKETCH

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NAME: Chaelin Karen Ra

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POSITION TITLE: Instructor of Medicine

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE	Start Date	Completion Date	FIELD OF STUDY
University of Canterbury, NZ	B.A.	02/2002	12/2005	Psychology
Otago University, NZ	DPH	02/2008	12/2008	Public Health
Seoul National University, South Korea	MPH	09/2010	08/2012	Public Health
University of Southern California, CA, USA	Ph.D	08/2014	05/2019	Preventive Medicine
The University of Oklahoma Health Sciences Center, OK, USA	Postdoctoral Fellowship	06/2019	06/2022	Preventive Medicine
Rutgers Cancer Institute of New Jersey, NJ, USA	Instructor	07/2022	Present	Preventive Medicine

A. Personal Statement

I am an Instructor at the Rutgers Cancer Institute of New Jersey. I am qualified and prepared to serve as Principal Investigator on the proposed NIH Pathway to Independence Award (K99/R00) based on my graduate education and research experience. I have gained a firm foundation in the skills and knowledge related to participant recruitment, human subjects and IRB compliance, data management, and leadership, which has enabled me to communicate effectively with research assistants and collaborators. Additionally, I have maintained a strong publication record of 26 peer-reviewed manuscripts (8 first author, including JAMA), with 7 under review (1 first author), and 2 books (1 first author and 1 chapter).

Throughout my graduate training, I have gained extensive experience conducting human subject research on various topics, including socio-environmental (e.g., employment status) and behavioral factors (e.g., smoking, physical activity) affecting mental and physical health among various populations (e.g., underserved populations) using Ecological Momentary Assessment (EMA), wearable sensors (i.e., basic Actigraph to collect accelerometer data only), and longitudinal study designs. As part of my training, I have acquired expertise with a number of sophisticated statistical analyses, including structural equation modeling (SEM) and multilevel modeling (MLM). However, I have not yet gained proficiency in the modeling of multilevel, longitudinal data using more complex statistical techniques such as Longitudinal Structural Equation Modeling (LSEM) and Multilevel Structural Equation Modeling (MSEM), which will enable me to explore bidirectional and temporal associations between daily sleep dysregulation and smoking cessation over time.

During my postdoctoral training, I gained additional experience in implementing mHealth studies for smoking cessation utilizing EMA. I became interested in sleep health and its possible relation to smoking behavior and cessation after analyzing data from a pilot study using self-reported sleep measures (i.e., sleep duration and quality) included in one of my mentor's studies (Project Smart-T2). I developed an interest in sleep research, especially in using more sophisticated objective measures to gain an in-depth understanding of factors that impact sleep (i.e., Actiwatch to measure movements as well as light exposure and body temperature). My previous experience in using wearable sensors has been limited to basic accelerometer data via waist-worn actigraphy monitors. Using Actiwatch will allow me to better understand and measure more complex sleep dimensions and their segmented relations to smoking cessation. Dr. Gamble is an expert in sleep health and

circadian rhythms with over 10 years' experience using actigraphy to measure sleep behavior. Dr. Gamble will provide mentorship in understanding the sleep parameters obtained from actigraphy monitors (i.e., Actiwatch).

In summary, my qualifications include nascent experience in sleep and circadian science, health disparities, handling actigraphy data; comfort and experience with conducting statistical analyses; experience in the implementation of mHealth studies and EMA methodologies; and an expanding knowledge in tobacco cessation studies. My experiences thus far have led me to pursue this pathway to independence award, which will enhance my research development and provide advanced training in <u>1) sleep and circadian science using objective measures (understanding dimensions of sleep health and measuring sleep using wearable sensors), 2) health disparities focusing on low SES smokers, 3) independently designing and managing mHealth studies (EMAs for smoking cessation), 4) conducting advanced statistical analyses (i.e., MSEM, and LSEM).</u> This training will help me elucidate how sleep dysregulation and smoking behavior and cessation outcomes are associated at the daily level among socioeconomically disadvantaged smokers who are attempting to quit.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2022 – Current **Instructor,** Section of Behavioral Sciences, Rutgers Cancer Institute of New Jersey, Department of Medicine, Division of Medical Oncology, Robert Wood Johnson Medical School, Rutgers University, New Brunswick, NJ
2019 - 2022 **Postdoctoral Research Fellow**, TSET Health Promotion Research Center, University of Oklahoma Health Sciences Center, Oklahoma City, OK
2014 - 2018 **Lecturer,** The Cyber University of Korea Department of Public Health, Seoul
2014 - 2017 Graduate Research Assistant, Keck School of Medicine University of Southern California, Los Angeles, CA
2014 - 2014 **Visiting Scholar,** Seoul National University Health Demography Lab, Seoul
2013 - 2013 **Researcher**, Department of Mental Health Research Korean Ministry of Health and Welfare Seoul National Hospital, Seoul
2011 - 2012 **Research Assistant**, Korea Institute for Health and Social Affairs, Seoul
2010 - 2011 **Research Assistant**, Health Demography Lab Seoul National University, Seoul

