Recent Life Events, Social Support and Depression: An Epidemiological Approach

Eng-Kung Yeh, Yuan-Lih Yeh, Chyi-In Wu,
Joe Yamamoto, Hai-Gwo Hwu, and Ly-Yun Chang

中華心理衛生學刊第十三卷第一期抽印本
第47-65頁
中華心理衛生協會
(2000年3月)

中華心理衛生學刊
第十三卷（2000） 第一期 頁 47-65

專題論文

Recent Life Events, Social Support and Depression: An Epidemiological Approach*

Eng-Kung Yeh,[1] *Yuan-Lih Yeh,*[2] *Chyi-In Wu,*[3]
Joe Yamamoto,[4] *Hai-Gwo Hwu,*[5] *and Ly-Yun Chang*[6]

This study aims to examine the effects of recent life stress, and its interaction with social support on depression based on the two major conceptual models. The results of study on 2995 Taiwan rural community subjects reveal; (1) the significant negative effect of specific recent life stress on prevalence of depressive disorder; (2) the buffering effect of social support as indicated by good perceived quality of support sought on depressive symptoms is observed in some specific life events; (3) the main-and-global effect of support as indicated by good social integration and support network on depressive symptoms is, however not clear; (4) the contents of life stress, support network, and their interactions on depressive symptoms are culture specific. The findings are in part in accord with those reported in the western literature, and also in support of the applicability of the above models on the study of the Taiwanese community subjects.

Keywords: depression, life stress, "main-and-direct effect" vs. "buffering effect" of support

1 Taipei Medical College.
2 Taipei City Psychiatric Center.
3 Institute of Sociology, Academia Sinica.
4 Department of Psychiatry and Biobehavioral Sciences, UCLA.
5 College of Medicine, National Taiwan University.
6 Institute of Sociology, Academia Sinica.

* This study is a part of research project supported by the Chiang Ching-Kuo Foundation for International Scholarly Exchange (RG010-'90).

Submitted: April 20, 1999; Accepted: July 4, 2000.

The roles of life stress, and its interaction with social support in health maintenance and disease etiology have been the subject for study with rapidly increasing interest in recent years. There are two major dominant conceptual models which have lead the studies.

The first one is called "main-and-direct-effect model" of social support. In this model it is conceptualized that the positive and protecting effect of social support on one's health is from one's good global social integration and participation. It is believed that good social integration network enables an individual to operate stable and "socially rewarded roles", enhances one's self-esteem, and avoid unhealthy living environment. All act as important factors for an individual to maintain physical and mental well-being. This mechanism is often called as "regularized social interaction" or "embededness" (Myers et al., 1975; Cassel, 1976; Hammer, 1981; Thoits, 1983, 1985), and described as "social interaction" or "social integration" or "relational reward", or "status support" etc (Levinger & Huesmann, 1980; Moos & Michell, 1982; Reis, 1984; Willis, 1985). Some researchers believe that the positive effect of this kind of social support is mediated by its positive effect on endocrine and immune systems (Krantz, Grunberg, & Baum, 1985; Willis, 1983). Some claim that the extent in social participation is the important determining factors of social support effect. (Berkman & Syme, 1979; House, Robbins, & Metzner, 1982).

The second one is called "buffering model". Briefly it is conceptualized that beneficial effect of social support is from the "process" of support which protect persons from potentially adverse effects of stressful events (Cassel, 1976; Cohen & Makay, 1984; Dean & Lin, 1977; Dean, Lin, & Ensel, 1981). The mechanism of buffering effect of support can be explained by: (1) the support intervene between the stress and one's coping, and reduces ones stress appraisal response (Cohen & Makay, 1984; Gore, 1981); (2) The reduction of stress appraisal response regulates the neuroendocrine functions which leads to protection of persons from ill-health, and enhances ones health behavior in daily life (House, 1981).

In the intensive review of 57 major studies that published during 1970 to 1983, (Cohen & Willis, 1985) have made the following summaries: (1) The measurement of global social structure is valid for measuring social integration which acts as main and direct support effect on ones emotional stability, self-esteem, and confidence which leads

to strengthening of coping efficacy to stressful life events; (2) Good social support network may, however, not guarantee its specific protecting effect at the time of specific acute life stress (buffering effect); (3) The correlation between direct-and-main-effect, and specific buffering effect of social support is low. They are, however, not mutually exclusive; (4) There seem to be more studies, which supported "buffering model" of support than "main-and-direct-effect model" of support; (5) Theoretically the buffering effect of support have to be proved from the formula indicating the interaction between the stress and support which is usually the actual support received; (6) There are socio-demographic and cultural background correlates in support seeking attitude; (7) All of the studies have indicated the positive effect of social support on one's health, and none the negative effect.

