

THE SATISFACTION WITH LIFE SCALE IN CAREGIVERS OF CLINICALLY-REFERRED YOUTH:

PSYCHOMETRIC EVALUATION AND LONGITUDINAL APPLICATION

By

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To God, for it is His strength on which I rely

and

To all my munchkins who reminded me to make time to play

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CHAPTER I

PSYCHOMETRIC PROPERTIES OF THE SATISFACTION WITH LIFE SCALE IN CAREGIVERS OF CLINICALLY-REFERRED YOUTH

Abstract

This study evaluated the psychometric properties of the Satisfaction with Life Scale (SWLS) in caregivers of clinically-referred youth (n = 610). Methods from classical test theory (CTT) and item response theory (IRT) were used to evaluate scale properties with respect to item properties, scale reliability, and construct validity. Results under CTT indicate SWLS items display adequate difficulty and discrimination. IRT item difficulties and associated standard errors revealed all items were located at the center of the latent continuum with some overlap, which indicates that person estimates were most precise at the center of the latent continuum. The SWLS demonstrated high reliability in terms of internal consistency and separation reliability. Confirmatory factor analysis confirmed a one-factor model consistent with the original scale. Exploration of differential item functioning (DIF) detected no item bias based on the youth's intake symptom severity or based on the caregiver highest level of education, household income, or minority status. The results suggest, overall, the SWLS is a psychometrically sound instrument for use with caregivers of clinically referred youth.

Introduction

Standardized outcome measurement has become increasingly important in the field of child psychology (Hatfield & Ogles, 2004; Ogles, Lambert, & Fields, 2002). As such, demonstrating sound psychometric properties of these measures is essential. The purpose of this

study is to evaluate the psychometric properties of the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson & Griffin, 1985) in a sample of caregivers for clinically-referred youth.

Satisfaction with Life

Historically, the field of psychology has spent greater amounts of energy focusing on people's negative states than their positive states. The scientific study of satisfaction with life (SWL) developed in part as a reaction to this imbalance (Myers, 1992). SWL is the cognitive judgment and global evaluation of the quality of one's life as a whole (Pavot & Diener, 1993). The importance of this subjective evaluation, and how it relates to many aspects of life, is well represented in the literature. Among other things, a higher SWL is related to stronger social relationships (Diener & Seligman, 2002), less chance of becoming depressed (Frisch, 2000), better academic performance (Ruthig, Haynes, Perry & Chipperfield, 2007), and reduced mortality in healthy and diseased populations (Chida & Steptoe, 2008).

The increased interest in life satisfaction has led to the development of several instruments to measure the construct. Among these are the Oxford Happiness Inventory (OHI; Argyle, Martin & Lu, 1995), the Life Satisfaction Inventory: Form A (LSI-A; Neugarten, Havinghurst & Tobin, 1961) and the Satisfaction with Life Scale (SWLS; Diener et al., 1985). The SWLS is by far the most popular scale for measuring life satisfaction (Vassar, Ridge & Hill, 2008). Its widespread use is an advantage of using the SWLS (Durak, Senol-Durak & Gencoz, 2010). Not only is it widely recognized, its repeated use enhances study comparability.

Use of the Satisfaction with Life Scale

The SWLS has been used in numerous populations including college students (Chang, Watkins & Banks, 2004), mothers with infants (Drake, Humenick, Amankwaa, Younger & Roux, 2006), psychiatric patients (Arrindell, Nieuwenhuizen & Luteijn, 2000), cancer patients (Baker et al. 2007), and spouses of a partner who had a stroke (Carlsson, Forsberg-Warleby, Moller &

Blomstrand, 2007). Although some populations are similar, research has found some population-dependent mean levels of SWLS. For example, Pavot & Diener (2008) found in their review that college students show higher mean levels of life satisfaction as compared to prison inmates and sex workers. These differences indicate an ability of SWL ratings to differentiate among different populations and/or variation in life situations.

