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Functions and sources of perceived social support among children affected by HIV/AIDS in China

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Abstract

While the relationship between perceived social support (PSS) and psychosocial wellbeing has been well documented in the global literature, existing studies also suggest the existence of multiple domains in definition and measurement of PSS. The current study, utilizing data from 1,299 rural children affected by HIV/AIDS in central China, examines the relative importance of PSS functional measures (informational/emotional, material/tangible, affectionate, and social interaction) and PSS structural measures (family/relatives, teachers, friends, and significant others) in predicting psychosocial outcomes including internalizing problems, externalizing problems, and educational resilience. Both functional and structural measures of PSS provided reliable measures of related but unique aspects of PSS. The findings of the current study confirmed the previous results that PSS is highly correlated with children's psychosocial wellbeing and such correlations vary by functions and sources of the PPS as well as different psychosocial outcomes. The findings in the current study suggested the roles of specific social support functions or resources may need to be assessed in relation to specific psychosocial outcome and the context of children's lives. The strong association between PSS and psychosocial outcomes underscores the importance of adequate social support to alleviate stressful life events and improve psychosocial wellbeing of children affected by HIV/AIDS. Meanwhile, the study findings call for gender and developmentally appropriate and situation specific social support for children and families affected by HIV/AIDS.

Keywords

Perceived Social Support; Orphans; China; Internalizing Problems; Externalizing Problems; Educational Resilience; HIV/AIDS

Introduction

Research on the role of social support in psychosocial wellbeing has gained momentum in the past two decades. Social support has been defined as a process in which resources are provided or exchanged between at least two individuals with a purpose to enhance the

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wellbeing of the recipient (Callaghan & Morrissey, 1993). Lack of social support and lower perceived adequacy of social support have been linked to poorer mental and physical health (Allgower, Wardle & Steptoe, 2001; Decker, 2007). Social support generally functions as a "buffer" to reduce distress and enhance resilience for people in stressful life events (Richmond, Ross, & Egeland, 2007).

While the relationship between social support and psychosocial wellbeing has been well established in the literature (Richard et al., 2007), previous research also suggests the existence of multiple domains in the definitions or measurements of PSS. On one hand, social support was often defined by its functions, such as informational/emotional support, material/tangible support, affectionate support, and social interactions (Callaghan & Morrissey, 1993; Richmond et al, 2007). Among these different functions of support, some studies suggested that emotional support is deemed the most important, and has the biggest impact on the recipient's psychological health (Greenwood, Muir, Packham & Madeley, 1996). On the other hand, social support has also been defined along a structural dimension in terms of the sources of the support (or the identities of the providers of the support), such as spouses/partners, colleagues, friends, teachers, caregivers, and other members of social network or community. Most studies on social support for children concluded that family support was a primary source of support (Callaghan & Morrissey, 1993; Decker, 2007). Procidano and Heller (1983) suggested that social support from family was more related to symptoms of distress and psychopathology than the support from friends; while support from friends were more closely related to social competences and mood status. Although some researchers speculated that people in different stressful life events may need different functions of PSS from different sources (Decker 2007; Wellman & Wortley, 1989, 1990), few studies have examined both the functional and structural aspects of the PSS simultaneously. In addition, limited data are available regarding the relative importance of functional and structural dimensions of PSS in relation to different psychosocial outcomes. Such data are further scarce from vulnerable or traumatized children such as children affected by AIDS. Therefore, the current study, utilizing data from a longitudinal psychosocial assessment of children affected by HIV/AIDS in rural China, was designed to advance our knowledge regarding the functional and structural aspects of PSS among a new and important population.

In China, the government estimated that there were at least 100,000 AIDS orphans by the end of 2004 with many of these orphans living in central China (Zhao et al., 2007). From late 1980s to middle 1990s, some governmental and commercial blood stations/centers started collecting blood from poor farmers in rural areas of central China. The unhygienic blood/plasma collection has resulted in a large number of people infected with HIV and other blood-borne diseases. Although such practices were banned in the late 1990s, many HIV infected individuals progressed to AIDS and subsequently died, leaving their children orphaned (Ji, Li, Lin & Sun, 2007; Zhao et al., 2007). While there is currently a growing body of global literature on the wellbeing of children affected by AIDS (Cluver & Gardner, 2007; Lee, Detals, Rotheram-Borus & Duan, 2007; Li et al., 2009; Zhao et al., 2007), limited data are available regarding PSS among these children. A previous study revealed a significant association between PSS (measured in terms of the various sources of support) and psychosocial wellbeing among children affected by HIV/AIDS in China (Hong et al., 2010). At the same time, previous studies also suggested that the sources of PSS and psychosocial outcomes varied by children's age, gender, and orphanhood status (AIDS orphans, vulnerable children, and comparison children) (Fang et al., 2009; Hong et al., 2010).