There are, however, some questions, which have remained unanswered, and deserve further studies: (1) Are there threshold in adverse effect of stressful events, poor social integration, and lack of support on the cause, clinical course, and prognosis of specific mental disorders? If yes, what are they? (2) How the stressful events, social support interact with genetic and acquired biological factors on the cause, clinical course, and prognosis of specific mental disorders? (3) Are these interactions different between each of mental disorders, and between patients of different ethnic and cultural background?

The studies on the subjects of stress, support, and its effect of interaction on mental disorders have been scanty in Taiwan. Most of the earlier studies were limited in the measurement of stress based on the Holmes & Rahe's SRE (1967), and on small number of specific samples in schools or clinical settings. Though Chang et al. (1984, 1985) has proposed some hypothetical models regarding the effect of stress and support and its interaction on specific mental disorders, there has been so far no study on large community samples reported.

Fortunately in the last decade due to the innovatory improvement in the methods of sampling and case-identification, psychiatric epidemiology on large number of community population have become available. A number of well-designed and large-scaled studies have been carried out world-wide. Taiwan was not an exception. The Taiwan Psychiatric Epidemiological Project (TPEP), which was carried out during 1982-86, was this kind. The TPEP has, thus, provided ideal opportunities and basis for

study of stress, support and its interaction on specific mental disorders in Taiwan community population.

Aims

Based on the findings in a part of study sites in the TPEP, and using epidemiological approach, this study aims to examine: (1) the effect of recent life change events, and its interaction with social support on depressions in Taiwan rural community population; (2) more specifically to test the applicability of "main-and-direct effect" and "buffering-effect" model of support on depression; and (3) hopefully to induce some hypothetical thoughts regarding the low rates of depressive disorders in Taiwan community population.

Depression is chosen as the subject of study for several reasons. In contrast to the "age of anxiety", that followed WWII we may now be entering "age of melancholy" during the 70s and the years following (Klerman, 1978; Schwarb et al., 1979). Hagnell et al. (1982) found the increased incidence of depression from 25 years of Lundby Prospective Study. Depressions are the most prevalent symptoms in communities and clinical population, and constitute major public health problems (Blazer et al., 1988). While these findings are true in Western countries, the findings from the TPEP has, however, showed the significantly lower rates of depressive disorders (1.14% for major depression and 1.66% for dysthymia) than that from any site of the US ECA study (5.15% for major depression and 3.26% for dysthymia) (Compton Ⅲ et al., 1991; Yeh et al., 1994a; Hwu et al., 1996). Depression thus deserves our special attention for study.

Methods

Samples: Altogether 2995 rural community subjects age 18 and over involved in the TPEP were studied. Briefly the TPEP was a nation-wide program designed to study mental disorders in community population age 18 and over covering a metropolis, two townships and six rural areas. The study samples in all three sites were drawn to represent the different types of communities in terms of level of urbanization in Taiwan at that time. Altogether 5005, 3004, and 2995 subjects, who were drawn through multi-staged sampling method from the above three study sites to represent the demographic and socioeconomic characteristics of the respective target communities, were studied. For

rural communities, six "Hsians" (countries), two each from central, southern, and northern part of Taiwan with total of ninety "Tsungs" (villages) were chosen to represent three different types of rural communities including typically farming, fishery, and mixture of both respectively. The sampling method has been described elsewhere (Hwu, Yeh, & Chang, 1989), and was by and large similar with the US ECA-Program (Regier et al., 1984; Easton et al., 1984).

Case-identification tool and method: The Chinese-Version-III of the NIMH Diagnostic Interview Schedule (DIS-CM-III) was used to detect the cases with twenty-two DSM-III disorders (American Psychiatric Association, 1980). The DIS is a set of structured interview schedule with clearly defined criteria for each items of questions designed to reach the DSM-III disorders. It is claimed to be used reliably by non-professionals after a short period of training, and, thus, can be well adopted in study of a large number of samples (Robins et al., 1981). The development of DIS-CM, study of its reliability and validity (Hwu, Yeh, & Chang, 1986a, b), training of interviewers, the method in data-collection, and data-processing have been reported elsewhere (Hwu, Yeh, & Chang, 1989).

