科技部補助專題研究計畫成果報告
期末報告

女性憂鬱變化軌跡:由發展-生態觀點 (GM03)(第 2 年)

計 畫 類 別 ： 個別型計畫
計 畫 編 號 ： MOST 101-2629-H-038-001-MY2
執 行 期 間 ： 102 年 08 月 01 日至 103 年 09 月 30 日
執 行 單 位 ： 臺北醫學大學護理學系

計 畫 主 持 人 ： 郭淑瑜
共 同 主 持 人 ： 曾雅玲、陳春妃

報 告 附 件 ： 出席國際會議研究心得報告及發表論文

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中 華 民 國 103 年 12 月 21 日

中 文 摘 要 ： 本計畫為二年期追蹤計畫，主要研究目的為以發展 -生態觀點，瞭解女性憂鬱變化軌跡與個人層面、家庭層面、文化層面影響之相關涵義，即藉由世代研究設計(cohort study design)探討周產期女性、中年期女性的憂鬱變化與影響因子。本計畫以二年的時間，以前瞻性世代追蹤法(prospective cohort study)對周產期婦女從產前懷孕 7 個月至產後三個月進行五個時間點的憂鬱情緒變化與多層面因子之追蹤；同時，以回溯性世代追蹤法 (retrospective cohort study)對參與「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女世代，探討追蹤長達十年的中年期女性憂鬱變化與多層面因子之調查。另外，我們新增計畫內容採用「全民健康保險研究資料庫」之承保資料來探討涵蓋不同發展階段(即周產期、中年期、與老年期) 的女性憂鬱變化與影響因子。健保資料庫涵括研究對象歷年所有的就醫資料，並且持續追蹤至目前狀況，該資料庫之世代適宜探討女性憂鬱變化。相關文獻指出女性的周產期階段、中年期階段、老年期階段的個人層面、家庭層面、文化層面之變化與女性憂鬱的健康機轉有密切關係，但是過去的研究多採單一測量點或無法區別個人層面與環境層面的作用，因而無法明確瞭解女性憂鬱軌跡變化之相關涵義。故本研究的長期追蹤、重複測量，與涵蓋個人與環境作用的研究有助於釐清上述議題。至 2014 年 9 月止，本計畫完成周產期婦女世代的收案地點、研究流程、研究工具、研究資料庫之建立，與研究人員之訓練。本計畫完成 223 位周產期婦女的基線值測量(懷孕 28 週)，200 人次的懷孕 36 週調查、176 人次的產後一週調查，與 179 人次的產後四週調查，及 172 人次的產後三個月調查，共計 952 人次的追蹤訪談。另外，我們也完成 1574 位中年婦女進行與 1690 位中年男性的憂鬱變化分析。整體而言，目前計畫的執行符合原本的計畫進度，預計在第二年度的計畫執行期間，完成世代資料的收集與分析，統整台灣女性憂鬱的長期變化軌跡以及個人層面、家庭層面、文化層面之相關影響。

中文關鍵詞： 女性憂鬱、軌跡變化、多層面因子、長期追蹤

英 文 摘 要 ： During the first year of this 2-year prospective longitudinal study, we have completed our first year study objectives as proposed. The 2-year study aims to investigate changes in depression over time and the contributions of multilevel factors, including personal, family, and cultural factors in the depression trajectories. In this project we plan to

conduct a prospective cohort study on preinatal women, as well as a retrospective cohort study on midlife women using a 10-year longitudinal study that have already collected for investigation on midlife health. Furthermore, we modified our project to include a national cohort study using National Health Insurance Research Database to investigate the changes in depression among perinatal women and midlife women. In Health Insurance Database, all original claim data of beneficiaries enrolled was included. Prior studies on the association between depression and associated factors have predominantly utilized a correlation index at each single time point that usually failed to take time-varying depressive into account； these investigations may therefore not adequately reflect the changes in depression and related factors that occur across time.
As of September 2014, we have established related study protocol on the perinatal women cohort, including study sites, data collection procedures, study tools, database management, as well as training of research assistants. We have collected 223 pregnant women at 28 week pregnancy and successfully followed and interviewed them at 36-week pregnancy (n=200), 1 week postpartum (n=176), 4 week postpartum (n=179), and 3 months postpartum (n=172), respectively. The dataset for midlife women cohort was successfully obtained after we followed the modified application procedures issued by Department of Health. A total of 1574 female and 1690 male participants were included in the analysis. The recruitment timeline and data analyses were in progress as scheduled. We have completed the follow-up assessment on the perinatal women. Trajectory analysis as well as multilevel modeling will be used to estimate the contributions of personal, family, and cultural factors to changes in women depression over time.

英文關鍵詞： women depression, trajectory analysis, multilevel factors, longitudinal follow-up

科技部補助專題研究計畫成果報告

（□期中進度報告/■期末報告）

女性憂鬱變化軌跡:由發展-生態觀點(GM03)

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計畫編號：NSC101-2629-H-038-001-MY2
執行期間：2012 年 08 月 01 日至 2014 年 09 月 30 日

執行機構及系所：臺北醫學大學護理學系

計畫主持人：郭淑瑜
共同主持人：曾雅玲、陳春妃
計畫參與人員：

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□執行國際合作與移地研究心得報告
■出席國際學術會議心得報告

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中　華　民　國　103　年　12　月　20　日

目錄

中文摘要及關鍵詞(keywords)

本計畫為二年期追蹤計畫，主要研究目的為以發展 -生態觀點，瞭解女性憂鬱變化軌跡與個人層面、家庭層面、文化層面影響之相關涵義，即藉由世代研究設計(cohort study design)探討周產期女性、中年期女性的憂鬱變化與影響因子。本計畫以二年的時間，以前瞻性世代追蹤法(prospective cohort study)對周產期婦女從產前懷孕 7 個月至產後三個月進行五個時間點的憂鬱情緒變化與多層面因子之追蹤；同時，以回溯性世代追蹤法 (retrospective cohort study)對參與「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女世代，探討追蹤長達十年的中年期女性憂鬱變化與多層面因子之調查。另外，我們新增計畫內容採用「全民健康保險研究資料庫」之承保資料來探討涵蓋不同發展階段(即周產期、中年期、與老年期) 的女性憂鬱變化與影響因子。健保資料庫涵括研究對象歷年所有的就醫資料，並且持續追蹤至目前狀況，該資料庫之世代適宜探討女性憂鬱變化。相關文獻指出女性的周產期階段、中年期階段、老年期階段的個人層面、家庭層面、文化層面之變化與女性憂鬱的健康機轉有密切關係，但是過去的研究多採單一測量點或無法區別個人層面與環境層面的作用，因而無法明確瞭解女性憂鬱軌跡變化之相關涵義。故本研究的長期追蹤、重複測量，與涵蓋個人與環境作用的研究有助於釐清上述議題。

至 2014 年 9 月止，本計畫完成周產期婦女世代的收案地點、研究流程、研究工具、研究資料庫之建立,與研究人員之訓練。本計畫完成 223 位周產期婦女的基線值測量(懷孕 28 週)，200 人次的懷孕 36 週調查、176 人次的產後一週調查，與 179 人次的產後四週調查，及 172 人次的產後三個月調查，共計 952 人次的追蹤訪談。另外，我們也完成 1574 位中年婦女進行與 1690 位中年男性的憂鬱變化分析。整體而言，目前計畫的執行符合原本的計畫進度，預計在第二年度的計畫執行期間，完成世代資料的收集與分析，統整台灣女性憂鬱的長期變化軌跡以及個人層面、家庭層面、文化層面之相關影響。

