

# 國家科學及技術委員會補助專題研究計畫報告

## 探究邁入老年前女性之日夜節律樣態及其對科技輔助之睡眠健康促進需求與成效評估(L03)

報告類別：精簡報告  
計畫類別：個別型計畫  
計畫編號：MOST 111-2629-B-006-002-  
執行期間：111年08月01日至112年07月31日  
執行單位：國立成功大學老年學研究所

計畫主持人：邱靜如

計畫參與人員：碩士班研究生-兼任助理：謝宜璟

報告附件：出席國際學術會議心得報告

本研究具有政策應用參考價值：否 是，建議提供機關  
(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)  
本研究具影響公共利益之重大發現：否 是

中華民國 112 年 10 月 31 日

中文摘要：中年是人生的重要轉捩點，同時也是步入老年準備階段和健康老化的關鍵時期。然而，調查心理行為因素與晝夜節律之間關係的研究很少。本研究為橫斷面的探索性研究，旨在探討心理行為與不同更年期過渡階段的女性晝夜節律之相關性。我們從社區和婦科診所招募了45-60歲的女性，使用配戴式體動儀來測量晝夜節律和睡眠參數；評估社會人口特徵、健康狀況、更年期因素和六種心理行為變項的問卷。研究結果顯示：憂鬱症狀較嚴重的女性睡眠效能明顯較低、睡眠延遲期間較長、總甦醒時間較長。經常運動或不參加社會活動的女性日常穩定性水平較高。更年期階段和孤獨感對每日穩定性有交互作用，停經階段和憂鬱症狀對停經後女性的每日穩定性和睡眠潛伏期也有交互作用。此外，更年期階段和社會參與對停經前女性睡眠效能之間存在相互作用。總結，這項研究的結果顯示，心理行為因素可能是更年期和晝夜節律之間的調節因素。我們應多加聯結心理行為因子的影響，給予更個人化的衛教與建議。

中文關鍵詞：女性健康、更年期、心理行為因子、晝夜節律、睡眠

英文摘要：Middle age is a significant turning point in life. Yet, at the same time, it is also the preparatory stage of entering old age and a crucial period of healthy aging. However, studies investigating the relationship between psychobehavioral factors and circadian rhythm are scarce. This study aims to examine how psychobehavioral correlates moderate women's circadian rhythm at different menopausal stages. This is exploratory cross-sectional research. Women at age 45-60 were recruited from community and a gynecology clinic. We used wearable actigraphy recorders to measure circadian rhythm and sleep parameters; questionnaires to assess sociodemographic characteristics, health status, menopausal factors, and six psychobehavioral variables. The findings showed that: Women with severer depressive symptoms had significantly lower levels of sleep efficiency, longer sleep latency, and longer total wake time. Women with frequent exercise or without social participation had higher levels of interdaily stability. There was an interaction between menopausal stages and loneliness on interdaily stability, also between menopausal stages and depressive symptoms on interdaily stability and sleep latency among postmenopausal women. Furthermore, there was an interaction between menopausal stages and social participation on sleep efficiency among women before menopause. In conclusion, findings from this study provided insight that psychobehavioral factors might be a moderator between menopausal stages and circadian rhythm. We suggested that the influence of psychobehavioral factors should be linked to give more personal health education to women at different menopausal stages.

英文關鍵詞：Women's health, Menopause, Psychobehavioral factors,  
Circadian rhythm, Sleep

# 國家科學及技術委員會補助專題研究計畫報告

## 探究邁入老年前女性之日夜節律樣態及其對科技輔助之睡眠健康促進需求與成效評估(L03)

報告類別：成果報告  
計畫類別：個別型計畫  
計畫編號：MOST 111-2629-B-006-002-  
執行期間：111年08月01日至112年07月31日  
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計畫主持人：邱靜如