Measurement of Recent Life Events and Social Support: The specifically designed brief schedule to identify life change events reported in recent six months, and social support network were used with the DIS-CM in the interview with each subject. They were adopted from the schedule used in the ECA-LA study with modifications in order to be culturally relevant to Taiwanese subjects, and to adequately control the time for each interview (Yamamoto & Aneshensel, 1985). All the items of life change events are classified into ten groups as shown in Table 1. There are eleven items of questions to measure social support network as shown in Table 2.

Analysis of data: The SPSS and SAS program including multiple regression model, and multiple logistic regression model are used.

Results

Characteristic Fatures of Recent Life Events

Approximately one third (30.8%) of our rural community subjects reported at least one or more life change events during the last six months, with significantly higher rates

Table 1 The Contents of Life Events in the Last Six Months

E1: Been fired, laid off or quit work
E2: Any change in job
E3: Business loss or failure
E4: Get arrested or legal trouble
E5: Did you move?
E6: Death of any family member or close relative
E7: Any one ill in family
E8: Become a parent, step parent, or fostering parent
E9: Separation from family
E10: Anything else affecting your life

Table 2 The Items for Social Support

1	Number of contact with family members not living together, and relatives in last six months
2	The attitude of support seeking, and perceived result of support
3	Number of personal contact with friends (including overseas) in the last six months
4	The attitude of support seeking from friends, and perceived result of support
5	Number of personal contact with colleagues or co-workers including supervisors or bosses in the last six months
6	The attitude of support seeking from colleagues, and perceived result of support
7	Number of personal contact with neighbors
8	The attitude of support seeking from neighbors, and the perceived result of support
9	The person(s) consulted before medical help-seeking for illness (with priority order if more than two persons)
10	The person(s) consulted at the time of life crisis (with priority order if more than two persons)
11	The feeling toward and confidence in spouses or other family members at the time of personal or family crisis

in younger age-groups and unmarried groups, and without significant difference between sexes. It means that two thirds of our rural community subjects reported no life change event in the last six months. The highest item of events reported was "any one of family ill" (10.7%), with "death of any family member or close relative" as second (7.0%), "becoming a parent, step or fostering parent" (5.4%) and "been-fired or laid off or quit work" (5.3%) as third, "business loss or failure" (4.7%) and "any change in job" (4.6%) as fourth highest, and "get arrested or legal trouble" (1.4%) as lowest respectively. Significantly different rates were observed between the sexes, age-groups, marital status, in some specific items of events (Yeh et al., 1994b).

Characteristic Features of Social Support Network and Support Seeking Behavior

In general our rural community subjects keep significantly closer contact with family members and relatives than friends, working colleagues, or neighbors in daily life with some differences between sexes, age-groups, and marital status. A great majority (92.7%) of our samples perceived good support from family members or spouses, and nearly all subjects (96.1%) reported having someone they have talked to about the most personal problems, hopes, or fears, in the last six months. The first objects they reported to seek for help at the time of crisis in the last six months were family members, and only when they failed did they look for help from relatives and friends. This indicates that the support-seeking network of our rural community subjects is primarily family-based. Slightly more than half of our samples reported willingness to talk with relatives (56%), friends (52.6%) and colleagues (35%) for their personal problems if necessary. But actually less than half of the samples consulted relatives (45.3%), and seldom friends (2.5%) before seeking for medical help at the time of illness. Significant differences in the support network and support seeking behavior were observed between sexes, age groups and marital status (Yeh et al., 1994b).

