中 國 醫 藥 大 學

編號：**IEH-1654**

物質使用疾患與精神疾病共病症之研究

Drug Use Disorders and Psychiatric Co-morbidity in An Universal Health Insurance Population in Taiwan

所別：環境醫學研究所

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中　華　民　國　九　十　七　年　六　月

致謝

參年的研究所生涯即將結束了，在這參年的生涯中，讓我學習到了許多寶貴的知識及許多難得的經驗。很幸運的能在中國醫藥大學遇到宋老師，他除了繁忙的工作外，還不時提醒並督促我完成論文，處處為我著想。也感謝宋老師沒有給我很大的壓力，讓我的研究所與工作能同時進行。而在面對我的畢業論文時也能不厭其煩的教導我。並且協助我在最後關頭完成論文。也感謝藍老師能夠給我充分的支持讓我完成學業。

這一路走來，要感謝的人很多，首先我要感謝我的口委：楊俊毓教授、李中一教授及陳秋瑩副教授，對我的論文提供了許多寶貴的資源及建議。工作同仁的體量也讓我感激不盡。最後感謝我先生的支持，並在我趕論文時還給我打氣，讓我能順利完成學業。

中文摘要

目的：利用國家衛生研究院建立的全民健康保險歸人檔的資料，分析資料中藥物濫用的逐年盛行及新個案特徵，進而探討其與精神疾病共病情形。並探討精神分裂症及情感性精神病之就醫情形與藥物、酒精使用之共病狀況。**方法：**我們利用國家衛生研究院建立的全民健康保險歸人檔 1996-2003 年的資料，分析有申報診斷藥物濫用或藥物依賴記錄的逐年盛行及新個案，進而以 1：3 的方式抽對照樣本，進行病例對照分析，比較兩者精神疾病的差異。之後，我們接著使用國家衛生研究院建立的全民健康保險歸人檔 1997-2006 年一百萬人的資料來分析精神分裂症及情感性精神病的逐年盛行及新個案，和其中與藥物及酒精濫用共病之情形。結果：在 200,000 人的世代檔中，合計有 796 人（男 72.7%）在 1996 到 2003 年間接受藥物濫用的治療，其中 37 名為未成年患者，發生率由 1997 年的 1.76/10,000 增加到 2003 年的 11.9/10,000，達 6.8 倍。相對應之盛行率為 1.92/10,000 和 14.7/10,000。進一步的 nested case-control 分析顯示，藥物濫用的人有精神疾病的盛行率比非藥物濫用者高，尤其是情感性精神病（66.6/1000 對 19.3/1000）、藥物性精神病（40.2/1000 對 1.26/1000）、精神分裂症（33.9/1000 對 12.1/1000）和酒癮徵候群（30.2/1000 對 6.7/1000）等，這些主要精神疾病的勝算比為 4.65（95%信賴區間 3.53-6.13），藥物

性精神病的勝算比則可達 33.3（p＜0.0001）。在健康保險歸人檔 1997-2006 年一百萬人的世代檔中， 精神分裂症及情感性疾患新發生的個案數比率有逐年下降的情況(精神分裂症在 1997 年是 9.97/10000 至 2006 年是 4.46/10000，情感性疾患在 1997 年是 40.11/10000 至 2006 年是 27.38)。而在酒精依賴、酒精濫用、藥物依賴及藥物濫用則是增加。結論：健康保險資料不僅顯示國人藥物濫用的成長快速，有精神疾病的危險較高，應予重視。

關鍵詞：藥物濫用、發生率、盛行率、病例對照研究、國民健康保險資料、精神分裂症、情感性疾患

Abstract

Purpose: This study investigated the trend of drug abuse care in a national representative sample, and estimated the risk for co-occurring mental disorders among abusers. We also investigated schizophrenia and affective disorders and their co-morbidity relationship with alcohol and drug use disorders. **Method:** Using a randomly selected cohort with 200,000 persons in 2000 from the insured in the National Health Insurance (NHI) program, the Department of Health, Taiwan, we assessed the annual prevalence and new claims rates for drug abuse treatment in 1996-2003, and conducted a nested case-control analysis to compare the psychiatric co-morbidity between users and nonusers (1:3). Then, we used another randomly selected sample with 1,000,000 persons from 2005. We assessed the prevalence of schizophrenia, affective disorder, alcohol dependence, alcohol abuse, drug dependence and drug abuse in 1997-2006. We also calculated the relative rate ratio to compare the drug and alcohol use disorders by age and year among the persons having schizophrenia or affective disorder and general population. **Results:** Among 796 persons with diagnosed drug use disorders in the 1996-2003 cohort (72.7% males), 37 persons were teens. There was a 6.8-fold increase of new medical claims for drug use disorders in six years, from

1.76/10,000 in 1997 to 11.9/10,000 in 2003. The corresponding prevalence had a 7.1-fold increase, from 1.92/10,000 to 14.7/10,000, respectively. The case-control analyses showed that abusers were more prevalent than nonusers in mental disorders, particularly for the affective psychosis (ICD 296) (66.6 per 1000 vs. 19.3 per 10000), drug related psychosis (ICD 292) (40.2 per 1000 vs. 1.26 per 1000), schizophrenia (33.9 per 1000 vs. 12.1 per 1000) and alcohol dependence syndrome (30.2 per 1000 vs. 6.7 per 1000). With an overall odds ratio of 4.65 (95% confidence interval (CI) 3.53-6.13) for having psychiatric diseases, the risk to have the drug-associated psychosis was 33.3 folds greater for substance users than for controls. The odds ratio increased to 85.8 if the neurotic disorders were excluded from the data analysis ($p < 0.0001$). In the 1996-2006 cohorts, we found the incidence rates of schizophrenia and affective psychosis declined annually, while the incidence rates of substances dependent and substance abuse were increasing. There was a higher risk of substance use disorders among individuals with schizophrenia or affective disorder. **Conclusions:** There was a rapid increase in substance use disorders in the recent years in Taiwan. Higher prevalence rates of psychiatric co-morbidities among drug abusers and

vise versa underscore the urgent need to target public health prevention.

Keywords：Universal insurance, mental health, case-control study, prevalence, substance abuse, schizophrenia, affective disorder, Taiwan

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第一章　緒論

第一節　研究背景與研究動機

近幾年來，全球成癮藥物的使用有快速的變化。在美國，成癮物質的使用其終生盛行率可達到 26.6%（1-2）。成癮藥物的使用不僅成長快速，可能會同時出現的其他醫療問題的研究也受到重視，像 C 型肝炎(hepatities C virus; HCV)、B 型肝炎(hepatities B virus; HBV)和感染人類免疫缺陷病毒（human immunodeficiency virus, HIV）者（2）。台灣也有相關的發現（3-5）。除了相關身體疾病外，藥物濫用者其他有關精神疾病之共病問題，在文獻中也多有討論（6-12）。而藥物戒治也常發現對同時有精神疾病患者之戒癮效果較差；這也相對影響精神疾病之治療，若未同時發現共病問題，常會影響療效（13-16）。台灣在近年來則鮮有人探討藥物濫用與精神疾病之相關性。而台灣在 1996 年開始全民健保制度後，雖然藥物濫用並沒有納入給付，但是就醫的患者中仍然有物質使用之診斷，且通常就診者多有其他共病症，即是較嚴重之個案。本研究是要利用全民健康保險的歸人檔醫療相關資料探討有關藥物濫用與精神疾病之相關性，以提供臨床及公共衛生措施參考。

第二節　研究的重要性

藥物戒治時常發現，對同時有精神疾病的患者之戒癮效果較差，相對地，也影響精神疾病之治療，沒有同時發現共病常會影響療效（13-16）。在國外的文獻中發現大約半數的藥物使用患者有精神疾病共病之危險（10,11）。精神疾病合併物質使用的比率也很高（17），而且會影響疾病之預後（13-16）。台灣目前除了 HIV、HBV 和 HCV 的探討外，在藥物濫用與精神疾病之共病症上則鮮少探討。我們可借此研究先瞭解台灣物質濫用與精神疾病共病之趨勢與相關性，以提供公共衛生及臨床照顧上之參考。

第三節　研究目的

本研究利用國家衛生研究院自承保抽樣檔建立的全民健康保險歸人檔，1996-2003 年 200,000 人的世代檔的資料，用以分析 1996-2003 年間因藥物濫用接受門診和住院治療之年代盛行率及發生率。以病例對照研究設計，比較物質使用疾患者與未使用者間之精神疾病之共病情形及勝算比。進一步分析 1997-2006 全民健康保險歸人檔 1,000,000 人的世代檔的資料中精神分裂症、情感性疾患、酒精依賴、酒精濫用、藥物依賴及藥物濫用每年就醫之盛行率及每年新發生之個案數及發生率。並探討精神分裂症及情感性疾患兩種疾病分別在酒精依賴、酒精濫用、藥物依賴及藥物濫用方面與無這兩種疾病者之相對危險性。

第四節　研究問題與研究假設

藥物濫用者的精神疾病的共病率高於對照組。由過去的研究已經知道，藥物濫用者比一般人有較高的精神疾病，精神疾病患也比一般人有較高的藥物濫用現象。究竟是藥物濫用引發精神疾病或是精神疾病誘發藥物使用，仍有爭議。本研究暫不探究其間的相關，但相信藥物濫用者的精神疾病的共病率高於對照組。

第五節　名詞界定

管制藥品：依據「管制藥品管理條例」第三條所稱管制藥品係指下列藥品：一、成癮性麻醉藥品；二、影響精神藥品；三、其他認為有加強管理必要之藥品 。

- 戒斷症狀：當吸毒者一再重複使用壹種或多種藥物，漸漸形成生理依賴性。一旦藥物投與終止或減少時，所產生之非常焦躁、極度不安之身體症狀，且有強烈需要服用藥物之慾望。
- 耐受性：藥品之藥效，因其反覆使用而減弱，為維持原有效果則需增加藥量之現象。
- 共病：兩個疾病發生在同一人身上。

第二章　文獻查證

第一節　藥物濫用的定義

近年來有許多專家學者對藥物濫用提出他们的看法。世界衛生組織(World Health Organization)早在 1969 年將藥物濫用(drug abuse)定義為藥物過度使用，且用量超過一般醫療上的用量（18）。大多認為不當的使用某種物質，且損害個人的健康或功能，甚至影響社會和職業適應，及危害整個社會秩序即為藥物濫用（19-21）。美國「總統麻醉藥物及藥物濫用諮詢委員會」(The President's Advisory Commission on Narcotic Drug Abuse)指出藥物濫用行為應包括：「個人非依專業人員處方而逕自服用藥物、個人以違法方法取得藥物、用藥程度到達危害個人健康或社區安全程度」。此外，美國「全國大麻與藥物濫用委員會」(National Committee on Marijuana and Drug Abuse)定義藥物濫用為：「非基於醫療上的需要，或未依醫師處方而使用藥物，或雖基於醫療上的需要卻過量始用」。世界衛生組織則將藥物濫用界定為：因間斷或持續使用某種藥物所產生的心理、生理依賴與併發症狀（22）。

行政院衛生署管制藥品管理局界定藥物濫用為：1)非基於醫療上的需要而使用的藥物；2)未依醫師處方而使用藥物；3)雖基於醫療上的需要卻過量使用藥物；4)用藥程度達到傷害個人健康或社區安全程度（23）。目前所指的「藥物」同時也包括了其他非醫療用途的違法藥物 (illicit drugs)。依據「毒

品危害防治條例」第二條規定，「毒品，指具有成癮性、濫用性及對社會危害性之麻醉藥品與其製品及影響精神物質與其製品。毒品依其成癮性、濫用性及對社會危害性分為四級；」在其所列的藥品中包含所有非以醫藥及科學目的為用途的藥物，列屬為管制的非法藥物如麻醉藥品、影響精神物質及其製品等皆視為使用毒品（24）。

因此廣義來說， 藥物濫用即是施用法律規定會引起濫用之「毒品」，而這些被濫用的「藥物」如強力膠及其他吸入劑(inhalant)等；因並不是均屬藥物，故有「物質濫用」(substance abuse)一詞的稱呼，但國內仍較普遍使用「藥物濫用」一詞稱之（25）。