One general population of individuals with a growing body of literature are informal caregivers. These are unpaid family, friends, or others who voluntarily care for ill, disabled, or otherwise dependant persons. Given that research has consistently found these caregivers display decreased levels of physical and psychological health compared to non-caregivers (Pinquart & Sörensen, 2003; Zhang, Vitaliano & Lin, 2006), attention has turned to tending to their well-being. Investigating caregiver life satisfaction is just one area of well-being receiving attention. SWL has been investigated in many caregiving populations including caregivers for: hospitalized psychiatric patients (Moller-Liemkuhler, 2005); persons with dementia (McConaghy, & Caltabiano, 2005); stroke survivors (Grant, Bartolucci, Elliot & Giger, 2000); women with physical disabilities (Rivera, Elliott, Berry, Shewchuk, Oswald, & Grant, 2006); spouses with Alzheimer's disease (Vitaliano, Russo, Young, Becker & Maiuro, 1991); and disabled children (Ha, Hong, Seltzer & Greenberg, 2008). Given that most measures, including the SWLS, were originally developed with samples which may not generalize to caregivers (i.e. college students), ensuring scale properties hold for specific populations is important for interpreting and using scale scores.

Psychometric Methods: IRT and CTT

For the psychometric evaluation of measures, there are several modeling frameworks from which to choose. CTT and IRT are two popular frameworks. Although many times only one is used, combining, results from both these frameworks can provide more detailed psychometric information concerning the overall scale and individual items. These methods also complement

each other as each has its own strengths and weaknesses. The strength of CTT includes its ease of use and wide familiarity among most readers. However, the resulting statistics are sample dependent and include arithmetic operations that require variables measured at an interval scale level. Unfortunately, interval level scaling is not empirically proven for rating scale items. On the other hand, although perhaps less familiar, IRT is able to provide more detailed item-level information that is less sample-dependent while also being able to create linear interval-level scales (Embretson, 1996). This is accomplished by utilizing a model that estimates both item-level and person-level parameters. Thus, items and persons are ordered along the same latent trait continuum.

Current Study

Despite the widespread use of the SWLS, psychometric properties of this measure used with caregivers of clinically-referred youth have yet to be published in a peer-reviewed journal. The purpose of the present study is to investigate the psychometric properties of the SWLS in a large sample of caregivers for youth receiving mental health treatment. This study utilized methods from classical test theory (CTT) and item response theory (IRT) to examine individual item properties, scale reliability, and construct validity of the SWLS in this population.

Methods

Sample

Participants were drawn from a larger study evaluating the effects of a measurement feedback system (Contextualized Feedback Systems, CFS™) on youth treatment outcomes. This sample represented 28 regional offices in 10 different states comprising part of a large national provider for home-based mental health services. The current sample consisted of 610 caregivers of youths aged 11–18 (mean = 14.6 years) receiving mental health treatment. The majority of

caregivers were female (86%). The caregiver racial/ethnic breakdown of the sample is as follows: 57.3% White, 21.9% African American, and 10.9% Hispanic. The average caregiver age was 44.6 years old ($SD = 10.8$, range = 23–81). The majority of caregivers live with the youth full-time (92.2%) and are classified as primary caregivers (96.3%).

Measures

Caregiver Background Questionnaire. Upon initial assessment as part of the larger feedback study discussed above, caregivers completed a Caregiver Background Form. This form included items about a caregiver and youth's demographic profile, treatment background, and other personal history.

Satisfaction with Life Scale (SWLS). Developed by Diener et al. (1985), the SWLS is arguably the most popular scale for measuring global life satisfaction. The SWLS is composed of 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 rate each item on a 7-point Likert scale from 1 = *strongly disagree* to 7 = *strongly agree*. Averaged item responses create a summary score ranging from one to seven. Pavot & Diener (2008) report an average item score of four as neutral, scores greater than 6.2 indicating ‘extremely satisfied’ and scores less than 2 as ‘extremely dissatisfied’. The SWLS has a reported internal consistency coefficient of $\alpha = 0.87$, test-retest correlation of $r = 0.82$ and a single factor solution replicated through factor analysis (Diener et al. 1985, Neto, 1993).

