Scientific Research

Psychological Distress in California: Identifying Those at Greatest Risk

Gina Marie Piane

Department of Community Health, National University, Costa Mesa, CA, USA
Email: gpiane@nu.edu

Abstract

In order to address the unmet need for prevention and treatment of psychological distress and mental disorders, program planners and treatment providers need to identify individuals at high risk. The results of the California Health Interview Survey from 2009 (n = 47,614) indicate that there are high relative risks by demographics and smoking status for reports of psychological distress and intermediate measures: feeling nervous, hopeless, worthless, depressed, restless, and that everything is an effort. Specific demographic factors and smoking status can predict a greater need for prevention and treatment of psychological distress and lack of insurance coverage for treatment. Profiles associated with high risk can help in referral for diagnosis or to plan prevention programs.

Keywords

Psychological Distress, Demographics, Relative Risk, Smoking

1. Introduction

According to the 1999 Surgeon General's report, "Mental health is fundamental to health" and therefore mental health promotion is fundamental to health promotion. Mental disorders are often chronic and disabling. There is a great unmet need for prevention and treatment of mental disorders. Identifying groups at higher risk of mental disorders can both give evidence for the need and give direction to prevention and treatment efforts.

1.1. Psychological Distress

Serious psychological distress is a precursor to serious mental illness like depression and anxiety disorders and is a risk factor for suicide. Distress is also a risk factor for cardiovascular diseases and injuries. Distress can lengthen recovery from a variety of illnesses and injuries. Serious psychological distress is prevalent and de-

structive.

1.2. Demographic Factors and Psychological Distress

It has been established in the professional literature that psychiatric disorders and their precursors do not occur evenly among the population. Disparities in mental health mirror some of the established risk factors for poor physical health in the US. Physical health diminishes with age and members of minority communities are at greater risk of disability and early death. Risk factors for depression, serious psychiatric distress and chronic mental disorders also include older age [1] [2] and minority status [3]. Additional risk factors are less education, being unmarried, unemployment, low income [4], lack of health insurance [1] and gender [5].

Extensive research regarding gender differences and health disparities by gender clearly indicates that men and women have different mental and physical health problems. It is also believed that gender differences in mental health contribute to gender differences in physical health. Needham asserts that women have more internalizing mental disorders as well as excess arthritis, headaches and gallbladder removal, while men have more externalizing mental disorders as well as excess heart disease and high blood pressure [5].

Examining physical and mental health disparities is truly artificial since mental health disorders often occur simultaneously with diabetes, cardiac disease and arthritis in older adults [2]. In addition to highly prevalent physical disorders in older adults, "One in four adults lives with depression, anxiety disorders or other significant psychiatric disorder" [2]. As the population ages there is an increased need for mental health services and the difficulties of aging are exacerbated by limited access to mental health services [2].

The unmet need for mental health services is compounded by the lack of preventive mental health interventions. In an editorial published in December 2010, Perry, Presley-Cantrell and Dhingra [6] recommend an integrated approach to achieving total health for a population in which physical and mental health are comprehensive including primary care, mental health and public health. It is one thing to declare that something should be done and another to provide evidence regarding how it should be done. To this end, Salum [7] convinces that there is an urgent need for investigations on preventive interventions in individuals at risk for mental disorders.

1.3. Smoking and Psychological Distress

In addition to the need for interventions to prevent mental disorders, it is equally important to enhance the health of those with mental disorders. Smoking cessation is a significant need. Tobacco-related cancer, heart disease and lung disease are the leading causes of death for individuals with serious mental illness [8]. The prevalence of smoking among people with mental disorders was higher in the 2007 National Health Interview Survey than the prevalence among people without mental disorders [9] and has been reported as 2 to 4 times greater among individuals with serious mental illness [10]. While the rate of smoking among Californians is lower than the rest of the nation, the smoking rate among those with mental disorders or psychological distress is unknown.

In addition to the well-established risks of smoking, people with mental illness also risk diminished effects of their psychotherapeutic drugs. Tobacco smoking induces the metabolism of a number of psychiatric medications, resulting in reduced therapeutic blood levels [11]. Tobacco smoking may also contribute to psychological distress in the now minority population that smokes.