美國出版的精神疾病診斷及統計手冊第四版(Diagnostic and Statistical Manual of Mental DisorderⅣ;DSM-Ⅳ)將物質分為大麻，安非他命，鴉片類等 11 類，並定義物質濫用：為一種適應不良的物質使用模式，導致臨床上重大的損害或痛苦，若在同一年期間內出現下列各項中一項(或一項以上) ，且症狀從未符合同一物質的物質依賴標準，即為物質濫用:(1)一再的物質使用，造成無法實踐其工作，學業，或家庭的主要角色責任；(2)在物質使用對身體有害的情況下，仍繼續使用此物質；(3)一再捲入與物質使用關聯的法律糾紛；(4)縱然由於物質使用的效應已持續或重複造成或加重此人的社會或人際問題，仍繼續使用此物質（26）。此即藥物濫用較狹義的定義，必須符合上述的診斷標準才能稱之。同時在 DSM-Ⅳ中也有針對物質依

賴(substance dependence)明確的作出定義：一種適應不良的物質使用模式，導致臨床上重要的損害或痛苦，若於同一年期間內出現下列各項中三項以上，即為物質依賴：(1)耐受性；(2)戒斷症狀，因重複使用某種藥物致使當很快地減少或停止使用該藥物時，所產生的種種明顯生理症狀的情形；(3)此物質之攝取常比此人所意願更大量或更長時期；(4)對戒除或控制此物質使用有持續意願，或多次不成功的努力；(5)花費許多時間於取得此物質的必要活動，使用此物質，或由物質作用恢復過來；(6)因物質使用而放棄或減少重要的社會，職業或休閒活動；(7)縱然已知道自己已有持續或重複發生的身體或心理問題，即可能是物質使用所造成或加重，此人仍繼續使用此物質（26）。

目前台灣就精神科的診斷是依據 DSM-Ⅳ，而在臨床上因配合健保局的分類，故將診斷以國際疾病分類碼第九版(ICD-CM-9)上傳給健保局。故本篇文章中是根據 DSM-Ⅳ及國際疾病分類碼第九版(ICD-CM-9)做依據來做分析。ICD code 303 是指有酒精依賴或中毒時之診斷；ICD code 304 是指藥物依賴之診斷；而 ICD code 305 則包含酒精及藥物濫用，可利用細分碼區分酒精或藥物濫用。

第二節　藥物濫用與精神疾病之共病症

藥物濫用的危害包含個人生理健康和家庭社會的和諧。台灣地區在民

國 85 年度監獄及醫療機構因安非他命、海洛因濫用所耗費之社會成本約達新台幣 104 億 8594 萬元，換算成美元大約 3 億 6793 萬美元，平均每人須負擔的費用約 17.5 美元，雖然此數值加入查緝等成本，但對社會造成健康、治安等的危害也是不容小覷的（27）。Chang 等人（3）在南台灣高雄地區勒戒所及監所的調查，發現藥物濫用者有 67.2%的 C 型肝炎(hepatities C virus; HCV)感染率。在國外也發現藥癮患者 B 型肝炎(hepatities B virus, HBV)和 C 型肝炎感染率，高於非藥癮患者 （2）。HIV 的盛行率更是不能忽視，隨著毒品的注射增加危險性：在泰國可高達 90% （28）。在台灣自 2003 年起靜脈藥癮感染 HIV 者也有大幅增加，2005 年新增個案 3448 人中，毒癮者有 2269 人，佔了有 67%之高（4,5）。除了藥物濫用引起的身體疾病外，成癮藥物引起或共同存在之身心狀況也不容忽視。

藥物濫用中常見有人格疾患(personality disorder)（12）。海洛因使用者以反社會人格為最常見（29），且反社會人格有極高藥物濫用率，治療反社會人格的藥物濫用也效果較差（30），在國外的文獻中也發現增加精神疾病之危險 （6-9）。大約半數的人有共病（10,11）。Kalechistein 發現安非他命使用者比沒有使用者有兩倍的精神照顧使用率及自殺率 （6）。 有文獻報告有半數的 MDMA 使用者有憂鬱、精神病、焦慮等精神問題（16）。安非他命使用者有憂鬱高達 79%、焦慮 76%、妄想 52％、幻覺 44％（32），且因安非他命或鴉片相關的住院患者中有三成有精神病症。而因成癮藥物對精神

心理影響有些與精神病症無法區分，加上鮮少患者因藥物濫用而就醫（7）。甚至於高達七成的藥物濫用及精神疾病共病者未就醫。因此是成癮藥物引起精神疾病，或是使原有的病惡化或提早發生不易確定。但由於精神疾病與藥物濫用的診斷常同時出現（33），而藥物戒治也常發現同時有精神疾病之戒癮效果較差，也相對影響精神疾病之治療，沒有同時發現常會影響療效（13-16）。台灣目前除了 HIV、HBV 和 HCV 的探討外，在藥物濫用與精神疾病之共病症上則鮮少有人探討。

第三節　精神分裂症的定義

精神分裂症（schizophrenia）係指患者在思考、知覺、情感、動作、生活適應等多方面，發生持續性的廣泛性障礙的精神症狀。在美國，精神分裂症的終生盛行率約 1% ，年發生率約 0.5-5.0/10,000（34）。依美國心理疾病診斷及統計手冊（DSM-IV）的分類，其主要症狀如下列（26）：

- 病症特徵--在至少一個月期間呈現下列兩種症狀（但奇異內容的幻想或是批評性或對談性的聽幻覺只要一項即可）：
  - 妄想；
  - 幻覺；
  - 錯亂言語（語言毫無組織、顛三倒四、前後不連貫、脫離現實的言語）；
  - 錯亂行為或僵直行動（思考紊亂，有怪異行為）；

➢ 負性症狀（面無表情、情感平淡、思考或語言貧乏、生活退縮等）

● 社會生活障礙--在一般社會生活，工作及人際關係有明顯且長期性的變化，社會生活程度降低。

● 患病期間至少六個月以上。

● 上述病情並非由其他情緒障礙、智能障礙、自閉症、藥物濫用或其他身體疾病所引起。

第四節　精神分裂症與酒精和藥物使用之探討

精神分裂症患者有高達 65%有物質使用之盛行（35）。在舊金山的精神科住院病人中發現精神病患者有高達 42%有物質濫用的病史尤其是年輕男性，並且會使病情易惡化，預後不佳（36）。精神分裂症患者也是有高自殺率，而有酒精共病症者其危險性較高（37）。物質濫用的改善可讓精神分裂症患者較能適應社會，但持續使用者則較易出現精神病及憂鬱症狀進而影響預後（38）。國外的文獻報告：經過 12 個月對初發的精神分裂症患者早期介入，可以減少物質使用率（39）。在倫敦的一項研究當中發現，初發的精神分裂症患者之酒精使用率比 14 個月後的追蹤率要高，在一開始是 30％，追蹤後降到 15％；大麻則由 32％降到 18.5％。而且持續使用者有病情較嚴重的現象（40）。有些患者使用酒精及 khat 是為了要減少精神病藥的副作用，但他們的濫用卻是增加再住院率的一個危險因子（41）。但大部分的

患者不會老實的告知有關酒精或非法藥物的使用，甚至會高達一半以上不會告知有酒精之使用（42）。

物質濫用對精神分裂症患者的影響，是影響預後，即增加再住院率及自殺率，甚至讓他們較難適應社會生活，但他們可能是為了減輕藥物的副作用等需求而自我用藥。故需要早期評估及介入，以免錯失治療良機。

第五節　情感性疾患的定義

1994 年版的美國心理疾病診斷及統計手冊（DSM-IV）將情感性疾患(affective disorders)改稱情緒性疾患(mood disorders)，以強調此類疾病乃因情緒呈現異常的過高或過低所導致。DSM-IV 中雙極性情緒疾患（bipolar disorders）及重鬱症均屬於 ICD-9-CM 296 的分類。雙極性情緒疾患（bipolar disorders）須包含躁型或輕躁型但可有或沒有鬱型；重鬱症則只要包含鬱型。在美國重鬱症的終生盛行率在女性約 10-25%，在男性約 5-12%，年發生率約 10-15%。而雙極情緒疾患終生盛行率約 1%（43）。其主要症狀，如下述（26）：

（一）躁期症狀：

當躁期發作時，患者至少會持續一週以上，呈現下列 1 或 2 可能的狀態：

1.高昂的情緒，過度的樂觀和自信（有此症狀後仍須有以下 3-8 中至少 3 項）

2.易怒的情緒（有此症狀後仍須有以下 3-8 中至少 4 項）

3.減少對睡眠的需求而且不會感到疲倦

4.自大妄想，膨脹的自我意識

5.身體和心理活動的增加

6.話量多、說話速度快，思考快速和衝動

7.判斷力差，容易分心

8.莽撞而有目的之行為

（二）鬱期症狀：

鬱期發作時，患者至少兩週以上情緒極度低落，在兩個星期中出現五種以上：

1.一天當中大部分的時間都有憂鬱的情緒，而且每一天都是如此。

2.對有趣或好玩的事物失去了興趣，整天如此，天天如此。

3.胃口減弱，造成體重減輕或發育不良。

4.每天都有失眠或是整天沉睡不醒的現象。

5.每天都有心理生理遲鈍或暴躁的情形。

6.每天都有疲憊和精力不足的現象。

7.每天都會覺得自己一無是處，或是有歉疚感。

8.每天感到無法集中精神，無法思考，無法做決定。

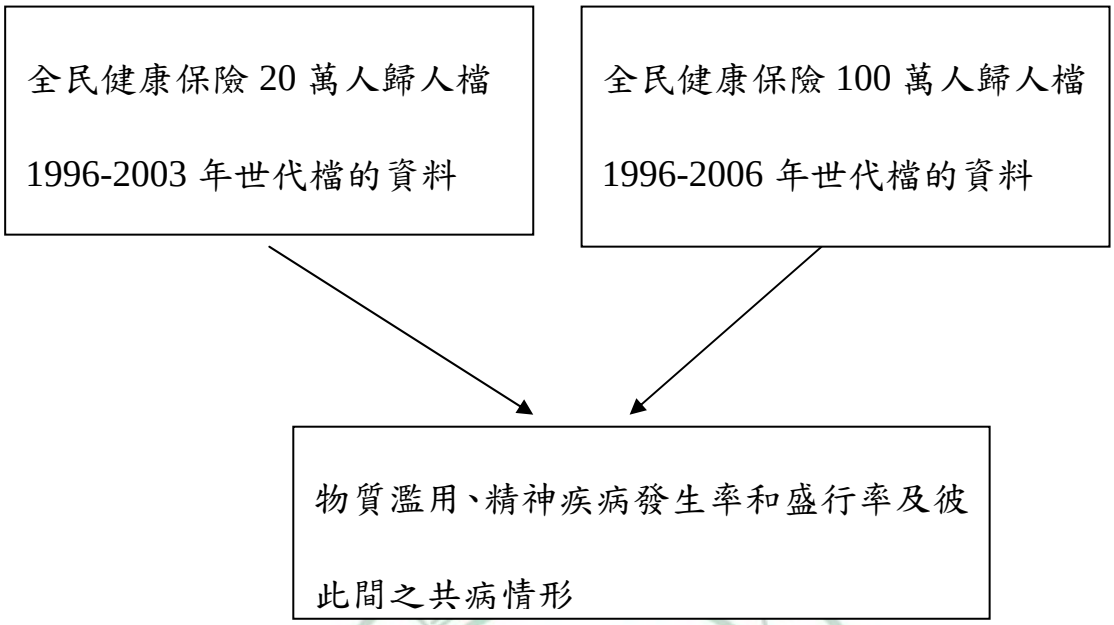
9.死亡想法不斷湧現。

第六節　情感性疾患與酒精和藥物使用之探討

情緒性疾病（mood disorders）包含憂鬱疾患（depressive disorders）及雙極情緒疾患（bipolar disorders），這兩種疾病相對於無病者有高勝算會有物質使用疾患。重鬱症的藥物依賴可高達 9.0，酒精依賴有 3.7；而躁症則分別是 13.9 及 5.7 （44）。而有重鬱症時同時有高比例的人有酒精及藥物使用的疾病，分別可達 21%和 9%（45）。一個在 Zurich, Switzerland 的追蹤研究也發現有躁症症狀者有較高危險性會發生酒精、大麻、苯二氮平(benzodiazepine, BZD)依賴或濫用。而重鬱症有較高危險性會發生 BZD 依賴或濫用（46）。除了酒精及非法藥物外，針對吸入劑使用者的調查發現，情緒疾患的終生盛行率有 48%，一年當中有焦慮或憂鬱的比率高達 38%，尤其以女性為較常見（47）。故情緒性疾病有藥物濫用的共病是不能忽略。因為在紐約的一項研究中發現躁鬱症患者合併物質使用疾患有較高的暴力行為（48）。而且合併有憂鬱及其他藥物濫用的酒精使用者，有較高的急診使用率及住院率（49），而有共病症通常是精神疾病預後不佳的因子，藥物濫用也一樣會影響預後（50,51）。物質濫用也會造成憂鬱症較難治療，症狀較會持續（52）。除了影響症狀外，也會影響職業功能（53）。在加拿大的一個實驗發現，在沒有工作者中有 27%是因為憂鬱、30%是因為焦慮、20%是