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Circadian rhythm, Sleep

# 國家科學及技術委員會補助專題研究計畫出席國際學術會議

## 心得報告

日期：112 年 10 月 2 日

計畫編號	MOST 111-2629-B-006-002-		
計畫名稱	探究邁入老年前女性之日夜節律樣態及其對科技輔助之睡眠健康促進需求與成效評估(L03)		
出國人員姓名	邱靜如	服務機構及職稱	國立成功大學老年學研究所 教授
會議時間	112 年 6 月 9 日至 112 年 6 月 15 日	會議地點	日本橫濱
會議名稱	(中文)第 12 屆國際老年學暨老年醫學會亞州/大洋洲區域大會 (IAGG) (英文)12th Asia / Oceania Regional Congress of Geriatrics and Gerontology(IAGG)		
發表題目	(中文)翻轉孤獨感：描繪台灣和日本 65 歲以上男性和女性孤獨感的年齡軌跡 (英文)Reversed Loneliness: Estimating the Age Trajectory of Loneliness after 65 for Men and Women in Taiwan and Japan		

### 一、參加會議經過

此次出國為受邀參加於 6 月 12 日至 6 月 14 日日本橫濱舉行之 12th Asia / Oceania Regional Congress of Geriatrics and Gerontology(IAGG)國際研討會，此次 IAGG Asia/Oceania Regional Congress 2023 研討會主題為『以創新與智慧打造高齡社會美好生活』，於該發表會上演講“Reversed Loneliness: Estimating the Age Trajectory of Loneliness after 65

for Men and Women in Taiwan and Japan”及老年所指導畢業碩士生侯思妤同學一同出席發表一篇壁報論文“ The secret of happiness for older men and women in Taiwan”。

本次在「Exploring healthy longevity: results from the panel surveys in Asia/Oceania region」這場專題討論會中與來自日本的 Erika Kobayashi 博士及來自澳洲的 Julie Byles 教授，分別分享使用日本、澳洲及台灣的中高齡者長期追蹤資料庫的研究成果。我發表的研究是同時運用 the Taiwan Longitudinal Study on Aging 和 the National Survey of the Japanese Elderly 兩國的全國性資料庫，剖析台灣與日本高齡者在 65 歲以後的孤獨感變化有何差異，以及去探討性別在其中的角色為何。另一方面，Kobayashi 博士的研究使用十波的 the National Survey of the Japanese Elderly 的全國性資料，分析日本高齡者的孤立程度軌跡變化，從客觀的社交孤立及主觀孤立兩個不同概念預測不同性別、世代的孤立變化。兩場演講同時了解客觀孤立、主觀孤立及孤獨感這三者有相關卻是不同概念的心理社會因子在老年時期的軌跡變化為何，以及能夠學習不同的軌跡分析方法，更能夠增進不同國家、不同文化的影響。而 Byles 教授為分享一項澳洲的女性健康長期追調查研究，此調查研究的樣本包含年輕（年齡介於 18-23 歲之間）、中年（年齡介於 45-50 歲之間）、及老年（年齡介於 70-75 歲之間）三個世代的女性，透過這個資料庫，可以探討不同世代女性的健康相關保護及風險因子、生活品質、健康與幸福感的變化，以及不同的服務需求等多元的研究方向，為深具研究價值的資料庫。



## 二、 與會心得

此次國際研討會認識任職於 Tokyo Metropolitan Institute for Gerontology 的 Dr. Satoshi Seino, Dr. Satoshi Seino 心理系背景，碩士唸社工，現在已經是資深研究員，對於大齡單身研究有興趣。另外，也認識了任職於 National Center for Geriatric and Gerontology 的 Dr. Takeshi Nakagawa，目前在老年學和社會科學中心、國家老年醫學和老年學中心工作。Dr. Takeshi 從事壽命發展和老年學研究。兩位優秀人才都有意與我們合作，未來將延攬來台當博士後人選，及將與這些學者有更多的學術交流與合作。

## 三、 發表論文全文或摘要

### **Reversed Loneliness: Estimating the Age Trajectory of Loneliness after 65 for Men and Women in Taiwan and Japan**

#### **Abstract**

**Introduction:** It is unclear whether loneliness change with aging and if that exist gender and cultural differences. Gaps in terms of age trajectory of loneliness limit the ability to depict aging process across countries and diminish the ability to make culturally adapted recommendations for active aging across countries.