The main objective of the current study is to assess the role of various social support functions (informational/emotional support, material/tangible support, affectionate support,

and social interaction) and sources of support (family/relatives, teachers, friends, and significant others) in predicting internalizing problems (depression and loneliness), externalizing problems (delinquent behaviors), and educational resilience (age-appropriate grade, above-average academic performance, and student leadership) among children from rural communities with high HIV prevalence in central China. We hypothesized that different social support functions and different sources of social support would be associated with different psychosocial outcomes, after controlling for critical confounders that are associated with PSS (e.g., age, gender, and orphanhood status).

Methods

Participants

The sample in the current study were participants in the second annual assessment of a longitudinal study of psychosocial needs of children affected by AIDS in China (Li et al., 2009). The larger study was conducted in 2005-2009 in two rural counties in central China where many residents were infected with HIV through unhygienic blood collection. Both counties have the highest prevalence of HIV-infection in the area. The participants (n=1,299) in the second annual assessment include 579 AIDS orphans (children who lost one or both parents to AIDS), 383 vulnerable children (children living with HIV-infected parents), and 337 comparison children (children who lived in the same community but did not experience HIV-related illness or death in their family). Children 6 to 18 years of age at baseline were eligible to participate in the study. Age eligibility was verified through the local community leaders, school records, or caregivers.

Sampling Procedure

The detailed sampling and consenting procedure for the larger study was described elsewhere (Li et al., 2009). Briefly, the orphanage sample was recruited from four government-funded orphanages in the two counties (2 orphanages in each county). To recruit AIDS orphans and vulnerable children from the family or kinship, we worked with the village leaders to generate lists of families caring for orphans or with confirmed diagnosis of HIV/AIDS. We approached the families on the lists and recruited one child per family to participate in the assessment. Once the eligibility of a child was confirmed, the interviewers provided him/her with a detailed description of the study design and potential benefits and risks (including confidentiality issues) and invited him/her to participate. The research protocol, including consenting procedure, was approved by the Institutional Review Boards at Wayne State University in the United States and Beijing Normal University in China.

Survey Procedure

Each child was administered an assessment inventory. During the survey, necessary clarification or instruction was provided promptly when needed. The interviewers were well trained education and psychology graduate students and faculty members from the local universities. The entire assessment inventory took about 75 to 90 minutes to complete, depending on the age of the children. Each child received a gift worth $2.5 at completion of the assessment as a token of appreciation.

Measures

Demographic characteristics—Children were asked to provide a number of individual and family characteristics during the survey. These characteristics include age, gender, and family socioeconomic status (SES). Four items were employed to assess the family SES: paternal and maternal education (no schooling, elementary school, middle school, ≥high

school) and main occupation (farmer, migrant worker, small business vender, or other). A composite score was created to provide an estimate of children's family SES by indexing those children whose parents (father and mother) had more than elementary school education and engaged in non-farming occupational activities. The SES composite score had a range of 0 to 4 with a higher score indicating a better family SES.

Perceived social support (PSS)—The PSS was measured in the current study using a Multiple Functions and Multiple Resources PSS Scale (PSS-MFMR). The PSS-MFMR scale was modeled from the Medical Outcome Study (MOS) Social Support Survey that was initially developed for patients with chronic conditions (Sherbourne & Stewart, 1991). The MOS survey consisted of 18 items with a 5-point scale (“never” to “all the time”) that produce four separate social support subscales: emotional/informational, tangible, affectionate, and positive social interaction. We adapted and expanded the MOS Survey to reflect the situations with rural children affected by HIV/AIDS. In addition to cultural modification of the wording and format of existing items, the adaptation included two expansions. First, we increased the number of items to 25 and reorganized the 25 items into four scales: informational/emotional support (8 items), material/tangible support (5 items), affectionate support (8 items), and positive social interaction (4 items). Second, for each item in the expanded scales, we asked respondent to identify all the persons who ever provided such support (e.g., family member/relative, teachers, friends, and significant others) and aggregated the responses (yes/no) across the 25 items for each provider to produce four additional PSS resource scales (family/relatives, teachers, friends, and significant other). Inter-scale correlations (Pearson Product Moment Correlation Coefficients), Cronbach alpha, and other item statistics (e.g., mean, standard deviation [SD], range, skewness, and kurtosis) of the PSS-MFMR scales were shown in Table 1.