因為物質依賴而有 34%是同時存在兩個問題（54）。除了高比率的共病外，在一篇針對輕青少年的研究也發現，憂鬱情緒可當作出現物質濫用的預測因子（55），這是我們不能忽視。

第七節　研究架構



第三章　研究方法

第一節　研究設計

本研究先利用 1996-2003 年 200,000 人承保抽樣歸人檔的世代資料分析 1996-2003 年間因藥物濫用接受門診和住院治療之盛行率，及 1997-2003 年間每年新發生之個案數及發生率。再從新發生的物質使用疾患個案中分析與精神疾病之共病數。之後設計一巢內病例對照研究，以 1：3 的方式抽對照樣本，進行病例對照分析，比較物質使用疾患者與未使用者間之精神疾病之盛行率及勝算比。接著，我们再使用 1996-2006 年全民健康保險歸人檔 1,000,000 人的世代檔，分析精神分裂症及情感性疾患每年就醫之盛行程度及每年新發生之個案數及發生率。並探討這兩種疾病分別有與酒精依賴、酒精濫用、藥物依賴或藥物濫用共病之相對危險性。本研究將後二者合併稱為藥物使用。

第二節　研究對象

一開始我们使用 1996 至 2003 年全民健康保險歸人檔，歸人檔是以 2000 年承保人口中隨機抽出 200,000 人，回溯他們從 1996 年至 2000 年的就醫資料，之後追蹤至 2003 年。另外一個母群體是來自 1996 至 2006 年全民健康保險歸人檔，這個檔是以 2005 年承保人口中隨機抽出 1,000,000 人，回溯

他們從 1996 年至 2005 年的就醫資料，之後追蹤至 2006 年。

物質使用疾病及精神疾病是根據國際疾病分類法第九版（ICD-9-CM）及門診疾病傷害與牙醫分類（A-code）所定。包含住院及門診病患中主診斷或次診斷。

第三節　研究工具的擬定

全民健康保險歸人檔由國家衛生研究院所提供，為了利用健保資料作為研究材料，國家衛生研究院先後抽樣建立了兩組全民健康保險歸人檔，一組為 20 萬人的世代檔，另一組為百萬人的世代檔，本研究包含住院及門診病患資料。且扣除重複病人及 1996 年新發生之個案數，計算各年的新就醫人數及人口數，進而估算各年發生率。

第四節　資料統計與分析

200,000 人的世代檔的資料，依照編年方式，先計算 1996-2003 每年的物質使用人數及盛行率，扣除 1996 年的病例和每年重複就醫的病人數後，可以計算 1997-2003 年間每年新就醫的人數和新就醫率，我們認為此新就醫率和發生率相近。由於物質使用及精神疾病均具年齡差異，盛行病例的精神疾病共病分析，分年齡(＜20，20-29，＞29 歲) 分層分析病例組和對照組

的共病盛行率，比較病例組和對照組的共病盛行率後，我們選出藥物相關精神病（drug related psychosis）、精神分裂症（schizophrenia）、情感性精神病（affective psychosis）、精神官能症（neurotic disorder）、人格違常疾患（personality disorder）和酒精依賴等計算其勝算比，並以年齡、性別及人口密度較正。

1,000,000 人的世代檔的資料分析，先計算 1996-2006 年度的精神分裂症、情感性精神病、酒精依賴、酒精濫用、藥物依賴和藥物濫用的盛行率，在計算扣除 1996 年及逐年的盛行數後計算各年的發生率。其次分析精神分裂症和情感性精神病的性別和年齡別發生率。由於物質使用及精神疾病均具年齡差異，且有未成年、停經、好發年齡及老年人口目前是定義為大於 65 歲，故分年齡(＜20，20-29，30-44，45-64，＞=65 歲) 分層分析。接著分析有這兩項病症分別與沒這兩項病症的酒精和藥物使用者的年齡別和性別共病發生率，並分別計算精神分裂症病例和情感性精神病病例對無此二病症一般人口之酒精或藥物使用發生率比值。

本研究探討各種病症之 A CODE 及 ICD-9-CM 對照如下：

1996-2003 年 200,000 人承保抽樣歸人檔的世代資料：

1. 藥物使用疾患(drug use disorders)：

A-code 216、ICD code 304、ICD code 304。

2. 分析精神疾病（ICD code 290-319）分別如下：

- 老年及初老年器官精神狀態（Senile and early senile psychotic condition）ICD code 290
- 酒精性精神病（Alcoholic psychosis）ICD code 291
- 藥物性精神病（Drug related psychosis）ICD code 292
- 暫時性器質性精神病態（Transient organic disorder） ICD code 293
- 其他器質性精神病態，慢性（Other organic brain syndrome，chronic） ICD code 294
- 精神分裂症（Schizophrenia）ICD code 295
- 情感性精神病（Affective psychosis）ICD code 296
- 妄想狀態（Paranoid state）ICD code 297
- 其他非器質性精神病（Other and unspecified reactive psychosis） ICD code 298
- 源於兒童期之精神病（Psychosis with origin specific to childhood）

ICD code 299

- 精神官能症（Neurotic disorder）ICD code 300
- 人格違常（Personality disorder）ICD code 301
- 性心理變態及疾患（Psychosexual disorder）ICD code 302
- 酒癮徵候群（Alcohol dependence syndrome）ICD code 303
- 心因性引起生理功能障礙（Psycho-physiological malfunction）

  ICD code 306
- 他處未歸類之特殊症狀或徵候群（Other and unspecific special symptoms and syndromes）ICD code 307
- 急性壓力性反應（Acute reaction to stress）ICD code 308
- 環境適應障礙（Adjustment reaction）ICD code 309
- 他處未分類之憂鬱性疾患（Depression, not elsewhere classified）

  ICD code 311
- 兒童期過動徵候群（Hyper kinetic syndrome in childhood）

  ICD code 314
- 特殊發展遲滯（Other specified delays in development）ICD code 315
- 精神因素，伴存於他處已歸類之疾病者（Psychotic factors associated with diseases classification）ICD code 316

- 輕度智能不足（Mild mental retardation）ICD code 317
- 其他特定智能不足（Other specific mental retardation）ICD code 318
- 未明示之智能不足（Unspecific mental retardation）ICD code 319

1996-2006 年全民健康保險歸人檔 1,000,000 人的世代檔，

精神分裂症（Schizophrenia）A code 211，ICD code 295；

情感性精神病（Affective psychosis）A code 212、ICD code 296。

酒精依賴（alcohol dependence）A code 215、ICD code 303、

酒精濫用（alcohol ）ICD code 305.00、ICD code 305.000、 ICD code 305.1、ICD code 305.02、ICD code 305.03；藥物依賴 A code 216、ICD code 304；藥物濫用 ICD code 305.2-305.9。

第四章　研究結果

第一部分 全民健康保險歸人檔 1996-2003 年 200,000 人的世代檔的資料。

從 1996 年隨機選取 189,999 歸人檔資料世代資料，分析藥物濫用的盛行和發生率，我們發現有 796 人被診斷藥物濫用疾患（表 1）。從 1997 年的新個案發生率 1.76/10,000 增加到 2003 年的 11.9/10,000，有 6.8 倍的增加；其盛行率則由 1997 年的 1.92/10,000 增加到 2003 年的 14.7/10,000。就所有病例以 1：3 的方式隨機抽對照樣本之巢內病例對照研究發現，物質使用疾患者比非物質使用者有較高之精神疾病盛行率，尤其是情感性精神病（ICD 296），藥物濫用疾患者和未使用者的盛行率分別是 40.2/1000 和 1.26/1000；精神分裂症（ICD 295）共病的盛行率分別是 33.9/1000 和 12.1/1000；酒精使用共病疾患高達 30.2/1000 而未使用者為 6.7/1000；也發現藥物濫用者有較高的人格疾患（personality disorder）共病（表 2 和表 3）。表 4 顯現較正人口密度之後藥物濫用者有精神分裂症的勝算比是 2.85(95%信賴區間為 1.68-4.85)，情感性精神病則是 3.64(95%信賴區間 2.43-5.46)，多變項分析在排除官能性疾病後則是 9.12(95%信賴區間 4.81-17.3)；人格疾患的勝算比是 7.33(95%信賴區間 2.57-20.9)。包含藥物引發之精神病、其他器質性精神病、精神分裂症、情感性精神病、人格疾患、酒精依賴及環境適應障礙之整體勝算則為 4.65(95%信賴區間 3.53-6.13)（表 5）。

第二部分 全民健康保險歸人檔1996-2006年1,000,000人的世代檔的資料。

我們發現這歸人檔1,000,000人口的精神分裂症盛行率由1996年的33.1/10,00 增加到2006年的為48.8/10,000；情感性精神病則由36.2/10,000增為88.3/10,000；酒精依賴也從4.22/10,000增到到13.27/10,000；酒精濫用由1.91/10,000增到6.63/10,000；藥物濫用從0.19/10,000增到1.86/10,000(表6)。而精神分裂症、情感性精神病、酒精依賴、酒精濫用、藥物依賴與藥物濫用從1997年至2006年的十年間平均新發生個案率則分別是6.72/10,000、31.47/10,000、6.97/10,000、2.61/10,000、1.57/10,000及1.09/10,000（圖1，表7)。由圖1我們可看出精神分裂症的發生率有下降的趨勢，情感性精神病則在1999年後漸趨平穩，而酒精濫用則有上升之現象。藥物依賴與藥物濫用的發生率則略上升。

全歸人檔人口的性別及年齡分層分析顯示，男性精神分裂症新發患者在20-29歲時達到高峯為10.7/10,000，而女性則隋年齡增加而持續增加；男女的總發生率相近，分別為7.0和6.7/10,000（表8)。情感性精神病新就醫率，男女兩性人數均隋年齡增加而增加， 65歲以上男性達69.2/10,000，女性更高為85.6/10,000，兩性合計平均發生率為33.9/10,000（表9)。圖2顯示情感性精神病的發生不論哪個年齡層均遠高過其他精神病。表10說明精神分裂症患者和對照的年齡別共病發生率，由表10可看出男性的精神分裂

症患者中有相當高的比率有酒精依賴、酒精濫用、藥物依賴與藥物濫用的共病症，相對無精神分裂症患者，藥物濫用的危險性比在 20 歲以下者可高達 419.0（表 12）。酒精使用共病以 20-29 歲年齡層相對危險性較高；藥物依賴與藥物濫用則以 20 歲以下者相對危險性較高：藥物依賴與藥物濫用分別為 361.8 和 419.0，隨年齡遞減（圖 3）。到 65 歲以上的相對危險性分別為 28.1 和 69.5（表 11）。女性的精神分裂症患者有酒精依賴、酒精濫用、藥物依賴與藥物濫用的共病症的比率比男性患者低（表 11）；她們的酒精依賴、藥物依賴與藥物濫用相對危險性以 20 歲以下為最高；酒精濫用危險則以在 20-44 歲間最高（表 12）。一般而言，情感性精神病患者的物質使用發生率較精神分裂症患者的低（表 13，14）。情感性精神病有酒精依賴、酒精濫用、藥物依賴、藥物濫用的共病症的年齡分層分析結果顯示，不管是男性或女性，以 20 歲以下者危險性為最高（表 15）。

