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Satisfaction with Life Scale (SWLS) in Caregivers of Clinically-Referred Youth: Psychometric Properties and Mediation Analysis

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Abstract

This paper presents the psychometric evaluation of the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson & Griffen, 1985) used with a large sample ($N = 610$) of caregivers for youth receiving mental health services. Methods from classical test theory, factor analysis and item response theory are utilized. Additionally, this paper investigates whether caregiver strain mediates the effect of youth symptom severity on caregiver life satisfaction ($N = 356$). Bootstrapped confidence intervals are used to determine the significance of the mediated effects. Results indicate that the SWLS is a psychometrically sound instrument to be used with caregivers of clinically-referred youth. Mediation analyses found that the effect of youth symptom severity on caregiver life satisfaction is mediated by caregiver strain but that the mediation effect differs based on the type of youth symptoms. Caregiver strain is a partial mediator when externalizing symptoms are measured and a full mediator when internalizing symptoms are measured. Implications for future research and clinical practice are discussed.

Keywords

life satisfaction; caregivers; mediation; caregiver strain; symptom severity; youth mental health; SWLS; psychometrics

Informal caregivers are unpaid persons who care for ill, disabled, or otherwise dependant persons. The recognition by researchers and practitioners of the central role these informal caregivers (hereafter ‘caregivers’) play in the mental health treatment of youth and adolescents has resulted in increased interest for studying them (Koroloff & Friesen, 1997). Life satisfaction and caregiver strain are recognized as two important dimensions of the caregiver’s mental health status. Life satisfaction, a component of subjective well-being, is a cognitive judgment about the quality of one’s life as a whole (Pavot & Diener, 1993) and is generally lower in various caregiver populations compared to non-caregiving norms (e.g. McConaghy, & Caltabiano, 2005; Moller-Liemkuhler, 2005; Rivera, Elliott, Berry, Shewchuk, Oswald, & Grant, 2006; Ha, Hong, Seltzer & Greenberg, 2008). The term “caregiver strain” refers to the negative consequences and emotional impact on caregivers of caring for a relative with special needs.

One commonality between life satisfaction and caregiver strain is their relationship to the care recipient’s symptom severity. Research demonstrates that the symptom severity of the care recipient is a significant predictor of both caregiver life satisfaction (e.g. Early,

Gregoire & McDonald, 2002) and caregiver strain (e.g. Sales, Greno, Sher & Anderson, 2004). Despite this similar relationship with symptom severity, little research has investigated the inter-relationships between all three variables: symptom severity, life satisfaction, and caregiver strain. The present study examined caregiver strain as a potential mediator of the relationship between youth symptom severity and caregiver life satisfaction in caregivers of youth receiving mental health treatment. Given the importance of using sound instruments for measurement, this study also presents a thorough psychometric evaluation of the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson and Griffen, 1985), from a large sample of caregivers of youth receiving mental health services.

Life Satisfaction and Symptom Severity

Depending on needs of the care recipient, caregivers can face several challenging and stressful caregiving tasks. As such, it is not surprising that previous research documents a significant, negative relationship between life satisfaction (an indicator of well-being) and the care recipient's symptom severity. This has been found in various special needs populations including caregivers of individuals with multiple sclerosis (Waldron-Perrine, Rapport, Ryan & Harper, 2009), dementia (Perren, Schmid, Herrman & Wettstein, 2007) and traumatic brain injury (Vangel, Rapport & Hanks, 2011). Although the previous studies focus on caregivers for adults with special needs, the relationship between symptom severity and life satisfaction is also evident in caregivers for child populations. For example, Ekas and Whitman (2010) found that higher symptom severity in children with autism predicted lower life satisfaction in their caregivers. Similarly, Early et al. (2002) examined the well-being of caregivers for children with emotional problems and found that the child's symptoms and functioning significantly related to caregiver well-being. This relationship was also found in caregivers of children with spina bifida (Grosse, Flores, Ouyang, Robbins & Tilford, 2009). These studies all provide evidence documenting a significant, negative relationship between caregiver life satisfaction and severity of youths' problems.