Many mental health practitioners are skeptical about the need for smoking cessation and share low expectations of successful smoking cessation with their patients. A 2006 survey found that psychiatrists of all medical specialties, are the least likely to treat tobacco dependence [12]. It may be true that patients with mental illness present additional challenges to those providing smoking cessation. Pregnant women with a history of a mental disorder and high stress scores have higher odds of continuing smoking [13]. However, many people with serious mental disorders are motivated to attend smoking cessation and are successful [14].

2. Methods

2.1. Research Questions

The following research questions were determined for this secondary analysis:
- How prevalent are the psychological distress measures among the respondents in the California Health Interview Survey in 2009?
- What are the factors associated with the psychological distress measures in the California Health Interview

Survey in 2009?

- Which combination of factors is most predictive of psychological distress?

2.2. California Health Interview Survey

The public use data base analyzed in this study was collected by the UCLA Center for Health Policy Research in collaboration with the California Department of Public Health and the Department of Health Care Services as the California Health Interview Survey (CHIS). The 2009 data were released on February 16, 2011. CHIS is the nation's largest state health survey. It is a random-dial telephone survey conducted every two years on a wide range of health topics that gives a detailed picture of the health and health care needs of California's large and diverse population. CHIS is conducted in six languages: English, Spanish, Mandarin, Cantonese, Korean and Vietnamese.

2.3. Variables Selected

Eighteen of the 576 variables that relate to psychological distress were selected for this analysis. They include experience of psychological distress in the past year; psychological distress in the past month and intermediate indicators of feeling nervous, hopeless, worthless, depressed, and restless and that everything is an effort in the past month. The independent variables were selected as possible variables of association based on literature review. They include: age, gender, marital status, educational attainment, working status, race and ethnicity, born in US, insurance coverage, and smoking. General Health Condition was selected as a comparison variable.

Psychological distress measures

- Psychological distress in past month
- Psychological distress in past year
- Feel worthless in past month
- Feel that everything is an effort
- Feel depressed in past month
- Feel nervous in past month
- Feel hopeless in past month
- Feel restless in past month

2.4. Data Analysis

Univariate analyses that report frequencies and percentages were extracted directly from the CHIS data dictionary. They are reported with only minor alterations to table format.

Bivariate analyses were conducted using SPSS version 17. The differences in distribution of each dependent variable (psychological distress and intermediate symptoms) were calculated using chi-square for the nominal and ordinal, discreet variables and Pearson correlation for age. Relative risks were calculated by dividing the percentages in each category who answered "all of the time" by the percentage in the largest category who also answered "all of the time" for each of the study variables.

Multivariate analyses were also calculated using SPSS version 17. The profiles of those at highest risk for each psychological distress variable were determined using stepwise linear regression. All selected variables were included in each analysis.

2.5. Note

This research is exempt from institutional review board approval since it is a secondary analysis of data previously collected. The CHIS survey was approved by the UCLA institutional review board.

3. Result (Tables 1-10)

3.1. Univariate Analysis

Of the 47,614 survey respondents, 28,186 are females (40.8%) and 19,428 are males (59.2%) (**Table 3**), 65% are non-Hispanic whites (**Table 3**), 52% married (**Table 5**), 76% were born in the US (**Table 6**), 42% were em-

Table 1. Selected variables for analysis: frequencies and percentages.

	Frequency	Percentage
Experienced Serious Psychological Distress in Past Month		
Yes	1327	2.79%
No	46,004	96.62%
Proxy Skipped	283	0.59%
Experienced Serious Psychological Distress in Past Year		
Yes	2835	5.95%
No	44,496	93.45%
Proxy Skipped	283	0.59%
Feel Worthless Past Month		
All of the Time	360	0.76%
Most of the Time	503	1.06%
Some of the Time	1906	4.00%
A Little of the Time	3500	7.35%
Not at All	41,062	86.24%
Proxy Skipped	283	0.59%
Feel Everything Is an Effort Past Month		
All of the Time	1426	2.99%
Most of the Time	1752	3.68%
Some of the Time	5277	11.08%
A Little of the Time	8840	18.57%
Not at All	30,036	63.08%
Proxy Skipped	283	0.59%
Feel Depressed Past Month		
All of the Time	254	0.53%
Most of the Time	569	1.20%
Some of the Time	2308	4.85%
A Little of the Time	4349	9.13%
Not at All	39,851	83.70%
Proxy Skipped	283	0.59%
Feel Nervous Past Month		
All of the Time	641	1.35%
Most of the Time	1572	3.30%
Some of the Time	6903	14.50%
A Little of the Time	16,002	33.61%
Not at All	22,213	46.65%
Proxy Skipped	283	0.59%
Feel Hopeless Past Month		
All of the Time	279	0.59%
Most of the Time	657	1.38%
Some of the Time	2727	5.73%
A Little of the Time	6482	13.61%
Not at All	37,186	78.10%
Proxy Skipped	283	0.59%
Feel Restless Past Month		
All of the Time	858	1.80%
Most of the Time	1357	2.85%
Some of the Time	6857	14.40%