第五章討論

台灣在 1996 年開始實施的全民健保制度，雖然不包含監獄中之受刑人，而且戒癮治療並不包括在給付範圍內，但一開始即有百分之九十的納保率，至 2003 年納保率高達百分之九十六。故國家衛生研究院利用健保資料建立的全民健康保險歸人檔，如 1996-2003 年 200,000 人的世代檔的資料，及 1996-2006 年 1,000,000 人的世代檔的資料，均為提供醫療效應等研究之好資料。我們利用此資料分析 1996-2003 年及 1996-2006 年間接受治療的個案。藥物濫用並沒有納入給付、屬於犯罪行為的關係，而且在社會上是有汙名，唯有較嚴重的個案或有共病症者才會就醫。Watkins 等發現不超過 3 成的藥物濫用者有尋求精神醫療的照護（33）。而全民健康保險歸人檔的資料在藥物濫用部分的代表性和完整性可能低估，但由於其投保率高達 96%，所記載的資料一般而言代表國人的就醫照護的整體，完整性及代表性很高，因此可做為醫療照護的研究素材。故在藥物濫用方面仍可觀察其趨勢。

我們從研究中發現，從 1997 年至 2003 年就醫者中新增有藥物使用問題者有 6.8 倍的成長，1997 年有 34 人(發生率是 1.92/10,000)；2003 年有 230 人 (發生率是 14.7/10,000)。但此數字在台灣仍有可能低估，因為並非所有物質使用者均會使用健康照護系統，在研究中所收納的個案大多是有其他共病症的患者。在美國的一項流行病學研究中發現（8）有 72% 的藥

物濫用者至少有一個精神疾病的共病。我們的結果發現藥物濫用者的精神疾病的共病率是 53.1 %。推估這原因可能是因為精神疾病的共病就醫者少於因身體疾病而前來就醫，或是因為民眾對精神疾病症狀的隱瞞，還是醫療照護系統並沒有留意到精神疾病的共病現象，以至於低估了精神疾病的共病率。有物質使用者比非使用有較高的比率會因為精神疾病使用照護系統（9)。這顯示有物質使用者發生精神疾病的機會較高。大部分有共病者並未就醫，美國一項研究發現有一半以上的人沒有接受治療（10)。

我們發現物質使用者有精神分裂症比一般人的勝算比是 2.8，在調整人口密度及排除精神官能症後的勝算比是 5.94，與 Regier 發現物質使用者有精神分裂症比一般人的勝算比 4.6 稍高。在我們的結果中也顯現有較高危險有情感性精神病，與精神分裂症均屬於重大精神疾病，這與國外的研究相符合（4-6)。精神官能症在結果中並沒有增加危險性，甚至會降低，這與國外的研究不一致。美國一項流行病學研究發現焦慮也會增加使用物質的比率（9)。可能是精神官能症在台灣的健保系統中被低估，而低估的原因可能是未就醫、自我用藥、未被合理診斷等因素。有物質使用者在含精神分裂症、情感性精神病、藥物引發的精神病、器質性精神病、人格疾患、酒精依賴及環境適應障礙等的整體勝算比是 4.65。在人格疾患的勝算比 8.56（95% 信賴區間 2. 71-27.0）與國外的研究相近（12)。

我們由 20 萬人的的歸人檔發現與重大精神疾病，如精神分裂症(A 211

or ICD 295)及情感性疾患(A212 or ICD 296)在藥物濫用人口中的共病率很高，所以我們進一步分析 1997-2006 全民健康保險歸人檔 1,000,000 人的世代檔的資料。

歸人檔全人口精神分裂症的年均發生率是 7/10,000，與美國的年發生率 0.5-5/10,000（34）比相對偏高，而年均發生率較高的原因可能是全民健康保險實施後前幾年就醫率會高於一般的發生率之故。而盛行率較低，低於百分之一，可能是就醫率偏低之故，文獻也有提到精神分裂症的就醫率約 5 成（35）。國人情感性疾患的盛行率有逐年增加的情形，代表民眾就醫的情形改善。酒精依賴、酒精濫用、藥物依賴和藥物濫用的盛行率也有增加之情形，因為健保只給付一般疾病照護病不包括戒癮治療，故來就醫者多有其他急性或慢性的疾病，有些未使用者可能會低估。而增加的趨勢則有可能是健保是全民保險，故長期下來累積的個案推測應該是逐漸增加，之後達到一個水平，另外一個可能是長期使用藥物或酒精後可能有其他的共病症而前來就醫的機會增多。

分析精神分裂症和情感性精神病的性別和年齡別發生率，發現男性精神分裂症較高比率發生在 20-29 歲最高，女性則有較晚發之趨勢，這與國外的趨勢相近（34）。情感性精神病就醫人口有偏高的現象，可能與延遲就醫的情形相關（56）。或是疾病原本的好發年齡即較晚。接著分析有這兩項疾病的人，分別與沒這兩項病症者，比較其有酒精和藥物使用的年齡別和性

別的共病發生率及比值，這兩種疾病的明顯高於一般無此病的投保人口，與國外的研究相符合（35,43-45）。但因來就醫者多有疾病才會前來，故可能高估其危險比，但因資料含括其他疾病之就醫，故仍可當作一個參考。

研究限制

這個研究有幾個限制。因為藥物濫用是社會所不允許，且非法藥物的使用更是犯罪行為，所以大部分的民眾不會主動告知醫護人員，除非有相關的疾病，或是有主動詢問。這可能造成本研究對物質使用疾患有所低估。更何況全民健保的納保人口中並沒有包括監獄中的受刑人，而且對單純戒癮的照護也沒有給付，這也是會造成低估的原因。另外，全民健保局的資料來源的診斷是來自於不同的醫療院所不同的專科醫師，對物質使用疾患和精神疾病的診斷可能有不同的態度和看法，尤其是較輕微的精神官能症。這與訪談式調查的研究不同，也會使得本研究會有所偏差。也因為全民健保沒有給付單純戒癮的照護，會收納至本研究的人可能都是有其他疾病就醫者，可能也有較多的比例有因藥物或酒精之共病症的問題，這會造成我們對精神疾病共病的高估。

第六章　結論與建議

第一節　結論

我們的研究發現，近幾年來台灣在物質使用人口增加快速，我們也發現物質使用者中的精神疾病共病率明顯的比一般人口高。精神分裂症及情感性疾病的就醫率因全民健保實施後有逐漸增加的現象，但與國外的盛行率比較起來，顯然有低估的現象。但由我們的研究仍可發現精神分裂症及情感性疾病在酒精依賴、酒精濫用、藥物依賴和藥物濫用的發生率上高於一般無病的人口。雖然我們無法從本研究中去探討彼此的因果關係，我們仍須注意物質使用者與精神疾病的共病現象，以減少治療的困難性並在臨床上做適當的處理。且因為目前對精神疾病的診斷及照護仍可能少於實際的盛行率，也提醒我們需要對民眾的精神健康多留意並給予適當的協助。

第二節　應用與建議

我們從本研究發現在台灣物質使用疾患與精神疾病有高度密切的相關，由於共病現象會影響治療的策略及效果，在臨床上我們須注意這個情形，以減少治療的干擾因子並在臨床上做適當的處理。目前對精神疾病的診斷及照護仍可能少於實際的盛行率，在公共衛生上可能需要對民眾的精神健康衛教，減少汙名化的現象，鼓勵民眾留意精神衛生並尋找適當的協助。目

前我們無法從本研究中去探討物質使用疾患與精神疾病彼此的因果關係，將需要進一步的研究來探討。

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圖表

Table 1. The prevalence and incidence of drug use disorders identified from the National Health Insurance cohort data in Taiwan, 1996-2003.

Year	Population size	Prevalence n (rate per 10000)	New claims n (rate per 10000)
1996	189999	66(3.47)	
1997	192724	37(1.92)	34(1.76)
1998	195050	62(3.18)	56(2.87)
1999	197486	100(5.06)	86(4.35)
2000	200000	104(5.20)	86(4.30)
2001	199495	113(5.66)	86(4.31)
2002	198989	180(9.05)	152(7.64)
2003	193966	286(14.7)	230(11.9)
Total	195964	796	730

Table 2. The prevalence of mental disorders in cases with drug use disorders diagnosed in the National Health Insurance cohort in Taiwan, 1996-2003.

Psychiatric diseases	Age(years) ＜20 N=37 n(rate/1000)	20-29 N=186 n(rate/1000)	＞29 N=573 n(rate/1000)	Total N=796 n(rate/1000)
Senile and early senile psychotic condition	0	0	1(1.75)	1(1.26)
Alcoholic psychosis	0	0	5(8.73)	5(6.28)
Drug related psychosis	2(54.1)	15(80.6)	15(26.2)	32(40.2)
Transient organic disorder	0	2(10.8)	4(6.98)	6(7.54)
Other organic brain syndrome (chronic)	0	4(21.5)	9(15.7)	13(16.3)
Schizophrenia	2(54.1)	7(37.6)	18(31.4)	27(33.9)
Affective psychosis	0	10(53.8)	43(75.0)	53(66.6)
Paranoid state	0	1(5.38)	2(3.49)	3(3.77)
Other and unspecified reactive psychosis	0	1(5.38)	6(10.5)	7(8.79)
Psychosis with origin specific to childhood	0	0	1(1.75)	1(1.26)
Neurotic disorder	0	17(91.4)	76(132.6)	93(116.8)
Personality disorder	0	5(26.9)	7(12.2)	12(15.1)
Psychosexual disorder	0	0	1(1.75)	1(1.26)
Alcohol dependence syndrome	2(54.1)	2(10.8)	20(34.9)	24(30.2)
Psycho-physiological malfunction	1(27.0)	2(10.8)	5(8.73)	8(10.1)
Other and unspecific special symptoms and syndromes	0	10(53.8)	19(33.2)	29(36.4)
Acute reaction to stress	0	1(5.38)	2(3.49)	3(3.77)
Adjustment reaction	0	5(26.9)	3(5.24)	8(10.1)
Depression, not elsewhere classified	0	0	6(10.5)	6(7.54)
Hyper kinetic syndrome in childhood				
Other specified delays in development	0	0	1(1.75)	1(1.26)
Psychotic factors associated with diseases classification	1(27.0)	0	0	1(1.26)
Mild mental retardation	0	0	1(1.75)	1(1.26)
Other specific mental retardation	0	0	2(3.49)	2(2.51)
Unspecific mental retardation	0	1(5.38)	0	1(1.26)
	0	0	1(1.75)	1(1.26)

Table 3. The prevalence of mental disorders identified for controls in the National Health Insurance cohort in Taiwan, 1996-2003.