Life Events, Social Support, and Six-month Prevalence Rate of Major Depressive Disorder

As shown in Table 3, the six-month prevalence rate of DSM-III major depressive disorder is significantly correlated with any reported life events (LE). When social

Table 3 Life Events, Social Support and Six Month Prevalence Rate of DSM-Ⅲ Major Depressive Disorder by Multiple Logistic Regression Model

	Odds Ratio	95% CI
Sex (female)*	0.40	0.17 ~ 0.98
Social Integration (SI)	0.44	0.18 ~ 1.08
Perceived Social Support (PSS)*	0.20	0.04 ~ 0.91
Social Support Sought (SSS)	3.06	0.99 ~ 9.44
Life Event (LE)*	2.73	1.17 ~ 6.39

n= 22 * p<0.05

support is further classified into social integration (SI), actual support sought (SSS), and the perceived quality of support sought (PSS) according to the criteria as defined in Tables 4, 5, and 6 respectively, the negative correlation of depressive disorder with social support is significant only in the well-perceived support sought (PSS), and not in the good SI. The positive correlation between the SSS and the rate of depressive disorder, though not significant, appear to be contradictory to the presumably protecting effect of social support on depressive disorder. These findings highly suggest that the protecting effect of social support on depressive disorder is from the good quality of support perceived by the individuals, and not from the actual support sought at the time of stressful life events. As the case number is small (22), further study on larger sample size is needed to test the effect of stress and support on depressive disorder.

Life Change Events (LE) and Depressive Symptoms

There are altogether 8 symptom clusters including appetite change, sleep change, fatigue, changes in psychomotor activities, interest loss, worthless feeling, thinking trouble, and thought of death with total of 16 symptoms in addition to dysphoria as required symptom according to the DSM-III criteria (DSM-III 1980) for major depressive disorder. As shown in Table 7, the depressive symptoms are significantly more prevalent among the females than males. There are, however, no significant differences in the age-groups as shown in Table 8. As shown in Table 9, the number of depressive symptoms are significantly more prevalent in the subjects with any reported life events than without any life events in both sexes.

Table 4 Criteria for Social Integration

Good Integration	Poor Integration
Marital Status	*Marital Status*
1. Legally married, Never separate nor divorced, or	1. Had more than 2 times of marriage, or
2. Never married, never lived together nor had child without wedlock	2. Legally married, but currently separated or had separated for over six months in past, or
	3. Widow, or widower, or
	4. Currently divorced, or
	5. Living with partners without wedlock, or
	6. Has child without wedlock
Employment	*Employment*
1. Has been holding a steady job for more than 6 months, or	1. Has been unemployed for over 6 months for the main supporter of the family, or
2. Student, housewife, enlisted or	2. Employment has been unstable, or has been fired during the last 6 months
3. If not employed, age 65 and over	

Table 5 Criteria for social support sought (SSS)

High Support Seeking	Low Support Seeking
Has talked to relatives, or friends, or co-workers, or someone else for personal or family problems more than 7 times, or consulted professionals during the last six months	Less than 6 times of contact, or no such experience during the last six months

Table 6 Criteria for Perceived Social Support (PSS)

Well Perceived	Not Well Perceived
1. Spouse of family members are usually the important resources for help when needed, or find can confide in them	1. Spouses of family members are not helpful when needed, or finding unable to confide in them
2. Find talking someone other than spouses or family members (including relatives, friends, co-workers and neighbors) for personal problems or difficulty are helpful or trustful when needed	2. Find talking someone other than family members for personal problems or difficulty are not helpful, or not trustful when needed

Table 7 Number of DSM-III Major Depressive Symptoms by Sex

	Male n=1643		Female n=1352	
	n	%	n	%
0	1070	65.1	836	61.8
1-6	561	34.1	480	35.5
>7	12	0.7	36	2.7

X^2=18.94, p=0.000

Table 8 Number of DSM-III Major Depressive Symptoms by Age

	≤24 n=849		25-44 n=1168		45-64 n=754		≥65 n=224	
	n	%	n	%	n	%	n	%
0	525	61.8	767	65.7	488	64.7	126	56.3
1-6	308	36.3	383	32.8	254	33.7	96	42.9
>=7	16	1.9	18	1.5	12	1.6	2	0.9

X^2=10.74, p=0.097

Table 9 Number of DSM-III Major Depressive Symptoms by Life Events and Sex

	Male				Female			
	with LE n=525		without LE n=1118		with LE n=399		without LE n=953	
	n	%	n	%	n	%	n	%
0	289	55.0	781	69.9	225	56.4	611	64.1
1-6	229	43.6	332	29.7	161	40.4	319	33.5
>=7	7	1.3	5	0.4	13	3.3	23	2.4