Continued

A Little of the Time	12517	26.29%	
Not at All	35,742	54.06%	
Proxy Skipped	283	0.59%	
General Health Conditions			
Excellent	9144	19.14%	
Very Good	15,490	32.53%	
Good	13,658	28.68%	
Fair	6878	14.45%	
Poor	2474	5.02%	
Insurance Covers Treatment for Mental Health Problems[*]			
Inapplicable	41,028	86.17%	
Yes	4521	9.50%	71% of Applicable
No	1184	2.49%	18% of Applicable
No Insurance	598	1.26%	9% of Applicable
Proxy Skipped	283	0.59%	

[*]Asked of those who had experienced mental health problems.

Table 2. Correlation of psychological distress by age.

Variable	Pearson correlation value
Serious psychological distress in past year	−0.028[**]
Serious psychological distress in past month	−0.083[**]
Feel nervous in past month	0.071[**]
Feel hopeless in past month	0.027[**]
Feel restless in past month	0.096[**]
Feel depressed in past month	−0.009[*]
Feel everything is an effort in past month	0.038[**]
Feel worthless in past month	−0.036[**]

Table 3. Relative risks of psychological symptoms by gender.

n = 47,614		
28,186	Females	(40.8%)
19,428	Males	(59.2%)

Variable	Chi-square	df	Asymp. Sig. (2-sided)	Relative risk[*]
Psychological distress in past month	51.33	2	0.000	1.45
Psychological distress in past year	112.52	2	0.000	1.45
Feel worthless in past month	49.48	5	0.000	0.88
Feel that everything is an effort in past month	87.96	5	0.000	0.94
Feel depressed in past month	65.64	5	0.000	1.2
Feel nervous in past month	153.13	5	0.000	1.37
Feel hopeless in past month	73.99	5	0.000	1.2
Feel restless in past month	83.15	5	0.000	0.89
Poor general health condition	10.37	4	0.035	1.10
Insurance covers mental health treatment	231.29	4	0.000	1.54

[*]Females compared to males for those who answered "all the time".

ployed full-time (**Table 7**), 23% had a bachelor's degree (**Table 8**), 89% had health insurance (**Table 9**), and 11% smoked cigarettes (**Table 10**). When asked if their insurance covers treatment for mental illnesses, 71% of those

Table 4. Relative risks of psychological symptoms by ethnicity.

n = 47,614		
8307	Hispanic	(17.45%)
31,167	White, Non-Hispanic	(65.46%)
1852	African-American Only, Non-Hispanic	(3.89%)
354	American Indian/Alaskan Native Only, Non-Hispanic	(0.74%)
4852	Asian Only, Non-Hispanic	(10.19%)
66	Native Hawaiian/Pacific Islanders, Non-Hispanic	(0.14%)
86	Other, Non-Hispanic	(0.18%)
1016	Two or More Races, Non-Hispanic	(2.13%)

Variable	Chi-Square	df	Asymp. Sig. (2-sided)	White, Non-Hispanic*	Hispanic	African-American	American Indian	Asian	Native Hawaiian/Pacific Islander	Other	Two or More Races
Psychological distress in past month	138.1	14	0.000	1.00	1.70	1.74	3.09	1.26	1.30	0	2.00
Psychological distress in past year	165.6	14	0.000	1.00	1.43	1.40	2.19	0.94	1.43	0.89	2.09
Feel worthless in past month	299.4	35	0.000	1.00	1.83	1.83	2.83	1.50	0	0	2.83
Feel that everything is an effort in past month	332.9	35	0.000	1.00	1.71	2.38	3.54	1.34	2.54	1.46	1.96
Feel depressed in past month	1075.9	35	0.000	1.00	3.34	3.00	5.67	2.67	0	0	2.34
Feel nervous in past month	331.4	35	0.000	1.00	1.91	1.64	2.09	1.55	0	3.18	1.55
Feel hopeless in past month	770.7	35	0.000	1.00	3.00	1.75	1.50	2.00	0	0	2.50
Feel restless in past month	533.3	35	0.000	1.00	1.44	1.38	3.50	0.623	0	2.94	3.06
Poor general health condition	2485.4	28	0.000	1.00	1.31	1.81	3.24	2.17	2.52	0.55	1.86
Insurance covers mental health treatment	492.5	28	0.000	1.00	0.67	0.96	0.98	0.40	1.13	0.65	1.25