Depression—Children's depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale for Children (CES-DC; Fendrich, Weissman, & Warner, 1990). The CES-DC is a 20-item self-report depression measure with a 4-point response option (0=not at all, 1=a little, 2=some, 3=a lot). The CES-DC was translated into Chinese in the early 1990s and was validated with various Chinese populations (Wang, 1993). Cronbach α of the scale was .81 for the current study sample.

Loneliness—The Chinese version of the Children's Loneliness Scale (CLS; Asher, Hymel, & Renshaw, 1984; Wang, 1993) was administered to the children in the current study. The CLS consists of 16 items that assessed children's perceived loneliness and social dissatisfaction. The CLS items have a 5-point response option ranging from “Not true at all” to “Always true”. The 16 loneliness items have a good internal consistency (Cronbach α=. 82) for the current study sample.

Externalizing problems—The children's self-reported conduct problems and delinquent behaviors were used to assess their externalizing problems. The measure consisted of 12 items including substance use (smoking, alcohol consumption), gambling, fighting, mischief at school, violent behaviors, stealing, and cheating on homework or exams. Children were asked whether they had engaged in any of the 12 behaviors in the past 6 months on a 4-point scale: (1=never, 2=occasionally, 3=some times, 4= often). The Cronbach alpha of the 12 items was .70 for the current study sample.

Educational Resilience—The children's educational resilience was measured based on three school performance indicators: attending age-appropriate-grade (i.e., no more than 2 years older than the typical age for their current grade), having above-average academic performance in their class, and being a leader in a student organization at school. The

educational resilience score ranged from 0 to 3 with a higher score indicating a higher level of resilience related to their schooling. Because the education resilience score was a composite index based on different criteria of various measures, no reliability estimate was calculated.

Analysis

First, analysis of variance (ANOVA; for continuous measures) or chi-square test (for categorical measures) was employed to compare the differences in social demographics, PSS-MFMR scales, and other key psychosocial scales among the three groups of children (AIDS orphans, vulnerable children, and comparison children). A mean score (with appropriate reverse recoding) was employed as scale score for each of the PSS-MFMR and four psychosocial scales (depression, loneliness, delinquent behaviors, and educational resilience) with higher scores indicating higher levels of perception/attribute that the scale was designed to measure. Second, Pearson Correlation Coefficients (Pearson's r) were employed to examine the univariate relationship of PSS scales with key demographic characteristics (age and gender) and psychosocial measures. Third, multivariate regression analyses were conducted to assess the independent associations between PSS scales and psychosocial outcomes. The independent variables also include children's age, gender, and orphanhood status (AIDS orphans, vulnerable children, and comparison children). The categorical variable of orphanhood status was represented by two dummy coding variables in the regression models. All analyses were conducted using SPSS for Windows V11.5.

Results

Statistical properties of PSS-MFMR scales

As shown in Table 1, the four PSS function scales were highly correlated with correlation coefficients ranging from .527 (between tangible support and social support) to .730 (between informational support and emotional support). The correlation coefficients among four PSS source scales ranged from .068 (between friends and others) to .264 (between teachers and friends). The inter-scales correlations between function scales and source scales indicate that among various social support functions, family support had a high correlation with emotional support (r=.495); teachers support had a high correlation with informational support (r=.315); friends support had a high correlation with informational support (r=.569), and support from significant others had a high correlation with positive social interaction (r=.104). The only statistically non-significant correlation coefficient was the one between tangible support and support from others (r=.044). Also suggested by item statistics, the deviations of their distribution from the normal distribution were small for all PSS scales except “teacher support” and “support from significant others” which were highly positively skewed. The Kurtosis statistics also suggested a possible floor effect of the scoring for these two scales.