Caregiver Strain and Symptom Severity

In addition to predicting life satisfaction, symptom severity also significantly relates to caregiver strain. Higher caregiver strain has been found to relate to higher symptom severity in individuals with multiple sclerosis (Khan, Pallant & Brand, 2007), Alzheimers (Mohamed, Rosenheck, Lyketos & Schneider, 2010) and intellectual disability (White & Hastings, 2004). A significant relationship between caregiver strain and caregiver symptom severity is also found in caregivers of children with several special needs including obsessive-compulsive disorder (Storch, Lehmkuhl, Pence, Geffken, Ricketts, Storch & Murphy, 2009), emotional problems (Sales et al., 2004) and Tourette's Syndrome (Schoeder & Remer, 2007). This relationship was also replicated in a study of caregivers for children with mental health disorders (Heflinger & Brannan, 2006) and caregivers for children with substance use disorders (Brannan & Heflinger, 2006). The relationship between caregiver strain and symptom severity also appears differs when symptom severity is differentiated as internalizing symptoms vs. externalizing symptoms. Research has demonstrated that the relationship between youth symptoms and maternal distress was a function of mostly externalizing symptoms as opposed to internalizing symptoms (Ekas & Whitman, 2010; Hastings, Daley, Burns, Beck & MacLean, 2006).

Life Satisfaction and Caregiver Strain

Evidence has also demonstrated a link between caregiver strain and life satisfaction. For example, in their 2007 research paper, Khan et al. found that caregivers of persons with multiple sclerosis reporting high levels of caregiver strain experienced lower overall quality of life and well being. In a study of caregivers for the elderly, Iecovich (2008) also found

that caregiver strain affected their quality of life in a similar negative direction. Although the constructs of quality of life (QOL) and well-being are not synonymous with SWL, they are intimately related to life satisfaction: QOL and well-being are often used interchangeably and recall that SWL is a component of well-being: Pavot & Diener, 1993. Therefore, it is reasonable to expect caregiver strain to demonstrate a similar, negative, relationship to SWL.

Current Study

Figure 1 represents the established relationships between caregiver life satisfaction, symptom severity, and caregiver strain: Symptom severity predicting both caregiver strain (path a) and life satisfaction (path c) and caregiver strain predicting life satisfaction (path b). Despite the research supporting the relationship between pairs of these three variables, no published research was found that examines the interrelationship between all three variables and whether a mediatory relationship exists whereby caregiver strain mediates the relationship between symptom severity and life satisfaction. It is unclear how much of the effect symptom severity has on life satisfaction is a direct effect or indirect effect by way of caregiver strain. The current study investigates caregiver strain as a potential mediator between the effects of symptom severity on caregiver life satisfaction. Two separate analyses will be conducted for internalizing and externalizing symptom severity.

Although caregiver strain is often studied in caregivers of youth referred to mental health services (e.g. Brannan & Heflinger, 2006), relatively few have investigated life satisfaction in this population. As such, the psychometric properties of the Satisfaction with Life Scale (SWLS; Diener et al., 1985), the most popular measure of life satisfaction, have yet to be published in a peer-reviewed journal. Therefore, a secondary purpose of this paper is to evaluate the psychometric properties of the SWLS in a sample of caregivers for clinically-referred youth.

Method

Participants

Participants were drawn from a larger study evaluating the effects of a measurement feedback system (Contextualized Feedback Systems™) on youth outcomes. This sample represents 28 regional offices in 10 different states comprising part of a large national provider for home-based mental health services. The Institutional Review Board of Vanderbilt University granted study approval. The sample for the current paper included all caregivers of youth included in the larger study's evaluation. These are caregivers for youth who began treatment during the two and a half year data collection period. Additionally, inclusion for this study included having at least one valid (85% non-missing data) caregiver SWLS measure. This resulted in a final sample of 288 caregivers of youths receiving mental health treatment. The first time point in which SWLS data was present for each caregiver was used in this analysis. Data were also gathered from an additional 322 caregivers (other than those included in the evaluation study) for the psychometric study of the SWLS. This is a total of N = 610 caregivers included in the psychometric evaluation. Please see Riemer, Athay, Bickman, Breda, Kelley & Vides de Andrade (2012) in this issue for more information about the differences between these two samples.

