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Chapter 3

CHILDHOOD MALTREATMENT AND ADULT DISPOSITIONAL MINDFULNESS

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ABSTRACT

Dispositional mindfulness has been conceptualized as both a trait and skill set for managing life stress. Levels of dispositional mindfulness appear to provide a meaningful barometer of emotional well-being and behavioral functioning. This chapter reviews selected literature regarding the potential effects of early life experience on the development of this important trait and coping skill. Empirical data regarding the developmental sources of this important psychological attribute has been surprisingly limited. Some prior research has implicated childhood maltreatment as disruptive to the development of this important coping skill. The present study examined the potential impact of six different forms of childhood maltreatment on dispositional mindfulness

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development. A number of parental relationship and resiliency protective factors were also added to the analysis. Survey respondents in this college sample (N = 978) completed indices of dispositional mindfulness, childhood maltreatment, parental relationship qualities, and resiliency factors. Respondents who described histories of sexual abuse, peer abuse, or sibling maltreatment showed lower levels of dispositional mindfulness. Parental temper was inversely related to dispositional mindfulness. Spirituality and larger childhood friendship circles provided favorable indicators. These results should encourage continued efforts to examine childhood maltreatment, early parent-child relationship qualities, and resiliency factors as potential sources of dispositional mindfulness development.

Keywords: intimate partner violence, parental physical abuse, childhood sexual abuse, peer abuse, sibling physical abuse, parental alcoholism

CHILDHOOD MALTREATMENT AND ADULT DISPOSITIONAL MINDFULNESS

Mindfulness represents a state of immediate and nonjudgmental awareness that has been associated with adaptability and emotional stability. Prior studies (Cash & Whittingham, 2010) have identified five mindfulness components (acting with awareness, observing, describing, non-judging, & non-reacting) that can be measured as either state (situation-specific) or dispositional (generalized) attributes. While operational definitions differ from study to study, there seems to be general agreement that the collective attributes or coping skills referred to as "mindfulness" seem to buffer the individual from emotions associated with trepidation or rumination about past events. This article provides a review of the empirical literature regarding what is known about the developmental sources of dispositional mindfulness. This review is followed by an original analysis of associations between dispositional mindfulness and potential maltreatment, parent-child relationship, and resiliency developmental contributors.

Mindfulness and Psychological Adjustment Indicators

Dispositional mindfulness has been associated with both adaptive and maladaptive correlates in the literature. Brown & Ryan (2003) provided inverse links between MAAS scores and internalized symptoms of psychological distress including anxiety, depression, neuroticism, hostility, impulsiveness, and other indicators in their normative college and general adult samples. Meta-analyses (Giluk, 2009; Randal, Pratt, & Bucci, 2015) have established consistent inverse associations between mindfulness measures and self-esteem, neuroticism, conscientiousness, and positive/negative affect. Lower levels of mindfulness have also predicted externalized symptoms of psychological distress including Buss-Perry Aggression Questionnaire scores (Heppner et al., 2008), ruminative thinking about prior angry exchanges (Peters et al., 2015), and even the development of psychopathic personality traits (Barlett & Barlett, 2015).

Mindfulness training has represented a central focus in psychological interventions for personality disorders (Wupperman, Neuman, & Axelrod, 2008; Wupperman, Neuman, Whitman, & Axelrod, 2009), post-traumatic stress reactions (Thompson & Waltz, 2010), major depression (Michalak, Heidenreich, Meibert, & Schulte, 2008), and many forms of emotional disturbance, particularly those involving anger and hostility (Bach & Hayes, 2002; Baer et al.., 2006; Brown & Ryan, 2003; Cash & Whittingham, 2010; Walsh, Balint, Smolira, Fredericksen, & Madsen, 2008; Zvolensky et al., 2007).