X^2=36.15, p=0.000 X^2=7.21, p=0.027

Specific Life Events, Social Support and Depressive Symptoms

In order to examine whether the effect of life stress, and social support, and their interactions on the number of depressive symptoms may be different according to the specific items of life change events (LE), the analysis by multiple regression model was made on each reported items of LEs as shown in Tables 10-1 and 10-2. Although the R^2 (coefficient of determination) is smaller than 10%, and thus the significance of its validity is, questionable, these two tables nevertheless deserve ones attention in terms of some specific findings. The number of depressive symptoms are; (1) significantly correlated with 5 specific LEs, such as "loss of job," "business loss or failure," "legal trouble," "assuming the parent role," and "separation from family;" (2) persistently and negatively correlated with good SI, and good PSS in all 10 items of LEs except "separation from home;" and (3) persistently not correlated with the quantity of SSS. When the interactional effect of social support and stress is measured by the formular SI-LE, PSS-LE, and SSS-LE, the results are highly noteworthy. The positive and protecting interactional effect on number of depressive symptoms is significant in; (1) good SI for 4 specific LEs namely, "loss of job," "change of job," "legal trouble," and "assuming the parent role;" (2) good PSS for also 4 specific LEs namely, "business loss or failure," "legal trouble," "move of house," and "separation from family". The interactional effect of SSS on number of depressive symptoms is inconsistent and all non-significant in all LE items.

The above findings highly suggest that in Taiwan rural community: (1) the life event like "loss of job," "business loss or failure," "legal trouble," "separation from home," "assuming the parent role" and "moving house" are most stressful life experiences which are correlated with occurrence of depressive symptoms; (2) the positive interactional effect on depressive symptoms are again from good PSS, and not from the quantity of SSS. These findings are in support of the buffering theories as reported by other investigators (Dean & Lin, 1977; Dean, Lin, & Ensel, 1981; Lin et al., 1979). These finding are, however, also, at least in part, in support of the global and direct positive effect of good social integration (SI) as reported by Aneshensel in LA study (Aneshensel and stone, 1982). The direct and global effect of good social integration, and the buffering effect of well perceived support on depressive symptoms are different according to the specific items of life events, and appear to be not mutually exclusive.

Table 10-1 Estimate of Regression Coefficient for the Number of DSM-III Depressive Symptoms by Multiple Regression Model in 2995 Taiwan Rural Community Samples

Independent Variable	Regression Coefficient				
	E1[Δ]	E2[Δ]	E3[Δ]	E4[Δ]	E5[Δ]
Sex	-0.21**	-0.20**	-0.20**	-0.20**	-0.20**
Social Integration (SI)	-0.29**	-0.31**	-0.40**	-0.35**	-0.38**
Perceived Social Support (PSS)	-0.37*	-0.51**	-0.38*	-0.41*	-0.40*
Social Support Sought (SSS)	0.11	0.08	0.10	0.11	0.10
Life Event (LE)	2.07**	0.58	3.61**	5.92**	2.84
SI-LE	-0.79*	-1.38**	-0.28	-2.51**	0.15
PSS-LE	-0.78	0.92	-2.56**	-2.70*	-2.94**
SSS-LE	-0.04	0.25	-0.21	0.06	0.08

* $p<0.05$, ** $p<0.01$ [Δ] Table 1.

Table 10-2 Estimate of Regression Coefficient for the Number of DSM-III Depressive Symptoms by Multiple Regression Model in 2995 Taiwan Rural Community Samples

Independent Variable	Regression Coefficient				
	E6[Δ]	E7[Δ]	E8[Δ]	E9[Δ]	E10[Δ]
Sex	-0.19**	-0.20**	-0.19**	-0.19**	-0.20**
Social Integration (SI)	-0.34**	-0.35**	-0.28*	-0.34	-0.36**
Perceived Social Support (PSS)	-0.45*	-0.42*	-0.47**	-0.31	-0.40*
Social Support Sought (SSS)	0.08	0.12	0.10	0.09	0.11
Life Event (LE)	1.05	1.04	2.90*	3.53**	2.39**
SI-LE	-0.72	-0.33	-2.07**	-0.24	-0.55
PSS-LE	-0.33	-0.36	-0.73	-2.86**	-0.81
SSS-LE	0.23	-0.19	-0.04	0.63	-0.86

* $p<0.05$, ** $p<0.01$ [Δ] Table 1.

It is highly noteworthy that the serious life events like "death of any family member or close relative" are not associated with higher number of depressive symptoms at all in this study. This findings is difficult to understand, and presumably would not be the case in Western cultures. The speculative explanation for this finding is that the culture-specific mourning rituals at the time of grief in loss of loved one, together with the direct and global effect of good social integration of family may play important role in protecting the subjects from depression in Taiwan rural community.