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Key words: women depression, trajectory analysis, multilevel factors, longitudinal follow-up

報告內容

1. 前言

女性憂鬱對個人、家庭、與社會影響甚鉅，且隨著發展階段的歷程，不同層面的因素發揮不同的影響度。女性憂鬱乃受到一系列的環境系統影響，從最內層到最外層依序是微觀系統(Microsystem)、中間系統 (Mesosystem)、外部系統 (Exosystem)與鉅觀系統(Macrosystem)。各個系統間會有交互作用，以層層套疊且複雜的方式影響婦女的健康調適。綜觀國內外研究，尚未有學者採用發展生態系統理論探討女性憂鬱，並且比較女性的二個重要發展歷程的憂鬱變化之差異：(1)從懷孕到產後階段的周產期女性憂鬱變化；(2)從中年到老年階段的中年期女性憂鬱變化。探討這二個發展階段的重要性來自於該階段女性皆面臨急劇生理賀爾蒙變化、母性角色變化、家庭動力(Family Dynamic)變化、社會文化環境期待變化等，而且女性在這二個發展的時間系統(Chronosystem)不同，女性個體與支持系統、家庭、社會情境產生不同交互作用，對女性憂鬱產生不同影響與關連性，故希望透過本研究的執行能清楚瞭解女性憂鬱的發展特性與動態生態環境的影響因素。

2. 研究目的

女性憂鬱的成因相當複雜，生理因素、心理因素、認知能力、生活事件等個人因素、家庭環境因素、以及社會文化因素等皆扮演了重要的角色。以女性憂鬱而言，試圖釐清多面向因子之作用，必須具有良好之研究設計，並充分蒐集發展階段與環境因子資料，始能釐清女性憂鬱軌跡變化的重要因素。

因此，本研究計畫從二方面來探討這些問題： 1)以懷孕-產後女性族群為主，前瞻式收集懷孕到生產後的憂鬱症狀與環境因子之測量，建立周產期女性憂鬱資料；2)以中年女性族群為主，以十年長期追蹤資料，收集中年女性到老年女性的憂鬱症狀與與環境因子之測量，建立涵蓋女性之年齡發展因素的中年期女性憂鬱資料； 3)收集女性族群的發展歷程與環境系統資料，包括個人因素、家庭因素、社會環境因素之相關資料，以前瞻式之研究設計建構發展軌跡變化模型，探討個人因素、家庭因素、社會環境因素對於女性憂鬱之影響。具體言之，本研究之目的為：

(1) 探討女性憂鬱、個人因素、家庭因素、社會環境因素等面向之分佈；
(2) 建構女性憂鬱與個人因素、家庭因素、社會環境因素等相關因子之發展軌跡之多變項模型，評估個人因素、家庭因素、社會環境因素的貢獻；
(3) 探討個人因素、家庭因素、社會環境因素作為女性憂鬱之特質標記(trait marker)的可能性；
(4) 建構涵蓋女性憂鬱之年齡發展因素的憂鬱軌跡變化模型，以評估影響女性憂鬱之個人因素及環境因素是否受年齡發展因素影響；
(5) 比較周產期女性憂鬱變化與中年期女性憂鬱變化的相同處與相異處，是否由不同之個人或環境因素所影響。

3. 文獻探討

(1)、女性憂鬱對國人健康的影響

女性的平均壽命雖比男性長，但是其在懷孕與育齡階段經歷獨特生理與社會過程卻也提高女性健康風險，其中以憂鬱是造成女性失能(disability)的主要原因 (World Health Organization, 2009)。從成年至中年階段，乃是女性生命週期中面臨諸多轉變(Transition)的時期。其中，懷孕到生產的週產期階段，經過十月辛苦懷胎，新生命誕生，讓女人成為母親，但是能夠順利進入母職(Motherhood)的角色並非是每一位婦女的必然經歷，研究指出約有將近二成的台灣產婦在產後階段出現嚴重的憂鬱症狀(Heh, 2002; Huang et al., 2001)，深刻影響婦女的產後健康調適。當生命歷程進入中年階段，漸漸感受到生理荷爾蒙改變所伴隨而來的疲憊、失眠等身體不適，加上中年女性需要扮演多元的角色-為人妻、為人母、職場角色，面臨多面向的壓力源更容易引發心理健康問題，尤其在台灣社會文化氛圍，女性通常被期待是家庭照顧提供者，需敏感看到他人的需求，卻常常忽略自己內心聲音，累積的生理/心理的壓力，家庭角色轉化，導致中年女性族群有壓力、憂鬱情緒增加的趨勢(Llaneza, Garcia-Portilla, Llaneza-Suarez, Armott, & Perez-Lopez, 2012)。

憂鬱疾患是女性常見的情緒困擾，輕鬱症(dysthymia)終生盛行率約在 6%- 8 %，而重鬱症(major depression)終生盛行率 6%- 17 % (Kessler, 2003)，是男性罹患憂鬱的 2 倍風險。這樣的性別差異與高女性憂鬱盛行率，在不同國家(包括美國、加拿大、波多黎各、法國、德國、義大利、黎巴嫩、台灣、韓國、及紐西蘭)、不同種族皆有類似的發現(Weissman et al., 1996)，可見憂鬱症是一跨文化、存於不同開發程度國家的心理健康困擾。根據 DSM-IV (APA, 1994)的診斷標準，產後憂鬱症(Postpartum Depression)是指在生產後四星期內所發生的憂鬱症。產後憂鬱症的盛行率調查顯示在西方國家的產後憂鬱症的盛行率約介於 8.5−13.5%之間(Josefesson et al., 2002; Yonkers et al., 2001; Cox et al., 1993)，而在中國產後婦女的盛行率，分別是中國大陸的 17.9% (Guo, 1993)，在香港為 12% (Lee, 1998)，在台灣為 8.57% (Ko, 1996)，40% (Chen, 1995)。由以上的比較得知，中、西文化的產後憂鬱症的盛行率並無太大差異，即文化環境的不同並不是構成產後憂鬱的唯一原因，多因性理論始能清楚瞭解複雜致因的產後憂鬱，並規劃有效的婦女健康照護模式。

(2)、由發展生態系統理論來看女性憂鬱

女性憂鬱是複雜多面向的婦女健康議題，並不是單純的文化症候群(Culture bound Syndrome)，或其他單一因素如生物因素 (Biological determinants)、家庭因素、或社會文化因素能具有單獨足夠解釋量，所以唯有運用統整的觀點，整合個體因素與環境的主要概念，始能清楚瞭解複雜致因的女性憂鬱，並進而規劃有效的婦女健康照護模式(Kessler，2003)。

強調整體生態環境系統的發展理論，經常用來闡釋個體與環境之交互作用對個體身心發展之影響，後來也廣泛引用於探討女性憂鬱的形成 (Bozoky& Corwin, 2002)，來檢視個體與環境因素對女性憂鬱的發展脈絡之影響。生態系統理論 (ecological system theory)乃是由發展心理學家UrieBronfenbrenner提出 (Bronfenbrenner, 1979)，採用整體生態環境系統說明個體發展歷程。該理論認為個人的發展來自個體與環境的互動，互動過程乃是與多層環境系統中交互形成的。Bronfenbrenner（1979）認為個體發展受到五個系統的直接影響與交互作用，從最內層到最外層依序是微觀系統(Microsystem)、中間系統(Mesosystem)、外部系統(Exosystem)、鉅觀系統(Macrosystem) 、與時間系統(Chronosystem)。微觀系統包括家庭(父母親、夫妻、孩子、其他

