

# WFOT congress in 2018

## Association between employment outcomes and symptomatic remission in chronic patients with schizophrenia

Session Theme: Mental Health

Presenter: San-Ping Wang

Advisor: Jer-Hao Chang

Date : 2018/05/24

國立成功大學醫學院

College of Medicine, National Cheng Kung University



# Introduction- overview of schizophrenia

Delusions

Blunted affect

Hallucinations

Reduced  
motivation

**EMPLOYMENT  
Opportunities**

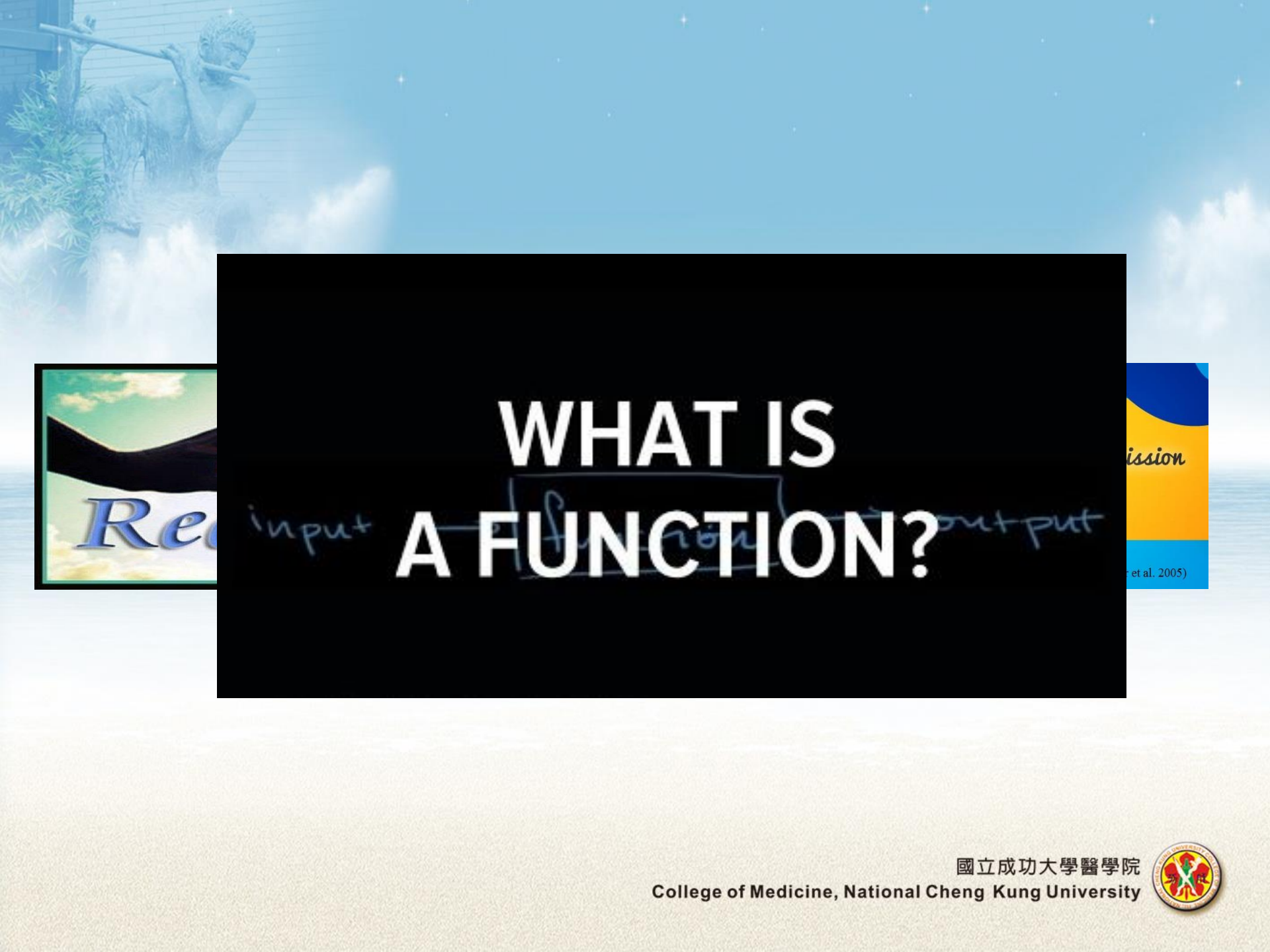
Disorganized behaviors

Poor communication

國立成功大學醫學院

College of Medicine, National Cheng Kung University





# WHAT IS A FUNCTION?

input  $f$  output



# multidimensional functional outcome



Global As  
(Karow et  
Valencia e



Persona

(Dahlan e al., 2014)