**Objective:** To identify the age trajectories of loneliness and the gender differences across countries among older adults in Taiwan and Japan.

**Method:** Two nationally representative data for older adults in Taiwan and Japan were obtained from the Taiwan Longitudinal Study on Aging (TLISA, 1996, 1999, 2003, 2007, 2011) and The National Survey of the Japanese Elderly (NSJE, 1996, 1999, 2002, 2006, 2012), respectively. Analytic sample included 3,037 and 1,974 older adults (over 65 years old), respectively, at the baseline data in Taiwan and Japan.

**Results:** There are 21.21% vs. 17.03% in loneliness ( $\geq 1$ ) in Taiwan and Japan respectively. Besides, Women are more loneliness than men in both two countries (Taiwan:  $\chi^2=17.88, p<.0001$ ; Japan:  $\chi^2=6.81, p<.001$ ). Higher prevalence rates, average levels, and rate of increment in the loneliness trajectories were found in Taiwan as compared to Japan from midlife to older age. Women

reported higher level of loneliness during midlife, however a higher rate of increment of loneliness for men was observed when getting older. This pattern was both evident in Taiwan and in Japan.

**Conclusions:** Men were more vulnerable than women to loneliness after 65. Whether the pattern were associated with retirement warrant further investigation.

#### 四、 建議

鼓勵台灣學者能多參加國外相關研討會，擴展自己的視野，並獲得更多元的見識，相信對於之後的學習及發展會更事半功倍。

#### 五、 攜回資料名稱及內容

會議手冊

## 六、其他

# IAGG Asia/Oceania Regional Congress 2023

## For Enhanced Wellbeing in Later Life through Innovation and Wisdom Sharing

Dates: **June 12-15, 2023** Venue: **PACIFICO YOKOHAMA North**

Congress Secretariat c/o Convention Linkage, Inc. 2 Sanboncho, Chiyoda-ku, Tokyo 102-0075, Japan Tel: +81-3-3263-8888 Fax: +81-3-3263-8830 Email: [iagg2023@co-linkage.co.jp](mailto:iagg2023@co-linkage.co.jp) <https://www.iagg2023.org/>



December 7, 2022

Professor Ching-Ju Chiu  
National Cheng Kung University, Taiwan

Re: Symposium, IAGG Asia/Oceania Regional Congress June 12-15, 2023

Dear Professor Ching-Ju Chiu,

Every four years, the Asia / Oceania Region of the International Association of Gerontology and Geriatrics coordinates a major conference to highlight the latest developments in the area of ageing. In 2023, the Japan Federation of Gerontological Societies is hosting the 12th Asia / Oceania Regional Congress of Geriatrics and Gerontology (IAGG2023) in Yokohama, Japan, from June 12-15. The conference theme is *"Enhance Wellbeing in Later Life Through Innovation and Information Sharing"*. It integrates the broad perspectives of ageing well from across our diverse region.

I would like to invite you to participate in the IAGG2023 as a **Speaker** of a symposium in the Social science 13 stream, entitled "Exploring healthy longevity: results from the panel surveys in Asia/Oceania region".

The symposia will be of 90-120 minute duration (tentative) and an important focus of the symposia is that they include a mix of presenters from different countries within the Asia / Oceania region, and that they involve a degree of opportunity for interaction or engagement with the audience. Given your wealth of knowledge and experiences, your contribution in the session and attendance will surely inspire our colleagues and encourage them in the future development of their research.