Mindfulness Measurement Considerations

Available dispositional mindfulness measures include the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Toronto Mindfulness Scale-Revised (Davies, Lau, & Cairns, 2009), Five-Facet Mindfulness Questonnaire (Baer et al., 2006), Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), Cognitive

Affective Mindfulness Scale-Revised (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007), and Southampton Mindfulness Questionnaire (Chadwick, Hember, Symes, Peters, Kuipers, & Dagnan, 2008). The present study examined developmental antecedents of dispositional mindfulness as measured by the MAAS (Brown & Ryan, 2003) which emphasizes attentiveness and awareness of ongoing experiences (Bergomi, Tschacher, & Kupper, 2013; MacKillop & Anderson, 2007).

Mindfulness Developmental Antecedents

Although the maladaptive correlates of mindfulness have been explored increasingly in the literature, little is known about the salient biological and environmental contributors to its development. Genetic and environmental contributors to mindfulness were examined in a recent adolescent twin study (Waszczuk, Zavos, Antonova, Haworth, Plomin, & Eley, 2015). This team concluded that mindfulness was around 32% heritable with the remaining variance attributable to environmental factors that were not shared by both members of the dyads. While specific environmental influences were not examined in this study, genetic factors did not appear to exert more than a modest impact on the commonly observed covariance of mindfulness with depression and anxiety symptoms.

Riggs and Brown (2017) hypothesized that childhood trauma and recurrent maltreatment often compromise the cognitive functions necessary to attend mindfully rather than reactively to ongoing events. They found mindfulness reductions over time (4 months) among the subset of 152 seventh and eighth grade students who were experiencing peer maltreatment. They posited that child victimization often leads naturally to ruminative processes regarding past violations, perpetrator antipathies, and preoccupations with the development of future evasive strategies.

Peer abuse has been linked to rumination, problem solving skill deficits, and depressive symptoms in a sample of Turkish adolescents (Erdur-Baker, Ö., 2009). Walter and King (2013) found relationships in a college students between MAAS scores and indices of childhood physical abuse ($r = -.25, p$

$< .01$), sibling abuse ($r = -.22$, $p < .01$), peer bullying ($r = -.07$, $p > .05$), and exposure to domestic violence ($r = -.20$, $p < .01$). MAAS scores have been found to be lower ($r = -.25$, $p = .002$) among medical students and pain patients who report a history of emotional, but not sexual or physical, abuse (Michal, Beutel, Jordan, Zimmerman, Wolters, & Heidenreich, 2007). Mindfulness training has been shown to reduce both ruminative thinking and depression symptoms (Deyo, Wilson, Ong, & Koopman, 2009) that often occur secondary to maltreatment. While the effects of family conflict on mindfulness development remains largely unexplored, evidence regarding the beneficial impact of "mindful parenting" (Turpyn & Chaplin, 2016) on child mental health seems promising (Bogels, Hoogstad, van Dun, de Schutter, & Restifo, 2008; Geurtzen, Scholte, Engels, Tak, & van Zundert, 2015; Parent, McKee, Rough, & Forehand, 2015; Parent et al., 2010; Singh et al., 2007). Mindful parenting is distinguished by a non-judgmental and present-centered interactive style that often cultivated relatively warm and close parent-child relationships (Duncan, Coatsworth, & Greenberg, 2009). Evidence is emerging that mindful parenting also cultivates mindfulness in the children exposed to these adaptive parental behaviors (Waters, 2016).

Both spirituality (Cobb, McClintock, & Miller, 2016; Da Silva, & Pereira, 2017) and mindfulness (Hofmann, Sawyer, Witt, & Oh, 2010) have been identified as important potential sources of stress resiliency and emotional regulation. This natural alliance of coping resources has drawn only limited attention in the empirical literature. One early study examined associations between the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001) and 28-item Spirituality Assessment Scale (SAS; Howden, 1992). This spirituality measure was described as "inclusive" (distinct from religiousness, church attendance, or denominational affiliation) found to be related ($r = .45$, $p < .01$) to FMI scores. Other teams have relied on similar secular spirituality measures such as the 12-item Functional Assessment of Chronic Illness Therapy - Spiritual Well-Being Scale (FACIT-Sp; Carmody, Kristeller, & Merriam, 2008). The FACIT-Sp was used by this team in an impressive study at the University of Massachusetts Medical School which demonstrated that a mindfulness-based stress management program (eight weekly classes of 2.5 hours with

daily home meditation exercises) could achieve substantial increases in both MAAS (16.9%) and FACIT-Sp (22.6%) scores along with improvements in a variety of mental (50%) and physical (28%) health improvements. Changes in mindfulness and spirituality seemed to follow one another naturally in this medical intervention outcome study.