(FROGS)  
et al., 2009)



ming

(Organization, 2001)

# About schizophrenia's employment



# The factors related to employment in schizophrenia

- psychotic symptoms/ negative symptoms
- type of antipsychotics
- activities of daily living (ADLs)
- instrumental activities of daily living (IADLs)
- personal and social performance (PSP)
- cognitive impairment
- fear of losing benefits
- stigma and lack of access to employment services
- .....



# Purpose & Hypotheses

## Purposes

longitudinal cohort

- **Employment outcomes** could precisely predict the recovery status on schizophrenia.

## Hypotheses

- The annual cumulative employment duration and income were significantly associated with **symptomatic remission**.

# Research Framework





### **Personal predisposition:**

age, gender, education (yrs),  
age of schizophrenia onset,  
MMSE, types and defined  
daily dose of antipsychotics

### **Psychopathology factors:**

Remission  
PANSS

### **Other factors:**

Initial employment type:  
workshop  
shelter  
supported

### **Mediator variable:**

Basic activities of daily living (BADL):  
Instrumental activities of daily living (IADL):

### **Functional employment outcomes:**

One-/ Two- year after enrollment in this study  
Cumulated work duration (months/per year)  
Cumulated work incomes (NT dollars/per year)



# Method- Participants

Between January 2013 and December 2015 in long-term hospitalized stable adult

Including criteria	(i) aged 20 or older
	(ii) with diagnosis of either schizophrenia or schizoaffective disorder
	(iii) sufficient cognitive and hearing adequacy to complete the questionnaires
Excluding criteria	(i) suffering from acute psychosis that required admission to an acute psychiatric ward
	(ii) incurring a surgical or medical condition that required an acute referral



# Assessment-Psychopathology factors

- The Chinese Version of the **PANSS** is a medical scale used for measuring positive symptoms, negative symptoms, and general psychopathology in patients with schizophrenia( 30 items).
- **Symptomatic remission**: eight core symptoms  
delusions (P1), conceptual disorganization (P2), hallucinatory behavior (P3), blunted affect (N1), social withdrawal (N4), lack of spontaneity (N6), mannerisms/posturing (G5), and unusual thought content (G9).

(Nancy C. Andreasen et al., 2005)



# Assessment- **initial employment type**

(1) the hospital-based workshop

(2) the sheltered employment

(3) supported employment

(Crowther et al., 2001)



# Assessment-mediator variable

- The **Barthel index** is used for evaluating 10 variables describing (feeding, bathing, dressing, toilet use, presence or absence of fecal or urinary incontinence), and mobility (transferring, walking, and climbing stairs).
- The Chinese version of the **IADL** scale is used to evaluate patients' ability to live independently in a community, such as medication management, shopping, transportation, laundry, and social interaction.



# Functional employment outcomes

- defined as
- the cumulative **on-the-job duration (months/per year)** and **incomes (NT\$/per year)**, were determined in the first, and second year after enrollment in this study.



# Statistical analysis

- **Mixed-effects model** analysis

Potential covariates, including symptomatic remission, age, sex, education, type and daily dose of antipsychotics, cognitive function, and initial employment type were controlled

- the Bonferroni method was used for post-hoc multiple comparisons.