Symptoms and Functioning Severity Scale (SFSS). The caregiver, youth, and clinician completed the SFSS (Bickman et al., 2010) bimonthly during treatment. The current study used only the caregiver respondent version. Composed of 26 five-point Likert-type items, the caregiver

SFSS 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 including an internal consistency coefficient of $\alpha = 0.94$, test-retest correlation of $r = 0.87$, as well as evidence of construct and criterion validity. For more information about the psychometric qualities of the SFSS, see the Peabody Treatment Progress Battery (PTPB; Bickman et al., 2010).

Caregiver Strain Questionnaire-Revised Short Form (CGSQ-RvSF). Composed of 7 items from the original CGSQ (Brannan, Heflinger & Bickman, 1997), the CGSQ-RvSF assesses the extent to which caregivers experience objective and subjective strain as a result of caring for a child with mental health difficulties. The CGSQ-RvSF displays excellent psychometric properties including an internal consistency coefficient of $\alpha = 0.89$ (Bickman et al., 2010).

Treatment Outcomes and Expectations Scale (TOES). The TOES assesses the caregiver and youth expectations about the outcome of the youth's treatment. It includes eight items rated on a three point Likert scale. Averaged item responses provide a total scale score. The current study uses only the caregiver measure. The TOES displays adequate psychometric properties including an internal consistency coefficient of $\alpha = 0.86$ (Bickman et al., 2010).

Procedure

Caregivers completed the background questionnaire, SWLS and other measures as part of a battery of measures used to assess youth treatment progress and process. Caregivers completed these measures at the end of the clinical session. In the current study, I utilized the caregivers' first completed SWLS (85% non-missing data) measure along with the SFSS, CGSQ-RvSF, and TOES measures collected the same session. Data were received de-identified after a rigorous data processing protocol (see Bickman et al., 2010, p 11–12). The Institutional Review Board of Vanderbilt University granted approval of data collection.

Analyses

This study utilizes methods from CTT and IRT. Although several different item response models have been developed, I use the rating scale model (RSM; Andrich, 1998) with polytomously scored SWLS items in the current paper. I conducted RSM analyses with ConQuest software (Wu, 2007).

Item properties. Within CTT and IRT, individual items can be described according to their difficulty and discrimination. Generally, item difficulty indicates the rarity of endorsement, where one would expect only those with high trait levels to endorse a difficult item and those with high and low trait levels to endorse a very easy item. Item discrimination refers to the ability of an item to discriminate between respondents high on the trait of interest from those who are low on the trait of interest. Items without the ability to discriminate contribute little or no measure information.

Within the CTT framework, I calculated item difficulties using mean score responses. Items with extremely low or extremely high mean scores may indicate items that too few or too many people endorse. When that occurs, items contribute little information to a scale. I compute item discrimination within CTT with the Pearson product-moment correlation coefficient (Pearson r) between the item and total scores.

Within the IRT framework, I applied the RSM, which yielded item difficulty ratings, their associated standard errors and mean square fit statistics (MNSQ). Item difficulties show where an item is most precise in estimating the trait level of life satisfaction of the respondent. This is depicted in a Wright map where items and persons are plotted on the same continuum. It is desirable for a measure to contain items spread along the entire range of the life satisfaction latent trait with values on a logit scale. The MNSQ is an indicator how well an item fits the model. According to Wright and Linacre (1994), items with MNSQ between 0.6 and 1.4 contribute to the reliability of measurement and items outside that range do not. RSM is a one-

parameter model, which assumes fixed item discrimination for all items. Therefore, no item discriminations are computed.