Aims

This study will attempt to replicate and extend prior findings regarding associations between MAAS scores and a number of developmental factors including: 1) childhood maltreatment; 2) lower parental temper thresholds; 3) perceptions of less loving parental relationships; and 4) stronger spiritual beliefs.

METHOD

Participants and Procedure

This university sample (N = 978) was represented by undergraduates enrolled in psychology classes (introductory, personality, developmental, and abnormal) who accessed the anonymous online survey for extra credit. Respondents were included in this initial sample after completing the Mindful Attention Awareness Scale (described below). A subset of these initial respondents (N = 33) was excluded subsequently due to concern raised by validity check items. The resulting sample was comprised largely of young (M = 20.15, SD = 3.92, Range = 18-55), White (Caucasian, 89.8%; African American, 1.8%; Asian, 2.2%; Hispanic, 1.1%; Native American, 1.5%; Bi-Racial, 1.0%; Other, 2.6%) women (76.8% female, 21.5% male). All testing was completed through an electronics Qualtrics-based survey. This data set was generated from a Psychology Department extra credit participant pool at a large state university within the past two years. Testing required an average of 30 minutes.

Mindful Attention Awareness Scale (MAAS)

The Mindful Attention Awareness Scale (Brown & Ryan, 2003) was generated from a college sample exploratory factor analysis of 184 items scored on a six-point metric (*almost always* to *almost never*). Higher scores reflect non-judgmental awareness of current experience.

Six subsequent college, community, and national samples (N = 1,253) were relied upon to generate normative psychometric support. The MAAS was demonstrated to be reliable (test-retest, r = .81; α = .83 & .87 in college and national samples respectively) and valid as indicated by its links with a wide range of maladjustment, well-being, and/or alternative mindfulness indicators. The MAAS has become a widely-utilized international measure (Barajas & Garra, 2014; de Barros, Kozasa, & Ronzani, 2015; Deng, Li, Tang, Zhu, Ryan, & Brown, 2012; Lopez-Maya et al., 2015; Seema et al., 2015) of dispositional mindfulness (Brown & Ryan, 2003; Bergomi, Tschacher, & Kupper, 2013; MacKillop & Anderson, 2007).

Developmental Predictors

The predictor indices selected for inclusion in this analysis clustered around the domains of childhood maltreatment, relationship qualities, and resiliency factors.

Childhood Maltreatment Indicators

Violent Experiences Questionnaire

The Violent Experiences Questionnaire (VEQ-R; King & Russell, 2017) provides estimates of the frequencies with which various forms of childhood maltreatment occurred from ages 5 to 16. The score for each index is interpreted as the number of days on average per year a specified class of behavior occurred during the 12 year recollection period. VEQ-R scores

range from 0 to 104 as calibrated on the basis of a descriptive frequency index (never happened; happened only once; happened only twice; happened less than four times; happened about once a year; happened about twice a year; happened about once a month; happened about once a week; happened more than once a week). The VEQ-R relies on operational definitions of maltreatment acts that are differentiated by perpetrator source (parents, siblings, peers, domestic violence) and the nature of the abuse (verbal conflict, threats of violence, physical acts). For example, the Sibling Physical Abuse (SPA) index provides an estimate of the frequency with which physical acts were directed toward the respondent by "a sibling or step-sibling" during upbringing (*Physical Acts with or without Physical Injury:* pushing, shoving, shaking, striking, kicking, punching, beating, burning or use of a weapon to inflict pain or injury). A SPA score of 2 would indicate that at least one of the physical abuse index acts was experienced on average twice annually over the 12 year recollection period (24 total acts, experienced on average twice a year). The same logic is followed to generate frequency estimates for the CPA (Childhood Physical Abuse), BULL (Peer Bullying), and OPV (Observed Parental Violence) subscales.