Group difference by orphanhood status

As shown in Table 2, AIDS orphans and comparison children were older than vulnerable children and comparison children reported a higher level of family SES than AIDS orphans and vulnerable children. More comparison children (92%) than AIDS orphans (86%) and vulnerable children (83%) were attending age-appropriate grade in school. AIDS orphans and vulnerable children reported a higher level of depression and loneliness, but a lower level of educational resilience than the comparison children. Children from the three groups reported similar levels of delinquent behaviors.

In general, AIDS orphans perceived a higher level of social support than the vulnerable children in all type of support functions and from all sources except that AIDS orphans

perceived a lower level of support from family or relative members. Likewise, comparison children reported a higher level of PSS in almost all functions and sources of the support, although the group differences in several PSS scales did not reach statistical significance (i.e., tangible support, teachers' support, and significant others' support).

Univariate relationship

The Pearson Correlation Coefficients between various PSS scales and psychosocial measures and key demographic characteristics are shown in Table 3. In general, older children and girls reported better PSS in terms of both functions and sources of the support. Tangible support and support from family/relatives were negatively associated with the depression. All PSS functions and resources except the support from significant others were negatively associated with the loneliness and positively associated with schooling. Tangible support and support from family/relatives were negatively associated with the delinquent behaviors. However, supports from teachers, friends, and significant others were positively associated with the delinquent behaviors.

Multivariate regression analysis

Table 4 depicts the results of four multivariate regression models. For depression, older age and female gender were significantly associated with higher depression scores (Beta=.136 and .057, respectively). Being an AIDS orphan was associated with a higher level of depression (Beta=.129). Informational support was positively associated with depression scores (Beta=.118) and tangible support and support from family were negatively associated with depression (Beta=-.114 and -.095, respectively). In the regression model with loneliness, being orphans or vulnerable children was significantly associated with higher levels of loneliness. In addition, tangible support, positive social interaction, support from family, and support from friends were all negatively associated with the loneliness scores. For externalizing problems, female gender and perceived emotional support were negatively associated with the involvement of delinquent behaviors. Perceived support from teachers, friends, and significant others were all positively associated with the delinquent behaviors. In terms of educational resilience, younger age and comparison group membership (especially in contrast to the vulnerable children), perceived informational support and tangible support were associated with better school outcomes. None of the PSS source scales was associated with the educational resilience measure.

Discussion

The current study examined the association between the PSS and several critical outcomes of psychosocial development (internalizing behaviors, externalizing behaviors, and educational resilience) among children affected by HIV/AIDS (through HIV-related illness and death in either the family or the community). The findings of the current study confirmed the previous results that PSS was highly correlated with children's psychosocial wellbeing and such correlations varied by functions and sources of the support, and psychosocial outcomes (Greenwood et al., 2006). These variations reported in the current study suggest that these different functional or structural dimensions of PSS are related but separate constructs. Our data also confirmed the findings from existing study in terms of difference in PSS by age, gender and children orphanhood status (Hong et al., 2010). Because the current study and the previous study employed different assessment instruments, the consistency between these results suggest robust associations between PSS and these key demographic factors.

The findings in the current study support our hypothesis that different functions and sources of PSS were associated with different psychosocial outcomes. Specially, informational

support was mainly associated with educational resilience; tangible support was associated with both internalizing problems (depression and loneliness) and educational resilience; emotional support was associated with externalizing behaviors; and positive social interaction was associated with loneliness measure. The PSS from family members or relatives was mainly associated with internalizing problems (depression and loneliness). Friends' support was also associated with loneliness. In addition, support from teachers, friends, and significant others were associated with externalizing behaviors. This finding, if validated in future study, will suggest the needs for different types of social support from different individuals for certain types of psychosocial outcomes.

However, the current study revealed some unexpected findings regarding the positive associations between PSS and internalizing and externalizing problems. For example, informational support was positively associated with depression in the multivariate analysis and support from teachers, friends, and significant others were all positively associated with delinquent behaviors. One possible reason, as suggested by previous studies (Joiner 2000; Clara et al., 2003; Richmond et al., 2007), was that some aspects of social support (e.g., informational/emotional support, social interaction with significant others, or obligatory social ties) may be perceived as a source of stress rather than a source of support. While the precise reasons for these positive relationships cannot be determined from the data in the current study, these findings certainly suggest the needs for future study to examine the complexity of the PSS in terms of both the multidimensionality and the dynamic mechanism by which the PSS works among these children.