Reliability. Reliability, or the degree to which a test is consistent in its measurement, is an important consideration for the use of measures. It is critical to have highly reliable measures in order to trust the data that measures provide. CTT and IRT methods provide slightly different ways to examine reliability but are rather similar in interpretation.

In CTT, I use the Cronbach α statistic to report reliability (or internal consistency). This is the proportion of variance accounted for by the model and is based on item covariances. In psychology research, the general rule of thumb is for measures to have an α of at least 0.80. Additionally, I calculate the standard error of the measurement (SEM). The SEM quantifies the amount of uncertainty there is around a score. A smaller SEM indicates more precise, or consistent, measurement. A measure's SEM is the average of individuals' standard errors. Thus, one SEM is reported for a measure.

Reliability within IRT modeling is reported with the separation reliability statistic (Wright & Masters, 1981 as reported in Wilson, 2005). This is the amount of total variance explained by the estimated person trait-level parameters. Although there are no steadfast rules for cut-off scores of acceptable separation reliability, values close to one are desirable. IRT also allows for the calculation of standard error of estimates. However, unlike CTT, standard errors can vary across the latent trait continuum. For this reason, I graphed the standard errors according to person-trait estimates allows for visual SE of thetas (graph) across the continuum and indicates where on the continuum a measure is most precise in measurement.

Construct Validity. Validity is another feature of a measure that is important to ensure is present in sufficient amounts. Validity refers to how well or to what degree a measure is actually measuring what it is purported to measure. More specifically, construct validity refers to the

degree with which we are measuring the construct we think we are measuring. Assessing construct validity can include how well the measure corresponds with the theoretical ideas behind the trait as well as whether the scale correlates with variables known to be related or un-related to that trait. Additionally, construct validity may include demonstrating items are unbiased for groups of individuals.

To assess construct validity under the CTT framework, confirmatory factor analysis (CFA) was used. 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, I use CFA where all items load on only one latent variable to evaluate whether the data support this unidimensional model. I used the SAS® procedure PROC CALIS, which used maximum likelihood estimation, to estimate this model and its fit to the data. Given the purpose was to confirm the unidimensional structure and not explore the factor structure, I chose not to use exploratory factor analysis.

Under the CTT model, I also inspected patterns of relationships between the SWLS total score and other variables, which are theoretically related or unrelated to life satisfaction. This is consistent with the multitrait-multimethod matrix of examining construct validity (Campbell & Fisk, 1959). Caregiver life satisfaction has been shown to significantly relate to caregiver strain (e.g. Khan, Pallant & Brand, 2007; Iecovich, 2008) and the symptom severity of the individual being cared for (Early, Gregoire & McDonald, 2002; Ekas and Whitman, 2010) in other samples. Empirical evidence shows that lower life satisfaction corresponds with higher caregiver strain and with higher symptom severity of the care recipient. I expect SWLS total scores will significantly correlate with total scores from the Caregiver Strain-Revised Short Form (CGSQ-RvSF) and the caregiver ratings of youth on the Symptoms and Functioning Severity Scale (SFSS). However, given these measures are not measuring the same construct, the correlation will be moderate.

Additionally, no theoretical or empirical evidence indicates there is a relationship between life satisfaction and expectations concerning treatment outcomes. I expect to find a non-significant relationship between SWLS and treatment expectations (TOES), indicating these instruments measure two distinct and un-related constructs, as is found for other samples.

Construct validity within the IRT framework is assessed in terms of Differential Item Functioning (DIF). DIF assesses potential item bias for groups of respondents. DIF approaches this task by assessing whether there is a secondary latent dimension at the item level that is leading to the between-group differences in item parameters, when the trait level is controlled. If this secondary dimension is discovered, there is indication of item bias. It means a secondary dimension (the grouping variable) is needed to describe item responses. This directly influences an instrument's validity. It is important to note that DIF is not related to differential impact of items on subgroups. For example, it may be that males typically score higher than females on a particular measure or item. This does not influence validity. In this example, validity would be affected if males and females respond differently to items when they have the same trait level.