The VEQ-R physical abuse indices can be coalesced with verbal discord and threats of violence from each perpetrator source to provide broader Sibling Hostility, Parental Hostility, Domestic Hostility, and Peer Hostility factor scores. This factor structure and other psychometric properties of the VEQ-R have been derived within both college and national samples (King & Russell, 2017). The four factor scores of the VEQ-R have been found in the college normative sample to be internally consistent and temporally stable in one to three week retesting (Sibling Hostility, $n = 435$, $\alpha = .92$, $r = .73$; Parental Hostility, $n = 443$, $\alpha = .89$, $r = .85$; Domestic Hostility, $n = 441$, $\alpha = .87$, $r = .79$; Peer Hostility, $n = 439$, $\alpha = .88$, $r = .89$). Selected VEQ-R maltreatment indices have been found to be predictive of a range of maladjustment indicators (Green & King, 2009; King, 2014ab; King, 2016; King et al., 2017; Moe, King, & Bailly, 2004; Mugg, Chase, & King, 2015;

Mugge, King, & Klophaus, 2009; Russell, Veith, & King, 2015; Veith et al., 2017; Walter & King, 2013).

Sexual Abuse and Assault Self-Report

This 11-item CSA measure (Barnett, Manly, & Cicchetti, 1993) has been used within the Consortium of Longitudinal Studies on Child Abuse and Neglect (LONGSCAN) project coordinated at the University of North Carolina (www.unc.edu/5epts./sph/longscan/). This index was developed to screen for sexual victimization of children and adolescents. Respondents were asked to recall which of 12 CSA acts were experienced prior to age 13, and then in a repeat panel, between the ages of 13 and 16.

The total CSA score represents the sum of identified items over the two retrospective periods. Minor wording modifications were made for adult sampling purposes (i.e., "genitalia" instead of "sexual parts"; "rape" in place of "put a part of his body inside your private parts"). Final sample items after the stem ("*Did any of these events happen to you during your childhood?*") included: "Someone touched your genitalia in some way"; "A stranger raped you"; "Someone put their mouth on your genitalia or made you put your mouth on their genitalia."

The LONGSCAN site provided concurrent validation data.

Children of Alcoholics Screening Test (CAST)

The Children of Alcoholics Screening Test (Jones, 1983) is a 30-item self-report measure which identifies adults who were raised by an alcoholic mother or father. Scores range from 0 to 30 with scores in excess of 6 typically used as a threshold for the identification of a problem parent drinking. The CAST has also been popular as a dimensional measure of the extent to which parental drinking has caused problems within individual family systems. Parental alcoholism indicators were derived separately for the biological mother (CASTM) and father (CASTF). A mean CAST combined score was also calculated.

Parental Relationship Qualities

Perceived Parental Temper

This customized item was included in the analysis: "Did your biological parents show a bad temper or frequent anger during during upbringing (ages 5-16)?"

The MomTemp and DadTemp items were each scored on a Likert scale (1 = never angry; 4 = occasional, normal temper; 7 = always angry).

Perceived Parental Love

This customized item was included in the analysis: "*Can you identify the extent to which you felt loved by your biological parents during upbringing (ages 5-16)?*." The MomLove and DadLove items were each scored on a Likert scale (7 = unconditional love, my welfare was a top priority; 4 = emotional unavailable, my welfare was less than a top priority; 1 = judgment/rejection/contempt, disregard for my welfare).

Parental Education

This customized item was included in the analysis: "Can you estimate the education level achieved by your biological parents during upbringing (ages 5-16)?"

The MomEd and DadEd items were each scored on an eight-point scale (1 = less than 8th grade; 2 = some high school; 3 = high school graduate; 4 = some college; 5 = two year associate degree; 6 = bachelors degree; 7 = master's degree; 8 = law, medical, or PhD. doctorate).

Resiliency Factors

- *Spirituality Index (SI).* This customized item was included in the analysis: "*Are you a religious or spiritual person?*" (6) very strong belief in God; (5) strong belief in God; (4) belief in God; (3) Agnostic; (2) Atheist (passive non-believer; (1) Atheist (actively opposed to religion). An assumption was made that current spiritual

beliefs usually reflected relatively recent childhood and adolescence religious experiences given the age distribution of this sample.

