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THE ECOLOGY OF RESILIENCE: PREDICTORS OF PSYCHOLOGICAL HEALTH IN YOUTH IN LEBANON

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Resilience indicators are attributes and resources of an individual and their environment that predict positive adjustment in the face of adversity. The purpose of this study was to examine the presence of resilience indicators across three ecological levels (individual, familial, environmental) among disadvantaged youth living in Lebanon and to determine their association with psychological well-being and psychological distress. A sample of 187 adolescents aged 15 to 23 completed surveys assessing resilience indicators. Following, hierarchical multiple linear regressions were used to identify variables associated with psychological outcomes. Higher self-efficacy, curiosity, social support, and the availability/involvement with spiritual, cultural, and educational opportunities were related to greater psychological well-being. Results support the importance of considering resilience indicators across ecological levels for interventions seeking to promote positive psychological outcomes for youth in stressful contexts.

Keywords: *Resilience, Lebanon, Youth, Psychological Distress*

1. Introduction

In Lebanon, military conflict, the consequences of the 1975 to 1990 civil war, widespread socio-economic disparities, and divided political powers have reared a generation continuously exposed to war, violence, and other forms of political and economic instability (Itani, Haddad, Fayyad, Karam, & Karam, 2014). In a nationally representative sample of 2857 individuals in Lebanon, 71% of individuals reported at least one lifetime traumatic event related to war (Itani, Haddad, Fayyad, Karam, & Karam, 2014). To promote positive psychological well-being and avoid the development of psychological distress, the effect of these adversities on youth must be buffered (Wright & Masten, 2015).

Following, ecological resilience indicators are attributes of an individual and their environment which indicate and promote positive adjustment in the face of adversity. Tol et al. (2013) offers an ecological resilience framework for children in conflict settings. In this

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framework, based on Bronfenbrenner's Ecological Systems Theory of Development, youth interact with ecological levels in their day-to-day lives: person level, microsystem level, meso-system level, and the macrosystem level (Bronfenbrenner, 1994; Tol, Song, & Jordans, 2013). At each of these levels, there are indicators of resilience which are resources for children and adolescents to navigate and negotiate in order to foster positive outcomes (Tol et al., 2013; Ungar & Liebenberg, 2011a). This theory postulates positive interactions between these levels promote positive psychological outcomes (Bronfenbrenner, 1994; Tol et al., 2013).

The four systems that interact in this framework are broadly defined as the person (or individual) system, the microsystem, the meso-system and the macro-system (Tol et al., 2013). Bronfenbrenner's Ecological Systems Theory of Development offers that interactions between two or more of the youth's microsystems creates the meso-system level of ecological resilience (Bronfenbrenner, 1994; Tol et al., 2013). Studying neighborhood connectedness is an example of studying the mesosystem (Corcoran & Nichols-Casebolt, 2004). Studying the macrosystem requires researchers to study the cultural context and its relationship to healing and psychosocial well-being (Tol et al., 2013).

On an individual level, research has supported that factors like the use of adaptive coping mechanisms and low use of maladaptive coping mechanisms, more individual level resources like optimism (e.g., a positive outlook), a sense of purpose (e.g., belief that your life is meaningful), a sense of humor, as well as greater curiosity (e.g., propensity to recognize and seek out new information and experience), independently predict and promote positive psychological outcomes in the face of adversity (Kashdan et al., 2013; Panter-Brick & Eggerman, 2012; Ungar, 2008). One person level indicator that has been highlighted in the literature as strongly related to positive outcomes in the face of adversity is self-efficacy (Dumont & Provost, 1999). Self-efficacy represents a belief in one's competence in handling a wide range of demands (Bandura, 1982; Dumont & Provost, 1999). On a micro-system level, strong social support has been related to lower levels of distress following war exposure for children in the Middle East (Dimitry, 2012), and positive familial relationships have been related to increased use of adaptive coping and positive adaptation following the 1975-1990 Lebanese war (Farhood, 1999). Additionally, on a meso-system level, active community involvement, and access to schools education and resources within a community have all been implicated in promoting positive psychological adaptation in the face of adversity (Ungar, 2008).