*Relative risk compared to white, those who answered "all of the time".

who recalled having the need for treatment reported that their insurance included coverage (**Table 1**).

Table 1 lists the frequencies and percentages for each of the selected dependent variables. The respondents reported these psychological distress measures at least a little of the time:

- 54% nervous
- 46% restless
- 36% everything is an effort
- 22% hopeless

Table 5. Relative risks of psychological symptoms by marital status.

n = 47,614		
24,936	Married	(52.37%)
2336	Living with a partner	(4.91%)
13,360	Widowed, separated or divorced	(28.06%)
6982	Never married	(14.66%)

Variable	Chi-Square	df	Asymp. Sig. (2-sided)	Married[*]	Living with Partner	Widowed, Separated or Divorced	Never Married
Psychological distress in past month	241.28	6	0.000	1.00	2.22	2.22	2.57
Psychological distress in past year	402.43	6	0.000	1.00	2.24	1.80	2.17
Feel worthless in past month	527.82	15	0.000	1.00	1.75	3.25	2.25
Feel that everything is an effort in past month	752.83	15	0.000	1.00	1.65	1.46	1.58
Feel depressed in past month	564.39	15	0.000	1.00	2.34	3.00	2.34
Feel nervous in past month	613.42	15	0.000	1.00	1.70	1.90	1.50
Feel hopeless in past month	862.50	15	0.000	1.00	1.75	2.25	1.75
Feel restless in past month	681.08	15	0.000	1.00	1.79	1.64	1.64
Poor general health condition	700.65	12	0.000	1.00	1.08	2.15	1.03
Insurance covers mental health treatment	678.95	12	0.000	1.00	1.33	1.25	1.55

[*]Relative risk compared to married, those who answered "all of the time".

Table 6. Relative risks of psychological symptoms by US born.

n = 47,614		
36,133	Born in US	(75.89%)
11,481	Born outside US	(24.11%)

Variable	Chi-Square	df	Asymp. Sig. (2-sided)	Relative Risk[*]
Psychological distress in past month	53.0	2	0.000	1.44
Psychological distress in past year	20.5	2	0.000	1.09
Feel worthless in past month	150.5	5	0.000	1.43
Feel that everything is an effort in past month	35.9	5	0.000	1.25
Feel depressed in past month	802.1	5	0.000	2.5
Feel nervous in past month	71.06	5	0.000	3.25
Feel hopeless in past month	463.8	5	0.000	2.75
Feel restless in past month	64.0	5	0.000	0.84
Poor general health condition	1439.7	4	0.035	1.47
Insurance covers mental health	342.2	4		0.48

[*]Born outside US compared to born inside US for those who said "all of the time".

- 13% depressed
- 13% worthless

Almost 3% experienced psychological distress in the month prior to the survey. Almost 6% experienced serious psychological distress in the year prior to the survey. Also, 5% of the respondents self-reported "poor" health.

3.2. Bivariate Analysis

Age is positively correlated with feeling nervous, hopeless, and restless and that everything is an effort, but negatively correlated with serious distress in past month or year and feelings of depression and worthlessness. The correlations are very weak and do not account for much of the variation in psychological symptoms (**Table 2**).