Measures

Satisfaction with Life Scale (SWLS)—The SWLS was developed by Diener et al. (1985) and is the most popular scale for measuring SWL (Diener, Suh, Lucas & Smith, 1999; Vassar, Ridge & Hill, 2008). There are five items: "In most ways my life is close to

my ideal”; “The conditions of my life are excellent”; “I am satisfied with my life”; “So far I have gotten the important things I want in my life”; and “If I could live my life over, I would change almost nothing”. Respondents are asked to answer each item on a 7-point Likert scale (from 1 = *strongly disagree* to 7 = *strongly agree*). Answers are added to create summary score from 5–35 or an average of item responses (1–7). Pavot & Diener (2008) report an average item score of 4 as neutral, > 6.2 indicating ‘extremely satisfied’ and < 2 as ‘extremely dissatisfied’. The SWLS has a reported Chronbach’s alpha for internal consistency of 0.87, test-retest correlation of 0.82 and a single factor solution replicated through factor analysis (Diener et al. 1985, Neto, 1993).

Symptom severity—The Symptoms and Functioning Severity Scale (SFSS: Bickman et al., 2010) is completed by the clinician, caregiver and youth bimonthly during treatment. Composed of 26 five-point Likert-type items (27 for the clinician version), it yields a total score of global symptom severity as well as subscale scores for internalizing and externalizing behaviors. The SFSS has demonstrated sound psychometric qualities for all three respondent forms including internal consistency (range: $\alpha = 0.93 - 0.94$), test-retest reliability (range: $r = 0.68 - 0.87$), construct validity, and convergent and discriminant validity. The SFSS also has established cutoffs for low, medium, and high scores. For the caregiver version, a score of 73 or more is considered high severity, a score between 58 and 73 is medium severity, and a score less than 58 is low severity. Based on youth ratings, a score above 63 is high, 45 – 63 is medium, and less than 45 is low. Clinician ratings indicate a score above 69 as high, 57 – 69 is medium and less than 57 is low. For more information about the psychometric qualities of the SFSS, see the Peabody Treatment Progress Battery (PTPB; Bickman et al., 2010) or Athay, Riemer & Bickman (2012) in this issue.

Caregiver Strain Questionnaire-Short Form 7 (CGSQ-SF7)—Composed of seven items from the full CGSQ (Brannan, Heflinger & Bickman, 1997), the CGSQ-SF7 assesses the extent to which caregivers experience objective and subjective strain as a result of caring for a child with mental health difficulties. It yields a total score and two subscale scores (objective and subjective strain). Total scores above 7.0 are considered high, scores between 3.8 and 7.0 are medium, and scores less than 3.8 are considered low. The CGSQ-SF7 displays excellent psychometric properties including an internal consistency coefficient of 0.89 (Bickman et al., 2010). See Brannan, Athay & Vides de Andrade (2012) in this issue for more information on the CGSQ-SF7.

Procedures

Caregivers completed the SWLS, CGSQ-SF7, and SFSS as part of a battery of measures (the PTPB) used to assess youth treatment progress and process. Measures in the PTPB were completed at the end of the clinical session. In the current study, caregivers’ first completed SWLS measure along with the CGSQ-SF7 and SFSS with 85% non-missing data collected the month in treatment. Data were received deidentified after a rigorous data processing protocol (see Bickman et al., 2010). The Institutional Review Board of Vanderbilt University granted approval.

Data Preparation

With the exception of the psychometric portion of this paper, multiple imputations (MI) was used to treat missing data from the SFSS and CGSQ. The assumption that data are missing at random (MAR) is important in the application of multiple imputation procedures. Following procedures suggested by McKnight, McKnight, Sidani and Figueredo (2007), missing data across subjects and variables were inspected and no discernable patterns of missingness were found that would indicate non-MAR. Established guidance is that five imputations suffice for MI procedures (Rubin, 1987; von Hippel, 2005) thus, missing data

were treated as MAR and five imputed data sets were created to use separately for analyses. Averaged results are presented.