Despite a growing appreciation for the importance of integrating information across a youth's context in order to understand resilience in adversity, there is still a dearth of literature examining multiple ecological levels as they related to psychosocial outcomes. Secondarily, research which does examine psychological outcomes in this population has focused predominately on either psychological distress or psychological well-being. However, the absence of distress does not inherently demonstrate well-being (Ayyash-Abdo, 2010; Dardas, Silva, Noonan, & Simmons, 2016; Dimitry, 2012), and it is important to understand both psychological distress and well-being in order to full understand psychosocial response to adversity. To our knowledge, research that examines the presence of resilience indicators across multiple ecological levels and assesses the relationship between these indicators and adaptation to adversity in Lebanon is absent.

This study aims to examine the extent to which resilience indicators on different ecological levels predict psychological outcomes: positive psychological well-being and psychological distress in a sample of youth living in Lebanon. The primary hypotheses are that resilience indicators will positively predict psychological well-being and negatively predict psychological

distress.

2. Method

This research was conducted in 2015 with a non-governmental organization (NGO), Unite Lebanon Youth Project (ULYP), that provides educational opportunities to disadvantaged youth in Beirut, Lebanon. These youth include refugees living in Lebanon, and other marginalized youth in Lebanon. Youth participating in the NGO's activities were recruited via convenience sampling. Parents and guardians of all youth between the ages of 15 - 23 were informed of the aims of this project via phone call and a paper consent form which was sent home to each family. Parents/guardians who did not want their children to participate were instructed to inform NGO staff by returning the signed consent form. These youths were not eligible for the study. Participants could choose to complete the survey in either Arabic or English and to complete the survey at the NGO office in paper, or online via Qualtrics. Following this, approximately 200 youth contacted by NGO staff and told there was opportunity for participation in an anonymous survey related to psychological well-being. Youth were verbally consented. For youth who took the survey via Qualtrics, an online consent form was present. The study was approved by the Institutional Review Board.

2.1. Materials

Demographic Characteristics Youth indicated their gender, age, ethnicity, religion, family structure, school status, and job-status among other demographic information.

2.2. Person Level Indicators of Ecological Resilience

Individual resilience resources. The individual resilience resources subscale of the Child and Youth Resilience Measure (CYRM) is a nine-item subscale which assesses the presence of person level resources like personal skills and person level developmental assets (Ungar & Liebenberg, 2011a) (e.g. I am able to solve problems without harming myself or others, I have opportunities to develop skills that will be useful later in life like job skills and skills to care for others). The subscale asks youth to report the degree to which statements describe the youth on a one ("not at all") to five ("a lot") scale; responses are summed. Scores on the subscale range from nine to 45 with higher scores indicating higher individual capacities and resources (Ungar & Liebenberg, 2011a). This scale was translated by the researcher with the help of the NGO.

Self-efficacy. Self-efficacy was assessed using the 10-item General Self-Efficacy Scale, which is a self-report questionnaire assessing an individual's belief in their competence in dealing with a variety of demands (e.g. If someone opposes me, I can find the means and ways to get what I want) (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). The scale asks participants to rate statements on a one to four scale ranging from one (not at all true) to four (exactly true). Responses are summed, with total scores ranging from 10 to 40; higher scores indicate higher perceived self-efficacy (Luszczynska et al., 2005) . This scale has been validated in many contexts and across many language, including in Arabic speaking populations; it has not been validated in Arab youth (Luszczynska et al., 2005).

Curiosity. The Curiosity and Exploration inventory (CEI-II) is a 10-item self-report questionnaire that assesses the presence of two facets of curiosity, stretching and embracing (Kashdan et al., 2009). The stretching subscale contains four items that are summed for a total subscale score, the embracing subscale contains six items which are summed for a subscale score. The scale asks youth to rate on a one (very slightly or not at all) to five (extremely) Likert scale for the extent to which different questions reflect the way the youth generally feel and behave on items assessing situations that require curiosity (e.g. Everywhere I go, I am out looking for new things or experiences). This scale has previously been used in a similar population of youth (Disabato, Goodman, Kashdan, Short, & Jarden, 2016).