Psychiatric diseases	Age (years)			Total
	＜20	20-29	＞29	
	N=111	N=558	N=1719	N=2388
	n(rate/1000)	n(rate/1000)	n(rate/1000)	n(rate/1000)
Senile and early senile psychotic condition	0	0	23(13.4)	23(9.63)
Alcoholic psychosis	0	0	8(4.65)	8(3.35)
Drug related psychosis	0	2(3.58)	1(0.58)	3(1.26)
Transient organic disorder	0	1(1.79)	5(2.91)	6(2.51)
Other organic brain syndrome (chronic)	0	3(5.38)	9(5.24)	12(5.03)
Schizophrenia	1(9.0)	7(12.5)	21(12.2)	29(12.1)
Affective psychosis	1(9.0)	9(16.1)	36(20.9)	46(19.3)
Paranoid state	0	1(1.79)	3(1.75)	4(1.68)
Other and unspecified reactive psychosis	0	3(5.38)	12(6.98)	15(6.28)
Psychosis with origin specific to childhood	0	0	0	0
Neurotic disorder	2(18.0)	49(87.8)	259(150.7)	310(129.8)
Personality disorder	1(9.0)	0	4(2.33)	5(2.09)
Psychosexual disorder	0	12(21.5)	0	12(5.03)
Alcohol dependence syndrome	0	3(5.38)	13(7.56)	16(6.70)
Psycho physiological malfunction	2(18.0)	5(8.96)	45(26.2)	52(21.8)
Other and unspecific special symptoms and syndromes	0	20(35.8)	79(46.0)	99(41.5)
Acute reaction to stress	1(9.0)	0	7(4.07)	8(3.35)
Adjustment reaction	0	7(12.5)	3(1.75)	10(4.19)
Other specified non-psychotic mental disorder	0	2(3.58)	6(3.49)	8(3.35)
Depression, not elsewhere classified	1(9.0)	5(8.96)	23(13.4)	29(12.1)
Other conduct disorder				
Unspecific emotional disturbance, in	0	2(3.58)	4(2.33)	6(2.51)
childhood and adolescent	0	0	1(0.58)	1(0.42)
Hyper kinetic syndrome in childhood				
Other specified delays in development	0	0	1(0.58)	1(0.42)
Psychotic factors associated with diseases	3(27.0)	1(1.79)	0	4(1.68)
classification	0	0	3(1.75)	3(1.26)
Mild mental retardation				
Other specific mental retardation	0	2(3.58)	0	2(0.84)
Unspecific mental retardation	1(9.0)	1(1.79)	2(1.16)	4(1.68)
	1(9.0)	1(1.79)	2(1.16)	4(1.68)

Table 4. Odds ratios of psychiatric diseases estimated in nested case-control groups of the National Health Insurance cohort in Taiwan, 1996-2003.

	Drug abuse		Odds ratio (95%CI interval)		
	Yes N=796 n(%)	No N=2388 n(%)	Univariable	Adjusted the density of population	
				Including neurotic disorder	Not including neurotic disorder
Drug related psychosis					
Yes	32(4.0)	3(0.13)	33.3(10.2-109.0)**	33.7(10.3-110.3) **	85.8(11.6-632.8)***
No	764(96.0)	2385(99.9)	1.0	1.0	1.0
Other organic brain syndrome					
Yes	13(1.63)	12(0.50)	3.29(1.49-7.23)*	3.22(1.46-7.10)*	3.67(1.44-9.36)*
No	783(98.4)	2376(99.5)	1.0	1.0	1.0
Schizophrenia					
Yes	27(3.39)	29(1.21)	2.85(1.68-4.85)***	2.83(1.67-4.82)***	5.94(2.94-12.0)***
No	769(96.6)	2359(98.8)	1.0	1.0	1.0
Affective psychosis					
Yes	53(6.66)	46(1.93)	3.63(2.43-5.44)***	3.64(2.43-5.46)***	9.12(4.81-17.3)***
No	746(93.3)	2342(98.1)	1.0	1.0	1.0
Neurotic disorder					
Yes	93(11.7)	310(13.0)	0.89(0.69-1.14)	0.87(0.68-1.11)	
No	703(88.3)	2078(87.0)	1.0	1.0	
Personality disorder					
Yes	12(1.51)	5(0.21)	7.29(2.56-20.8)**	7.33(2.57-20.9)**	8.56(2.71-27.0)**
No	784(98.5)	2383(99.8)	1.0	1.0	1.0
Alcohol dependence					
Yes	24(3.02)	16(0.67)	4.61(2.44-8.72)***	4.50(2.38-8.53)***	6.01(2.80-12.9)***
No	772(97.0)	2372(99.3)	1.0	1.0	1.0
Others/unspecific					
Yes	29(3.64)	99(4.15)	0.87(0.57-1.33)	0.88(0.58-1.34)	1.15(0.67-1.96)
No	767(96.4)	2289(95.9)	1.0	1.0	1.0

*：$p<0.05$, **：$p<0.001$, ***：$p<0.0001$

Table 5. Odds ratios of psychiatric disease (any of drug related psychosis, other organic brain syndrome, schizophrenia, affective psychosis, personality disorder, alcohol dependence syndrome, adjustment reaction) estimated in nested case-control groups of the National Health Insurance cohort in Taiwan, 1996-2003.

Psychiatric disease	Drug use disorder		Odds ratio (95% Confidence interval)
	Yes N=796	No N=2388	
	n(%)	n(%)	
Yes	131(16.5)	97(4.1)	4.65(3.53-6.13)
No	665(83.5)	2291(95.9)	1.0

Table 6. Prevalence of schizophrenia, alcohol and drug use disorders by year in 1997-2006, Taiwan (rate per 10,000)

Year	Schizophrenia		Affective disorder		Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	n	rate	n	rate	n	rate	n	rate	n	rate	n	rate
1996	2790	33.1	3050	36.2	355	4.2	161	1.9	128	1.5	16	0.2
1997	3036	34.7	4911	56.2	511	5.8	51	0.6	120	1.4	17	0.2
1998	3287	37.1	6298	71.1	653	7.4	71	0.8	139	1.6	26	0.3
1999	3476	38.7	5321	59.2	797	8.9	140	1.6	135	1.5	66	0.7
2000	3619	39.7	5207	57.2	889	9.8	208	2.3	172	1.9	103	1.1
2001	3888	41.9	5770	32.1	964	10.4	227	2.4	149	1.6	117	1.3
2002	4170	44.6	6307	67.4	949	10.2	287	3.1	203	2.2	105	1.1
2003	4353	45.7	6885	72.3	1011	10.6	381	4.0	226	2.4	143	1.5
2004	4656	48.7	7816	81.8	1323	13.8	501	5.2	310	3.2	212	2.2
2005	4758	47.6	8776	87.8	1402	14.0	629	6.3	349	3.5	236	2.4
2006	4847	48.8	8776	88.3	1319	13.3	659	6.6	253	2.6	185	1.9

Table 7. Incidence of schizophrenia, alcohol and drug use disorders by year in 1997-2006, Taiwan (rate per 10,000)

Year	Schizophrenia		Affective disorder		Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	n	rate	n	rate	n	rate	n	rate	n	rate	n	rate
1997	872	10.0	3507	40.1	447	5.1	45	0.51	108	1.2	17	0.2
1998	774	8.7	3895	44.0	526	5.9	67	0.76	121	1.4	25	0.3
1999	702	7.8	2753	30.7	599	6.7	133	1.48	107	1.2	63	0.7
2000	604	6.6	2524	27.7	628	6. 9	186	2.04	134	1.5	98	1.1
2001	620	6.7	2566	27.6	662	7.1	190	2.05	107	1.2	103	1.1
2002	595	6.4	2660	28.4	628	6.7	230	2.46	151	1.6	86	0.9
2003	580	6.1	2737	28.8	648	6.8	298	3.13	154	1.6	126	1.3
2004	596	6.2	2876	30.1	842	8.8	375	3.92	219	2.3	177	1.9
2005	497	5.0	3139	31.4	807	8.1	470	4.70	223	2.2	190	1.9
2006	443	4.5	2721	27.4	719	7.2	443	4.46	137	1.4	133	1.3
total	6283	6.7	29378	31.8	6506	7.0	2437	2.61	1461	1.6	1018	1.1

圖 1.

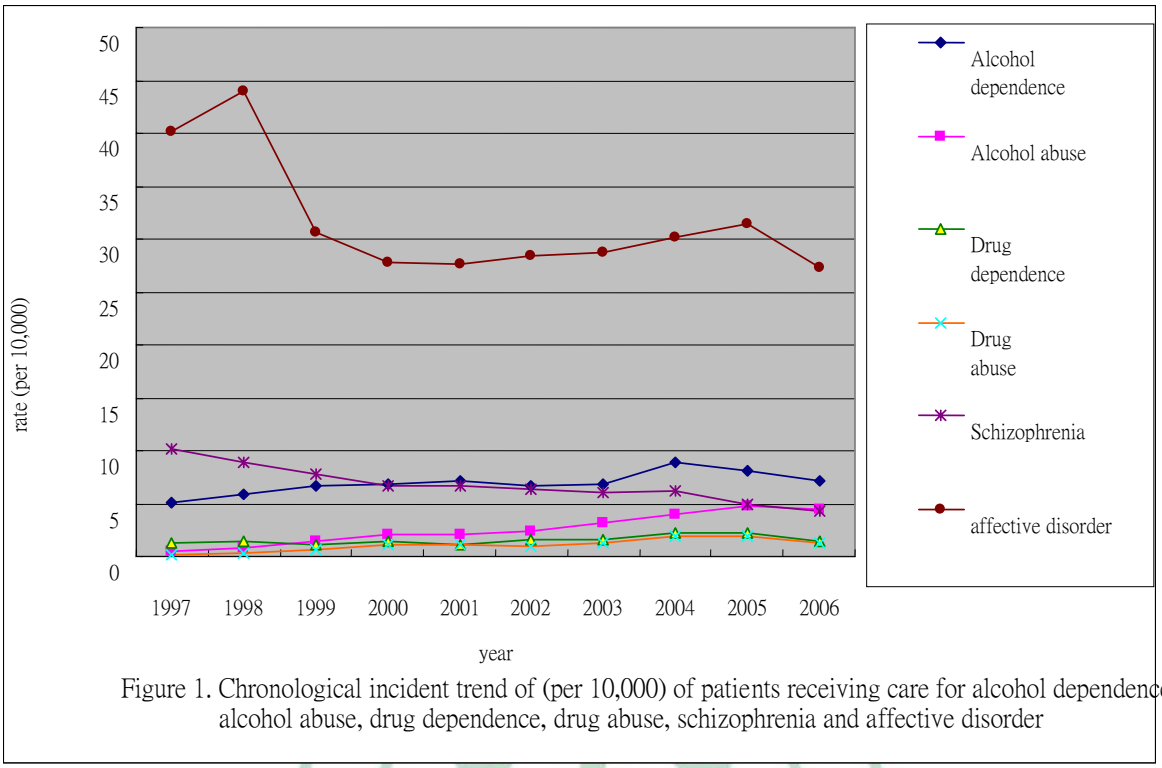

Figure 1. Chronological incident trend of (per 10,000) of patients receiving care for alcohol dependence, alcohol abuse, drug dependence, drug abuse, schizophrenia and affective disorder

Table 8. Incident cases of schizophrenia by age and sex in 1997-2006, Taiwan (rate per 10,000) Frequency Missing = 4

Age	Males		Females		total	
	n（%）	rate	n（%）	rate	n（%）	rate
<20	516 (16.2)	3.7	357 (11.6)	2.6	873 (13.90)	3.1
20-29	848 (26.6)	10.7	640 (20.7)	7.8	1488 (23.70)	9.2
30-44	1079 (33.8)	9.0	946 (30.6)	7.9	2025 (32.25)	8.5
45-64	503 (15.8)	5.9	829 (26.8)	9.2	1332 (21.21)	7.6
>=65	244 (7.6)	7.3	317 (10.3)	9.9	561 (8.93)	8.6
Total	3190 (100)	7.0	3089 (100)	6.7	6279	6.8

Table 9. Incident cases of affective disorder by age and sex in 1997-2006, Taiwan (rate per 10,000) Frequency Missing = 1

Age	Males		Females		total	
	n（%）	rate	n（%）	rate	n（%）	rate
<20	1276 (11.5)	9.2	1694 (9.3)	12.1	2970 (10.1)	10.7
20-29	1699 (15.3)	21.3	3029 (16.6)	36.7	4728 (16.1)	29.2
30-44	3131 (28.2)	26.2	5376 (29.4)	45.1	8507 (29.0)	35.6
45-64	3018 (27.2)	35.2	5661 (31.0)	62.9	8679 (29.5)	49.4
>=65	1976 (17.8)	58.7	2517 (13.8)	78.9	4493 (15.3)	68.5
Total	11100 (100)	24.3	18277(100)	39.4	29377 (100)	31.9

圖 2.