The emphasis on close family tie and interdependency among the family members in Taiwan rural community are well reflected in the support network and primary support-seeking behavior for personal problems or when one encounters life change crisis. In the vast majority of our subjects studied, traditionally the primary support network is within the family, in less extents within the relatives, and may extend to friends or colleagues only when primary support seeking do not work. The intimate family tie and emphasis on interdependency between family members may act not only as direct and global effect to protect the individuals from depressive symptoms, the specific support-seeking network may at the same time act as buffering effect on prevention of symptoms at the time of some specific life change events. The results of this study indicate that the role of specific life change events, and its interaction with social support in health maintenance and disease etiology needs careful reexamination in the context of culture specificity.

Comments

This study has its limitations: (1) The fieldwork for data collection in the TPEP were carried out in three different period of time, namely, during 1982-83 for a metropolis, in 1984 for two townships, and for six rural areas during 1985-86 respectively. As we gained more knowledge through the experiences in study of a metropolis and townships, and the exchange of study findings with major international study sites, the interest to study the relationship between life events, social support, and the effect of their interaction on mental disorders were crystallized at the time of the study on rural community subjects. The samples in this study included, thus, the subjects in rural communities, and not in metropolis and townships in the TPEP. Accordingly the findings in this study cannot represent the subjects in metropolis and townships; (2) The schedule

for life change events and social support was designed as an integral part of the whole Diagnostic Interview Schedule, which was the main case-identification tool in the TPEP. The schedule has to be designed for convenience in its application on data collection from a large number of study subjects in community. The items included in the schedule, thus, appear to be simple, highly structurized, and may not be sufficient enough to obtain more data for analysis of global and direct effect of social integration and specific buffering effect of support depressive symptoms; (3) The lifetime prevalence rates of depressive disorders in all study sites in Taiwan community population is notably low, ranging between 0.9-1.7% for major depression, and 0.9-1.5% for dysthymia (Hwu, Yeh, & Chang, 1989); (4) The major findings of this study are mainly based on the statistical analysis. With such a low rate of depressive disorder, one has to be cautious in interpretation of the results of the analysis. Though not yet on the clinical level, the findings in this study appear to be, however, valid in suggesting some theoretical formulations regarding social support and its interaction with life events on depression. Further studies with better designed schedules for measurement of stress and social support, and on larger size of samples both in community and clinical setting is needed to test the validity of our findings. The notably lower prevalence rates of depressive disorders in Chinese community population is also seen in the Shatin, Hong Kong study which adopted the similar case identification tool as the TPEP (1.89% for major depression and 1.98% for dysthymia) (Chen et al., 1993).

Nevertheless the findings of this study are in support of the theoretical model regarding the negative effect of life change events on depressive symptoms. The findings also provide: (1) basis for examining the applicability of the two prevailing conceptual models of support on depression, and (2) the basis to examine the hypotheses regarding the low rate of depressive disorders among the Chinese community subjects in the context of life stress and social support. Based on the results of this study it may be hypothesized that lower rates of stressful life events, close family tie, and good social integration may attribute, at least in part, to the lower rate of depressive disorders in our rural community subjects. Some preliminary findings from the comparative study with the ECA-LA Program are in support of this hypothesis (Yeh et al., 1993, 1994b).

Concluding Remarks

1) Significantly negative effects of stress on depressive symptoms are observed in five specific recent events in Taiwan rural community subjects. They included "loss of job," "businesses loss or failure," "legal trouble," "assuming the parent role" and "separation from home".

2) The significant buffering effects of social support on depression at the time of these stressful life events are observed. These effects are from the good quality of social support perceived, and not from the actual support sought.

3) The main-and-direct effect of support indicated by good social integration on protecting the individuals from depressive symptoms is also suggested.

4) The contents of life stress, support network, and their interactional effect on depressive symptoms in Taiwan rural community subjects are culture specific.

5) The lower rate of life events/stress, close family tie and emphasis of interdependency between family members in support network may in part explain the reasons for the low rates of depressive disorders in Taiwan community subjects.

6) The clinical implications of the above findings need further studies on larger size of samples.

