Impact of Multiple Behavioral Risk Factors on Health Status Among Chinese Americans

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Introduction

- Tobacco use, risky drinking, physical inactivity, obesity/overweight tend to cluster

- Limited knowledge of these risk factors and health status (HRQOL) among minorities

- Chinese Americans: 2.5 M in US, grown by 50% since 1990

- Underrepresented in health surveys, lack of descriptive information on health indicators and behaviors

Study Aims

1. Describe prevalence of behavioral risk factors among Chinese Americans

2. Describe self-reported HRQOL as measured by SF-12 scores

3. Compare estimates of behavioral risk factors to general U.S. population

4. Test hypothesis that multiple behavioral risk factors are associated with cumulative deteriorations in health

Methods

- Cross-sectional survey data

- Multi-stage probability sample of Chinese in NYC

- Survey informed by focus groups, pilot tested

- In-person interviews conducted in English, Mandarin, Cantonese, and Fukinese

- 2537 representative adults aged 18 to 74 completed the survey

Main Measures

- Outcome variable: SF-12 scores (PCS & MCS)

- Independent variables
    - Smoking: 100 cigarettes in lifetime and currently smoke everyday or some days
    - Risky drinking: >2 alcoholic beverages/day for men; >1 per day for women
    - Physical inactivity: level of activity for recreational purposes and apart from recreation
    - Obesity / overweight: >25 / 23 kg/m^2

Control Measures and Analysis

- Control variables: related chronic conditions, acculturation, proportion of lifetime in the US, sociodemographic variables

- Stata 9.0 weighted survey procedure

- Chi-square tests corrected for survey design

- 5 most prevalent risk factors, compared with U.S.

- Multivariate regression analysis: associations between SF-12 scores and multiple co-occurring risks

Description of Study Sample

- Behavioral risk factors
  - Smoking: 17.7%
  - Risky drinking: 0.93%
  - Physical inactivity: 32.4%
  - Overwgt/obesity: 5.93%

- Health status (SF-12)
  - Physical: 52.8
  - Mental: 50.3

- Chronic conditions
  - HBP: 13%
  - Bronchitis: 6.52%

- Cultural characteristics
  - Foreign-born: 97%
  - Prop. of life in US: 30%
  - Acculturated (linguistic): 22%

- Sociodemographics
  - Female: 45%
  - Age 40-64: 49%
 - $\leq$ HS grad: 65%
  - < $20k income: 49%

Risk Factors by Sample Characteristics

	Cigarette Smoking	Risky Drinking	Physical Inactivity	Overwgt / Obesity
Gender***				
Male	30.3	1.32	27.6	7.71
Female	2.20	0.45	38.3	3.75
Age (years)**				
18-39	15.3	0.53	28.5	5.85
40-64	20.6	1.32	35.0	5.71
≥ 65	13.3	0.68	36.0	7.92
Education*				
≤ High school graduate	19.1	1.23	34.7	5.84
Some college	19.9	0.25	25.8	6.02
≥ Bachelor's degree	12.3	0.47	29.6	6.09
Household income*				
<$20,000	18.3	1.38	35.9	6.87
$20,000 to <$40,000	21.3	0.82	26.4	4.77
$40,000 to <$60,000	13.6	0.26	27.8	6.55
≥$60,000	11.8	0.74	32.9	7.06

Risk Factors by Sample Characteristics

	Cigarette Smoking	Risky Drinking	Physical Inactivity	Overwgt/ Obesity
Linguistic acculturation*				
Acculturated	14.3	0.79	29.0	6.22
Not acculturated	18.6	0.97	33.3	5.85
Diabetes**				
Yes	14.2	0.57	48.9	13.5
No	17.6	0.91	31.8	5.62
Heart disease**				
Yes	20.0	0.42	41.6	18.4
No	17.3	0.91	32.1	5.53
High blood pressure*				
Yes	14.6	0.94	42.7	11.8
No	17.8	0.93	30.9	5.08
Bronchitis**				
Yes	27.6	1.15	42.2	12.2
No	16.8	0.88	31.6	5.30