Other Experience and Professional Memberships

2020 Reviewer: Society for Behavioral Medicine, TTBCI SIG Student Abstract Awards
2020 Conference Panel, Great Symposium, University of Oklahoma Health Science Center
2019- Reviewer: Society for Research on Nicotine and Tobacco, Conference Abstract Submissions
2019- Member, Society for Research on Nicotine and Tobacco
2016-2017 Campus Representative of University of Southern California, American Psychological Association – Div. 38
2014- Member, American Psychology Association – Div. 38
2014- Member, Society for Behavioral Medicine
2011- Ad Hoc Journal Reviewer: *Social Science and Medicine, Substance Use and Misuse, Journal of Medical Internet Research, BMC Public Health, Addictive Behaviors, Evaluation & the Health Professions, International Journal of Human Resource Management, Journal of Immigrant and Minority Health, Epidemiology and Psychiatric Sciences, Plos One, Sleep Advances, Digital Health*

Honors
2021 Awardee, National Institute on Drug Abuse (NIDA) Diversity Scholars Network (NDSN) program

2020-2022	Trainee Research Conference and Workshop Award, Stephenson Cancer Center, University of Oklahoma Health Science Center
2020	Health Disparities Network Travel Scholarship, Society for Research on Nicotine and Tobacco
2017	Graduate School Travel Award, University of Southern California
2016	Graduate Student Association International Travel Award, University of Southern California
2015	Graduate Student Association - Domestic Travel Award, University of Southern California
2012	Top Presenter of Thesis Competition at Graduate School of Public Health, Seoul National University
2011	Best Research Team of the Year in Field Studies 2011 (Team Leader), Seoul National University
2011-2012	Academic Achievement Scholarship, Seoul National University
2011-2012	Brain Korea 21 Scholarships, National Research Foundation of Korea

C. Contribution to Science

1. I have always been interested in socio-environmental and behavioral factors related to various public health issues addressing **health disparities**. As a graduate student in my Master's degree program, I was given multiple opportunities to apply my interests to empirically test hypotheses. Topics addressed in my published studies include mental health such as depression and suicidal ideation among different populations (e.g., socioeconomically disadvantaged populations). My first publication during my Master's program focused on assimilation and health trajectories of Korean immigrants in the United States. I was able to publish this work one semester prior to my thesis defense. Before joining the doctoral program, I had published 4 manuscripts as the first author and had 8 conference presentations. My research also contributed to the area of suicidality. South Korea is the leading country for suicide among OECD countries, my work earned media attention and influenced health policy.

   a. **Ra, C. K.**, & Cho, Y. (2013). Differentiated effects of social participation components on suicidal ideation across age groups in South Korea. *BMC Public Health*, *13*(1), 890.
   b. **Ra, C. K.**, Cho, Y., & Hummer, R. A. (2013). Is acculturation always adverse to Korean immigrant health in the United States? *Journal of Immigrant and Minority Health*, *15*(3), 510-516.
   c. **Ra, C. K.**, & Lee, H. (2013). Employment transitions and suicide ideation among echo generation. *Health Policy and Management*, *23*(4), 369-375.
   d. **Ra, C. K.**, Huh, J., Finch, B. K., & Cho, Y. (2019). The impact of perceived discrimination on depressive symptoms and the role of differentiated social support among immigrant populations in South Korea. *International Journal for Equity in Health*, *18*(1), 7.