家人)，學校 (老師、同學)，工作場所 (上司、同事)，朋友，鄰居等的人際關係；中間系統乃指微觀系統之間的互動關係，如:家庭與工作場所的相互關係，家庭與學校，學校與工作環境等；外部系統包括影響個體的社會情境，如:社會經濟、教育制度、大傳媒體、工作福利制度、法律制度等；鉅觀系統包括倫理、社會價值觀及文化的影響；時間系統乃是個人的人格特質與所處環境的互動，而逐漸形成其個人心智發展的特質。該系統能提供檢驗個體及環境，隨著時間的演變以及二者之間的關係。

(3)、女性憂鬱之成因探討

在女性的生命週期，情緒變化與月經週期的賀爾蒙波動變化相關，且研究發現大腦對女性素或黃體素的敏感度是關鍵因素，因為採用口服避孕藥者並未明顯減緩劇女性憂鬱的程度(Eriksson, Andersch, Ho, Landén, &Sundblad, 2002)。而產後階段所產生的大量賀爾蒙變化所導致的情緒低落常是學者關注的重點之一；因為在產後 48 小時內女性素(estrogen)、黃體素(Progesterone)急劇下降至懷孕前的狀態，與產後的情緒低潮密切相關，因而許多研究建議以黃體素治療產後憂鬱症。此外，在產後數小時內母親血液中的 CRH (corticotropin releasing hormone)濃度迅速減少，增加產後精神疾病的易感受性。產後自體免疫機制所造成的甲狀腺炎，造成甲狀腺素(Thyroid Hormone)的分泌失調，亦被證實與產後憂鬱症的諸多生理症狀之表徵有關(Harris, 1996)。中年女性則是另一個生命階段發生劇烈賀爾蒙變化的階段，每日女性素生產量約比往常減少八倍，實證研究指出女性素的變異性(variability) (Freeman, Sammel, Lin & Nelson, 2006)、女性素療法與中年憂鬱有關(de NovaesSoares, Almeida, Joffe, & Cohen, 2001)進而影響情緒狀態。

女性個人的自信感與自尊感也被證實與產後憂鬱症有關。比較英國與台灣產婦的跨國研究(Huang et al., 2001) ，指出缺乏自信的產婦具有較高的機會罹患產後憂鬱症；對英國產婦而言，母職角色的適應不良愈容易產生憂鬱症狀，而對台灣的產婦，愈焦慮的母親愈容易產生憂鬱症狀。陳(1994)以貝氏量表(Beck Depression Inventory) 探討 129 位產婦的產後六週的憂鬱症狀，發現婦女的自尊 (Self-esteem)狀態與憂鬱症狀關係密切。高自尊的婦女自覺壓力較低、較少出現產後憂鬱，並且間接地讓吸引週邊的人願意提供其所需的支持；反之，低自尊者所接受到的支持較少，自覺壓力較高，因而產生較多的憂鬱症狀 (Wang, Jiang, Jan, Chen, 2003)。而柯氏等人 (1995)以貝氏憂鬱量表對 174 位產後三個月內婦女進行篩檢，也證實低自尊與產後憂鬱症狀相關，另外，過去憂鬱史、對懷孕的負面態度、不愉快的親子關係也是重要的預測因素。

家庭與個人的健康密切相關，因為個人對健康或疾病的信念與處置，深受家庭整體的健康過程之影響。而家庭的健康過程(Health process of family)並非固定不變，家庭成員之間的互動方式(Interactive process)，家庭的發展過程 (Development process)、因應壓力與危機的過程(Coping process)、整合成員之間的承諾(integrity process)，形成家庭對健康的信念、反應等的健康過程(Health process)。而傳統女性角色常伴隨長期慢性壓力，與低成就感皆易導致女性憂鬱遠超過男性憂鬱 (Mirowsky& Ross, 2003)，此種現象在已婚女性尤其明顯，因為已婚女性較未婚女性更需發揮傳統女性角色功能。

對女性憂鬱而言，社會文化因素是不可忽略的中介要素，相關研究比較中國與美國文化時，皆指出不同文化對女性的生育儀式行為不同，將影響女性憂鬱的發生(Stern, Kruckman, 1983)。如台灣的做月子照護，乃是幫助婦女進入母職角色與修復身心的社會支持，台灣女性憂鬱的發生較未有做月子習俗的美國女性低。當進一步探討中國文化下的不同族群的女性憂鬱的差異時，

也發現居住在不同地區的平地女性、原住民女性、大陸內地女性的憂鬱也因著文化因素差異有不同表現 (Wang, Jiang, Jan, Chen, 2003)，可見社會文化因素對不同文化情境的女性憂鬱有具體的影響性。

憂鬱的相關實證研究指出，憂鬱症狀會隨時間而有不同動態變化 (Goyal, Gay, & Lee, 2007)，而過去研究採用單點憂鬱資料的橫斷式相關性研究設計，恐無法捕捉因著時間而變化的憂鬱特性，因而無法充分反映女性憂鬱與動態環境之間的動態關係。並且，將同一文化環境的所有的女性的憂鬱變化，若簡化視為只有一種變化，而忽略不同的憂鬱程度，恐過度簡化其複雜度。為克服上述的研究限制，目前學者提出軌跡分析(Trajectory analysis)可以幫忙區辨同一文化環境中具不同憂鬱程度的次族群(Henly, Wyman, &Findorff, 2011; Nagin&Odgers, 2010)。故透過長期追蹤的研究設計，收集不同時間點的女性憂鬱程度，以及採用軌跡分析，我們將可以根據女性個體的起始點憂鬱程度，與隨著時間改變的憂鬱變化程度來進行不同分群，每一分群則具有相同憂鬱變化軌跡，我們進而可以瞭解不同女性憂鬱變化分群與生態環境因素的關聯性。

4. 研究方法

本研究採前瞻性世代追蹤法(prospective cohort study) 對周產期女性進行五個時間點、從產前懷孕 7 個月至產後三個月憂鬱情緒變化與多層面因子之追蹤，以及採回溯性世代追蹤法 (retrospective cohort study) 對參與「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女世代，探討長達十年追蹤的中年期女性憂鬱變化與多層面因子之調查。此外，本研究擬使用全民健康保險研究資料庫來探討全國周產期女性在懷孕期間與生產後一年的憂鬱變化與影響因子，以及中年期女性憂鬱變化與影響因子。該資料庫涵括研究對象歷年所有的就醫資料，並且持續追蹤，故適宜探討全國女性憂鬱變化歷程。

成長曲線分析模型常用來分析重複測量的資料，故根據研究對象的長期追蹤之重複測量的憂鬱程度，我們可以透過 group-based trajectory modeling (Nagin, 2010)來區辨具有不同憂鬱變化程度的分組。軌跡變化分析(trajectory analysis)的主要目的就是將有相同憂鬱變化軌跡的研究對象分類在同一組別，目前 SAS 統計軟體的 PROC TRAJ 程式可提供該項統計分析(Jones, Nagin, & Roeder, 2001)，而且該方法可以處理因隨機模式而流失個案的資料型態，這乃是在長期追蹤的研究設計常見的現象，故透過這個統計分析將可充分使用研究對象的資料。在分析過程中，最佳模組(Model)的選擇乃依照最小貝氏資訊值(Bayesian Information Criterion, BIC)來決定，且根據最高的事後機率(the highest posterior probabilities)將研究對象加以分組，我們然後可以依照所得到的分組變項進行後續的統計分析。完成初步的軌跡變化分析，我們可以進一步進行雙重軌跡變化分析(dual trajectory method) (Nagin, 2005)，來探討軌跡變化之間的相關性。