Potential limitations

There were several potential limitations in the current study. First, our samples might not be representative of the children affected by HIV/AIDS in other areas of China. The participants were recruited from one of the regions with a unique cause of HIV/AIDS epidemic (i.e., unhygienic blood/plasma collection). Future studies need to include children from other areas and with other causes of parental HIV (e.g., unprotected sex and intravenous drug use). Second, the relationships between PSS and psychosocial outcomes were based on cross-sectional data, which preclude the causal interpretation of the findings. Future research based on longitudinal data is needed to better understand their relationships. Third, the results of the regression analysis need to be interpreted with cautions as some independent variables were highly correlated. Finally, floor effect was observed in two of the PSS source scales (teachers and significant others). While the distribution of these measures might reflect the social support situation among these rural children affected by HIV/AIDS, the floor effect reduced the possibility of significant findings in some of the analyses.

Despite these potential limitations, the findings in the current study have some significant research and prevention implications. First, the strong association between PSS and psychosocial outcomes exemplifies the importance of adequate social support to alleviate stressful life events and improve psychosocial wellbeing of children affected by HIV/AIDS. Local communities (including local schools) need to improve children's awareness of the availability of social support from various resources including community members, teachers, and peers and encourage them to actively seek such supports. Second, the prevention interventions to improve children's PSS need to be gender, context, and developmentally appropriate, as the PSS differed by age, gender, and orphanhood status. AIDS care programs need to educate caregivers and teachers on ways to effectively provide age and gender appropriate and situation specific social support for children affected by HIV/AIDS. Third, future study, ideally with a longitudinal design, needs to study how different dimensions of PSS interact within the context of different psychosocial outcomes and children's HIV/AIDS experience. By doing so, the future prevention intervention efforts

can identify appropriate functions and sources of social support for children in different life situations and at the risk for different psychosocial problems in order for these intervention efforts to be highly effective and efficient.

Fourth, future intervention efforts may need to pay increased attention to children who are living with HIV-infected, alive parents (i.e., vulnerable children), as these children have been consistently reporting a lower level of PSS than AIDS orphans who have often been the focus of many governmental and community's initiatives on psychosocial support and economic assistance. Finally, government and communities need to develop and promote policy and practices based on local social and cultural context for a strongly supportive environment for the communities, families, and children affected by HIV/AIDS.

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Table 1

Inter-Scale Correlations and Other Item Statistics for PSS-MFMR Scales

PSS-MFMR Scales	1	2	3	4	5	6	7	8
1.Informational	1.000							
2.Tangible	.615****	1.000						
3.Affectionate	.730****	.675****	1.000					
4.Social Interaction	.617****	.527****	.726****	1.000				
5.Family/Relatives	.420****	.495****	.466****	.339****	1.000			
6.Teachers	.315****	.175****	.289****	.247****	.159****	1.000		
7.Friends	.569****	.349****	.506****	.505****	.179****	.264****	1.000	
8.Significant Others	.086**	.044	.077**	.104****	.085*	.108****	.068*	1.000
Scale Statistics								
Cronbach α	.87	.84	.88	.86	.89	.85	.88	.82
Mean	2.20	2.65	2.24	2.50	.30	.10	.35	.06
Standard Deviation (SD)	.75	1.00	.86	.99	.23	.14	.24	.11
Skewness	.491	.269	.623	.440	.798	2.868	.483	3.016
Kurtosis	-.169	-.735	-.178	-.339	.224	11.431	-.402	11.804

* p<.05;

** p<.01;

**** p<.0001

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Table 2
Sample Characteristics by Orphanhood