- *Childhood Social Support Index (Social Support).* The Resilience Factors scale developed through the LONGSCAN project was used for this index (some minor rewording and item deletions). Respondents were asked to identify up to 17 specific activities that contributed to his or her "social support structure" during their school (K-12) years. Item examples included: Was there ever an adult, outside of your family, who encouraged you and believed in you? Did you ever have a part in a drama, music, dance, or other performing arts group? Were you ever a part of a church group?).
- *Childhood Friendship Index (Friendship Circle).* This variable was derived from two items included in the Peer Relationships scale developed through the Consortium of Longitudinal Studies on Child Abuse and Neglect (LONGSCAN) project coordinated at the University of North Carolina (www.unc.edu/depts/sph/longscan/). Respondents indicated their satisfaction with the collective friendships they formed in school from kindergarten through high school. Item examples included*: How many of the kids at school (K-12) were friendly toward you (1 = almost no one; 2 = about half; 3 = most; 4 = almost all)? How satisfied were you with the friends you usually hung around with during your K-12 school years (4 = very satisfied; 3 = satisfied; 2 = unsatisfied; 1 = not at all satisfied)?*

Analytic Strategy

MAAS associations with the maltreatment, parental relationship, and resiliency developmental predictors were examined using two regression analyses. An initial regression model predicted MAAS scores from all of the maltreatment indicators. A follow-up regression analysis included all of the maltreatment, parental relationship, and resiliency predictors in the model. Missing scores were replaced in each analysis by the distribution mean. Square root transformation were completed prior to entry into the regression

model for predictors that were skewed markedly (> +2). Tolerance (< .20) and variance inflation factor (> 5) thresholds were used to identify possible multicollinearity concerns (O'Brien, 2007). Fisher z-transformations (Fisher, 1915) were used to test whether the observed bivariate correlation coefficients between MAAS and each developmental predictor differed in strength between the men and women in the sample (Bond & Richardson, 2004; Cox, 2008; Ferguson, 1981).

RESULTS

Table 1 presents descriptive statistics for the criterion and predictor variables. Women in this sample recalled significantly higher levels of Domestic Hostility than the men ($M = 3.51$, $SD = 10.32$ versus $M = 2.13$, $SD = 6.10$, $p < .05$, $d = .14$). They also described higher levels of social support during upbringing ($M = 13.73$, $SD = 3.10$ versus $M = 12.71$, $SD = 3.82$, $p < .01$, $d = .31$). Spirituality scores were higher among the men ($M = 2.78$, SD = 1.23 versus $M = 2.49$, $SD = 1.17$, $p < .01$, $d = .21$). None of the bivariate correlation coefficients between the mindfulness criterion and predictor variables differed significantly in strength by gender. The maltreatment and parental love indicators were all substantially skewed (>+2) and thus transformed (square root) prior to their inclusion in the regression analyses.

Participant ages ($M = 20.1$, $SD = 3.9$) were restricted and not closely associated with MAAS scores ($r = .00$, $p > .05$) in this sample. Prior medical diagnoses varied from 0 to 15 with around 10% of reporting three or more prior illnesses. Smoking prior to age 19 was reported by 8.6% of the sample. Parental education ranged up to doctoral level for 2.9% and 5.6% of the mothers and fathers respectively. A strong or very strong belief in God was indicated by 70.3% of respondents (18.4% agnostics or atheists). Prevalence rates of childhood sexual abuse (13.5%), maternal (7.0%) and paternal (9.0%) alcoholism (CAST > 6), and VEQ-R parental (8.7%), sibling (15.8%), domestic (9.6%), and peer (24.3%) maltreatment varied by perpetrator source.

While the majority of the sample felt loved (highest rating) by their biological mother (81.3%) and father (68.5%), scores spanned the entire Likert range. High parental temper ratings (>4) occurred for around 5% of the sample.