5. 結果與討論

(1)周產期婦女世代

研究計畫經過醫學倫理暨人體試驗委員會(IRB)審查並取得同意，進行收案流程。包括收案田野之建立，訪員訓練，測量工具之建立。召開專家諮詢會議以加強問卷內容之適切性，例如建議將保健食品服用狀況納入調查、更加入懷孕資訊之取得方法、家務分工情形、宗教信仰問題。另外，為確實瞭解新生兒睡眠狀況的影響。我們取得新生兒睡眠量表的原始作者 Dr. Sadeh 的使用同意，進行量表的中文翻譯與信效度測量，將該量表納入研究工具。我們也完成研究的各項研究工具的信度測量，各量表之內部一致性測量佳。此外，我們完成婦女憂鬱資料庫建檔與管理，包括完整收案記錄、問卷資料偵錯措施、及問卷資料庫之建構。

女性憂鬱對婦女與其家庭造成許多負面影響，周產期與中年期分別是女性發展的重要階段，其憂鬱變化軌跡乃是重要的婦女健康議題。於懷孕 28 週、懷孕 36 週、產後一週、四週、三個月等五個時間點收集周產期女性的生理因素、心理因素、家庭環境因素、以及社會文化因素等指標。至 2014 年 10 已取得 225 位受訪者之受試者同意書，完成 223 人次的基線測量(懷孕滿 28 週)，200 人次的懷孕 36 週測量，176 人次的產後一週資料，與 179 人次的產後四週追縱，與 172 人次的產後三個月追蹤，共完成 952 人次資料收集與追縱。初步資料分析顯示受訪者年齡平均為 32 歲(標準差 4.4 歲)、身體質量指數平均為 25 Kg/m^2(標準差 3.4Kg/m^2)，其中初產孕婦有佔 48.4%、218 人為已婚者(98%)。大部分受訪者的教育程度為大專或大專以上(91%)。少有吸菸習慣者(11%)或飲酒習慣者(10%)。服用保健食品者多(78%)、且多有宗教信仰者，大部份婦女自覺健康狀況為「普通」到「很好」(97%)，家庭層面的資料顯示，家庭年收入勾選 300,000~600,000 者最多 (31%)；大部分的受訪者是家務工作的協助者(59%)，家務主要工作者則有 37%。文化層面的部份，受訪者多由網路取得懷孕資訊(73%)，其次為透過親友經驗及媽媽手冊獲得懷孕資訊(66%)。大部分受訪者解除心中憂鬱的方法是尋求個人娛樂休閒 (71%)，次多為找親人傾吐急找朋友傾吐(68%)。目前周產期女性世代初步分析共包括 115 名孕產婦女周產期婦女的憂鬱狀態平均分數分別如下: 7.8 分(懷孕 28 週)、7.7 分(懷孕 36 週)、7.7 分(產後一週)、8.8 分(產後四週)、7.2 分(產後三月)。以軌跡變化分析(Trajectory analysis)則發現三組憂鬱變化模型為最佳統計模式(BIC -1160.9)，分別為持續低度憂鬱變化組(48.6%)、中度上升憂鬱變化組 (31.4%)、持續高度憂鬱變化組(20%)。持續低度憂鬱組婦女的憂鬱分數約平穩維持在 4.3-4.6 分，且於產後三個月下降到 3.6 分。中度上升憂鬱組的婦女在懷孕期間的分數分布在 8.9 分至 8.7 分，於產後一週漸上升至 9.2 分，產後四週與三個月則上升至 11.7 分、11.5 分。具有持續高度憂鬱變化的婦女則在懷孕期間的憂鬱分數即偏高(13.4 分-14.7 分)，生產後一週與四週則仍處於高分狀態(14.4 分-15.7 分)，於產後三個月分數略下降(12.3 分)。以多變項迴歸統計分析發現懷孕期間的就業狀態與婦女的自覺的健康狀態與憂鬱變化軌跡有顯著關係 ($p<0.001$)。三組憂鬱變化軌跡婦女其疲憊狀態也有顯著差異 ($p<0.0001$)，其疲憊分數分別為 14.8 分、18.9 分、26.8 分。持續低度憂鬱變化組的婦女之家人支持度最高(22 分)、其次為中度上升憂鬱組(20.1 分)、持續高度憂鬱變化組的家人支持度較低(18.9 分)；另者，朋友支持度在三組婦女亦呈現顯著差異($p<0.01$)。

(2)中年期婦女世代

中年女性憂鬱之樣本來自「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女，該

調查由行政院衛生署國民健康局執行與管理。該計畫以具台灣地區非山地鄉代表性之 60 歲以上樣本，以台灣地區（不含山地鄉）民國 77 年底滿 60 歲以上之戶籍登記人口為抽樣母群，採分層多階段隨機抽樣方法抽選樣本。於 1989 年完成台灣地區中老年身心社會生活狀況基線調查，其後則以每 3 至 4 年之調查間隔進行長期追蹤，並於 1996 年及 2003 年依照基線調查之抽樣方法，加抽低年齡層之補充樣本，將調查對象所涵蓋之年齡層向下延伸至 50 歲，至 2007 年已完成六波調查資料收集。本調查以面訪問卷為資料收集工具，調查主要問卷內容包括（1）個案基本特性（2）家戶結構、居住安排及親屬互訪（3）健康狀況及醫療照護利用（4）社會支持與交換（5）工作、退休及生涯規劃（6）休閒與社會參與（7）老年心境（8）經濟狀況（9）老人社會福利認知與利用。

目前中年期女性世代的十年追縱資料已建立，針對在 85 年、88 年、92 年、96 年至少提供三個時間點憂鬱資料的 1574 位中年婦女進行分析，結果顯示中年期婦女的平均憂鬱分數如下: 6.6 分(標準差 6.0)、5.9 分(標準差 5.9)、6.4 分(標準差 6.3)、6.2 分(標準差 6.4)，具有四組憂鬱變化軌跡模型，分別為低憂鬱變化組(6.3%)、輕憂鬱變化組(59.8%)、中憂鬱變化組(27.3%)、高憂鬱變化組(6.3%)。平均年齡為 63.4 歲(標準差 8.4 歲)；同住家人平均為 4.87 位；不識字佔 47.8%、小學畢業佔 35.8%；過去半年不運動者佔 49.4%、經常運動者為 36.1%。具一種以上慢性病者佔 63%；約 32.5%的女性認為現在健康狀態為好，30.2%則認為其健康狀態為不好。約九成婦女的日常生活活動功能不需協助；約 63.2%不具有認知功能障礙；大約 61%中年女性認為家人朋友關心她、願意聽她心事、生病會照顧她。年齡、婚姻狀態、教育程度、日常生活活動功能狀態、運動習慣、罹患慢性病數目、自覺健康狀態、認知功能、家人朋友的支持、社會參與程度皆與憂鬱變化組別有顯著相關($p<0.05$)。