Analyses-Psychometric Study

For the evaluation of the psychometric properties of the SWLS, classical test theory (CTT), confirmatory factor analysis (CFA) and item response theory (IRT) methods were applied. These methods provide information concerning psychometric qualities of individual items as well as the overall scale. CTT and CFA analyses were conducted with SAS® version 9.2 software, IRT analyses utilized WINSTEPS 3.36.0 (Linacre, 2007). For more detailed information, see Riemer et al., (2012) in this issue.

Within CTT, the characteristics of each SWLS item is inspected through analysis of its distributional characteristics and relationship to the total scale score. Additionally, the total scale score is described with summary statistics and an indicator of the internal reliability (i.e., Cronbach's coefficient alpha). By observing the correlation between each item and the total scale score, items that are unrelated to the measure are identified by low correlations.

The SWLS was developed as a unidimensional scale measuring a single construct. Therefore, all item responses are combined to create one total scale score representing the respondent's level of life satisfaction. The interpretations made from this total score are valid as long as the assumption that the measure is unidimensional remains true. In the current sample, CFA was used where all items load on only one latent variable to evaluate whether the data support this unidimensional model.

Although several different IRT models have been developed, the rating scale model (RSM) with polytomously scored items (Andrich, 1998) was used in the current paper. Application of the RSM yields item difficulty ratings and item fit statistics (infit and outfit). Item difficulties show where an item is most precise in estimating the level of service satisfaction (on a logit scale). Fit statistics quantify how well an item fits with the proposed model. Although the RSM is a 1-parameter logistic model, WINSTEPS 3.63.0 (Linacre, 2007) provides an estimate each item's discrimination, or its ability to differentiate persons with high and low life satisfaction.

Analyses-Mediation Study

In order to test the hypothesis that caregiver strain mediates the relationship between youth symptom severity and caregiver life satisfaction, hierarchical regression analyses were conducted as described by Baron and Kenny (1986). Separate models were conducted for internalizing and externalizing symptom severity. Methods described by Preacher and Hayes (2004) were used to bootstrap confidence intervals to determine the significance of the mediatory relationship. Analyses utilized the MBESS package (Kelley, 2007) in R (R development core team, 2010).

Results

Psychometric Study

The psychometric properties of the SWLS in this population of caregivers of clinically-referred youth have been thoroughly investigated and replicated by Bickman and colleagues (2007, 2010). Most recently, the second edition of the Peabody Treatment Progress Manual (PTPB) was released, including a chapter on the SWLS (Bickman et al., 2010). Those results are reprinted here. A total of 610 caregivers completed the SWLS. Total score and comprehensive item analysis for SWLS are found in table 1. The mean total score for caregivers was 4.41 and the distribution did not demonstrate significant skewness or

kurtosis. The scale score demonstrates a satisfactory degree of internal consistency (Standardized Chronbach's $\alpha = 0.90$) with item-total correlations ranging from 0.64 to 0.82.

Scores were classified as 'high', 'medium', and 'low' according to the 25th and 75th percentiles. In this sample, scores less than 3.4 are considered low and scores higher than 5.6 are considered high. Scores at or between 3.4 and 5.6 are considered medium. Based on the reliability of the scale and the standard error of measurement, an index of minimal detectable change (MDC) was calculated. This indicates, with 75% confidence, a change of 0.82 SWLS points is not due to chance or simply a result of measurement error in this population.

Results from application of the RSM to the data are also found in table 1. Item difficulties ranged from -0.51 to 0.52 on a logit scale. This indicates that all five items are located at the center of the latent continuum. Thus, according to an IRT perspective, the SWLS is most precise at the center of the continuum and less precise moving away (higher or lower) from this middle. However, this grouping of items on one portion of the latent continuum is typical in clinical measures and presents some unique challenges in clinical measurement within the IRT framework (Reise & Waller, 2009). Although the fit indices (infit and outfit) were slightly out of range for item number five ("*I wouldn't change anything*"). Generally, items with fit statistics between 0.6 and 1.4 are desirable. However, the inclusion of item 5 may not be problematic to the scale as a whole. The majority of items display adequate discrimination (i.e., values close to one) however the discrimination index of item number five is slightly lower than desired. This indicates that item number five has difficulty differentiating caregiver with low vs. high life satisfaction. Again, this may not be problematic to the scale as a whole.