Adaptive and Maladaptive Coping. Coping strategies were assessed using 17 of the 28 items of the Brief COPE questionnaire (Carver, 1997). Items that did not load onto a factor or that had low item communality were removed; additionally, two items about substance use were removed in accordance with NGO suggestions. Participants responded to questions about ways they deal with problems in their life (e.g., I've been taking action to try to make the situation better) using a Likert scale with options one (I haven't been doing this at all) to four (I've been doing this a lot). An exploratory factor analysis, constrained to two factors, resulted in a five-item maladaptive coping subscale and 12-item adaptive coping subscale, similar to the adapted subscales of this measure used by Meyer (Meyer, 2001). Items were summed to obtain two subscale scores. This scale has been used in its original form with Arab youth (Pat-Horenczyk et al., 2009).

2.3 Microsystem level Indicators of Ecological Resilience

*Relationship with caregivers***.** The seven-item subscale on relationship with primary caregiver of the CRYM measures the perceived physical and psychological care available to a youth (e.g., My family stands by me during difficult times.) (Ungar & Liebenberg, 2011a). Items are summed for a total subscale score; scores ranged from seven to thirty-five. This scale was translated by the researcher with the help of the NGO.

Social support. The Multi-Dimensional Scale of Perceived Social Support assessed the perceived social support provided to an individual by their family, friends and significant other (e.g., I get the emotional help and support I need from my family) (Zimet, Dahlem, Zimet, & Farley, 1988). The 12-item self-report questionnaire asks individuals to rate the extent to which they agree with statements on a one (very strongly disagree) to seven (very strongly agree) Likert scale. Items are summed for a total score. This scale has been validated in Lebanese populations (Merhi & Kazarian, 2012).

2.4 Meso-system level Indicators of Ecological Resilience

Context level resilience resources. The contextual indicators subscale of the CRYM is a 10-item subscale assessing components that facilitate a sense of belonging in youth including spirituality, culture, and educational involvement (e.g., Spiritual beliefs are a source of strength for me.) (Ungar & Liebenberg, 2011a). Items are scored for total scores ranging from 10 to 50; with higher score indicating more context level resilience resources. This scale was translated by the researcher with the help of the NGO.

2.5. Outcome Measures

Psychological Well-Being. The eight-item Flourishing Scale was used to assess eudemonic well-being (e.g., I am competent and capable in the activities that are important to me.) (Diener et al., 2010). Items on the scale are summed for a total score; scores range from eight to 56 with higher scores indicating greater levels of psychological well-being (Diener et al., 2010). This scale has been translated for this population (Salama-Younes, 2017).

Psychological distress. The Arab Youth Mental Health Scale is a 21-item self-report Questionnaire that was developed and validated as a tool for screening for common mental disorders in youth populations in Lebanon and is available in English and Arabic (Makhoul et al., 2011). One item assessing suicide ideation was removed per the request of the community partner. The questionnaire assesses the youth's frequency of emotional and psychological states on a three-point Likert scale ranging from "rarely" to "always" *(*e.g. During the last week I was feeling scared and frightened). Items on this scale are summed; scores range from 20 to 60. Low scores signify a low likelihood of mental disorder and high scores indicate psychological distress and potential presence of a common mental disorder (Makhoul et al., 2011).

2.6. Statistical Analyses

Summary statistics of all variables were calculated (Table 1). Little's Missing Completely at Random test established that data in the scales were missing at random, with less than two percent of data missing per scale; expectation maximization to replace missing values in scales.

Hierarchical Multiple Linear Regression Two four-step hierarchical multiple regressions were conducted with positive psychological well-being and psychological distress as the dependent variables. In step one of the models, demographic factors and mode of administration variables recognized as potential confounds were added to the regression model. Person level variables were entered at step two. At step three, microsystem level variables were entered and at step four, the measure of meso-system level indicators was entered into the model. The skewness and kurtosis for outcome variables were examined and there were no values greater than one, allowing for the use of regression. A square root transformation of this scale was computed. The subsequent regression analyses were conducted using both the non-transformed and transformed scores; this was not found to make any significant differences to the overall amount of variance explained or the individual regression coefficients. Thus, the non-transformed data was used for clarity and are reported below.