為瞭解性別差異，本研究亦對在 85 年、88 年、92 年、96 年至少提供三個時間點憂鬱資料的 1690 位中年男性進行分析，結果顯示中年期男性的平均憂鬱分數如下: 4.2 分(標準差 4.9)、3.8 分(標準差 4.9)、4.2 分(標準差 5.1)、4.6 分(標準差 5.5)，具有四組憂鬱變化軌跡模型，分別為低憂鬱變化組(48.5%)、輕憂鬱變化組(41.6%)、中憂鬱變化組(7.0%)、高憂鬱變化組(2.9%)。平均年齡為 67.9 歲(標準差 6.3 歲)；已婚者佔 83.7%；同住家人平均為 4.72 位不識字佔 17.5%、小學畢業佔 46.6%、國中以上佔 35.9%；過去半年不運動者佔 39.3%、經常運動者為 48.6%。具一種以上慢性病者佔 53.4%；約 78.3%的男性認為現在健康狀態為好，18.7%則認為其健康狀態為不好。約 96.4%男性的日常生活活動功能不需協助；約 82.4%不具有認知功能障礙；大約多數中年男性認為家人朋友關心(68.9%)、願意聽心事(83.8%)、生病會照顧(80.9%)。年齡、婚姻狀態、教育程度、飲酒、日常生活活動功能狀態、運動習慣、罹患慢性病數目、自覺健康狀態、認知功能、家人朋友的支持、社會參與程度皆與憂鬱變化組別有顯著相關($p<0.05$)。

整體而言，此項研究結果有助於瞭解女性憂鬱變化的特質與相關預測因素。目前生理因素、心理因素、家庭環境因素、以及社會文化因素對週產期女性世代與中年期女性世代的憂鬱變化具有重要影響，本研究結果將陸續發表以期對台灣女性憂鬱變化提供實證研究資料。

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科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否有嚴重損及公共利益之發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■ 達成目標

□ 未達成目標（請說明，以 100 字為限）

□ 實驗失敗

□ 因故實驗中斷

□ 其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：■已發表 □未發表之文稿 ■撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：（以 100 字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性），如已有嚴重損及公共利益之發現，請簡述可能損及之相關程度（以 500 字為限）

本研究為建立周產期婦女世代與中年期婦女世代的憂鬱變化軌跡。周產期婦女世代涵括五次重複測量資料，時間規劃從產前懷孕 7 個月至產後三個月憂鬱情緒變化，本研究的資料量已經過前試，以符合周產期女性的身心狀況，以不加重其負荷。瞭解全國中老人與周產期婦女的健康狀態，採用全國性健康資料庫進行探討，即採分層多階段隨機抽樣方法所建立的「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女；整體而言，目前計畫的執行符合原本的計畫進度與目標，清楚描述周產期婦女世代與中年期女性的憂鬱變化的特性與型態，並且發現重要的預測因子，不僅能幫助我們瞭解女性憂鬱的影響幅度，強化婦女憂鬱篩檢的重要性，並且未來針對可改變因子，規劃可行預防策略，以期有助於女性憂鬱之瞭解與預防。

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2014 年 7 月 18 日

計畫編號	101-2629-H-038-001-MY		
計畫名稱	女性憂鬱變化軌跡:由發展-生態觀點(GM03)		
出國人員 姓名	郭淑瑜	服務機構 及職稱	臺北醫學大學護理學系
會議時間	2014 年 6 月 30 日起 至 2014 年 7 月 18 日	會議地點	美國/拉斯維加斯
會議名稱	(中文) (英文) WORLD CONFERENCE ON PSYCHOLOGY SCIENCE		
發表題目	(中文) (英文)EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT		

一、參加會議經過

1.此次研習會邀集國際學者發表心理科學領域的實證研究成果，以口頭或海報形式發表，並且由密西根大學教授發表正向心理導向對健康生活之影響(Building good life: A positive psychology perspective)的演說與討論。

2.此次研討會發表論文主題為 EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT。

二、與會心得

參加國際研討會能有時效性地瞭解目前國際研究新趨勢，並且能直接與相關學者進行討論，以增進研究產能。正向心理學乃是促進心理健康的重要研究範疇，能提供改變孕產婦女憂鬱情緒的可行策略之一。另者，探討正向情緒與孕產期的不適身心症狀的關聯，未來也能提供相關的實證證據。

三、發表論文全文或摘要

EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT

ABSTRACT

Introduction: Anxiety and depression have become a focus of concern in mood changes among childbearing women. However, less is known regarding how anxiety and depressive symptom changes over time in women underwent an elective cesarean section. This study is aimed to (1) characterize the joint trajectories of anxiety and depressive symptoms, and (2) investigate the effect of the anxiety and depression courses on the subsequent body weight.

Methods: A prospective longitudinal study of childbearing women (N = 139) who underwent an elective cesarean section was conducted. Anxiety and depressive symptoms were assessed using the State Anxiety Inventory (SAI) and the Edinburgh Postnatal Depression Scale, respectively, in the third trimester and 1 day, 1 week, and 1 and 6 months postpartum. The structured questionnaires on

demographic features, health status, and body mass index (BMI) were completed. Trajectory analyses were conducted using semiparametric group-based modeling. Analysis of covariance and the trend test were applied.
Results: The mean age of participants was 33.6 years. Most study participants were multiparas (61.9%) and had at least some college education (73.4%). We identified four distinctive joint trajectories of anxiety and depressive symptoms: class 1 (low, 24.9%), class 2 (mild, 42.9%), class 3 (high, 23%), and class 4 (very high, 6.9%). After adjustment for age and parity, the BMIs were significantly different among the trajectories classes ($p<0.05$). The classes with high and very high anxiety and depressive symptoms showed a trend toward having higher BMI on postpartum 1 day ($p=0.05$), 1 month ($p=0.03$) and 6 months ($p=0.06$) compared with those with low anxiety and depressive symptoms.
Discussion: Anxiety and depressive symptoms are prevalent from pregnancy through postpartum. Distinctive patterns of joint anxiety and depression trajectories were identified. Our findings suggest a need for greater attention to continuous assessment of psychological well-being and body weight among women with cesarean delivery.
Research support: This study was supported by a grant (NSC101-2629-H-038-001) from the Ministry of Science and Technology, Taiwan**.** ***Keywords:*** Anxiety symptoms, Depressive symptoms, Cesarean delivery, Body weight, pregnant women

INTRODUCTION

Anxiety and depression have become a focus of concern in mood changes among childbearing women. The elevated anxiety symptoms were found in 54% of pregnant women, whereas the depressive symptoms were estimated to be 37.1% during pregnancy [1]. Approximately 24.3%~30.7% of women experience anxiety symptoms [2], while 23%~42.6% reported depressive symptoms [3] in the postpartum period. Recent evidence has found the co-occurrence pattern of anxiety and depression with a certain degree of heterogeneity in the longitudinal course in in perinatal women [4,5]. However, limited studies reported the joint trajectories of anxiety and depression in perinatal women.

Maternal weight retention during postpartum is an important factor in the development of obesity, cardiovascular diseases, and other chronic diseases in later life [6]. Furthermore, weight gain between pregnancy may increase the risk of Cesarean section, gestational diabetes, preeclampsia, and stillbirth in the next pregnancy [7]. Previous studies have found evidence of relation between anxiety and depression with body mass index (BMI) in nonpregnant population[8]. Limited research, however, has focus on perinatal women to investigate the association between anxiety and depression with postpartum body weight.

Few studies have prospectively examined the changes in anxiety and depression symptoms from pregnancy through postpartum and weigh changes in a longitudinal design. A cross-sectional study of 64 women found a strong correlation between anxiety and depression with BMI at 4 months postpartum[9]. Herring et al. reported an association between new-onset postpartum depression and

postpartum weight retention [10]. Recent review on perinatal depression and maternal weigh found an association between depressive symptoms and maternal BMI [11].

Understanding the relation of anxiety and depression trajectories to postpartum body weight may help women in weight management during the postpartum period. This study examines the effect of anxiety and depression joint trajectories on postpartum weight. The objectives were to determine the extent to which (1) the joint trajectories of anxiety and depressive symptoms, and (2) investigate the effect of the anxiety and depression courses on the subsequent body weight.