Table 7. Relative risks of psychological symptoms by working status.

n = 47,614		
20,252	Full time	(42.53%)
4010	Part time	(8.42%)
240	Employed, not at work	(0.50%)
2541	Unemployed, looking for work	(5.29%)
20,591	Unemployed, not looking for work	(43.25%)

Variable	Chi-Square	df	Asymp. Sig. (2-sided)	Full Time*	Part Time	Employed, Not at Work	Unemployed, Looking for Work	Unemployed, Not Looking for Work
Psychological distress in past month	649.6	8	0.000	1.00	1.57	2.07	3.86	2.00
Psychological distress in past year	565.8	8	0.000	1.00	1.46	1.17	2.46	1.41
Feel worthless in past month	992.4	20	0.000	1.00	2.50	4.00	6.50	6.00
Feel that everything is an effort in past month	801.7	20	0.000	1.00	0.90	1.81	2.23	1.86
Feel depressed in past month	882.9	20	0.000	1.00	3.00	2.00	4.00	4.00
Feel nervous in past month	880.7	20	0.000	1.00	1.65	0.55	2.76	2.45
Feel hopeless in past month	1069.1	20	0.000	1.00	1.67	2.67	4.34	2.67
Feel restless in past month	895.9	20	0.000	1.00	1.08	0.62	2.70	1.62
Poor general health condition	2732.1	16	0.000	1.00	1.40	3.07	2.47	6.47
Insurance covers mental health treatment	952.2	16	0.000	1.00	1.01	0.50	1.03	0.85

*Relative risk compared to full time, those who answered "all of the time".

All selected dependent measures (psychological distress markers, general health conditions and insurance that covers mental health) varied significantly by all selected demographic variables and by smoking status. Chi-square statistics were calculated and all except one p-value was <0.001*. The exception was the relationship between poor general health and gender which has a p-value of 0.035.

The relative risks were calculated comparing the prevalence of the psychological symptom or measure in those of the largest category in each variable with those in the other categories (**Tables 1-10**).

Women are more likely to report psychological distress (1.45 more likely in the past month or year), feeling depressed (1.2 times more likely), hopeless (1.2 times more likely), poorer general health (1.1 times more often) and having insurance that covers treatment of mental health (1.54 times more often). Men are more likely to report feeling worthless (1.1 times more often) and restless (1.1 times more often) (**Table 3**).

As indicated in **Table 4**, Hispanics, African-Americans, American Indians and those of two or more races more frequently report all of the measures of psychological distress than whites. Hispanics, African-Americans and American Indians are also less likely to have insurance that covers treatment of mental disorders. Asians, Pacific Islanders and others report some symptoms more often and some less often than whites.

Marriage predicts lower levels of all psychological distress measures. Those who are widowed, separated or divorced express the most feelings of worthlessness and depression (**Table 5**).

Table 6 indicates much higher risk of psychological distress measures and less insurance coverage among those with less than college education. The group who has attended some graduate school shows lower risk than those with a BS or BA degree. The relationship between psychological distress measures and education is not linear. The protective effect diminishes from master's degree to doctorate degrees. Those with PhD are more likely to report feeling depressed than those with bachelor's degrees.

The unemployed report more psychological distress with those looking for work at the highest risk. The exception is that those not looking for working are more likely to report poor general health (**Table 7**). Those born outside of the US report more symptoms with the exception of restlessness. They are also less likely to have health insurance that covers treatment of mental disorders (**Table 8**). Those at the greatest risk are the least likely to have insurance that covers treatment of mental disorders (**Table 9**). Smokers are 4.5 times more likely to report feeling depressed in the past month (**Table 10**).

Table 8. Relative risks of psychological symptoms by educational attainment.

(a)

n = 47,614		
230	No formal education	(0.48%)
2408	Grade 1 - 8	(5.06%)
2196	Grade 9 - 11	(4.61%)
10,458	Grade 12/HS diploma	(21.96%)
8041	Some college	(16.89%)
1374	Vocational school	(2.89%)
3507	AA or AS degree	(7.37%)
10,842	BA or BS degree	(22.77%)
742	Some grad school	(1.56%)
5579	MA or MS degree	(11.72%
5579	PHD or equivalent	(4.70%)