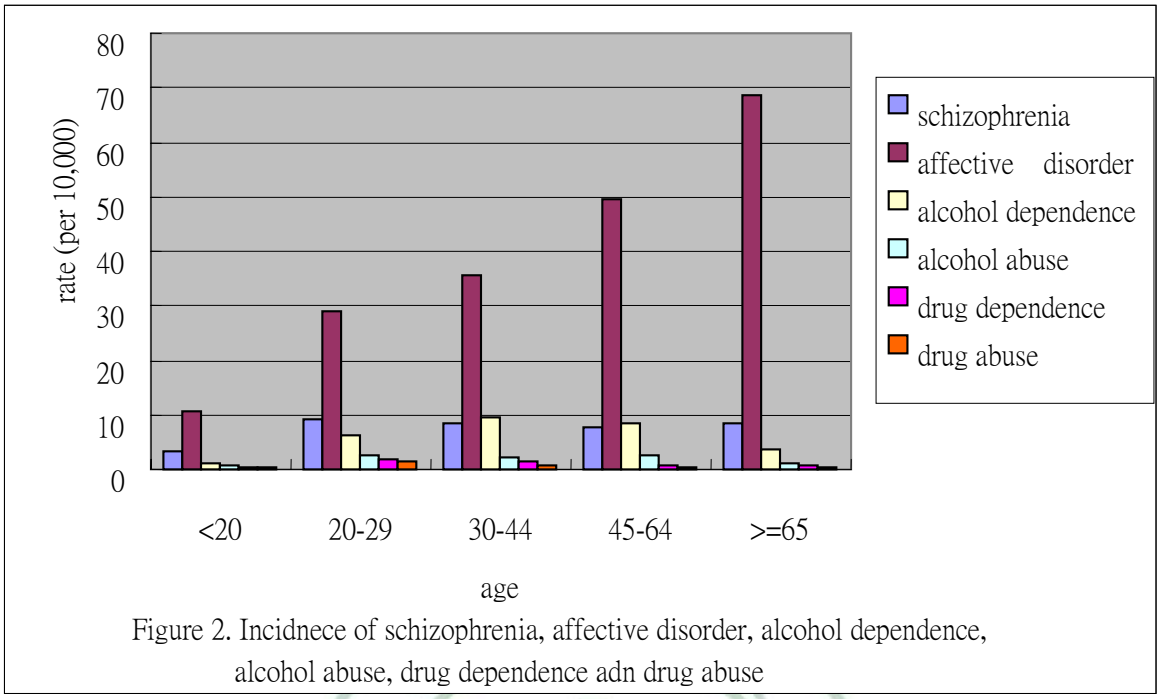

Figure 2. Incidnece of schizophrenia, affective disorder, alcohol dependence, alcohol abuse, drug dependence adn drug abuse

Table 10. Co-morbidity rates (1/10,000) of alcohol dependence, alcohol abuse, drug dependence and drug abuse among schizophrenia cases and non-schizophrenia general population by age in males, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia
<20	116.3	1.4	77.5	0.7	271.3	0.8	310.1	0.7
20-29	1014.2	9.9	448.1	3.6	801.9	3.1	660.4	2.0
30-44	1631.1	17.4	463.4	5.9	454.1	2.3	315.1	1.2
45-64	1232.6	16.8	357.9	5.4	198.8	1.4	178.9	0.7
>=65	204.9	7.2	0	1.9	41.0	1.5	41.0	0.6
Total	1050.2	10.4	344.8	3.5	445.1	1.9	363.6	1.1

Table 11. Co-morbidity rates (1/10,000) of alcohol dependence, alcohol abuse, drug dependence and drug abuse among schizophrenia cases and non-schizophrenia general population by age in females, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia	schizophrenia	Non schizophrenia
<20	140.1	1.2	28.0	0.9	112.0	0.4	168.1	0.4
20-29	375.0	4.6	234.4	2.1	390.6	1.4	359.4	1.2
30-44	401.7	4.4	200.9	1.9	306.6	1.1	222.0	0.8
45-64	217.1	2.2	36.2	0.9	168.9	1.0	24.1	0.5
>=65	63.1	1.0	0	0.4	63.1	0.7	0	0.8
Total	281.6	2.8	123.0	1.3	239.6	0.9	168.3	0.7

Table 12. Co-morbidity schizophrenia cases to general population rate ratios of alcohol dependence, alcohol abuse, drug dependence and drug abuse by age in males and females, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	males	females	males	females	males	females	males	females
<20	84.3	115.8	119.3	31.8	361.8	320.1	419.0	480.2
20-29	102.3	82.1	124.5	114.3	255.4	271.3	326.9	294.3
30-44	93.7	91.5	78.9	108.0	195.7	281.2	260.4	288.3
45-64	73.2	97.4	62.8	40.2	144.1	170.6	252.0	45.5
>=65	28.5	61.3	0	0	28.1	91.4	69.5	0

Table 13. Co-morbidity rates (1/10,000) of alcohol dependence, alcohol abuse, drug dependence and drug abuse among Affective disorder cases and non-affective disorder general insured population by age in males, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder
<20	247.9	1.1	108.4	0.6	247.9	0.6	216.9	0.6
20-29	804.7	9.1	355.2	3.2	516.1	2.9	382.9	1.9
30-44	1299.1	15.8	457.8	5.1	285.4	2.1	181.3	1.1
45-64	656.6	15.8	225.3	4.9	127.0	1.1	61.9	0.6
>=65	169.2	6.7	23.5	1.8	65.8	1.2	28.2	0.5
Total	729.6	9.4	264.1	3.1	233.6	1.5	155.8	1.0

Table 14. Co-morbidity rates (1/10,000) of alcohol dependence, alcohol abuse, drug dependence and drug abuse among Affective disorder cases and non-affective disorder general insured population by age in females, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder	Affective disorder	Non affective disorder
<20	181.4	1.0	140.4	0.7	105.3	0.2	105.3	0.3
20-29	345.7	3.4	176.1	1.5	246.5	0.8	179.3	0.8
30-44	263.5	3.6	114.2	1.6	168.6	0.4	130.0	0.4
45-64	94.4	2.0	37.4	0.8	83.0	0.7	24.4	0.4
>=65	25.6	1.0	18.3	0.3	44.0	0.5	40.3	0.6
Total	182.5	2.3	88.7	1.1	130.9	0.5	89.7	0.4

Table 15. Relative risk of alcohol dependence, alcohol abuse, drug dependence and drug abuse between incident affective cases and general insured population by age in males and females, in 1997-2006, Taiwan

age	Alcohol dependence		Alcohol abuse		Drug dependence		Drug abuse	
	males	females	males	females	males	females	males	females
<20	219.4	185.1	197.2	206.5	420.1	438.8	349.8	421.3
20-29	88.3	101.4	112.4	115.1	176.1	304.3	197.4	224.1
30-44	82.1	73.2	89.4	73.2	135.2	411.3	163.4	317.0
45-64	41.6	47.0	45.8	50.0	115.4	125.8	98.3	56.8
>=65	25.2	26.7	12.8	59.1	54.8	91.6	60.0	73.3
Total	78.0	80.0	86.0	84.43	152.7	242.5	160.6	203.8

圖 3.

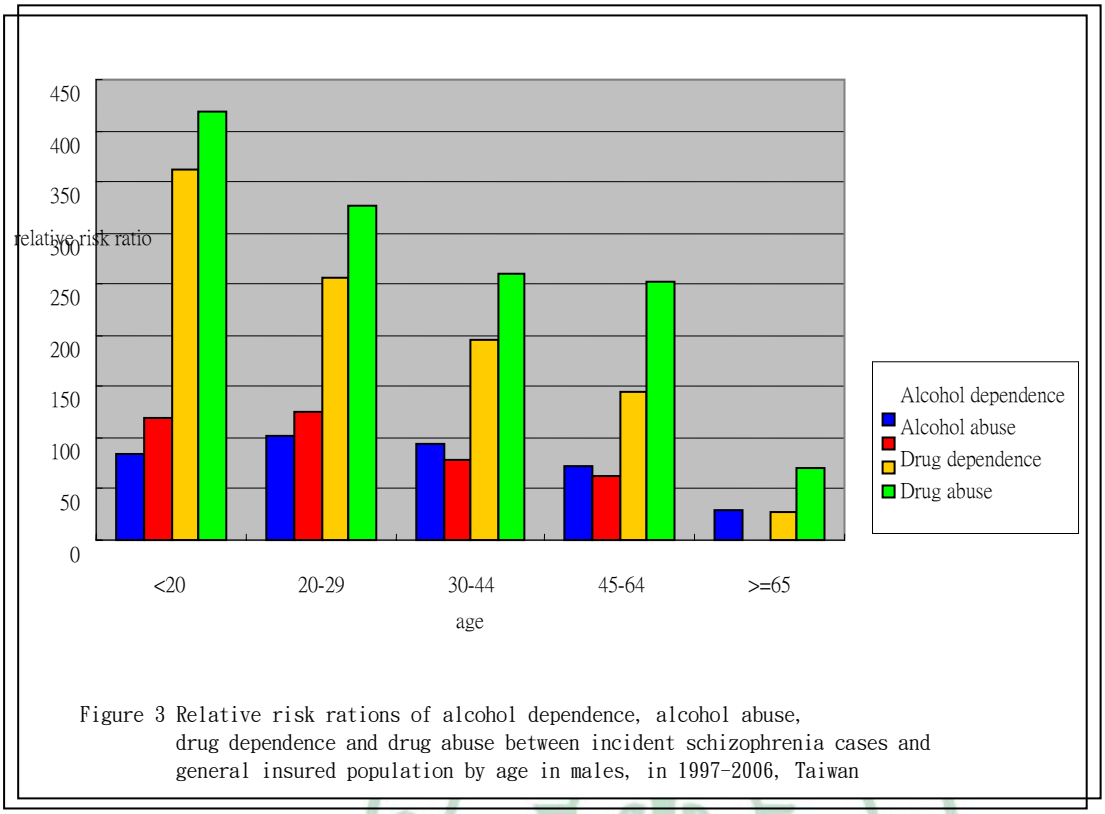

Figure 3 Relative risk rations of alcohol dependence, alcohol abuse, drug dependence and drug abuse between incident schizophrenia cases and general insured population by age in males, in 1997-2006, Taiwan

圖 4.

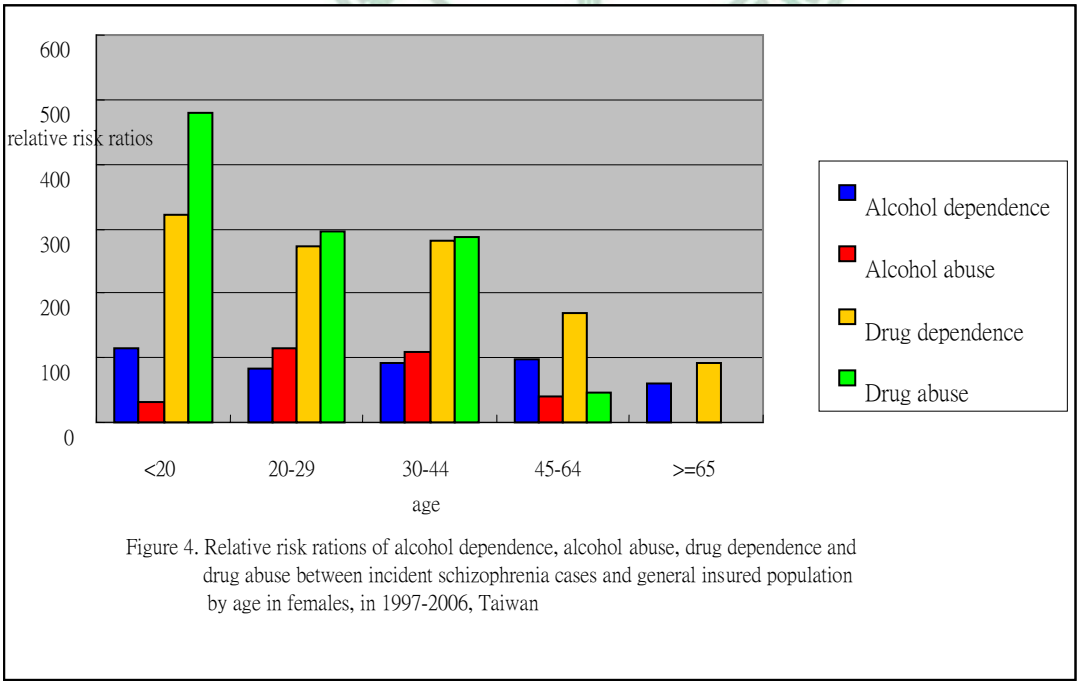

Figure 4. Relative risk rations of alcohol dependence, alcohol abuse, drug dependence and drug abuse between incident schizophrenia cases and general insured population by age in females, in 1997-2006, Taiwan