METHODS

PARTICIPANTS

Pregnant women who received prenatal care in the antenatal clinic of a university hospital in Taiwan were invited. Study inclusion criteria were aged 20 or above and elective Cesarean section. Exclusion criteria were perinatal complications, or chronic medical illness. Among 150 eligible women, 11 women (14%) completed baseline information only. A total of 139 women included in this study.

PROCEDURES

The study was a prospective longitudinal study with five time points assessments conducted in the third trimester, postpartum day 1, week 1, 1 month, and 6 months, respectively. The study protocol was approved by the institutional review board of the China Medical University Hospital, Taiwan.

MEASURES

Anxiety symptoms

Anxiety levels were assessed using the 20-item Taiwanese version of State Anxiety Inventory (SAI). This tool contains a scale of 1 (not at all) to 4 (very much so) for each item, with an overall score ranged between 20 and 80. A higher score indicated higher anxiety. The Taiwanese version of SAI has shown good internal consistency (0.90) [12]; in the present study, the Cronbach's alpha of SAI was 0.89-0.91.

Depressive symptoms

Depressive symptoms were measured by the 10-item Taiwanese version of Edinburgh Postnatal Depression Scale (EPDS) [13]. It is a self-report questionnaire with a 4-point scale that ranged from 0 ("no") to 3 ("most of the time"), with a total score ranged between 0 and 30. Higher scores represented higher levels of depression. The Cronbach's alpha reliabilities of the Taiwanese version of EPDS were 0.87[13]. In our study the Cronbach's alpha of EPDS ranged 0.82-0.86.

Body weight and height

Self-reported data on body weight and height were collected in baseline, postpartum 1day, 4 weeks, and 6 month. Body mass index (BMI) was then calculated as the weight in kilograms divided by the height in meters squared (kg/m^2).

Demographic characteristics and health status

A structured questionnaire was used to investigate demographic variable, including age, parity, education attainment, employment status, and use of patient controlled analgesic after CS.

STATISTICAL ANALYSIS

The distinct groups of subjects with similar courses of change in anxiety and depressive symptoms

over time were identified using the group-based trajectory modeling[14]. The PROC TRAJ in SAS was applied and the optimal trajectory groups were determined based on Bayesian Information Criterion (BIC) value [14]. At beginning, trajectory groups for depression and anxiety were identified separately, and then the joint probability of group membership in the depression and anxiety was estimated. The relationships between membership of joint trajectories and body weight were examined by the analysis of covariance and the trend test with adjustment for covariates. The results were considered statistical significance at $p < 0.05$. All analyses were conducted using SAS software, Version 9.2(SAS Institute Inc., Cary, NC).

RESULTS

There were 139 pregnant women with mean age 33.6 (standard deviation [SD] 3.8) and mean weeks of gestational at delivery was 37.3 (SD 2.0). Most participants were multipara (61.9%), were educated to some college education (73.4%), and employed (64%). Majority of the participants (66.2%) reported a planned pregnancy and nearly 85.6% had used patient controlled analgesic after Cesarean section. Among the 139 eligible participants, 102 (73%) completed in all five time points and all of the women (100%) completed four assessments. No significant differences (p=0.18-0.99) on mean depression or anxiety scores at the time 1, 2, 3, or 4 were observed between the two groups. The demographic characteristics, were similar (p=0.14-0.90) between the two groups including age, parity, education, prenatal employment.

Trajectory groups of Depressive Symptoms and Anxiety Symptoms

The three depression trajectory groups were identified as the best fitting model with the lowest absolute BIC (-1908.08) with the average posterior probability ranging from 0.87 (standard error [SE] = 0.13) to 0.91 (SE = 0.12), suggesting adequate model fitting. The 4-group model was identified for anxiety symptoms (BIC -2260.19) with the average posterior probability ranged from 0.87 (SE = 0.16) to 0.97 (SE = 0.08). The joint analysis of depression and anxiety trajectories indicated the proportion of women in each joint trajectory groups, including the low symptom severity (24.9%), mild levels of depressive and anxiety symptoms (42.9%), followed by women with high levels on both depressive and anxiety (23%), and women with high depressive symptoms and very high anxiety symptoms (6.9%).

Relationships between Joint Trajectories and BMI

According to the analysis of covariance, the BMIs were significantly different among the trajectories classes ($p<0.05$) after adjustment for age and parity. The classes of women with high and very high anxiety and depressive symptoms having higher BMI on postpartum 1 day (p=0.05), 1 month (p=0.03) and 6 months (p=0.06).

DISCUSSION

In this prospective study, we identified four distinct joint trajectories of depression and anxiety among in women undergoing Cesarean section. As compared with those with low anxiety and depression trajectory, higher BMIs were found in women with high and very high levels of anxiety and depression after the adjustment for age and parity.

Consistent with prior research on anxiety and depressive symptoms over time [15,16], we found

the heterogeneity in the development of anxiety and depressive symptoms during childbearing period. Further, our findings indicated that a substantial proportion of CS mothers reported high/very high anxiety (36%; SAI >45) or high depressive symptoms (27.3%, EDPS >12) at all assessments, suggesting that stable nature of both symptoms and proper screening could be used to identify the high risk group. The four joint trajectories of anxiety and depression identified in the current study provided evidence of persist and cluster patterns of anxiety and depressive symptoms in perinatal women.

The association between anxiety and depression with body weight is complex with a reciprocal relationship reported [17]. Dysregulation of the hypothalmic–pituitary–adrenal axis may be one of the important factors for the biological mechanism underlying the relationship between anxiety and depression with obesity [18]. Anxiety and depression also could be a barrier for weight management for women and lead to more postpartum weight retention [10,19].

Taken together, anxiety and depressive symptoms are prevalent from pregnancy through postpartum. Distinctive patterns of joint anxiety and depression trajectories were identified. Our findings suggest a need for greater attention to continuous assessment of psychological well-being and body weight among women with cesarean delivery.

REFERENCES

1. Lee AM, Lam SK, Sze Mun Lau SM, Chong CSY, Chui HW, et al. (2007) Prevalence, Course, and Risk Factors for Antenatal Anxiety and Depression. Obstetrics & Gynecology 110: 1102-1112 1110.1097/1101.AOG.0000287065.0000259491.0000287070.
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Table 1. Postpartum BMI by joint trajectories classes

	Class 1 Low	Class 2 Mild		Class 3 and 4: High/Very High		Group comparison (ANCOVA)[b]		Trend test[c]
	Mean (SD)	Mean (SD)	ES[a]	Mean (SD)	ES[a]	F (df)	*P* value	*P* value
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Postpartum day 1	28.0 (3.5)	27.5 (3.7)	-0.19	29.9 (5.1)	0.43	4.41(2, 134)	0.014	0.05

n	26	41		28				
1 month	24.7 (3.3)	24.1 (3.3)	-0.18	27.3 (4.8)	0.63	6.03 (2, 90)	0.004	0.03
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[a] Effect size, derived from comparison with the group of class 1.

[b] All analyses were adjusted for age and parity at baseline.

[c] Linear regression conducted by means of coding class 1 as 0, class 2 as 1, and class3 and 4 as 2.