Confirmatory factor analysis indicated the proposed one-factor model fit the data (Bentler CFI = 0.99; Joreskog GFI = 0.99; SRMR = 0.02). This confirms that the SWLS is measuring only one construct. Standardized factor loadings ranged from 0.67 to 0.89. Overall, results suggest the SWLS is a psychometrically sound instrument for use in this population. For more information, see Bickman et al., 2010.

Mediation Study

Life Satisfaction, Caregiver Strain, and Symptom Severity—The sample had a mean SWL score of 4.26 (SD = 1.52). This mean is lower than norms reported by Pavot & Diener (2008) for college students ($M = 4.78$, $SD = 1.16$, $t = 4.43$, $p < .001$). However, these caregivers have similar mean levels of SWL as compared to figures reported in other caregiver populations such family caregivers of women with physical disabilities ($M = 4.26$, $SD = 1.72$, $t = 0.79$, $p = 0.43$; Rivera et al., 2006) and caregivers of the elderly ($M = 4.24$, $SD = 1.54$, $t = 1.10$, $p = 0.27$; Vitaliano, Russo, Young, Becker & Maiuro, 1991). This sample had a mean CGSQ-SF7 of 6.16 (SD = 2.14). Caregivers reported youth to have a mean externalizing SFSS score of 52.78 (SD = 11.76) and a mean internalizing SFSS score of 50.55 (SD = 11.09).

Pearson correlations were computed to examine the relationship between caregiver life satisfaction, youth symptom severity (internalizing and externalizing symptoms) and caregiver strain as measured by the SWLS, SFSS, and CGSQ-SF7 respectively (see table 2). As predicted, caregiver strain was significantly negatively correlated with SWLS ($r = -0.28$, $p < .01$) indicating higher caregiver strain was related to lower life satisfaction. Consistent with the literature, caregiver strain correlated higher with externalizing symptoms ($r = 0.65$, $p < .001$) compared to internalizing symptoms ($r = 0.29$, $p < .001$), although both correlations were significant and positive. Higher symptom severity is related to higher

caregiver strain. Caregiver SWLS was also significantly correlated with both externalizing ($r = -0.30, p < .001$) and internalizing ($r = -0.18, p < .001$) symptom severity with a stronger correlation relating to externalizing symptoms. It appears that externalizing symptom severity has a stronger relationship with life satisfaction. These significant associations between the variables of interest (life satisfaction, internalizing and externalizing symptom severity, and caregiver strain) are consistent with current hypothesis.

Mediation Analysis—Baron and Kenny (1986) note that the following four conditions must be met to establish mediation: (1) the initial variable (Symptom Severity: SFSS externalizing and internalizing subscales) is a significant predictor of the outcome (Life Satisfaction: SWLS); (2) the initial variable is a significant predictor of the mediator (Caregiver strain: CGSQ-SF7); (3) the mediator (CGSQ-SF7) is a significant predictor of the outcome variable (SWLS) when the controlling for the initial variable; (4) Complete mediation occurs when step three reduced the relationship between the initial variable and outcome to zero. The current study predicted that both internalizing and externalizing SFSS subscales would significantly predict CGSQ-SF7 and SWLS scores. Additionally, it is predicted that the relationship between the SFSS subscales and SWLS would reduce in significance when SWLS is regressed on each SFSS subscales and CGSQ-SF7, indicating mediation. Based on prior research that demonstrated a stronger relationship between externalizing symptoms and caregiver strain, this study predicts that the mediatory relationship will be larger in the externalizing SFSS model.