References

Aneshensel, C. S., & Stone, J. D. (1982). Stress and depression: A test of the buffering model of social support. *Archives of General Psychiatry, 39,* 1392-1396.

APA (1994). *Diagnostic and statistical manual of mental disorders* (3rd ed.) *(DSM-III).* Washington, D.C.: American Psychiatric Association.

Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology, 109,* 186-204.

Blazer, D. G. (1982). Social support and mortality in an elderly community population. *American Journal of Epidemiology, 115,* 684-694.

Cassel, J. C. (1976). The contribution of the social environment to host residence. *American Journal of Epidemiology, 104,* 107-123.

Chang, L. Y., Hwu, H. G., & Wu, E. C. (1985). Some hypotheses about the relationship between stress, social support and mental illness. In E. K. Yeh, H. Rin, H.G. Hwu, & C. C. Yeh (Eds.), *Proceedings of the international symposium on psychiatric epidemiology* (pp. 367-383). Taipei: The Department of Health of the Executive Yuan, Republic of China.

Chang, L. Y., Yeh, E. K., & Hwu, H. G. (1984). Sampling methods in Taiwan psychiatric epidemiologic project. Paper presented at Symposium on Cross-cultural Psychiatric Epidemiology, Hong-Kong.

Chen, C. N., Wang, J. Lee, N., Chan-Ho, M. W., Lau, J. T. F., & Fung, M. (1993). The Shatin community mental health survey in Hong Kong. *Archives of General Psychiatry, 50,* 125-133.

Cohen, S., & Mckay, G. (1984). Social support, stress and the buffering hypothesis: A theoretical analysis. In A. Baum, J. E. Singer, & S. E. Taylor (Eds.), *Handbook of psychology and health 4,* (pp. 253-267). Hillsdale, NJ: Erbaum Associates.

Cohen, S, & Willis, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin, 98,* 310-357.

Compton Ⅲ, W. M., Helzer, J. E., Hwu, H. G., Yeh, E. K., McEvoy, M. A., Tipp, M. A., & Spitznagel, E. L. (1991). New methods in cross-cultural psychiatry: psychiatric Illness in Taiwan and the United States. *American Journal of Psychiatry, 148(12),* 1697-1704.

Dean, A., & Lin, N. (1977). The stress-buffering role of social support. *Journal of Nevous and Mental Disease, 165,* 403-417.

Dean, A., Lin, N., & Ensel, W. M. (1981). The epidemiological significance of social support systems in depression. In R. Simmons (Ed.), *Research in community and mental health* (pp. 77-108). Greenwich, CO: JAI Press Inc.

Easton, W. W., Holzer, C. E. III, Vonkorff, M., et al. (1984). The design of the epidemiologic catchment area surveys. The control and measurement of error. *Archives of General Psychiatry, 41,* 942-948.

Gore, S. (1981). Stress-buffering functions of social supports: An appraisal and clarification of research models. In B. S. Dohrenwend, & B. P. Dohrenwend (Eds.), *Stressful life events and their contexts.* New York. Prodist.

Hagnell, O., Lanke, J., Rorsman, B., & Öjesjö L (1982). Are we entering into an age of melancholy? Depressive illness in a prospective epidemiological study over 25 years: the Lundby study, Sweden. *Psychological medicine, 12,* 279-289.

Hammer, M. (1981). Core and extended social networks in relation to health and illness. *Social Science and Medicine, 17,* 405-411.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating seale. *Journal of Psychosomatic Research, 11,* 213-218.

House, J. E. (1981). *Work stress and social support.* Reading, MA: Addison-Wesley.

House, J. S., Robbins, C., & Metzner, H. L. (1982). The association of social relationships and activities with mortality: Prospective evidence from the Tecumseh Community Health Study. *American Journal of Epidemiology, 116,* 123-140.

Hwu, H. G., Yeh, E. K., & Chang, L. Y. (1986a). Chinese diagnostic interview schedule. I. Agreement with Psychiatrist's Diagnosis. *Acta Psychiatrica Scandinavica, 73,* 253-256.

Hwu, H. G., Yeh, E. K., & Chang, L. Y. (1986b). Chinese diagnostic interview schedule. II. A validity study on estimation of lifetime prevalence. *Acta Psychiatrica Scandinavica, 73,* 348-357.

Hwu, H. G., Yeh, E. K., & Chang, L. Y. (1989). Prevalence of Psychiatric disorders in Taiwan defined by Chinese diagnostic interview schedule. *Acta Psychiatrica Scandinavica, 79,* 136-147.