Variable	Chi-Square	df	Asymp. Sig. (2-sided)	BA or BS Degree[*]	No Formal Education	Grade 1 - 8	Grade 9 - 11	Grade 12/HS Diploma	Some College
Psychological distress in past month	469.0	20	0.000	1.00	3.00	4.13	3.88	2.00	1.94
Psychological distress in past year	368.8	20	0.000	1.00	1.51	2.12	2.30	1.56	1.60
Feel worthless in past month	850.3	50	0.000	1.00	10.75	6.25	5.50	2.50	1.50
Feel that everything is an effort in past month	792.2	50	0.000	1.00	2.53	3.41	3.53	2.29	1.94
Feel depressed in past month	1521.8	50	0.000	1.00	43.00	20.00	16.00	6.00	4.00
Feel nervous in past month	595.5	50	0.000	1.00	5.00	5.43	4.29	2.14	2.00
Feel hopeless in past month	1144.2	50	0.000	1.00	8.50	13.00	10.00	3.50	1.50
Feel restless in past month	538.6	50	0.000	1.00	3.91	2.82	3.64	2.00	1.73
Poor general health condition	5236.7	40	0.000	1.00	7.29	4.82	4.11	2.36	1.86
Insurance covers mental health treatment	421.5	40	0.000	1.00	0.36	0.41	0.60	0.72	0.93

[*]Relative risk compared to BA or BS, those who answered "all of the time".

(b)

Variable	BA or BS Degree[*]	Vocational School	AA or AS Degree	Some Grad School	MA or MS	PhD or Equivalent
Psychological distress in past month	1.00	3.06	1.81	0.44	0.69	0.81
Psychological distress in past year	1.00	2.16	1.44	1.23	0.79	0.93
Feel worthless in past month	1.00	2.25	1.75	0	0.50	0.75
Feel that everything is an effort in past month	1.00	2.41	2.06	0.47	0.76	0.71
Feel depressed in past month	1.00	10.00	5.00	0	1.00	3.00
Feel nervous in past month	1.00	3.00	2.29	0.57	0.71	0.86
Feel hopeless in past month	1.00	4.00	2.50	1.50	1.00	1.00
Feel restless in past month	1.00	2.91	1.73	0.64	0.73	0.55
Poor general health condition	1.00	2.43	1.64	0.57	0.79	0.89
Insurance covers mental health treatment	1.00	0.78	1.01	1.08	1.06	1.03

[*]Relative risk compared to BA or BS, those who answered "all of the time".

3.3. Multivariate-Stepwise Linear Regression Analysis

The following profiles emerged for each of the psychological distress symptoms and measures:
   Serious psychological distress in past year
- Unemployed
- Smoker
- Less than BS education

Table 9. Relative risks of psychological symptoms by currently insured.

n = 47,614				
42,468	Currently insured		(89.19%)	
5146	Currently uninsured		(10.81%)	
Variable	Chi-Square	df	Asymp. Sig. (2-sided)	Relative Risk*
Psychological distress in past month	141.9	2	0.000	2.04
Psychological distress in past year	208.6	2	0.000	1.87
Feel worthless in past month	321.1	5	0.000	2.00
Feel that everything is an effort in past month	273.1	5	0.000	1.68
Feel depressed in past month	566.2	5	0.000	1.80
Feel nervous in past month	231.2	5	0.000	2.08
Feel hopeless in past month	903.2	5	0.000	3.00
Feel restless in past month	305.9	5	0.000	1.94
Poor general health condition	464.8	4	0.035	1.04

*Uninsured compared to insured.

Table 10. Relative risks of psychological symptoms for smokers.

n = 47,614				
5537	Smokers		(11.6%)	
42,077	Non-smokers		(88.4%)	
Variable	Chi-Square	df	Asymp. Sig. (2-sided)	Relative Risk*
Psychological distress in past month	454.39	2	0.000	3.23
Psychological distress in past year	697.65	2	0.000	2.82
Feel worthless in past month	446.39	5	0.000	3.00
Feel that everything is an effort in past month	698.01	5	0.000	2.44
Feel depressed in past month	582.85	5	0.000	4.57
Feel nervous in past month	642.88	5	0.000	3.09
Feel hopeless in past month	647.74	5	0.000	2.8
Feel restless in past month	895.56	5	0.000	3.5

*Compared to non-smokers for those who answered "all of the time".