As hypothesized, results indicated that externalizing symptom severity significantly predicted life satisfaction ($\beta = -.039, p < .001, 95\% \text{ CI} = -0.053, -0.025$) and caregiver strain ($\beta = 0.109, p < .001, 95\% \text{ CI} = 0.093, 0.125$; see Figure 2). When life satisfaction was regressed on caregiver strain and externalizing symptom severity, both externalizing symptoms ($\beta = -0.028, p < .001, 95\% \text{ CI} = -0.045, -0.010$) and caregiver strain ($\beta = -0.112, p < .001, 95\% \text{ CI} = -0.209, -0.015$) remained significant. From condition 1 to condition 3, the beta for life satisfaction reduced from -0.039 to -0.028 but remained significant, suggesting a partial mediation effect (Baron & Kenny, 1986). This indicates that, controlling for caregiver strain, there remains a direct relationship between youth externalizing symptom severity and caregiver life satisfaction. Based on this coefficient (see figure 2), a caregiver reporting an externalizing score two standard deviations above the mean ($2 * 11.76$), the caregiver's SWLS would be predicted to be approximately 0.6 points lower ($23.8 * -0.028$) compared to a caregiver reporting the average SFSS score, when controlling for caregiver strain.

The results also indicated that internalizing symptom severity significantly predicted life satisfaction ($\beta = -0.024, p < .001, 95\% \text{ CI} = -0.039, -0.009$) and caregiver strain ($\beta = 0.056, p < .001, 95\% \text{ CI} = 0.036, 0.077$; see Figure 2). When life satisfaction was regressed on caregiver strain and internalizing symptom severity, caregiver strain remained significant ($\beta = -0.192, p < .001, 95\% \text{ CI} = -0.273, -0.110$) but internalizing symptom severity became insignificant ($\beta = -0.010, p > .05, 95\% \text{ CI} = -0.025, 0.006$). From condition 1 to condition 3, the beta for life satisfaction reduced from -0.024 to -0.010 and became insignificant, suggesting a full mediation effect (Baron & Kenny, 1986). This indicates that, the relationship between internalizing symptom severity and life satisfaction is completely accounted for by caregiver strain.

The bootstrapping method discussed in Preacher and Hayes (2004) and Hayes (2009) was used to compute a confidence interval around each estimate of the indirect effect. This approach is preferred over the approach of Baron and Kenny (1986) because of its increased power (MacKinnon et al, 2002) and over the Sobel test because it does not make the often unrealistic assumption about normality in the sampling distribution of the indirect effect. For

each of the five imputed datasets 5000 bootstrap samples were drawn and 95% confidence intervals estimated. Results from the five bootstrap analyses were averaged together to produce final results. The mean estimate of the indirect effect in the externalizing symptom model was -0.012 (95% CI = $-0.023, -0.002$). This results in a decrease of -0.012 in SWLS units through CGSQ-SF7 for every point of externalizing symptom severity. The mean estimate of the indirect effect in the internalizing symptom model was -0.011 (95% CI = $-0.017, -0.005$), which indicates a decrease of -0.011 SWL units through caregiver strain, for every point of internalizing symptom severity. Evidence of mediation is present given these confidence interval do not include zero.

Preacher & Kelley (2011) suggest the use of Kappa Squared as a measure of effect size for the indirect effect. Kappa squared is the ratio of the indirect effect to the maximum possible size the indirect effect could have been, given the variances. In the current analysis, the kappa squared equaled 0.079 (95% CI = $0.020, 0.147$) in the externalizing symptom model and 0.077 (95% CI = $0.040, 0.119$) in the internalizing symptom model. These are medium effect sizes according to Cohen's (1988) guidelines.

Discussion

In the first portion of this paper, the psychometric properties of the Satisfaction with Life Scale (SWLS; Diener et al., 1985) was assessed when used with caregivers of youth aged 11–18 receiving mental health services. This measure provides an overall score for the respondent's cognitive judgment concerning the quality of their life as a whole. The use of multiple methods in this psychometric evaluation allowed for a greater understanding about how this measure and corresponding items function in this population. Additionally, it provides more evidence concerning the validity of the measure than a single method would yield.