Regression results are presented in Tables 2 and 3. Missing scores in the predictor distributions were infrequent ($M \sim 14$) and replaced by the mean. None of the tolerance or variance inflation factor indices posed collinearity concerns in this data set. The maltreatment regression model (see Table 2) was significant, R (7, 939) = 5.93, p =.001, and accounted for 4.2% of the variance in MAAS scores. Significant factors in the model included Sibling

Table 1. Mindfulness and Developmental Predictor Descriptive Statistics

Criterion and Predictors	*n*	*M*	*SD*	*Range*	Skewness	*SE*	*r*
Mindfulness	947	67.78	14.57	15-90	-0.32	.079	X
Childhood Maltreatment							
Parental Hostility	928	1.91	7.38	0-92	7.43	.080	-.01
Sibling Hostility	918	5.36	12.99	0-104	3.94	.081	-.15***
Domestic Hostility	922	3.21	9.56	0-104	5.41	.081	-.02
Peer Hostility	918	5.31	15.00	0-104	4.07	.081	-.12***
Child Sexual Abuse	947	0.66	2.03	0-24	5.47	.079	-.07
Maternal Alcoholism	947	1.27	4.18	0-28	4.06	.079	-.07*
Paternal Alcoholism	947	1.86	4.90	0-28	3.27	.079	-.03
Parental Relationship							
Maternal Education	930	4.22	1.40	0-7	-0.36	.080	.01
Paternal Education	914	4.05	1.57	0-7	-0.06	.081	-.09*
Maternal Love	932	1.38	1.03	1-7	3.48	.080	.13***
Paternal Love	910	1.66	1.37	1-7	2.41	.081	.04
Maternal Temper	947	2.38	1.26	1-6	0.56	.079	-.12**
Paternal Temper	947	2.60	1.40	1-6	0.43	.079	-.10**
Resiliency Factors							
Spirituality	944	2.55	1.19	1-6	0.42	.080	.10**
Social Support	947	13.49	3.32	0-17	-1.44	.079	.04
Friendship Circle	937	3.13	1.32	2-8	1.26	.080	.14***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Criterion-predictor bivariate correlations in *r* column.

Table 2. Regression Model Predicting MAAS Scores from the Maltreatment Predictors

Maladjustment Indicator	Unstandardized Coefficients		Standardized Coefficients	Significance Testing		Collinearity Indicators	
	β	SE	Beta	t	p	Tolerance	VIF
Parental Hostility	..039	.449	.003	.86	.931	.779	1.28
Sibling Hostility	-.87	.272	-.113	-3.21	.001	.825	1.21
Domestic Hostility	.20	.351	.021	.57	.566	.767	1.30
Peer Hostility	-.55	.251	-.074	-2.19	.029	.884	1.13
Child Sexual Abuse	-2.14	.643	-.110	-3.36	.001	.943	1.06
Maternal Alcoholism	-.72	.474	-.052	-1.51	.131	.871	1.15
Paternal Alcoholism	-.04	.474	.003	.10	.992	.894	1.12
(Constant)	70.27	.66		105.74	.000		

Note. Significant coefficients bolded. VIF = variance inflation factor.

Table 3. Regression Model Predicting MAAS Scores from the Developmental Predictors

Maladjustment Indicator	Unstandardized Coefficients		Standardized Coefficients	Significance Testing		Collinearity Indicators	
	β	SE	Beta	t	p	Tolerance	VIF
Childhood Maltreatment							
Parental Hostility	.45	.465	.036	.96	.337	.705	1.42
Sibling Hostility	-.79	.272	-.103	-2.92	.004	.800	1.25
Domestic Hostility	.50	.359	.052	1.38	.167	.712	1.40
Peer Hostility	-.27	.265	-.036	-1.01	.311	.767	1.30
Child Sexual Abuse	-1.81	.644	-.092	-2.80	.005	.912	1.10
Maternal Alcoholism	-.48	.479	-.034	-.99	.320	.828	1.21
Paternal Alcoholism	-.12	.411	.010	.29	.773	.825	1.21
Parental Relationship							
Maternal Education	.18	.367	.018	.50	.615	.808	1.24
Paternal Education	-.83	.331	-.088	-2.52	.012	.812	1.23
Maternal Love	-3.37	1.79	-.074	-1.88	.060	.648	1.54
Paternal Love	.66	1.32	.019	.50	.616	.715	1.40
Maternal Temper	-.36	.427	-.031	-.83	.405	.725	1.38
Paternal Temper	-.85	.381	-.082	-2.24	.025	.735	1.36
Resiliency Factors							
Spirituality	1.04	.406	.084	2.56	.011	.910	1.10
Social Support	-.06	.150	-.013	-.39	.700	.859	1.16
Friendship Circle	1.11	.394	.100	2.81	.005	.784	1.28
(Constant)	84.60	3.812		22.19	.000		