Ethnicity and socioeconomic status (SES) are typical subgroups used for DIF analyses (Wilson, 2005). As such, I investigate DIF based on the caregiver's highest level of education and yearly household income (often highly correlated with SES) as well as their race/ethnicity classification as a minority (vs. white). Additionally, DIF was assessed based on the youth's level of intake symptom severity, whether it was high or low. These additional grouping variables were chosen based on the significant relationships with SWLS reported in terms of impact (Early et al. 2002). Assessment of DIF will confirm these differences are in impact and not a result of item bias.

Methods for DIF analysis require the division of participants into multiple groups: the reference groups and the focal group. The focal group is the group that a researcher believes to be disadvantaged by an item and the reference group is the standard to which to compare the focal group to. Individuals in these two groups are matched based on their level of life satisfaction

(either their observed score or latent score) and group differences are then analyzed using one of many statistical procedures, three of which will be demonstrated in the current paper.

Descriptions of the grouping variables identifying the focal groups used in DIF analyses are found in Table 1.

Table 1. Description of Grouping Variables used as Focal Group in DIF Analyses

Grouping Variable (Focal Group)	Description
Low Intake Symptom Severity	Caregivers of youth with intake SFSS in the lowest 25% percentile
High Intake Symptom Severity	Caregivers of youth with intake SFSS in the highest 25% percentile
Minority	Non-Caucasian Caregivers
Higher Education	Caregivers with more than a high school diploma/GED
Lower Income	Yearly Household Income less than \$20,000
Higher Income	Yearly Household Income more than \$35,000

Differential Item Functioning Methods

Millsap and Everson (1993) categorized DIF procedures into two categories: 1) Observed conditional invariance (OCI) and 2) Unobserved conditional invariance (UCI). OCI procedures match individuals in the reference and focal group based on the observed total score whereas UCI procedures match individuals on the latent, or unobserved, trait level. Two OCI and one UCI methods will be utilized in the current study: The Generalized Mantel-Haenszel statistic (GHM) and Logistic Regression (LR) model for the OCI procedures and Concurrent IRT calibration (UCI) approach. OCI methods were conducted with SAS® version 9.2 software and the UCI method utilized *ACER ConQuest version 2.0* (Wu, 1997).

The GMH statistic tests the conditional independence for a grouping variable and an item by assessing between-group differences in the frequencies of the item score when the total score is controlled (Zwick, Donoghue, & Grima, 1993). Nominal numbers are assigned to the response

categories and item response vectors of individuals in the reference and focal group are compared after being matched on their observed (total) score. The logistic regression likelihood (LR) test tests the difference between deviance statistics of three related models: the full model and two reduced models (Zumbo, 1999). The full model predicts the probability of an item response by total score, the grouping variable, and the interaction between the total score and the grouping variable. The first reduced model reduces the full model by dropping the interaction and the second reduced model further reduces by dropping the grouping variable as a predictor. Comparison of deviance statistics between the full and first reduced model indicates potential evidence of significant nonuniform DIF. Comparison between deviance statistics for the reduced models indicates potential evidence of uniform DIF. Nonuniform DIF exists when there is an interaction between the total score and group membership: that is, the differences in the probabilities of an item score of the groups is not the same at all levels of life satisfaction. Uniform DIF exists when there is no interaction between total score and group membership. That is, the probability of an item response is greater for one group over the other in a uniform fashion over all levels of life satisfaction.

To reduce the cells of the multidimensional contingency tables utilized in the OCI approaches, I rescaled the seven-point SWLS ordinal scale into five response categories. To do this, I collapsed the two lowest of the original categories into one category and similarly the two highest categories (see for example Eid & Diener, 2001; Vitterso, Biswas-Diener & Diener, 2005; Gadermann, Schonert-Reichl & Zumbo, 2010 for analogous strategies).