# Result-Characteristics of subjects at baseline (N=525)

		Remission (N=124)	Non-Remission (N=401)	
	Total	Mean±SD (N,%)	Mean±SD (N,%)	T/Chi-square
Age	51.8±9.84	49.38±9.54	52.55±9.83	3.17**
Gender (male, %)	343(65.3%)	70(56.5%)	273(68.1%)	5.65*
Education(years)	9.16±3.62	10.7±3.48	8.67±3.53	-5.40***
Age of schizophrenia onset (years)	22.49±6.78	24.22±6.80	21.95±6.69	-3.06**
PANSS	74.32±17.26	57.90±13.40	79.40±15.01	14.29***
P	14.27±4.12	11.97±3.42	14.99±4.07	7.48***
N	22.79±6.49	16.19±4.07	24.83±5.69	18.67***
G	37.26±9.10	29.74±7.12	39.59±8.35	11.86***

**PANSS**: positive and negative syndromes scale; **P**: positive symptom scale;  
**N**: negative symptom scale; **G**: general behavior scale;

國立成功大學醫學院  
 College of Medicine, National Cheng Kung University





# Result-Characteristics of subjects at baseline (N=525)

		Remission (N=124)	Non-Remission (N=401)	
	Total	Mean±SD	Mean±SD	T/Chi-square
Antipsychotics type				0.17
FGA (N, %)	200(38.1%)	48(38.7%)	152(37.9%)	
NC-SGA (N, %)	182(34.7%)	44(35.5%)	138(34.4%)	
Clozapine (N, %)	143(27.2%)	32(25.8%)	111(27.7%)	
Defined daily dose	0.83±0.73	0.72±0.48	0.86±0.79	2.29*
MMSE	24.98±8.76	29.87±3.88	23.46±9.30	-11.03***
Basic ADL	96.68±9.88	98.85±5.74	96.00±10.77	-3.79***
Instrumental ADL	13.13±5.84	17.61±4.35	11.72±5.53	-12.18***
Initial employment type				36.52***
Workshop (N, %)	323(61.5%)	48(38.7%)	275(68.6%)	
Shelter (N, %)	68(13.0%)	23(18.5%)	45(11.2%)	
Supported (N, %)	134(25.5%)	53(42.7%)	81(20.2%)	

**FGA**: first-generation antipsychotics (typical antipsychotics); **NC-SGAs**: second-generation antipsychotics (non-clozapine atypical antipsychotics)

# Result-Regression coefficients of linear mixed effects model in a 2-year follow-up study

Independent variables	cumulative work months	cumulative work incomes
	$\beta$ (S.E.)	$\beta$ (S.E.)
Age	.00 (.01)	-58.58 (41.69)
Gender	-.05 (.26)	-171.29 (803.35)
Male (reference level)		
Education(years)	.06 (.04)	127.85 (126.25)
Antipsychotics type		
FGAs	.20 (.32)	402.96 (991.47)
NC-SGAs	.34 (.31)	46.43 (945.62)
Clozapine(reference level)		
Defined daily dose	.23 (.23)	543.09 (692.10)
MMSE	.01 (.02)	34.35 (56.35)



# Result-Regression coefficients of linear mixed effects model in a 2-year follow-up study

Independent variables	cumulative work months		cumulative work incomes	
	$\beta$ (S.E.)		$\beta$ (S.E.)	
Basic ADL	.01 (.01)		60.45 (51.55)	
Instrumental ADL	.07 (.02) **		260.71 (95.93) **	
Initial employment types				
Workshop	-8.61 (.32) ***		-10901.8 (979.1) ***	
Shelter	.68 (.41)		-6701.3 (1258.3) ***	
Supported (reference level)				
Symptomatic remission	.64 (.32) *		2701.6 (1009.9) **	
Non-remission (reference level)				

Note.  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Basic ADL:** basic activities of daily living; **Instrumental ADL:** instrumental activities of daily living  
Age, sex, education, antipsychotic types, antipsychotic dose, MMSE, and initial employment type were controlled for.



# Discussion

- the significant associations between **symptomatic remission** and the **employment outcomes**
- not comorbid with other major chronic diseases or physical disability
- followed for two years and repeatedly assessed for employment outcomes
- constructed mixed effects models to control for the confounding factors(psychopharmacologic medications...)

• (Bio & Gattaz, 2011; Burns et al., 2007; Charzynska et al., 2015; Dahlan et al., 2014; Schennach-Wolff et al., 2009; Valencia et al., 2015)



# Other variable Effects

- Employment is not only an essential factor in people's ability integration but is also a stepping-stone toward **recovery** for these populations.
- **However,**
- Participants were mostly recruited for their interest/expectations in competitive employment
- The availability of employment services and the benefit systems could also affect job placement
- Labor market conditions of each country or region.



**Thanks for  
your attention**