Overall, the results suggest the psychometric properties of the SWLS are satisfactory for caregivers of youth receiving mental health services. Scale scores and individual items were approximately normally distributed in the intended population. The SWLS was found to have high internal consistency, adequate item-total correlations, and confirmation of the proposed single-factor solution model based on model fit indices in CFA. Application of the Rasch measurement model indicated the items fit the Rasch rating scale model reasonably well and, thus, demonstrated good scale characteristics. Although item 5 has slightly less than satisfactory fit with the model, this slight deviation from desired levels is most likely not problematic for the scale as a whole. The location of SWLS items within close proximity to one another indicated that SWLS is most precise measuring the center of the latent continuum. Future work may investigate further item creation in order to cover the entire continuum. However, as mentioned earlier, this is a common problem in clinical measurement (Reise & Waller, 2009). Further validation research is needed given that scale validation is a never-ending and circular process (Hubley and Zumbo, 1996). Additionally, further analyses are needed to evaluate the SWLS predictive validity and sensitivity to change in this population.

In the second section of the current study, the relationship between youth symptom severity, caregiver strain and caregiver life satisfaction was examined. Consistent with previous findings (e.g. Early et al., 2002; Sales et al., 2004), lower levels of life satisfaction were associated with higher youth externalizing and internalizing symptom severity (as reported by the caregiver) and higher caregiver strain. Mediation analyses suggested that caregiver strain is a partial mediator for the effect of externalizing symptom severity on caregiver SWL and a full mediator for the effect of internalizing symptom severity on caregiver SWL. These finding provides initial evidence that caregiver strain is one pathway through which

the severity of youth's symptoms impacts caregiver life satisfaction. Both mediation effects were found to be medium in size. Given that life satisfaction has been shown to be a relatively stable construct over time (Fujita & Diener, 2005; Heller, Watson & Ilies, 2006; Pavot & Diener, 2008), these medium effects may be clinically significant if the mediator variable is sensitive to treatment. This will be discussed further with clinical implications.

Results of mediation analyses did not support the hypothesis for a stronger mediatory relationship for externalizing symptom severity compared to internalizing symptom severity. In fact, the indirect effects were nearly identical between these two types of symptom severity. The difference, however, was that in the externalizing symptom severity analysis, caregiver strain was a partial mediator whereas in the internalizing symptom severity analysis it was a full mediator. While youth's externalizing behavior such as throwing things, outbursts, and inattention impacts life satisfaction through its relationship to caregiver strain, these behaviors exhibit an effect on life satisfaction over and above those directed through strain. This indicates that even controlling for caregiver strain, there remains either a direct effect of youth's externalizing symptoms on life satisfaction or another variable that mediates the relationship. Given the significant relationship between youth externalizing symptoms and maternal depression (Kouros & Garber, 2010), maternal depression may be another mediator that directs the relationship between externalizing symptoms and life satisfaction. In fact, Youngstrom, Izard, and Ackerman (1999) found strong evidence that mother's descriptions of child functioning are biased by maternal depression. This is also consistent with the finding that adults with emotional, behavioral or substance disorders have lower life satisfaction than those without such disorders (Arrindell, van Nieuwenhuizen & Luteijn, 2001; Meyer, Rumpf, Hapke & John, 2004; Siedlecki, Tucker-Drob, Oishi & Salthouse, 2008). Future work is needed to determine the presence of other mediators between externalizing symptoms and caregiver life satisfaction. The current discussion suggests maternal depressive symptoms as a starting point.