- Unmarried
  Serious psychological distress in past month
- Unemployed
- Younger age
- Smoker
- Minority ethnicity
- Less than BS education
  Feel nervous in past month
- Smoker
- Older age
- Unemployed
- Unmarried
- Less than BS education
  Feel hopeless in past month
- Unemployed
- Minority ethnicity
- Unmarried
- Born in US

- Older age
- Less than BS education
  Feel restless in past month
- Smoker
- Older age
- Unemployed
- Born in US
- Unmarried
- Less than BS education
  Feel depressed in past month
- Unemployed
- Minority ethnicity
- Smoker
- Born outside US
- Unmarried
- Less than BS education
  Feel everything is an effort in past month
- Unemployed
- Minority ethnicity
- Smoker
- Born outside US
- Unmarried
- Less than BS education
  Feel worthless in past month
- Unemployed
- Smoker
- Unmarried
- Born outside US
- Less than BS education
- Minority ethnicity

4. Discussion

The magnitude of age and gender differences is less than expected. Age and gender are often emphasized in the professional literature as significant risk factors for mental illnesses; however, the results of this study find that other demographic variables contribute more to the mental health disparities when measuring psychological distress.

The experience of psychological distress symptoms is higher among most minority groups in California especially regarding depression and feeling worthless. In addition, those born outside the US are more likely to feel nervous and hopeless. These serious mental health disparities are often overshadowed by the physical health disparities regarding heart disease, cancers and injuries. However, since there are significant links between mental and physical health, mental health disparities also deserve attention.

Marriage correlates with more positive mental health. It cannot be determined whether marriage leads to better mental health or that mentally healthy people are more likely to marry or both. These data do show that there are critical life events that warrant the attention of public mental health planners like divorce and widowhood.

Educational attainment less than a bachelor's degree is associated with more distress symptoms especially depression, feeling hopeless and worthless. Educational attainment beyond a bachelor's degree is associated with less distress symptoms except regarding depression. The largest group by educational attainment holds a bachelor's degree. A four-year college degree has become the expectation in the United States. 57% of Californians who responded to the survey had less than four years of college and experienced the highest relative risks of psychological distress in all of this study's analyses.

Unemployment rates in the United States as a whole and California specifically have been at the highest rates since the 1930s. The unemployed who are looking for work are at higher risk of feeling worthless and hopeless.

These symptoms are precursors to serious mental disorders, suicide and physical disorders. Coupled with unemployment is lack of health insurance coverage. In addition, those with health insurance may not have coverage for treatment of mental illnesses. People at the greatest risk of psychological distress are also less likely to have insurance that covers their symptoms.

In addition to the demographic correlates with psychological distress, one behavioral variable was examined. Smoking is correlated with psychological distress measures especially feeling depressed. Smoking is the leading cause of preventable death in the United States and the mentally ill are at even higher risk. Smokers are also more likely to experience psychological distress. Smokers with the dual risks of mental and physical illnesses are especially in need of effective cessation programs that deal with nicotine addiction and address negative feelings among smokers.

4.1. Limitations

The survey response rate for 2009 is not yet published. However, the statewide response rate for the landline/list sample in the 2007 adult interview was 52.8 percent, a decrease of 1.2 percentage points from CHIS 2005. Larger counties had lower response rates than smaller counties. To address the possible bias of landline surveys, a sample of cellular phone surveys were conducted in 2009.

Since the CHIS is specific to California, the results cannot be generalized to the entire nation. However, one-fifth of the nation's population does live in California. Cross-sectional measurements of this type cannot be used for identifying temporal sequence and causation.

4.2. Further Studies

In addition to the closed-ended questions in the survey, additional qualitative research may increase the depth of understanding of the associations among psychological distress symptoms and measures and demographic variables. A mixed methods approach could assist in understanding the causative aspects of the associations and may shed light on possible avenue for treatment.

Prospective or case-control studies could investigate the temporal and possible causative link between smoking and psychological distress. Smoking may contribute to the pathway to psychological distress by changing neurotransmission in the brains of smokers. Psychological distress may contribute to smoking initiation and difficulty with cessation. Alternatively both smoking and psychological distress may have other similar causative factors.

5. Conclusions

Primary care physicians and nurse practitioners may be able to identify patients at higher risk of psychological distress. Smokers and others who are identified by profile risk characteristics can be given additional screening for psychological distress and mental disorders. This can lead to more appropriate referrals for diagnosis and treatment.

Public health program planners can identify groups of people at higher risk for primary prevention interventions. Additional attention can be devoted to the mental health needs of smokers who are targeted for cessation activities. The unemployed who are looking for work may benefit from support groups and attention to their mental health. Public health educators can plan mass media campaigns tailored to the mental health needs of the newly divorced or widowed. Community health workers who have been shown to be effective in programs to control chronic diseases can be trained to combat psychological distress as well. Public mental health programs can enhance the lives of countless people in our communities.