附錄

1. 表、國民健康保險歸人檔在 1996～2003 年間藥物成癮個案之病例和對照的性別、年齡別、地區別、人口密度別比較

	藥物濫用 N=796	非藥物濫用 N=2388	p 值
	n(%)	n(%)	
性別			1.0
男	579(72.7)	1737(72.7)	
女	217(27.3)	651(27.3)	
年齡(歲)			0.20
平均	39.7	40.6	
標準差	15.4	16.7	
			1.0
＜15	11(1.26)	33(1.26)	
15-19	26(3.27)	78(3.27)	
20-24	89(11.3)	267(11.3)	
25-29	97(12.1)	291(12.1)	
30-34	101(12.8)	303(12.8)	
35-39	105(13.2)	315(13.2)	
40-44	107(13.6)	321(13.6)	
45-49	69(8.54)	207(8.54)	
≧50	191(24.0)	573(24.0)	
分區別 [a]			＜0.0001
北區	363(45.6)	1160(48.6)	
中區	179(22.5)	574(24.0)	
南區	207(26.0)	588(24.6)	
東區	41(5.15)	58(2.43)	
外島	2(0.25)	8(0.34)	
missing	4(0.50)	0	
人口密度 [b]			0.04
高	377(47.4)	1231(51.5)	
中	286(35.9)	844(35.3)	
低	129(16.2)	313(13.1)	

a：北區：臺北縣市、基隆市、桃園縣、新竹縣市、宜蘭縣
　中區：苗栗縣、台中縣市、彰化縣、雲林縣、南投縣

南區：嘉義縣市、台南縣市、高雄縣市、屏東縣
東區：花蓮縣、台東縣
外島：澎湖縣、金門縣、連江縣

b：人口密度高：基隆市、新竹市、臺北縣市、台中市、高雄市、台南市、嘉義市
人口密度中：桃園市、台中縣、彰化縣、雲林縣、台南縣、高雄縣、屏東縣
人口密度低：新竹縣、宜蘭縣、苗栗縣、南投縣、嘉義縣、花蓮縣、台東縣、外島

2. Table 1997-2006 平均人口

Age	Male （%）	Female （%）	total
<20	138266 （30.3）	140266（30.2）	278532（30.3）
20-29	79640 （17.4）	82454 （17.8）	162094（17.6）
30-44	119649 （26.2）	119312（25.7）	238961（26.0）
45-64	85673 （18.8）	89940 （19.4）	175614（19.1）
>=65	33676 （ 7.4）	31908 （ 6.9）	65584 （ 7.1）
total	456904 （100）	463881（100）	920785

Frequency Missing = 170477

Male : female 465831 （49.7）： 472002 （50.3） 937833 （100.00 ）

; missing 3

3. 預投稿之文章

Title: Trend of drug abuse care and risk of psychiatric co-morbidity in an universal health insurance cohort in Taiwan

Abstract

Purpose: This study investigates the trend of drug abuse care in a national representative sample, and estimates the risk for co-occurring mental disorders among abusers. **Method:** Using a randomly selected cohort with 189,999 persons in 1996 from the insured in the National Health Insurance (NHI) program, the Department of Health, Taiwan, we assessed the annual prevalence and new claims rates for drug abuse treatment in 1996-2003, and conducted a nested case-control analysis to compare the psychiatric co-morbidity between users and nonusers. **Results:** Among 796 persons with diagnosed drug use disorders in the cohort (72.7% males), 37 persons were teens. There was a 6.8-fold increase of new medical claims for drug use disorders in six years, from 1.76/10,000 in 1997 to 11.9/10,000 in 2003. The corresponding prevalence had a 7.1-fold increase, from 1.92/10,000 to 14.7/10,000, respectively. The nested case-control analyses showed that abusers were more prevalent than nonusers in mental disorders, particularly for the affective psychosis (ICD 296) (66.6 per 1000 vs. 19.3 per 10000), drug related psychosis (ICD 292) (40.2 per 1000 vs. 1.26 per 1000), schizophrenia (33.9 per 1000 vs. 12.1 per 1000) and alcohol dependence syndrome (30.2 per 1000 vs. 6.7 per 1000). With an overall odds ratio of 4.65 (95% confidence interval (CI) 3.53-6.13) for having psychiatric diseases, the risk to have the drug associated psychosis was 33.3 fold stronger for substance users than for controls. The odds ratio increased to 85.8 if the neurotic disorders were excluded from the data analysis ($p < 0.0001$). **Conclusions:** There was a rapid increase in substance use disorders in the recent years in Taiwan. Higher prevalence rate of psychiatric co-morbidity among drug abusers underscores the urgent need to target public health prevention.

Keywords：Universal insurance, mental health, nested case-control study, prevalence, substance abuse, Taiwan

Introduction

Drug abuse is in a rapid rising trend worldwide, threatening an individual's healthy life, including the risk of mental health related consequence (1-4). Approximately one half patients may have a co-occurring mental disorder, while fewer individuals with mental disorder have the addictive disorders (5, 6). In a forensic sample, Kalechistein et al. found that methyl amphetamine users have two times higher risk than nonusers to seek psychological care and attempt suicide(1).

Persons with dual diagnoses use both mental health and addictive treatment services more frequently than persons with only one disorder. However, most persons received no treatment in the previous year (2, 7, 8). More than 70 percent of individuals with co-occurring mental and substance use disorders receive neither mental health care nor substance abuse treatment. A national survey in the U.S. found that only 8 percent of substance use disorders with co-occurring mental disorders had received an integrated care in the past year (9).

It is not clear whether substance abuse increased the vulnerability to specific co-occurring disorders, most of them are not cause-effect dependent (5). Other environmental conditions may also underlie the co-morbidity without a temporal relation between the substance misuse and the psychiatric illness. People with mental illness also have the access to substances, substance use and mental disorders may share common antecedents (10). However, it is clear that individuals with substance abuse and co-morbidities have more health problems and more difficult to treat than those had no co-morbidity.

Drug abuse in the population of Taiwan is also in rapid rising trend (11). Hepatitis virus C infection was also high among drug abusers in Taiwan (12). To our knowledge, no epidemiologic study has examined the population based drug abuse and the psychiatric co-morbidity. Effective prevention plan requires the epidemiology data on substance use disorders and co-morbid mental health problems. There is a need to investigate the temporal relation between drug abuse and mental health problem. It requires longitudinal data to ascertain causal sequences. At the same time, the power of detecting significance may be limited because of the low prevalence in general population and the involvement of many potentially confounding factors (7).

In this study, we used the database of electronic medical records from 1996 to 2003 generated as a representative health insurance cohort. We investigated the prevalence and incidence of drug abuse in the population, and compared co-occurring psychiatric disorders between populations with and with no drug abuse.

Materials and Methods

Taiwan has reformed all insurance programs to launch a universal insurance program, the National Health Insurance (NHI) since 1996 with a coverage rate of over 90.0%. Almost entire populations (96.2%) were covered in the program as of 2003. Using the electronic data base, the National Health Research Institute (NHRI) in Taiwan has randomly selected from the whole insured population to establish a cohort. We obtained from NHRI this electric cohort file and used the reimbursement claim data to conduct the present study, based on a population of 189,999 persons covered in the insurance program in 1996. Patient information included scrambled identification, gender, and birth date, insured type, code of health care, and code for health care providers, and medical cost covered by the insurance program. The diagnoses were coded using the International Classification of Diseases 9th Revision of Clinical Modification (ICD-9-CM). Any person identified from the insurance reimbursement claims with the diagnoses coded of A 216 (substance abuse), or ICDs 304 and 305 was considered as a case of substance use disorder. As psychiatric disorders, we included ICD codes of ICDs 290-319.

The chronological trends of drug abuse were measured by both the prevalence and new claims rates of drug use disorders during 1996-2003. Overall, there were 796 persons of drug users who met the diagnosis of drug use disorders identified from the insurance cohort at the interval of 1996-2003. We identified 2388 persons with no such disorders as the control group, frequency matched by sex and age. Data analyses measured the chronological trends of drug abuse prevalence in 1996-2003

and incidence in 1997-2003. The prevalence rates of the psychiatric morbidities were calculated and compared between drug abusers and nonusers. The risks of psychiatric diseases among drug users compared with controls were calculated odds ratios (OR) and corresponding 95% confidence intervals (CIs). The psychiatric diseases observed included drug related psychosis, other organic brain syndrome, schizophrenia, affective psychosis, neurotic disorder, personality disorders, alcohol dependence syndrome, and other unspecified symptoms and syndromes. The odds ratios after adjusting the age and the density of population and neurotic disorder were also calculated.

Results

Among 796 persons identified as drug use disorders in the study population, more males (72.7%) were noted and 37 persons were teens. Table 1 shows a 6.8-fold increase in new medical claims for drug use disorders, from 1.76/10,000 in 1997 to 11.9/10,000 in 2003. The corresponding prevalence rates were 1.92/10,000 and 14.7/10,000, respectively representing a 7.6-fold increase. The nested case-control analyses showed that drug users (Table 2) were more prevalent than nonusers (Table 3) in mental disorders, particularly for the affective psychosis of ICD 296 (66.6 vs. 19.3 per 1000), drug related psychosis of ICD 292 (40.2 vs. 1.26 per 1000), schizophrenia (33.9 vs. 12.1 per 1000 for ICD 295) and alcohol dependence syndrome (30.2 vs. 6.7 per 1000 for ICD 291). There was also more prevalent in personality disorders (ICD 301) among drug users (15.1 vs. 2.09 per 1000). In addition, neurotic disorders were prevalent in both groups, slightly higher in nonusers than users.

Table 4 shows the risks for the above described mental health problems, including estimation adjusted for population density. The drug abusers had a very strong estimated risk (OR = 33.3, 95% CI=10.2-109.0) for drug associated psychosis compared with controls. The odds ratio changed little after controlling for population density. But, it increased to 85.8 when the neurotic disorders were excluded from the model. The drug users were also at higher odds of other organic brain syndrome, schizophrenia, affective psychosis, personality disorder, and alcohol dependence syndrome (all $p < 0.05$). The odds ratios were 5.94 increase for schizophrenia and 9.12 for affective psychosis when neurotic

disorders were excluded.

Table 5 shows the overall odds ratio was 4.65 (95% confidence interval 3.53-6.13) for psychiatric diseases including drug induced mental disorder, other organic brain syndrome, schizophrenia, affective psychosis, personality disorder, alcohol dependence, and adjustment reaction.

Discussion

Drug abuse is a stigma in the society. Persons with drug abuse problems generally do not seek help until having other co-occurring problems. Among substance users with two or more mental syndromes, Wu et al. reported that less than 20% seek health services assistance (13). Watkins et al. found from the same population that only 23 percent of these persons have appropriate mental care (9). The U.S. National Comobidity Survey found in 1996 that 38.9% of drug users with dependency may seek mental health services. But only 9.2% of those with no dependency have sought help (4). The study on the 2001 and 2002 National Survey on Drug Use and Health (NSDUH) also showed that, among drug users with serious mental illness, almost one half had not received any treatment (14). Apparently, with no hard investigation, there are disadvantages and bias to overcome in studying on the risk of co-occurring health problems among substance users, particularly in drug abuse.

Using a large longitudinal universal insurance data, this report was the first study on the recent trend of drug use disorders and related psychiatric co-morbidities in Taiwan. Almost 96 percent of population in Taiwan enrolled in the universal insurance program, our study represented the population trend of seeking medical care associated with those have severe drug use disorders. Drug users may not seek medical assistance, particularly in Taiwan. The results showed a rapid increase in drug abuse during recent years. In this cohort, a 6.8-fold increase in new medical claims with drug use disorders was noted, from 34 persons (1.92/10,000) in 1997 to 230 persons (14.7/10,000) in 2003. This increase

might reflect there are more co-morbidity among drug abusers. The Epidemiologic Catchment Area Study estimated that 72% of drug users have at the least one psychiatric disorder co-morbidity (3). We found that the prevalence of co-occurring psychiatric disorders rate was 53.1 % among drug users in this study. The prevalence of drug users could be 0.72/0.53 times greater.