3. Results

3.1. Demographic Characteristics

A total of 187 youth participated; based on data quality assessments only data from 170 youth was used (90%). The mean age was 17.96 years (SD = 2.41 years, Range = 15 - 23). Thirty percent of the sample was male (n = 51), slightly less than 70 percent of the sample was female

participants (n = 118); less than one percent of the sample chose to not specify gender (n = 1). Ninety percent of the participants were of Palestinian origin, less than one percent of the sample (n = 11) were of Lebanese origin, approximately one percent of the sample were of Syrian origin (n = 2), and less than two percent (n = 3) selected other in the category of ethnicity. Ninety-four percent of the sample was Sunni Muslim, slightly less than three percent of the sample was Shia' Muslim (n = 5), less than two percent was Christian (n = 3); less than one percent chose not to reply (n = 1). Forty percent of this sample lived in Palestinian refugee camps and 60 percent lived in urban settings.

3.2 Ecological Resilience Indicators

Means, standard deviations and reliability coefficients for all assessed indicators are presented in Table 1, and correlations in Table 2. Youth in this study reported high levels of self-efficacy, high use of adaptive coping strategies, high levels of resilience resources, moderate to high levels of curiosity, and low use of maladaptive coping strategies. On the microsystem level of ecological resilience, youth endorsed mild to strong agreement that they had high levels of social support from family and friends and endorsed having strong relationships with their primary caregivers. On a meso/exo-system level of ecological resilience, youth endorsed having "some" to "quite a bit" of context level resilience resources. Males and females differed on reports of psychological well-being, social support, adaptive coping, individual resilience resources, relationship with primary caregivers, and reports of context level resources.

Table 1. Descriptive Statistics of measured variables

Variable	*M*	*SD*	α
1. Psychological Well-Being	46.35	4.63	0.63
2. Self-efficacy	30.46	3.96	0.72
3. Social Support	5.57	0.95	0.90
4. Adaptive Coping	3.11	0.45	0.74
5. Maladaptive Coping	2.13	0.58	0.68
6. Curiosity	3.21	0.69	0.83
7. Individual Resilience Resources	4.06	0.46	0.71
8. Relationship with Primary Caregivers	3.96	0.69	0.76
9. Context level resilience resources	3.96	0.49	0.43

Table 2. Correlations between variables

	1	2	3	4	5	6	7	8	9	10
1	-									
2	0.48**	-								
3	0.30**	0.07	-							
4	-0.04	-0.16*	0.44**	-						
5	0.05	-0.01	-0.05	0.02	-					
6	0.40**	0.36**	0.06	0.03	-0.11	-				
7	0.52**	0.36**	0.40**	0.05	-0.17*	0.44**	-			
8	0.35**	0.08	0.40**	0.27**	0.01	0.23**	0.43**	-		
9	0.36**	0.12	0.30**	0.09	0.02	0.09	0.43**	0.53**	-	
10	-0.20*	-0.23	-.18*	0.01	-0.15*	0.00	-0.12	-0.21**	0.07	-

**$p \leq .01$, *$p \leq .05$

Psychological Well-being and Psychological Distress: Youth in this study endorsed high levels of positive psychological well-being (Table 1). The mean score on the Arab Youth Health Questionnaire suggests that youth demonstrate moderate levels of psychological distress. There was a small but statistically significant negative correlation between psychological well-being and psychological distress (r^2 = -.20, p < .05) (Table 2).

3.3. Statistical Analyses

Hierarchical Regression Analysis Predicting Psychological Well-being Hierarchical regression analyses revealed that demographic and mode of administration variables did not predict psychological well-being (Table 3). The addition of the person level variables incrementally predicted psychological wellbeing. The adjusted R^2 value indicated a robust level of prediction with 38.6% of the variance for outcomes being accounted for after the addition of person level variables. The addition of variables in the microsystem level explained an additional 3.3% of the variance in psychological well-being. While this level explained only an additional three percent variance, this change was statistically significant (F [2, 152] = 5.45; $p < .01$). The addition of the fourth and final block, which included meso/exo system level variables also incrementally explained 2.4% of the of variance with a significant change in the adjusted R^2. The partial unstandardized regression coefficients for self-efficacy (b = 3.20, $p = .00$), individual resilience resources (b = 1.71, $p < .05$), curiosity (b = .12, $p < .05$), perceived social support (b = .07, $p < .05$) and context level resilience resources that facilitate a sense of belonging in youth including opportunities for spiritual, cultural and educational involvement (i.e., participation in religious activities, presence of role models in the immediate environment) (b = 2.05, $p < .01$) significantly differed from zero in the final regression model. This suggests that in isolation and as part of the final, these variables may positively predict psychological well-being. Each of the ecological levels in this model significantly and incrementally predicted psychological wellbeing. Adjusted R^2, penalizing for the number of predictors in model, indicated that 44.3% of the variance in psychological well-being scores was explained.