Profile of 5 Most Prevalent Risk Factors
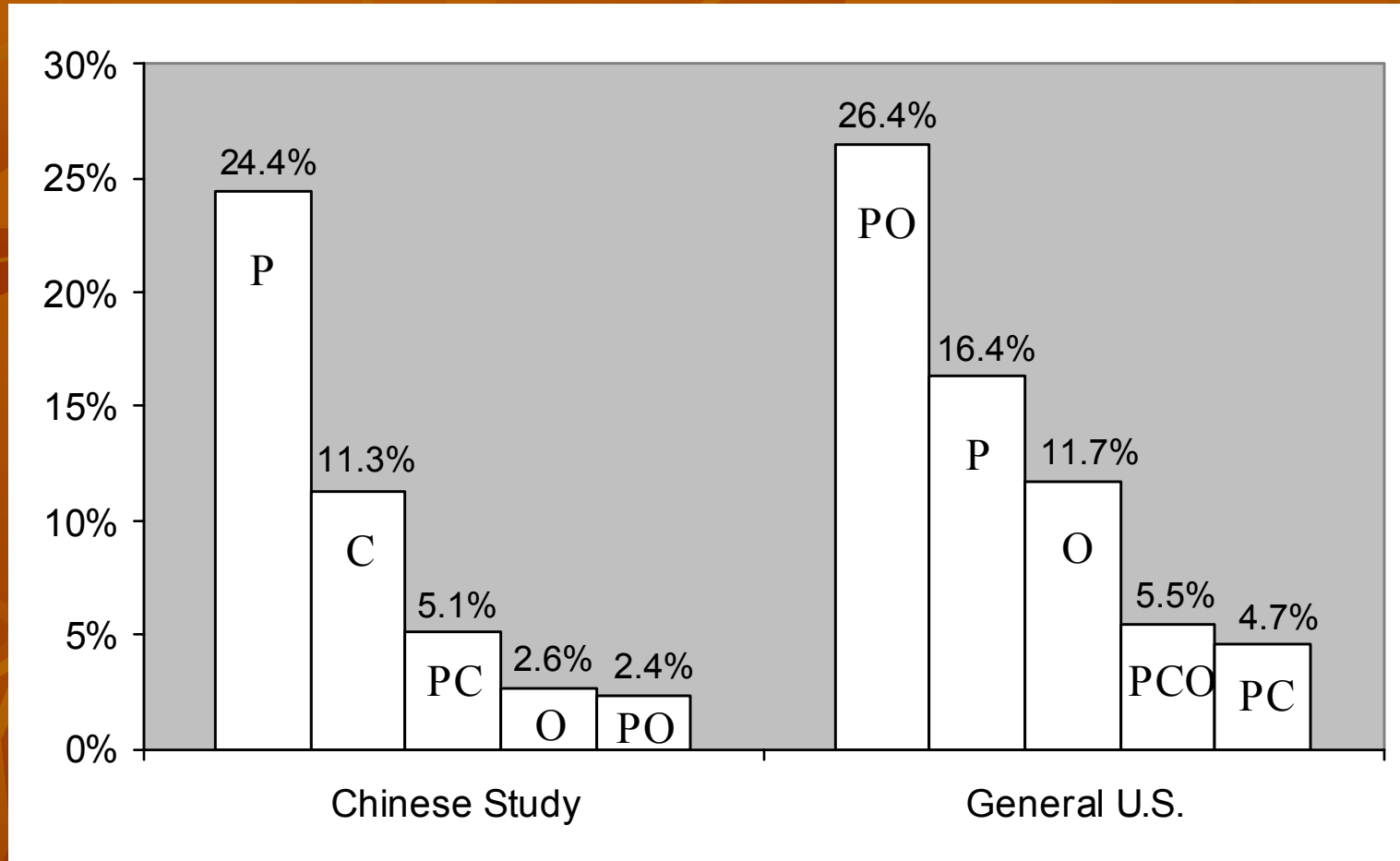
P: Physical inactivity; **C:** Cigarette smoking; **O:** Overweight/obesity; **PC:** Physical inactivity and cigarette smoking;
PO: Physical inactivity and overweight/obesity; **PCO:** Physical inactivity, cigarette smoking, and overweight/obesity

Regression Results

	SF-12 (PCS)			SF-12 (MCS)		
	Beta	SE	T-stat.	Beta	SE	T-stat.
Co-occurring Risk Factors (Ref: 0 risk factors)						
1 risk factor	-1.83***	0.43	-4.28	-1.97***	0.40	-4.92
2 risk factors	-2.83***	0.67	-4.24	-2.42**	0.73	-3.32
3 or 4 risk factors	-5.11***	1.38	-3.71	-1.59	1.25	-1.28
Female	-1.96***	0.40	-4.87	-1.35**	0.39	-3.45
Age	-0.07***	0.01	-5.65	0.06***	0.02	3.71
Education						
≥ Bachelor's degree (Ref: ≤ HS)	0.87*	0.42	2.04	-0.34	0.57	-0.59
$40,000 - $60,000 (Ref: <$20k)	0.89*	0.47	1.88	1.59**	0.60	2.64
Heart disease	-5.25***	1.41	-3.73	-1.89	1.24	-1.53
High blood pressure	-3.02**	0.94	-3.22	-1.56**	0.65	-2.39
Bronchitis	-1.92*	1.00	-1.92	-0.01	0.75	-0.02
Cancer	-9.15**	3.44	-2.66	-0.76	3.17	-0.24
Constant	58.24***	0.81	71.91	49.10***	0.93	52.89

* p<0.05, **p<0.01, ***p<0.001

Summary & Significance

- Smoking, physical inactivity occur frequently among Chinese immigrants

  ➢ Target these behaviors in prevention programs

- Risk behaviors exert significant, in some cases, greater effects on health than chronic conditions

  ➢ Take a more holistic approach to care, address lifestyle and behavior change

- Co-occurring risks lead to "dose-response" decline in physical and mental health

  ➢ Address multiple vs. single behavioral risk factors

Implications for Health Promotion

- Integrated, multi-component health promotion initiatives may be effective

- Emphasize link btwn multiple risks and HRQOL

- Programs should reflect cultural values and norms

- Involve representatives from the target audience

- Train diverse workforce of providers and medical interpreters