Regier et al. have reported that persons with any substance abuse or dependence had an odds ration of 4.6 for schizophrenia (7). The odds ratios increased to 6.2 among persons with only substance abuse. We have a similar finding in this study. Patients with the psychiatric disease were also likely to have a neurotic disorder. When the neurotic disorder was excluded from the data analysis model, the odds ratio for schizophrenia was doubled to 5.94; affective psychosis and other psychiatric disorders were also increased. These findings were compatible with others studies with high risk of major psychiatric diseases (3-5). This might also reveal more patients with major psychiatric diseases have drug abuse disorders. In addition, this might also reveal that few persons with drug abuse visited physician for help of neurotic disorder. The neurotic disorders were underestimated. However, they failed to find a temporal relation between the substance misuse and psychiatric illness.

Our results showed that the drug use disorders were 4.65 times more likely than non-users at the risk for psychiatric diseases including drug induced mental disorder, other organic brain syndrome, schizophrenia, affective psychosis, personality disorder, alcohol dependence and adjustment reaction. The risk was particularly strong for drug associated

psychosis, with the odds ratio increased to 85.8. Among the psychiatric diseases, drug users were at strong risk for personality disorder, schizophrenia, and other organic brain syndrome.

In our study, there are several limitations. The prohibition of illicit drug use is enforced strictly in Taiwan. Most people might hide this problem when they visited a clinician. This could make this data underestimated the real problems of substance abuse. Our database did not include the persons who were in jail. In addition, NHI does not pay for treatment of substance use disorder unless they have other disorders. Substance-related disorder may not lead them to seek care from physicians until other disorder appears. The prevalence and incidence of substance use disorders was likely underestimated. The study was based on the diagnosis recorded by any kind of specialists. Their diagnostic behavior about substance use disorder and psychiatric diseases might be different. This could influence the accuracy of diagnosis especially on neurotic disorders. But the diagnosis of major psychiatric diseases was most based on the psychiatrists and their attitude was more similar. But we still could show the trend of co-morbidity between substance users and non-users by the sex and age frequency matched nest-case control study. Our study also could not reveal the causal relation regarding specific substance abuse and psychiatric illness (or vice versa). We need the further study to find the causal relation among co-morbidity.

Because NHI program does not reimburse services for abstinence drug abuse, drug users with no co-morbidity may not be included in this study. The risk association measured in our data could be overestimated. But the high co-morbidity rates were compatible with other reports

(reference). There was a high correlation between personality disorder and substance use disorder (15). We also found that there was more personality disorder among drug abusers (ORs 7.33; 95% confidence interval 2.57-20.9). In addition, neurotic disorders were prevalent in both groups, slightly higher in nonusers than users. This is not compatible with the other report (5). We suspect that some patients with neurotic disorders might perform self-medication with illicit drug or alcohol or benzodiazepam. This could let us underestimate the prevalence of neurotic disorders among the persons with substance disorders. This is because most individuals with co-occurring mental and substance use disorders do not seek mental health care or substance abuse treatment (9). Our data could under estimate the prevalence of substance use disorders. There might be some other problems that we did not find. We need to design a further study to evaluate the relationship between mental health problem and substance disorders.

Conclusions

This study reveals a rapid increase in drug use disorders among the population in Taiwan in recent years. We have found strong evidence that high psychiatric co morbidity rate among illicit drug users. We should pay more attention to the mental health problems among the substance users and to the illicit drug use among the patient with psychological problem.

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Table 1.The prevalence and incidence of drug use disorders identified from the National Health Insurance cohort data in Taiwan, 1996-2003.

Year	Population size	Prevalence n (rate per 10000)	New claims n (rate per 10000)
1996	189999	66(3.47)	
1997	192724	37(1.92)	34(1.76)
1998	195050	62(3.18)	56(2.87)
1999	197486	100(5.06)	86(4.35)
2000	200000	104(5.20)	86(4.30)
2001	199495	113(5.66)	86(4.31)
2002	198989	180(9.05)	152(7.64)
2003	193966	286(14.7)	230(11.9)
Total average	195964	796	730

Table 2.The prevalence of mental disorders in cases with drug use disorders diagnosed in the National Health Insurance cohort in Taiwan, 1996-2003.

	Age(years)			
	＜20	20-29	＞29	Total
Psychiatric diseases	N=37	N=186	N=573	N=796
	n(rate/1000)	n(rate/1000)	n(rate/1000)	n(rate/1000)

Senile and early senile psychotic	0	0	1(1.75)	1(1.26)
condition	0	0	5(8.73)	5(6.28)
Alcoholic psychosis	2(54.1)	15(80.6)	15(26.2)	32(40.2)
Drug related psychosis	0	2(10.8)	4(6.98)	6(7.54)
Transient organic disorder	0	4(21.5)	9(15.7)	13(16.3)
Other organic brain syndrome	2(54.1)	7(37.6)	18(31.4)	27(33.9)
(chronic)	0	10(53.8)	43(75.0)	53(66.6)
Schizophrenia	0	1(5.38)	2(3.49)	3(3.77)
Affective psychosis	0	1(5.38)	6(10.5)	7(8.79)
Paranoid state	0	0	1(1.75)	1(1.26)
Other and unspecified reactive	0	17(91.4)	76(132.6)	93(116.8)
psychosis	0	5(26.9)	7(12.2)	12(15.1)
Psychosis with origin specific to	0	0	1(1.75)	1(1.26)
childhood	2(54.1)	2(10.8)	20(34.9)	24(30.2)
Neurotic disorder	1(27.0)	2(10.8)	5(8.73)	8(10.1)
Personality disorder	0	10(53.8)	19(33.2)	29(36.4)
Psychosexual disorder				
Alcohol dependence syndrome	0	1(5.38)	2(3.49)	3(3.77)
Psycho-physiological malfunction	0	5(26.9)	3(5.24)	8(10.1)
Other and unspecific special	0	0	6(10.5)	6(7.54)
symptoms and syndromes				
Acute reaction to stress	0	0	1(1.75)	1(1.26)
Adjustment reaction	1(27.0)	0	0	1(1.26)
Depression, not elsewhere	0	0	1(1.75)	1(1.26)
classified				
Hyper kinetic syndrome in	0	0	2(3.49)	2(2.51)
childhood	0	1(5.38)	0	1(1.26)
Other specified delays in	0	0	1(1.75)	1(1.26)
development				
Psychotic factors associated with				
diseases classification				
Mild mental retardation				
Other specific mental retardation				
Unspecific mental retardation				

Table 3.The prevalence of mental disorders identified for controls in the National Health Insurance cohort in Taiwan, 1996-2003.

	Age (years)			
	＜20	20-29	＞29	Total
Psychiatric diseases	N=111	N=558	N=1719	N=2388
	n(rate/1000)	n(rate/1000)	n(rate/1000)	n(rate/1000)

Senile and early senile psychotic condition	0	0	23(13.4)	23(9.63)
Alcoholic psychosis	0	0	8(4.65)	8(3.35)
Drug related psychosis	0	2(3.58)	1(0.58)	3(1.26)
Transient organic disorder	0	1(1.79)	5(2.91)	6(2.51)
Other organic brain syndrome (chronic)	0	3(5.38)	9(5.24)	12(5.03)
Schizophrenia	1(9.0)	7(12.5)	21(12.2)	29(12.1)
Affective psychosis	1(9.0)	9(16.1)	36(20.9)	46(19.3)
Paranoid state	0	1(1.79)	3(1.75)	4(1.68)
Other and unspecified reactive psychosis	0	3(5.38)	12(6.98)	15(6.28)
Psychosis with origin specific to childhood	0	0	0	0
Neurotic disorder	2(18.0)	49(87.8)	259(150.7)	310(129.8)
Personality disorder	1(9.0)	0	4(2.33)	5(2.09)
Psychosexual disorder	0	12(21.5)	0	12(5.03)
Alcohol dependence syndrome	0	3(5.38)	13(7.56)	16(6.70)
Psycho physiological malfunction	2(18.0)	5(8.96)	45(26.2)	52(21.8)
Other and unspecific special symptoms and syndromes	0	20(35.8)	79(46.0)	99(41.5)
Acute reaction to stress	1(9.0)	0	7(4.07)	8(3.35)
Adjustment reaction	0	7(12.5)	3(1.75)	10(4.19)
Other specified non-psychotic mental disorder	0	2(3.58)	6(3.49)	8(3.35)
Depression, not elsewhere classified	1(9.0)	5(8.96)	23(13.4)	29(12.1)
Other conduct disorder				
Unspecific emotional disturbance, in childhood and adolescent	0	2(3.58)	4(2.33)	6(2.51)
Hyper kinetic syndrome in childhood	0	0	1(0.58)	1(0.42)
Other specified delays in development	0	0	1(0.58)	1(0.42)
Psychotic factors associated with diseases classification	3(27.0)	1(1.79)	0	4(1.68)
Mild mental retardation	0	0	3(1.75)	3(1.26)
Other specific mental retardation	0	2(3.58)	0	2(0.84)
Unspecific mental retardation	1(9.0)	1(1.79)	2(1.16)	4(1.68)
	1(9.0)	1(1.79)	2(1.16)	4(1.68)

Table 4. Odds ratios of psychiatric diseases estimated in nested case-control groups of the National Health Insurance cohort in Taiwan, 1996-2003.

Drug abuse		Odds ratio (95%CI interval)	
Yes	No		
N=796	N=2388	Univariable	Adjusted the density of population

	n(%)	n(%)		Including neurotic disorder	Not including neurotic disorder
Drug related psychosis					
Yes	32(4.0)	3(0.13)	33.3(10.2-109.0)**	33.7(10.3-110.3) **	85.8(11.6-632.8)***
No	764(96.0)	2385(99.9)	1.0	1.0	1.0
Other organic brain syndrome					
Yes	13(1.63)	12(0.50)	3.29(1.49-7.23)*	3.22(1.46-7.10)*	3.67(1.44-9.36)*
No	783(98.4)	2376(99.5)	1.0	1.0	1.0
Schizophrenia					
Yes	27(3.39)	29(1.21)	2.85(1.68-4.85)***	2.83(1.67-4.82)***	5.94(2.94-12.0)***
No	769(96.6)	2359(98.8)	1.0	1.0	1.0
Affective psychosis					
Yes	53(6.66)	46(1.93)	3.63(2.43-5.44)***	3.64(2.43-5.46)***	9.12(4.81-17.3)***
No	746(93.3)	2342(98.1)	1.0	1.0	1.0
Neurotic disorder					
Yes	93(11.7)	310(13.0)	0.89(0.69-1.14)	0.87(0.68-1.11)	
No	703(88.3)	2078(87.0)	1.0	1.0	
Personality disorder					
Yes	12(1.51)	5(0.21)	7.29(2.56-20.8)**	7.33(2.57-20.9)**	8.56(2.71-27.0)**
No	784(98.5)	2383(99.8)	1.0	1.0	1.0
Alcohol dependence					
Yes	24(3.02)	16(0.67)	4.61(2.44-8.72)***	4.50(2.38-8.53)***	6.01(2.80-12.9)***
No	772(97.0)	2372(99.3)	1.0	1.0	1.0
Others/unspecific					
Yes	29(3.64)	99(4.15)	0.87(0.57-1.33)	0.88(0.58-1.34)	1.15(0.67-1.96)
No	767(96.4)	2289(95.9)	1.0	1.0	1.0

*：$p<0.05$, **：$p<0.001$, ***：$p<0.0001$

Table 5.Odds ratios of psychiatric disease (any of drug related psychosis, other organic brain syndrome, schizophrenia, affective psychosis, personality disorder, alcohol dependence syndrome, adjustment reaction) estimated in nested case-control groups of the National Health Insurance cohort in Taiwan, 1996-2003.

Psychiatric disease	Drug use disorder		Odds ratio (95% Confidence interval)
	Yes N=796	No N=2388	
	n(%)	n(%)	
Yes	131(16.5)	97(4.1)	4.65(3.53-6.13)
No	665(83.5)	2291(95.9)	1.0