Hierarchical Regression Analysis Predicting Psychological Distress. The hierarchical multiple regression analyses revealed demographic and mode of administration variables in block one contributed significantly to the regression model (Table 4). The partial regression coefficients for administration of the survey via Qualtrics (b = 5.52, $p < .01$), and the death of one or more parents (b = 4.96, $p < .01$), were significantly different from zero at this step, suggesting that both predicted higher levels of psychological distress. The addition of person level variables incrementally predicted psychological distress scores. The adjusted R^2 values suggested that after the addition of person level variables to the model predicting psychological distress, 17.3% of the variance of psychological distress scores could be explained. The addition of the microsystem level variables also incrementally predicted psychological distress scores to a small but statistically significant level; microsystem level variables accounted for an additional 2.3% of explained variance. The addition of the final step, meso-system level variables, did not incrementally predict psychological distress to a statistically significant level. At the zero-order level and in multivariable models, participants who had lower self-efficacy and, who took the survey via Qualtrics and who reported that one or both parents were deceased, had higher psychological distress scores, even after controlling for all other predictors.

Table 3. Hierarchical Regression Predicting Psychological Well Being

	β	R^2	Change in R^2	Adjusted R^2
1. Demographic and Mode of Administration Variables		**0.10**		**0.05**
Ethnicity	0.02			
Gender	1.44			
Age	0.29			
Parent's Deceased	-1.20			
Survey Language	2.68			
Survey administration modality	-0.57			
2. Person level variables		**0.34****	**0.34****	**0.39**
Ethnicity	0.49			
Gender	0.50			
Age	-0.16			
Parent's Deceased	-0.29			
Survey Language	0.72			
Survey administration modality	-0.22			
Self-Efficacy	3.37**			
Adaptive Coping	-0.42			
Maladaptive Coping	0.90			
Individual Resilience Resources	3.70**			
Curiosity	0.08			
3. Microsystem level variables		**0.48****	**0.04****	**0.42**
Ethnicity	0.40			
Gender	0.10			
Age	-0.14			
Parent's Deceased	-0.24			
Survey Language	0.49			
Survey administration modality	-0.19			
Self-Efficacy	3.39**			
Adaptive Coping	-1.46*			
Maladaptive Coping	0.87			
Individual Resilience Resources	2.38*			
Curiosity	0.10			
Relationship with Caregivers	0.96*			
Perceived Social Support	0.07*			
4. Meso-system level variables		**0.50***	**0.03***	**0.44**
Ethnicity	0.38			
Gender	0.06			
Age	-0.15			
Parent's Deceased	-0.02			
Survey Language	0.84			
Survey administration modality	-0.42			
Self -Efficacy	3.20**			
Adaptive Coping	-1.31			
Maladaptive Coping	0.73			
Individual Resilience Resources	1.71*			
Curiosity	0.12**			
Relationships with Caregivers	0.19			
Perceived Social Support	0.07*			
Contextual Resilience Resources	2.05**			

Table 4. Hierarchical Regression Predicting Psychological Distress

	β	R^2	Change in R^2	Adjusted R^2
1. Demographic and Mode of Administration Variables		**0.16**		**0.10**
Ethnicity	0.20			
Gender	-0.67			
Age	0.43			
Parent's Deceased	-4.55*			
Survey Language	1.46			
Survey administration modality	5.46**			
2. Person level variables		**0.25****	**0.09***	**0.17**
Ethnicity	0.26			
Gender	-0.03			
Age	0.52			
Parent's Deceased	-4.70**			
Survey Language	-0.12			
Survey administration modality	5.36**			
Self-Efficacy	-3.70**			
Adaptive Coping	0.21			
Maladaptive Coping	-1.63*			
Individual Resilience Resources	-2.21			
Curiosity	0.21*			
3. Microsystem level variables		**0.28***	**0.03***	**0.20**
Ethnicity	0.35			
Gender	0.46			
Age	0.52			
Parent's Deceased	-4.75**			
Survey Language	0.21			
Survey administration modality	5.30**			
Self-Efficacy	-3.76**			
Adaptive Coping	1.41			
Maladaptive Coping	-1.56			
Individual Resilience Resources	-0.55			
Curiosity	0.19			
Relationship with Caregivers	-1.63*			
Perceived Social Support	-0.06			
4. Meso-system level variables		**0.29***	**0.01**	**0.20**
Ethnicity	0.38			
Gender	0.50			
Age	0.53			
Parent's Deceased	-4.96**			
Survey Language	-0.11			
Survey administration modality	5.52**			
Self -Efficacy	3.58*			
Adaptive Coping	1.26			
Maladaptive Coping	-1.42			
Individual Resilience Resources	0.09			
Curiosity	0.17			
Relationships with Caregivers	-0.89			
Perceived Social Support	-0.06			
Contextual Resilience Resources	-1.97			