Hwu, H. G., Chang I. H., Yeh, E. K., Chang, C. J., & Yeh L. L. (1996). Depressive disorder in Taiwan Defined by the Chinese Diagnostic Interview Schedule. *Journal of Nervous and Mental Disease, 184,* 497-502.

Klerman, G. L. (1978). Affective disorders. In A. M. Nicholi Jr. (Ed.), *Harvard guide to modern psychiatry* (p. 235). Cambridge, MA:The Belknap Press of Harvard University Press.

Krantz, Q. S., Grunberg N. E., & Baum, A. (1985). Health psychology. *Annual Review of Psychology, 36,* 349-383.

Levinger, G., & Huesmann, L. R. (1980). An incremental exchange perspective on the pair relationship. In K. J. Jurger, & M. S. Greenberg, & R. H. Willis (Eds.),

Social exchange: Advances in theory and research (pp. 165-188). New York: Plenum.

Lin, N., Simeone, R. S., Engel, W. M., & Kuo, M. (1979). Social support, stressful events, and illness: A model and empirical test. *Journal of Health and Social Behavior, 20,* 108-119.

Moos, R. H., & Mitchell, R. E. (1982). Social network resources and adaptation: A conceptual framework. In T. A. Willis (Ed), *Basic process in helping relationships* (pp. 213-232). New York: Academic Press.

Myers, J. K., Lindenthal, J. J., & Pepper, M. P. (1975). Life events, social integration and psychiatric symptomatology. *Journal of Health and Social Behavior, 16,* 421-429.

Regier, D. A., Meyers, J. K., Kramer, M., Robins, L. N., Blazer, D. G., Hough, R. L., Easton, W. W., & Locke, B. Z. (1984). The NIMH epidemiologic catchment area program. historical context, major objectives, and study population characteristics. *Acta Psychiatrica Scandinavica, 41,* 934-941.

Reis, H. T. (1984). Social interaction and well-being. In S. Duck (Ed.), *Personal relationships, Vol. 5: Repairing personal relationship* (pp.21-45). London: Academic Press.

Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). National institute of mental health diagnostic interview schedule: Its history, characteristics, and validity. *Acta Psychiatrica Scandinavica, 38,* 381-389.

Schwarb, J. J., Bell R. A., Warheit, G. J., & Schwab, R. B. (1979). *Social order and mental health* (pp. 74-74). New York: Brunner/Mazel.

Thoits, P. A. (1983). Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis. *American Sociological Review, 48,* 174-187.

Thoits, P. A. (1985). Social support processes and psychological well-being: The oretical possibilities. In G. Sarason & B. Sarason (Eds.), *Social support: Theory, research and applications* (pp. 51-72). Dordrecht; Boston: M. Nihjoff.

Willis, T. A. (1983). Social comparison in coping and help-seeking. In B. B. Depaulo, A. Nadler, & J. D. Fisher (Eds.), *New directions in helping, Vol. 2: Helpseeking* (pp. 109-141). New York, Academic Press.

Willis, T. A. (1985). Supportive functions of interpersonal relationships. In S. Cohen & S. L. Syme (Eds.), *Social support and health* (pp. 61-82). New York, Academic Press.

Yamamoto, J., & Aneshensel, C. (1985). *Personal communication.*

Yeh, E. K., Yamamoto, J., Hwu, H. G., Chang, L. Y., & Yeh, Y. L. (1993). Life change experience, social support and depression: An epidemiological approach. Paper presented at 146 Annual meeting of the American Psychiatric Association, San Francisco, May 22-27.

Yeh, E. K., Weissman, M. M., Greenwald, S., & Hwu, H. G. (1994a). Depressive symptoms in Taiwan community population in comparison to the US-ECA Findings. *Symposium on Cross-cultural Collaborative Study of Depressive and Anxiety Disorders.* Paper presented at 19th C.I.N.P. Congress, Washington, D.C., June 27-July 1.

Yeh, E. K., Hwu, H. G., Yeh, Y. L., Chang, L. Y., Yamamoto, J., & Golding J. M. (1994b). *Life change events, social support and mental disorders: Taiwan-US Cross-cultural study.* Research Report Monograph, Chiang Ching-Kuo Foundation for International Scholarly Exchange.