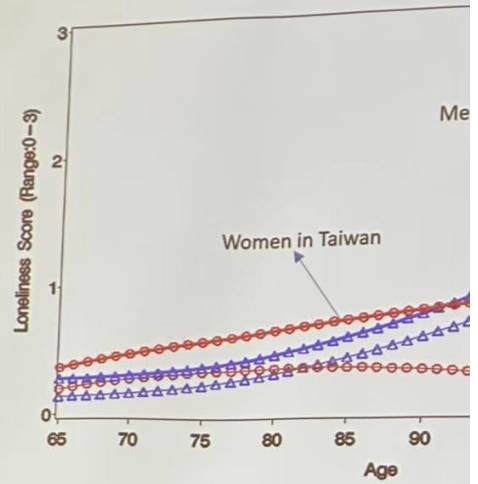
I ask that you give a response to my invitation by filling out the reply form (link) sent to you by the Secretariat. I do hope that you will be able to join this symposium, and look forward to your favorable reply.

Note that symposium presenters are expected to attend the congress in person and pay the registration fee and travel and accommodation fees.

Should you have any questions, please feel free to contact the Secretariat.  
We are looking forward to your favorable response.

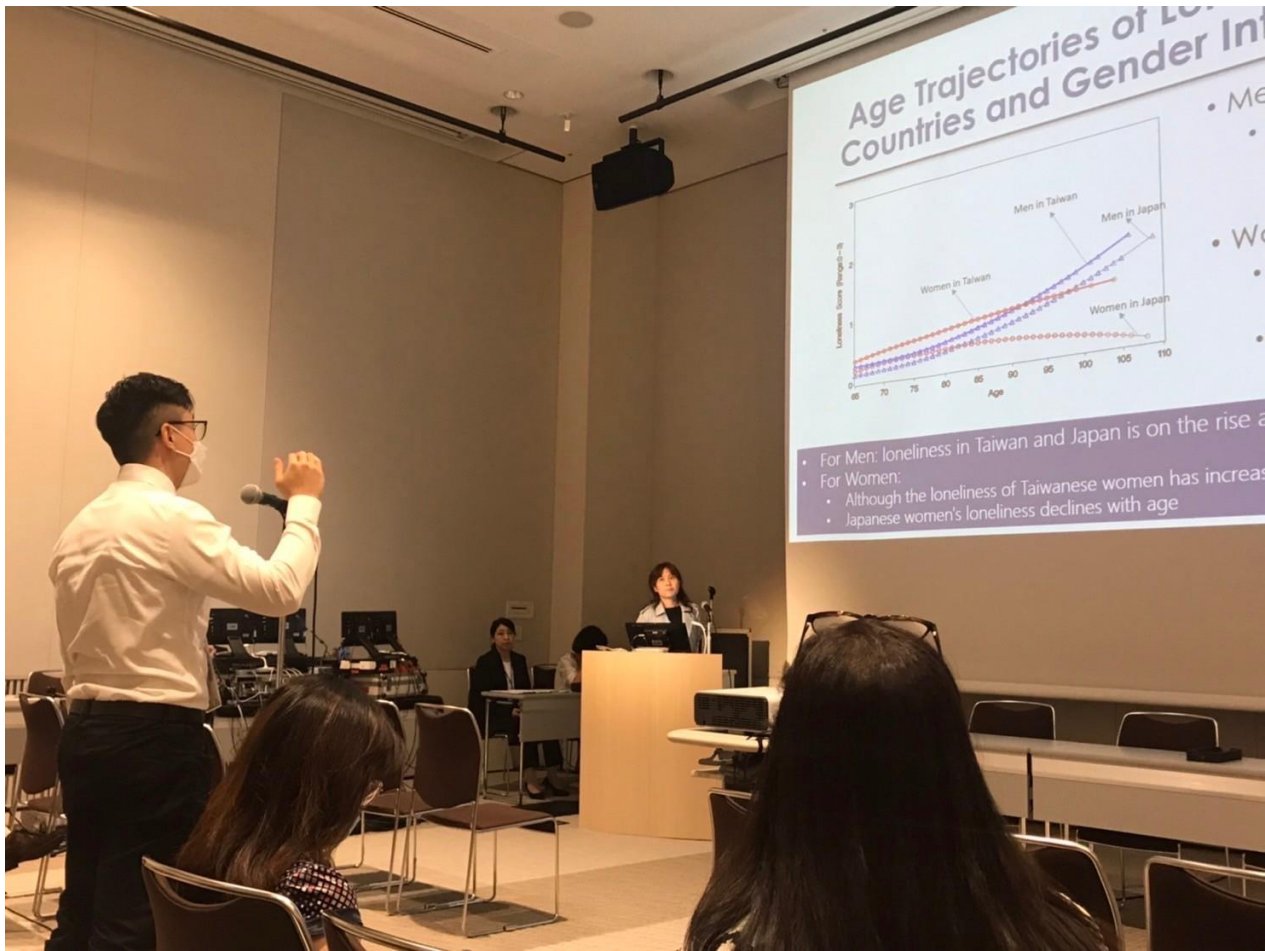
Cordially yours,

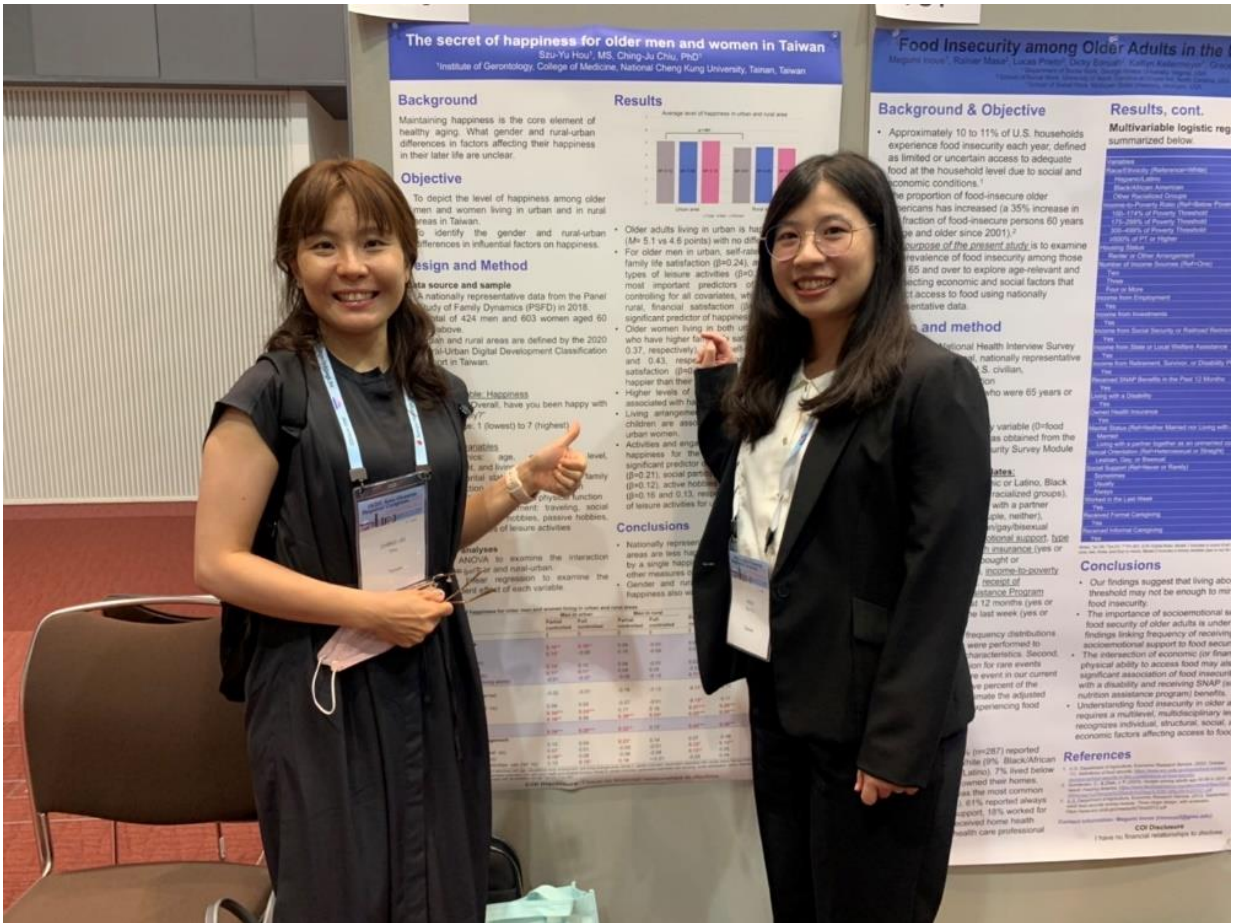
TOBA Kenji, M.D., Ph.D.  
Chair of the Organizing Committee  
CEO, Tokyo Metropolitan Institute for Geriatrics and Gerontology