The partial unstandardized regression coefficients for self-efficacy (b = -3.57, $p < .05$) significantly differed from zero in the final regression model. This suggests that self-efficacy,

taking the survey via Qualtrics and having one or more deceased parents as part of the final model and in isolation, predicted more psychological distress. The negative direction of the partial correlation coefficient suggests lower levels of self-efficacy also predicted higher psychological distress scores independently of other factors. After correcting for the number of predictors in the model, the adjusted R^2 value suggests that 20.3% of the variance in psychological distress scores was explained ($p < .00$).

4. Discussion

In this study we report that youth from this sample report significantly higher levels of psychological well-being than expected for a population facing such adversity and more than previous samples of youth in Lebanon (Ayyash-Abdo, 2010). Results showed that ecological resilience indicators, particularly self-efficacy, curiosity, social support and context level resilience resources all contributed to higher levels of psychological wellbeing (Diener & Diener, 2009). Our findings are consistent with studies in other contexts documenting relationships between psychological well-being and factors such as self-efficacy and social support (Bandura, 1982; Dumont & Provost, 1999; Luszczynska et al., 2005; Merhi & Kazarian, 2012; Ungar & Liebenberg, 2011b).

Specifically, in this report we find that indicators within all three ecological levels predict psychological well-being. Participants who had higher self-efficacy, more person level resources like personal skills and person level developmental assets (i.e., knowing where to get help in times of difficulty, having opportunities to develop skills), higher levels of curiosity, greater perceived social support, and greater availability/involvement with spiritual, cultural, and educational opportunities reported greater levels of psychological well-being, even after controlling for all other predictors. This finding suggests that the presence of the ecological resilience indicators may be promoting wellbeing in these youth, who have faced high levels of adversity.

In contrast to other findings, our study did not find that adaptive or maladaptive coping was associated with psychological well-being (Moussa & Bates, 2011). One potential explanation may be found in the types of stressors that these youth encounter (Carver, 1997; Dumont & Provost, 1999). The uncontrollable nature of adversity the youth face, such as lack of political rights and an inability to predict if basic resources will be provided, is likely related to which indicators predicted well-being. Previous research supports that in times of uncontrollable adversity, certain classes of coping mechanisms may not have bearing on the psychological well-being of youth (Farhood, 1999). Furthermore, our study did not find that a strong relationship with primary caregivers was significantly associated with psychological well-being. This is also in contrast to literature which reports an association between wellbeing and facets of a strong relationship with primary caregivers (Olsson, McGee, Nada-Raja, & Williams, 2013). This finding is unexpected, and maybe due to the age of the participants; as adolescents are more likely to lean on their peers than their parents (Dumont & Provost, 1999), however, this finding needs to be explored further.

This study also found that ecological resilience indicators are less predictive of psychological distress than of psychological well-being. In support of the original hypothesis, psychological distress was associated with indicators across all three ecological levels. Interestingly, predictors

of resilience at the meso/exo ecological level did not additively predict psychological distress. Following, the overall variance explained by the final model predicting psychological distress was less than half of the overall variance explained for psychological well-being. In fact, only self-efficacy, a person level resilience indicator, was independently associated with psychological distress above the contribution of variables assessed as mode of administration and demographic factors. This suggests that there are different mechanisms related to the development of psychological well-being and psychological distress. Additionally, the predictive power of self-efficacy may be related to the relationship between perceived self-efficacy and the ability to manage intense stressors. This relationship has been outlined in the literature and studies have supported that individuals with higher perceived self-efficacy are more likely to adaptively respond to stress (Benight & Bandura, 2004).