Note. Significant coefficients bolded. VIF = variance inflation factor.

Hostility (β = -.113, p = .001), Peer Hostility (β= -.074, p = .029), and Childhood Sexual Abuse (β= -.110, p = .001). The total regression model (see Table 3) included all of the developmental predictors.

Sibling Hostility (β= -.103, p = .004), Childhood Sexual Abuse (β= .092, p = .005), Paternal Education (β= -.088, p = .012), Paternal Temper (β= -.082, p = .025), Spirituality (β= .084, p = .011), and Friendship Circle (β= .100, p = .005) accounted for 7.9% of the variance in MAAS scores, R (16, 930) = 4.99, p = .001.

DISCUSSION

Mindfulness skills tend to be lower among adolescents and adults exposed to various forms of childhood maltreatment (Riggs & Brown, 2017; Michal et al., 2007; Walter & King, 2013). This study replicated the findings of Walter and King (2013) in regard to sibling and peer hostility within this larger college sample. Links between childhood physical abuse and exposure to domestic violence were not replicated. While childhood sexual abuse was not predictive of MAAS scores in one previous study (Michal et al., 2007), it did account for unshared variance in the present regression analyses. A comparable measure of emotional abuse used in this latter study was not available, but smaller childhood (K-12) friendship circles were inversely related to MAAS scores in this sample. These collective results seemed to highlight the potential impact of adverse sibling and peer influences on the development of dispositional mindfulness. Potential mechanisms for these associations were not evaluated in this study, but the ruminative mentation and negative emotionality that often accompany maltreatment may provide mechanisms warranting further investigation (Deyo, Wilson, Ong, & Koopman, 2009; Erdur-Baker, 2009).

Perceptions of selected parental attributes recalled from upbringing were measured using several customized indices. Bivariate correlation analyses found that respondents feeling maternal love generated higher levels of dispositional mindfulness. Recollections of parental temper were associated with lower dispositional mindfulness. MAAS scores were inversely related

to paternal educational attainment. While maternal love approached significance, only paternal education and temper accounted for unshared MAAS variance in the total regression model (see Table 2).

Two of the three resiliency factors were found to be positively linked to dispositional mindfulness in this college sample. The quality of the respondent's K-12 friendship circle predicted MAAS scores in both the bivariate and regression correlation analyses. The significant spirituality association replicated an earlier (Leigh et al., 2005) finding ($r = .45, p < .01$) between Freiburg Mindfulness Inventory and Spirituality Assessment Scale scores. These results were also consistent with the work of Carmody, Kristeller, and Merriam (2008) showing mutual changes in MAAS and FACIT-Sp scores secondary to structured mindfulness enhancement efforts in a medical setting. The development of spiritual and moral beliefs may be traced possibly to family role models who emulate coping skills and values associated with dispositional mindfulness. These results seemed to suggest that dispositional mindfulness may arise more commonly among spiritual college students raised in families distinguished by higher parental temper thresholds and perceived maternal love. These preliminary results should encourage continued efforts to examine parent-child relationship qualities as they potentially effect the development of dispositional mindfulness.

LIMITATIONS AND FUTURE RESEARCH

Survey studies such as this is limited by its reliance on typically small, homogenous samples and correlational research designs. The present results would optimally extend to young adult Caucasian college students. Future studies would optimally rely on longitudinal designs in broader samples to trace dispositional mindfulness developmental trajectories. Questions remain as to the underlying mechanisms that differentiate between maladaptive and resilient mindfulness skill development among individuals exposed to various forms of developmental adversity.

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