- For Men: loneliness in Taiwan a
- For Women:
  - Although the loneliness of Tai
  - Japanese women's loneliness







## The secret of happiness for older men and women in Taiwan

Suzu-Yu Hou<sup>1</sup>, MS, Ching-Ju Chiu<sup>2</sup>, PhD<sup>1</sup>  
<sup>1</sup>Institute of Gerontology, College of Medicine, National Cheng Kung University, Tainan, Taiwan

### Background

Maintaining happiness is the core element of healthy aging. What gender and rural-urban differences in factors affecting their happiness in their later life are unclear.

### Objective

To depict the level of happiness among older men and women living in urban and in rural areas in Taiwan.  
To identify the gender and rural-urban differences in influential factors on happiness.

### Design and Method

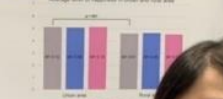
**Data source and sample**  
A nationally representative data from the Panel Study of Family Dynamics (PSFD) in 2018. Total of 424 men and 603 women aged 60 and above.  
Urban and rural areas are defined by the 2020 Taiwan Urban Digital Development Classification (UDDC) in Taiwan.

**Measures**  
**Happiness**  
Overall, have you been happy with your life in the past 12 months? (1 (lowest) to 7 (highest))

**Control variables**  
Age, sex, marital status, education, income, health status, living arrangement, children, activities and engagement.  
Happiness for the rural-urban interaction (β=0.21), social participation (β=0.12), active hobbies (β=0.15 and 0.13), receipt of leisure activities for men and women.

**Analyses**  
ANCOVA to examine the interaction between rural-urban and gender.  
Multiple regression to examine the effect of each variable.

### Results



Older adults living in urban is happier (M=5.1 vs 4.6 points) with no difference between men and women.  
For older men in urban, self-rated family life satisfaction (β=0.24), receipt of leisure activities (β=0.15), and receipt of leisure activities (β=0.13) were the most important predictors of happiness.  
Older women living in both urban and rural areas who have higher family life satisfaction (β=0.27, respectively, and 0.43, respectively) were happier than those who were 65 years or older.  
Higher levels of happiness were associated with receipt of leisure activities (β=0.15 and 0.13, respectively) for men and women.  
Activities and engagement were significant predictors (β=0.21), social participation (β=0.12), active hobbies (β=0.15 and 0.13), receipt of leisure activities for men and women.

### Conclusions

Nationally representative areas are less happy than rural-urban areas by a single happiness score.  
Gender and rural-urban happiness also vary.

## Food Insecurity among Older Adults in the...

Meghan Hoyle<sup>1</sup>, Pamela Mason<sup>2</sup>, Elizabeth Probst<sup>3</sup>  
<sup>1</sup>Department of Health, Behavior, and Society, Johns Hopkins University  
<sup>2</sup>Department of Health, Behavior, and Society, Johns Hopkins University  
<sup>3</sup>Department of Health, Behavior, and Society, Johns Hopkins University

### Background & Objective

Approximately 10 to 11% of U.S. households experience food insecurity each year, defined as limited or uncertain access to adequate food at the household level due to social and economic conditions.  
The proportion of food-insecure older Americans has increased (a 35% increase in the fraction of food-insecure persons 60 years and older since 2001).  
The purpose of the present study is to examine the prevalence of food insecurity among those 65 and over to explore age-relevant and intersecting economic and social factors that affect access to food using nationally representative data.