Mode of administration (i.e., whether a youth completed the self-report questionnaire via computer or paper-based surveys) contributed the greatest deal of variance to our model. This may be because youth who took the survey on Qualtrics may have been more honest about their feelings of psychological distress; they were out of sight of the researcher and they were less exposed to social-desirability bias. In the collectivist, Arab culture, mental distress is heavily stigmatized (Dardas, Silva, Noonan, & Simmons, 2016). Youth may have felt more comfortable admitting symptoms of distress in a computer environment where they felt their anonymity was more protected. This suggestion would also explain why mode of administration does not predict scores of psychological well-being.

Contrary to the literature, none of the other ecological resilience indicators aside from self-efficacy, predicted psychological distress (Benight & Bandura, 2004; Littleton, Horsley, John, & Nelson, 2007). This could be due to the fact that this study focused largely on positive aspects of a youth's environment (e.g. the presence of resilience resources). While these factors were hypothesized to buffer the effects of adversity, it is possible that they increased the presence of well-being without predicting an individual's propensity toward psychological distress. In this cohort as psychological well-being increases, psychological distress decreases to a small but statistically significant level. Consistent with this relatively low correlation, however, it is possible that youth were experiencing both high levels positive well-being and moderate levels of psychological distress.

4.1. Future Directions and Conclusions

Taken together, these results underscore the need to understand resilience indicators as they are related to psychological outcomes in disadvantaged youth in Lebanon. These findings also shed light on the importance of understanding the development of psychological distress and psychological well-being in this population of underserved youth. Future research is needed that uses qualitative methodologies like in-depth interviews with a subset of this population in order to provide further understanding of the contribution of resilience indicators to adaptation in high-adversity settings. Future research should also aim to better understand adaptive mechanisms of growth in youth in this setting. This may be done by identifying additional aspects of person, microsystem, and meso/exo-system levels of ecological resilience indicators that are related to positive psychosocial outcomes. Longitudinal studies that assess the association between resilience and well-being over time, as it relates to psychological well-being and distress, should also be done to elucidate how resilience indicators affect youth's developmental trajectories.

Researchers in this setting need also be more sensitive to the stigma associated with reporting psychological distress in these settings. It is likely that stigma resulted in underreporting of psychological distress in our study, so research should aim to establish rapport with their subjects so that subjects feel they can report psychological distress without being subject to stigma. Follow up studies that are done after rapport has been established between researchers and youth would also increase the validity of future studies.

This study is not without limitations. Most importantly, this study is cross-sectional in nature, and thus it is hard to predict how these indicators will predict long term adaptation to adversity and stress. Additionally, it was often the case that validated measures of the constructs of interest in this study were not available. For many scales, like the child and youth resilience measure, surveys were simply translated by the researcher with assistance from the community partner. The lack of validated measures in this context may have affected the internal reliability of the study. One of the measures in particular, the context subscale of the Child and Youth Resilience Measure, had low internal reliability. This pattern has been found in other samples and should result in caution when interpreting the results of the meso/exo-system level of ecological resilience. Furthermore, this limitation underscores the need for more research in this setting, and for more validation studies in the Lebanese and middle eastern context. There also may be some selection bias in regard to the youth who were willing to complete the survey. Additionally, we use a use of single informant to report on all measures and this means that there is a high likelihood of shared method predictive variance in our study. While a large portion of the youth who attend the NGO's, programming was willing to participate in this survey, it is possible that the youth who were not willing to participate may have had different profiles of psychological well-being and distress.

Person level ecological indicators are often the focus of interventions with disadvantaged youth. This study, however, supports the notion that while it is very important to foster person level resilience indicators, like self-efficacy, it is also important to consider the impact of both microsystem level indicators like perceived social support, and meso/exo-system factors, like contextual resilience resources, in fostering psychological well-being in youth facing adversity. These results emphasize the importance of taking an ecological approach in understanding resilience in disadvantaged youth and to continuing to parse out the indicators that predict positive outcomes for this population. Once researchers understand which indicators contribute to the well-being of youth in this and other similar contexts, interventions can be developed across multiple levels which promote positive outcomes for youth.

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