四、建議

正向心理學的研究，乃是婦女健康研究值得關注的照護議題。本次研討會以口頭報告，報告台灣孕產婦女的焦慮憂鬱變化，並從與會的其他研究學者的研究，瞭解發展正向情緒介入以改變孕產婦女的焦慮憂鬱情緒的可行性，例如密西根大學 Dr. Nansook Park 教授提及的三件好事的每日記錄、韓國學者 Heeju Cho 教授提出的敘事日記法等，皆證實對正向情緒有一定成效。未來希望能將正念身心覺察導入產科照護，例如使用放鬆、瑜加、內觀冥想等的身心療法來幫助孕產婦女減輕焦慮壓力程度，以改善孕產婦的心理困擾與生理狀態，以提昇婦女及新生兒的健康結果。

五、攜回資料名稱及內容

SESSION – II
13:30 – 15:10

Hall 1,

Session Chair :	Lung-Tan Lu	
TIME	**TITLE**	**PRESENTER(S)/AUTHOR(S)**
13:30 – 13:50	The Role of Educational Psychologists in Promoting Ethical Research with Children: An African Perspective	Jace Pillay
13:50 – 14:10	Using The Health Belief Theory To Reduce Obesity amongst African American And Hispanic Populations	Victor Romano, Imani Scott
14:10 – 14:30	Effect of Anxiety and Depression Trajectories on The Postpartum Body Weight	Shu-Yu Kuo, Ya-Ling Tzeng, Fong-Chen Wang, Hsin-Ying Huang
14:30 – 14:50	A Dialogue with Subconscious in a Dream	Tanat Kuanishbekuly Zhakay
14:50 – 15:10	Does Culture Matter? The Impact of Culture on Conflict Resolution Strategy and Role Stress in Asia	Lung-Tan Lu

15:10 – 15:20	**Coffee Break**

六、其他：無

科技部補助專題研究計畫出席國際學術會議心得報告

日期：2014 年 7 月 18 日

計畫編號	101-2629-H-038-001-MY		
計畫名稱	女性憂鬱變化軌跡:由發展-生態觀點(GM03)		
出國人員 姓名	郭淑瑜	服務機構 及職稱	臺北醫學大學護理學系
會議時間	2014 年 6 月 30 日起 至 2014 年 7 月 18 日	會議地點	美國/拉斯維加斯
會議名稱	(中文) (英文) WORLD CONFERENCE ON PSYCHOLOGY SCIENCE		
發表題目	(中文) (英文)EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT		

一、參加會議經過

1.此次研習會邀集國際學者發表心理科學領域的實證研究成果，以口頭或海報形式發表，並且由密西根大學教授發表正向心理導向對健康生活之影響(Building good life: A positive psychology perspective)的演說與討論。

2.此次研討會發表論文主題為 EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT。

二、與會心得

參加國際研討會能有時效性地瞭解目前國際研究新趨勢，並且能直接與相關學者進行討論，以增進研究產能。正向心理學乃是促進心理健康的重要研究範疇，能提供改變孕產婦女憂鬱情緒的可行策略之一。另者，探討正向情緒與孕產期的不適身心症狀的關聯，未來也能提供相關的實證證據。

三、發表論文全文或摘要

EFFECT OF ANXIETY AND DEPRESSION TRAJECTORIES ON THE POSTPARTUM BODY WEIGHT

ABSTRACT

Introduction: Anxiety and depression have become a focus of concern in mood changes among childbearing women. However, less is known regarding how anxiety and depressive symptom changes over time in women underwent an elective cesarean section. This study is aimed to (1) characterize the joint trajectories of anxiety and depressive symptoms, and (2) investigate the effect of the anxiety and depression courses on the subsequent body weight.

Methods: A prospective longitudinal study of childbearing women (N = 139) who underwent an elective cesarean section was conducted. Anxiety and depressive symptoms were assessed using the State Anxiety Inventory (SAI) and the Edinburgh Postnatal Depression Scale, respectively, in the third trimester and 1 day, 1 week, and 1 and 6 months postpartum. The structured questionnaires on

demographic features, health status, and body mass index (BMI) were completed. Trajectory analyses were conducted using semiparametric group-based modeling. Analysis of covariance and the trend test were applied.
Results: The mean age of participants was 33.6 years. Most study participants were multiparas (61.9%) and had at least some college education (73.4%). We identified four distinctive joint trajectories of anxiety and depressive symptoms: class 1 (low, 24.9%), class 2 (mild, 42.9%), class 3 (high, 23%), and class 4 (very high, 6.9%). After adjustment for age and parity, the BMIs were significantly different among the trajectories classes ($p<0.05$). The classes with high and very high anxiety and depressive symptoms showed a trend toward having higher BMI on postpartum 1 day ($p=0.05$), 1 month ($p=0.03$) and 6 months ($p=0.06$) compared with those with low anxiety and depressive symptoms.
Discussion: Anxiety and depressive symptoms are prevalent from pregnancy through postpartum. Distinctive patterns of joint anxiety and depression trajectories were identified. Our findings suggest a need for greater attention to continuous assessment of psychological well-being and body weight among women with cesarean delivery.
Research support: This study was supported by a grant (NSC101-2629-H-038-001) from the Ministry of Science and Technology, Taiwan**.** ***Keywords****:* Anxiety symptoms, Depressive symptoms, Cesarean delivery, Body weight, pregnant women

INTRODUCTION

Anxiety and depression have become a focus of concern in mood changes among childbearing women. The elevated anxiety symptoms were found in 54% of pregnant women, whereas the depressive symptoms were estimated to be 37.1% during pregnancy [1]. Approximately 24.3%~30.7% of women experience anxiety symptoms [2], while 23%~42.6% reported depressive symptoms [3] in the postpartum period. Recent evidence has found the co-occurrence pattern of anxiety and depression with a certain degree of heterogeneity in the longitudinal course in in perinatal women [4,5]. However, limited studies reported the joint trajectories of anxiety and depression in perinatal women.

Maternal weight retention during postpartum is an important factor in the development of obesity, cardiovascular diseases, and other chronic diseases in later life [6]. Furthermore, weight gain between pregnancy may increase the risk of Cesarean section, gestational diabetes, preeclampsia, and stillbirth in the next pregnancy [7]. Previous studies have found evidence of relation between anxiety and depression with body mass index (BMI) in nonpregnant population[8]. Limited research, however, has focus on perinatal women to investigate the association between anxiety and depression with postpartum body weight.

Few studies have prospectively examined the changes in anxiety and depression symptoms from pregnancy through postpartum and weigh changes in a longitudinal design. A cross-sectional study of 64 women found a strong correlation between anxiety and depression with BMI at 4 months postpartum[9]. Herring et al. reported an association between new-onset postpartum depression and

postpartum weight retention [10]. Recent review on perinatal depression and maternal weigh found an association between depressive symptoms and maternal BMI [11].

Understanding the relation of anxiety and depression trajectories to postpartum body weight may help women in weight management during the postpartum period. This study examines the effect of anxiety and depression joint trajectories on postpartum weight. The objectives were to determine the extent to which (1) the joint trajectories of anxiety and depressive symptoms, and (2) investigate the effect of the anxiety and depression courses on the subsequent body weight.

METHODS

PARTICIPANTS

Pregnant women who received prenatal care in the antenatal clinic of a university hospital in Taiwan were invited. Study inclusion criteria were aged 20 or above and elective Cesarean section. Exclusion criteria were perinatal complications, or chronic medical illness. Among 150 eligible women, 11 women (14%) completed baseline information only. A total of 139 women included in this study.

PROCEDURES

The study was a prospective longitudinal study with five time points assessments conducted in the third trimester, postpartum day 1, week 1, 1 month, and 6 months, respectively. The study protocol was approved by the institutional review board of the China Medical University Hospital, Taiwan.

MEASURES

Anxiety symptoms

Anxiety levels were assessed using the 20-item Taiwanese version of State Anxiety Inventory (SAI). This tool contains a scale of 1 (not at all) to 4 (very much so) for each item, with an overall score ranged between 20 and 80. A higher score indicated higher anxiety. The Taiwanese version of SAI has shown good internal consistency (0.90) [12]; in the present study, the Cronbach's alpha of SAI was 0.89-0.91.