Clinical implications

SWL ratings are thought to be based on "chronically assessable" information and thus ratings display a modest stability over a person's life (Fujita & Diener, 2005; Heller et al., 2006; Pavot & Diener, 2008). In this way, the influence of mood has been shown to have a relatively small contribution to assessments of SWL compared to a more stable, underlying cognitive judgment (Pavot & Diener, 2008). However, research has shown stressful life events can produce changes in SWL (Fujita & Diener, 2005; Lucas, Clark, Georgellis & Diener, 2003; Pavot & Diener, 2008). Caring for a child with mental health challenges can certainly be considered a stressful life event. Based on the established relationship between youth symptom severity and SWL, it appears that the severity of symptoms and the child's functioning contribute to the stress, which ultimately has an impact on the caregiver's overall evaluation of their life satisfaction. However, this also means that there is potential for the caregiver's life satisfaction to increase as the youth improves throughout the course of treatment. In an article currently under review (Athay, in press) evidence suggests just that: caregiver SWL increases over time as the youth improves in treatment. But, results of the current mediation analysis demonstrate that attending to caregiver strain (CGSQ) may be another way of increasing caregiver life satisfaction. Interventions or treatment specifically targeting caregiver strain may lessen the impact that youth's symptoms have on the caregiver's SWL. Several such interventions already exist (for example, see Mendenhall & Mount, 2011) with others proposed (for example, see Van Hooser Suiter, S., & Heflinger, C.A., 2011). It is important to tend to caregiver experiences as they navigate the choppy waters of caring for a child with mental health issues.

Limitations

There are several important limitations to mention. First, this cross section analysis utilized data collected at the beginning of the youth's treatment. Future studies need to investigate whether caregiver strain mediates the relationship between youth symptom severity and caregiver life satisfaction in the same way throughout the youth's treatment. Another limitation of the study is that the sample used consisted of caregivers of youth who are receiving in-home community mental health treatment. These results may not generalize to other populations of caregivers such as those of youth who are served in clinics or residential settings. Finally, although many youth outcomes (e.g. overall symptoms, internalizing/externalizing subscales, specific symptom categories) may be measured by several different respondents (clinician, caregiver, youth, teacher), the current study only investigated caregiver rated internalizing/externalizing subscale scores. The current results may not generalize to other outcomes or other respondent perspectives.

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Figure 1.
Theoretical model of the predicted relationships between symptom severity, caregiver strain, and caregiver life satisfaction

Figure 2. Unstandardized regression coefficients for the relationship between Caregiver rated Youth Symptom Severity (SFSS) and Caregiver Satisfaction with Life (SWLS) as mediated by Caregiver Strain (CGSQ-SF7). The unstandardized regression coefficient between SFSS (internalizing symptoms upper panel; externalizing symptoms lower panel) and SWLS controlling for CGSQ-SF7 is in parentheses.
 Note: $**p < .001$, $*p < .05$

Table 1

Item and Total Score Analysis of SWLS for a Sample of Caregivers of Clinically-Referred Youth (N=610)[/]

Item	Mean	SD	Skew.	Kurtosis	CFA	Corr.	Measure	Infit	Outfit	Discrim.
1	4.41	1.85	-0.44	-1.08	0.81	0.75	0.01	0.97	1.00	1.10
2	4.20	1.79	-0.21	-1.09	0.84	0.78	0.21	0.81	0.84	1.13
3	4.66	1.83	-0.54	-0.90	0.89	0.82	-0.24	0.74	0.77	1.24
4	4.91	1.74	-0.79	-0.46	0.76	0.72	-0.51	1.07	1.05	0.97
5	3.88	2.00	0.03	-1.34	0.67	0.64	0.52	1.42	1.41	0.58
Total	4.41	1.55	-0.39	-0.72	-	-	-	-	-	-

SD = Standard Deviation; CFA = Confirmatory Factor Analysis standardized factor loadings; Corr = Correlation with total; Measure = item difficulty; Discrim = Discrimination

[/]reprinted from the PTPB v.2 (Bickman et al., 2010)

Table 2

Inter correlations between SWLS, CGSQ-SF7 and SFSS (Caregiver Reports)

Measure	SWLS	CGSQ-SF7
Satisfaction with Life (SWLS)	---	
Caregiver Strain (CGSQ-SF7)	-0.28 **	---
Externalizing Symptom Severity (SFSS Externalizing Subscale)	-0.30 **	0.65 **
Internalizing Symptom Severity (SFSS Internalizing Subscale)	-0.18 **	0.29 **

**
p<0.01