	Overall	AIDS Orphans	Vulnerable Children	Comparison Children
N(%)	1299(100%)	579(45%)	383(29%)	337(26%)
Mean Age (SD)	12.47(2.10)	12.67(2.15)	12.03(2.06)	12.63(1.99)****
Mean SES (SD)	1.98(1.18)	2.00(1.20)	1.81(1.15)	2.13(1.17)***
Boys	648(50%)	304(53%)	180(48%)	164(49%)
Student Leader	579(45%)	269(47%)	162(43%)	148(44%)
Age-appropriate Grade	1126(87%)	498(86%)	318(83%)	310(92%)**
>Average Grade	789(61%)	348(61%)	249(65%)	192(57%)
Psychosocial measures				
Depression	.76(.37)	.81(.40)	.74(.34)	.70(.34)****
Loneliness	2.10(.57)	2.12(.58)	2.15(.57)	2.00(.54)***
Delinquency	1.26(.26)	1.26(.26)	1.28(.26)	1.25(.25)
Schooling	1.43(.68)	1.32(.70)	1.25(.72)	1.43(.68)**
PSS Scales				
Informational	2.20(.75)	2.24(.74)	2.07(.71)	2.27(.79)****
Tangible	2.65(1.00)	2.65(.97)	2.58(1.00)	2.73(1.04)
Affectionate	2.24(.86)	2.30(.86)	2.12(.81)	2.28(.90)**
Social Interaction	2.50(.98)	2.56(.96)	2.36(.99)	2.54(.99)**
Family/Relatives	.30(.23)	.28(.24)	.31(.23)	.33(.22)*
Teacher	.10(.14)	.11(.15)	.09(.14)	.08(.11)
Friends	.35(.24)	.38(.25)	.29(.23)	.36(.22)****
Significant Others	.06(.11)	.07(.12)	.06(.09)	.05(.10)

* p<.05;

** p<.01;

*** p<.001;

**** p<.0001

Table 3

Pearson Correlation Coefficients of PSS-MFMR Scales with Key Demographic Variables and Psychosocial Measures

	Age	Gender[1]	Depression	Loneliness	Delinquency	Schooling
Social Support						
Informational	.293****	.096***	.040	-.285****	-.006	.175****
Tangible	.183****	.109****	-.063*	-.281****	-.076**	.175****
Affectionate	.275****	.046	.001	-.315****	-.044	.141****
Social Interaction	.199****	.064*	-.029	-.326****	.009	.119****
Family/Relatives	.175****	.124****	-.083**	-.229****	-.093***	.125****
Teachers	.043	-.023	.023	-.075**	.070*	.064*
Friends	.398****	.087**	.029	-.254****	.101****	.058*
Significant Others	-.007	-.09	.048	.005	.086**	-.016

Note:

[1] Boys=1; girls=2

* p<.05;

** p<.01;

*** p<.001;

**** p<.0001

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Table 4

Results of Multivariate Regression Analysis

	Dependent Variables							
	Depression		**Loneliness**		**Delinquency**		**Schooling**	
	Beta	**t**	**Beta**	**t**	**Beta**	**t**	**Beta**	**t**
Independent Variables								
Child Age	.136	4.446****	.044	1.508	.056	1.897	-.261	-8.803****
Child Gender (Boys=1, Girls=2)	.057	2.018*	.003	.131	-.246	-9.021****	.025	.924
Children Group (Orphan=1, Others=0)	.129	3.797***	.091	2.841**	-.019	-.585	-.055	-1.670
Children Group (Vulnerable=1, Others=0)	.052	1.529	.081	2.514*	.054	1.621	-.113	-3.432***
Informational Support	.118	2.625**	-.016	-.377	-.006	-.130	.172	3.966****
Tangible Support	-.114	-2.851**	-.079	-2.096*	-.044	-1.128	.084	2.172*
Affectionate Support	.045	0.890	-.051	-1.060	-.134	-2.704**	.024	.484
Social Interaction	-.062	-1.475	-.166	-4.190****	.061	1.506	-.025	-.608
Family Support	-.095	-2.853**	-.092	-2.895**	-.038	-1.157	.043	1.336
Teacher Support	.027	.913	.041	1.479	.058	2.026*	-.001	-.028
Friend Support	-.050	-1.364	-.117	-3.367***	.152	4.243****	.016	.460
Significant Others Support	.043	1.550	.031	1.159	.074	2.698**	-.029	-1.058
Model Statistics								
R Square	.055		.151		.106		.109	
Adjusted R Square	.046		.142		.097		.101	
F-value	6.039****		18.544****		12.392****		12.810****	

*p<.05;

**p<.01;

***p<.001;

****p<.0001