Depressive symptoms

Depressive symptoms were measured by the 10-item Taiwanese version of Edinburgh Postnatal Depression Scale (EPDS) [13]. It is a self-report questionnaire with a 4-point scale that ranged from 0 ("no") to 3 ("most of the time"), with a total score ranged between 0 and 30. Higher scores represented higher levels of depression. The Cronbach's alpha reliabilities of the Taiwanese version of EPDS were 0.87[13]. In our study the Cronbach's alpha of EPDS ranged 0.82-0.86.

Body weight and height

Self-reported data on body weight and height were collected in baseline, postpartum 1day, 4 weeks, and 6 month. Body mass index (BMI) was then calculated as the weight in kilograms divided by the height in meters squared (kg/m^2).

Demographic characteristics and health status

A structured questionnaire was used to investigate demographic variable, including age, parity, education attainment, employment status, and use of patient controlled analgesic after CS.

STATISTICAL ANALYSIS

The distinct groups of subjects with similar courses of change in anxiety and depressive symptoms

over time were identified using the group-based trajectory modeling[14]. The PROC TRAJ in SAS was applied and the optimal trajectory groups were determined based on Bayesian Information Criterion (BIC) value [14]. At beginning, trajectory groups for depression and anxiety were identified separately, and then the joint probability of group membership in the depression and anxiety was estimated. The relationships between membership of joint trajectories and body weight were examined by the analysis of covariance and the trend test with adjustment for covariates. The results were considered statistical significance at $p < 0.05$. All analyses were conducted using SAS software, Version 9.2(SAS Institute Inc., Cary, NC).

RESULTS

There were 139 pregnant women with mean age 33.6 (standard deviation [SD] 3.8) and mean weeks of gestational at delivery was 37.3 (SD 2.0). Most participants were multipara (61.9%), were educated to some college education (73.4%), and employed (64%). Majority of the participants (66.2%) reported a planned pregnancy and nearly 85.6% had used patient controlled analgesic after Cesarean section. Among the 139 eligible participants, 102 (73%) completed in all five time points and all of the women (100%) completed four assessments. No significant differences (p=0.18-0.99) on mean depression or anxiety scores at the time 1, 2, 3, or 4 were observed between the two groups. The demographic characteristics, were similar (p=0.14-0.90) between the two groups including age, parity, education, prenatal employment.

Trajectory groups of Depressive Symptoms and Anxiety Symptoms

The three depression trajectory groups were identified as the best fitting model with the lowest absolute BIC (-1908.08) with the average posterior probability ranging from 0.87 (standard error [SE] = 0.13) to 0.91 (SE = 0.12), suggesting adequate model fitting. The 4-group model was identified for anxiety symptoms (BIC -2260.19) with the average posterior probability ranged from 0.87 (SE = 0.16) to 0.97 (SE = 0.08). The joint analysis of depression and anxiety trajectories indicated the proportion of women in each joint trajectory groups, including the low symptom severity (24.9%), mild levels of depressive and anxiety symptoms (42.9%), followed by women with high levels on both depressive and anxiety (23%), and women with high depressive symptoms and very high anxiety symptoms (6.9%).

Relationships between Joint Trajectories and BMI

According to the analysis of covariance, the BMIs were significantly different among the trajectories classes ($p<0.05$) after adjustment for age and parity. The classes of women with high and very high anxiety and depressive symptoms having higher BMI on postpartum 1 day (p=0.05), 1 month (p=0.03) and 6 months (p=0.06).

DISCUSSION

In this prospective study, we identified four distinct joint trajectories of depression and anxiety among in women undergoing Cesarean section. As compared with those with low anxiety and depression trajectory, higher BMIs were found in women with high and very high levels of anxiety and depression after the adjustment for age and parity.

Consistent with prior research on anxiety and depressive symptoms over time [15,16], we found

the heterogeneity in the development of anxiety and depressive symptoms during childbearing period. Further, our findings indicated that a substantial proportion of CS mothers reported high/very high anxiety (36%; SAI >45) or high depressive symptoms (27.3%, EDPS >12) at all assessments, suggesting that stable nature of both symptoms and proper screening could be used to identify the high risk group. The four joint trajectories of anxiety and depression identified in the current study provided evidence of persist and cluster patterns of anxiety and depressive symptoms in perinatal women.

The association between anxiety and depression with body weight is complex with a reciprocal relationship reported [17]. Dysregulation of the hypothalmic–pituitary–adrenal axis may be one of the important factors for the biological mechanism underlying the relationship between anxiety and depression with obesity [18]. Anxiety and depression also could be a barrier for weight management for women and lead to more postpartum weight retention [10,19].

Taken together, anxiety and depressive symptoms are prevalent from pregnancy through postpartum. Distinctive patterns of joint anxiety and depression trajectories were identified. Our findings suggest a need for greater attention to continuous assessment of psychological well-being and body weight among women with cesarean delivery.

REFERENCES

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[c] Linear regression conducted by means of coding class 1 as 0, class 2 as 1, and class3 and 4 as 2.

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五、攜回資料名稱及內容

SESSION – II
13:30 – 15:10

Hall 1,

Session Chair :	Lung-Tan Lu	
TIME	**TITLE**	**PRESENTER(S)/AUTHOR(S)**
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14:50 – 15:10	Does Culture Matter? The Impact of Culture on Conflict Resolution Strategy and Role Stress in Asia	Lung-Tan Lu

15:10 – 15:20	**Coffee Break**

六、其他：無

科技部補助計畫衍生研發成果推廣資料表

日期:2014/12/21

科技部補助計畫	計畫名稱: 女性憂鬱變化軌跡:由發展-生態觀點（GM03）
	計畫主持人: 郭淑瑜
	計畫編號: 101-2629-H-038-001-MY2　　學門領域: 性別研究

無研發成果推廣資料

101 年度專題研究計畫研究成果彙整表

計畫主持人：郭淑瑜	計畫編號：101-2629-H-038-001-MY2
計畫名稱：女性憂鬱變化軌跡:由發展-生態觀點（GM03）	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	1	1	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	1	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	1	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	1	1	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

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。)	未來預計與美國密西根大學 Dr. Nansook Park,Ph.D. NCSP, Professor, Department of Psychology, Director, Michigan Positive Psychology Center University of Michigan 進行研究合作。

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

科技部補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□未達成目標（請說明，以 100 字為限）

□實驗失敗

□因故實驗中斷

□其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：□已發表 □未發表之文稿 ■撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：（以 100 字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

本研究為建立周產期婦女世代與中年期婦女世代的憂鬱變化軌跡。周產期婦女世代涵括五次重複測量資料，時間規劃從產前懷孕 7 個月至產後三個月憂鬱情緒變化，本研究的資料量已經過前試，以符合周產期女性的身心狀況，以不加重其負荷。瞭解全國中老人與周產期婦女的健康狀態，採用全國性健康資料庫進行探討，即採分層多階段隨機抽樣方法所建立的「中老年身心社會生活狀況長期追蹤調查系列」之中年婦女；整體而言，目前計畫的執行符合原本的計畫進度與目標，清楚描述周產期婦女世代與中年期女性的憂鬱變化的特性與型態，並且發現重要的預測因子，不僅能幫助我們瞭解女性憂鬱的影響幅度，強化婦女憂鬱篩檢的重要性，並且未來針對可改變因子，規劃可行預防策略，以期有助於女性憂鬱之瞭解與預防。