### Design and method

National Health Interview Survey (NHIS), nationally representative U.S. civilian, non-institutionalized population who were 65 years or older.  
The dependent variable (0=food security, 1=food insecurity) was obtained from the Survey Module.

**Control variables**  
Age, sex, race/ethnicity, education, marital status, household income, receipt of SNAP, receipt of home meal preparation, receipt of home care professional.

**Analyses**  
Logistic regression to examine the effect of each variable.

### Results, cont.

Multivariable logistic regression results are summarized below.

Older adults who were 65 years or older had a higher prevalence of food insecurity (OR=1.5, 95% CI=1.2-1.8) compared to those aged 18-64 years.

Older adults who were Black/African American (OR=1.5, 95% CI=1.2-1.8) had a higher prevalence of food insecurity compared to those who were White.

Older adults who were married (OR=0.8, 95% CI=0.6-1.0) had a lower prevalence of food insecurity compared to those who were single, widowed, or divorced.

Older adults who were in the lowest income quartile (OR=2.5, 95% CI=2.0-3.0) had a higher prevalence of food insecurity compared to those in the highest income quartile.

Older adults who were in the lowest receipt of SNAP quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of SNAP quartile.

Older adults who were in the lowest receipt of home meal preparation quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of home meal preparation quartile.

Older adults who were in the lowest receipt of home care professional quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of home care professional quartile.

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### Results, cont.

#### Multivariable logistic regression results

Older adults who were 65 years or older had a higher prevalence of food insecurity (OR=1.5, 95% CI=1.2-1.8) compared to those aged 18-64 years.

Older adults who were Black/African American (OR=1.5, 95% CI=1.2-1.8) had a higher prevalence of food insecurity compared to those who were White.

Older adults who were married (OR=0.8, 95% CI=0.6-1.0) had a lower prevalence of food insecurity compared to those who were single, widowed, or divorced.

Older adults who were in the lowest income quartile (OR=2.5, 95% CI=2.0-3.0) had a higher prevalence of food insecurity compared to those in the highest income quartile.

Older adults who were in the lowest receipt of SNAP quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of SNAP quartile.

Older adults who were in the lowest receipt of home meal preparation quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of home meal preparation quartile.

Older adults who were in the lowest receipt of home care professional quartile (OR=2.0, 95% CI=1.5-2.5) had a higher prevalence of food insecurity compared to those in the highest receipt of home care professional quartile.

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111年度專題研究計畫成果彙整表

計畫主持人：邱靜如		計畫編號：111-2629-B-006-002-			
計畫名稱：探究邁入老年前女性之日夜節律樣態及其對科技輔助之睡眠健康促進需求與成效評估 (L03)					
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)	
國內	學術性論文	期刊論文	0	篇	
		研討會論文	0		
		專書	0	本	
		專書論文	0	章	
		技術報告	0	篇	
		其他	0	篇	
國外	學術性論文	期刊論文	1	篇	1. Hou, S.Y., Chiu, C.J.*, Shea, J.L., Wang, C.L., Tang, H.H., MS, Kuo, P.C., Yang, Y.C., Hsu, H.P. (Accepted) Sleep and rest-activity rhythms for women at different menopausal statuses: The role of mental health. MENOPAUSE-THE JOURNAL OF THE NORTH AMERICAN MENOPAUSE SOCIETY. (SCI, Impact factor: 2.7, Rank=42/85(49.41%) in OBSTETRICS & GYNECOLOGY)
		研討會論文	0		
		專書	0	本	
		專書論文	0	章	
		技術報告	0	篇	
		其他	0	篇	
參與計畫人力	本國籍	大專生	0	人次	
		碩士生	1		碩士級兼任助理謝宜璟同學，協助收案資料建立，資料的整合分析，及研究結果統整撰寫。
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
	非本國籍	大專生	0		
		碩士生	0		
		博士生	0		
		博士級研究人員	0		
		專任人員	0		

其他成果

(無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)