2. My interest in **behavioral factors** affecting health outcomes progressed as I matriculated through my doctoral program. Meanwhile, I began to seek and complete trainings focused on real-time intensive longitudinal data collection methods and multilevel modeling using **EMA and sensor data**. Through collaborations with multiple mentors, I explored relationships between health risk behaviors (e.g., tobacco cessation and physical activity) and physical and mental health. For instance, I examined risk and protective factors related to attention-deficit/hyperactivity disorder (ADHD) symptoms among youth in my dissertation. I published one paper from my dissertation in the Journal of the *American Medical Association (JAMA).* This study was among the first to demonstrate the linkage between modern digital media use and ADHD symptoms among adolescents, and received substantial media attention (mentioned by 238 news stories from 205 outlets worldwide).

   a. Cerrada, C. J., **Ra, C. K.**, Shin, H. S., Dzubur, E., & Huh, J. (2016). Using ecological momentary assessment to identify common smoking situations among Korean American emerging adults. *Prevention Science*, *17*(7), 892-902.
   b. Maher, J. P., **Ra, C. K.**, O'Connor, S. G., Belcher, B. R., Leventhal, A. M., Margolin, G., & Dunton, G. F. (2017). Associations between maternal mental health and well-being and physical activity and sedentary behavior in children. *Journal of developmental and behavioral pediatrics: JDBP*, *38*(6), 385.

c. **Ra, C. K.**, Cho, J., Stone, M. D., De La Cerda, J., Goldenson, N. I., Moroney, E., ... & Leventhal, A. M. (2018). Association of digital media use with subsequent symptoms of attention-deficit/hyperactivity disorder among adolescents. *Journal of the American Medical Association*, *320*(3), 255-263.

d. Maher, J. P., **Ra, C. K.**, Leventhal, A. M., Hedeker, D., Huh, J., Chou, C. P., & Dunton, G. F. (2018). Mean level of positive affect moderates associations between volatility in positive affect, mental health, and alcohol consumption among mothers. *Journal of abnormal psychology*, *127*(7), 639.

3. As a postdoctoral research fellow, I have continued to expand my knowledge in **tobacco research** and have gained a deeper understanding of **EMA** and **Just-in-Time-Adaptive Interventions (JITAI).** For example, I have collaborated with Drs. Businelle (primary mentor) and Kendzor (co-mentor) on several data analysis studies examining the mechanisms of smoking relapse in real-time. Further, I have gained valuable knowledge about the importance of identifying potential behavioral factors (e.g., **sleep dysregulation**) affecting smoking behavior and smoking cessation among underserved populations. Over the past year, I have been an author on four published manuscripts, two manuscripts currently under review, and 8 conference presentations related to smoking cessation. For instance, I examined the associations between pre- and post-quit insomnia with smoking lapse during the first 4-, 12-, and 16-weeks following a scheduled quit attempt among socioeconomically disadvantaged smokers. I presented this work at the Society of Behavioral Medicine Annual Meeting in 2022.

a. **Ra, C.K.,** Frank-Pearce, S., Chen, S., Businelle, M.S., & Kendzor, D.E. (2022) The Relation between Pre- and Post-Quit Insomnia Severity and Smoking Cessation Outcomes among Adults Participating in Treatment: A Longitudinal Study (in preparation).

b. **Ra, C. K**., Hébert, E. T., Alexander, A., Kendzor, D. E., Suchting, R., & Businelle, M. S. (2021). Unsheltered homeless and unstably housed adults have higher levels of stress and more health risk factors than sheltered homeless adults. Journal of Social Distress and Homelessness, 1-9.

c. Benson, L., **Ra, C. K.,** Hébert, E. T., Kendzor, D. E., Oliver, J. A., Frank-Pearce, S. G., ... & Businelle, M. S. (2022). Quit Stage and Intervention Type Differences in the Momentary Within-Person Association Between Negative Affect and Smoking Urges. Frontiers in Digital Health, 41.

d. Hébert, E.T., **Ra, C.K**., Alexander, A.C., Helt, A., Moisiuc, R., Kendzor, D.E., Funk-Lawler, R.K., Businelle, M.S. (2020). A pilot randomized controlled trial of a mobile just-in-time adaptive intervention for smoking cessation, Journal of Medical Internet Research, 22(3), p.e16907.

Link to Complete List of Published Work: 22 peer-reviewed publications: https://orcid.org/0000-0002-7379-7247 :