References

[1] Farr, S.L., Bitsko, R.H. and Hayes, D.K. (2010) Mental Health Access to Services among US Women of Reproductive Age. *American Journal of Obstetrics and Gynecology*, **203**, 542-549. http://dx.doi.org/10.1016/j.ajog.2010.07.007

[2] Robinson, K.M. (2010) Policy Issues in Mental Health among the Elderly. *Nursing Clinics of North America*, **45**, 627-634. http://dx.doi.org/10.1016/j.cnur.2010.06.005

[3] Goins, R.T. and Pilkerton, C.S. (2010) Comorbidity among Older American Indians: The Native Elderly Care Study. *Journal of Cross Cultural Gerontology*, **25**, 343-354. http://dx.doi.org/10.1007/s10823-010-9119-5

[4] Mezuk, B., Rafferty, J.A., Kiarri, N., Hudson, D., Abdou, C.M., Hedwig, L., Eaton, W. and Jackson, J. (2010) Reconsidering the Role of Social Disadvantage in Physical and Mental Health: Stressful Life Events, Health Behaviors, Race and Depression. *American Journal of Epidemiology*, **172**, 1238-1249. http://dx.doi.org/10.1093/aje/kwq283

[5] Needham, B.L., Epel, E.S., Adler, N.E. and Kiefe, C. (2010) Trajectories of Change in Obesity and Symptoms of Depression: The CARDIA Study. *American Journal of Public Health*, **100**, 1040-1046. http://dx.doi.org/10.2105/AJPH.2009.172809

[6] Perry, G.S., Presley-Cantrell, L.R. and Dhingra, S. (2010) Addressing Mental Health Promotion in Chronic Disease Prevention and Health Promotion. *American Journal of Public Health*, **100**, 2337-2339. http://dx.doi.org/10.2105/AJPH.2010.205146

[7] Salum, G.A., Polanczyk, G.V. and Miguel, E.C. (2010) Effects of Childhood Development on Late-Life Mental Disorders. *Current Opinions in Psychiatry*, **23**, 498-503. http://dx.doi.org/10.1097/YCO.0b013e32833ead33

[8] Colton, C.W. and Manderscheid, R.W. (2006) Congruencies in Increased Mortality Rates, Years of Potential Life Lost, and Causes of Death among Public Mental Health Clients in Eight States. *Prevention of chronic Disease*, **3**, A42.

[9] McClave, A.K., McKnight-Eily, L.R., Davis, S.P. and Dube, S.R. (2010) Smoking Characteristics of Adults with Selected Lifetime Mental Illnesses: Results from the 2007 National Health Interview Survey. *American Journal of Public Health*, **100**, 2464-2472. http://dx.doi.org/10.2105/AJPH.2009.188136

[10] Lasser, K., Boyd, J.W., Woolhandler, S., Himmelstein, D.U., McCormick, D. and Bor, D.H. (2000) Smoking and Mental Illness: A Population-Based Prevalence Study. *Journal of the American Medical Association*, **284**, 2606-2610. http://dx.doi.org/10.1001/jama.284.20.2606

[11] Zevin, S. and Benowitz, N.L. (1999) Drug Interactions with Tobacco Smoking: An Update. *Clinical Pharmokinetics*, **36**, 425-438. http://dx.doi.org/10.2165/00003088-199936060-00004

[12] American Medical Association (2006) Treatment of Tobacco Dependence. http://www.ama-assn.org/ama/pub/education-careers/continuing-medical-education/cme-credit-offerings/therapeutic-insights/treatment-tobacco-dependence.page

[13] Holtrop, J.S., Meghea, C. and Raffo, J. (2010) Smoking among Pregnant Women with Medicaid Insurance: Are Mental Health Factors Related? *Maternal and Child Health Journal*, **14**, 971-977. http://dx.doi.org/10.1007/s10995-009-0530-x

[14] Ashton, M., Miller, C.L., Boweden, J.A. and Bertossa, S. (2010) People with Mental Illness Can Tackle Tobacco. *Australian and New Zealand Journal of Psychiatry*, **44**, 1021-1028.

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

Other selected journals from SCIRP are listed as below. Submit your manuscript to us via either submit@scirp.org or Online Submission Portal.