A graphical approach to investigation of DIF based on unobserved conditional invariance (UCI) uses Rasch model item locations estimated separately for individuals within a category of a grouping variable. By plotting the resulting estimates against one another according to the reference and focal group, it allows for the visual inspection of comparability of item locations. For items in which locations are identical across groups and thus no DIF is present, they will fall

on a 45-degree line. Items appearing to have DIF will fall away from the 45-degree reference line, representing potential item bias.

Results

Item Properties

Descriptive statistics based on CTT analyses of SWLS items and total scale score can be found in Table 2. The distribution of the total scale score in the current sample has a mean of 4.41 and a standard deviation of 1.55. Pearson r 's ranged from 0.78 to 0.89. This indicates the SWLS items display adequate discrimination. Kurtosis and skewness values indicate neither the items nor scale score are excessively leptokurtic or skewed (Harlow, 2005, p. 34), which would indicate floor and ceiling effects and limit the psychometric contribution of items.

Table 2: Descriptive Statistics of SWLS Items and Total Score (N = 610)

Item	CTT					RSM		
	Mean	SD	Kurtosis	Skew	Disc.	Location	SE	MNSQ
1	4.41	1.85	-1.08	-0.44	0.85	0.01	0.026	1.03
2	4.20	1.79	-1.09	-0.21	0.86	0.19	0.026	0.90
3	4.66	1.83	-0.90	-0.54	0.89	-0.21	0.027	0.85
4	4.91	1.74	-0.46	-0.79	0.82	-0.44	0.027	1.09
5	3.88	2.00	-1.34	0.03	0.78	0.45	*	1.46
Total	4.41	1.55	-0.72	-0.39	—	—	—	—

SD = Standard Deviation; Disc = discrimination as Pearson r ; Location = item difficulty/location; *parameter estimate constrained

Estimated location parameters, their associated standard errors, and the weighted fit statistics from RSM analyses are also found in Table 2. Item locations range from -0.44 to 0.45 with standard errors of 0.026 or 0.027 on a logit scale. Endorsement of item 5 indicates the highest level of life satisfaction followed by item two, one, three and four respectively. This is depicted in Figure 1, the Wright map. The Wright map places all person and items on the same latent continuum. Items are thus ranked according to their locations. As can be seen, the SWLS

items are close together in the center of the continuum, with some degree of overlap according to SE's. This indicates that the most items provide information at the center, where the person estimates are more precise. This is discussed later in terms of reliability.

The item thresholds are at -1.81 (1-2), -0.45 (2-3), -0.36 (3-4), -0.06 (4-5), 0.29 (5-6) and 2.4 (6-7) logit units. This means that a person with a trait score of -0.45 logit units is just as likely to endorse category two (disagree) as they would endorse category three (slightly disagree). The monotone increasing item thresholds indicates that respondents generally differentiate between all seven response categories. However, some of the item thresholds are close.

According to the MNSQ statistics, most of the items are well within the range of acceptable model fit: between 0.6 and 1.4 (Wright & Linacre, 1994). Item 5 ("If I could live my life over again, I would change almost nothing") is only slightly out of the desired range for model fit. This means that based on scoring behavior, some caregivers endorsed this item in unexpected ways or that the item is measuring unmodelled variance (noise) along with the useful information in the responses.

Reliability

According to CTT statistics, the SWLS demonstrates adequate internal consistency with a standardized Cronbach coefficient $\alpha = 0.90$. For the SWLS total score, the SEM is 0.50 points. Thus, with 95% confidence, the true score is approximately $\pm 2 * SEM$ on a one to seven point scale.

Results from RSM analysis yielded a separation reliability of 0.99. Although no standard guidelines exist providing cut-offs for this statistic, this value is extremely close to the goal of 1.00. Graphical results of the calculated person-trait estimates and their associated standard errors are found in Figure 2. As can be seen, the SWLS is most accurate for measurement of life satisfaction in the middle of the latent trait continuum (at approximately -0.4) and less accurate farther away from this point.

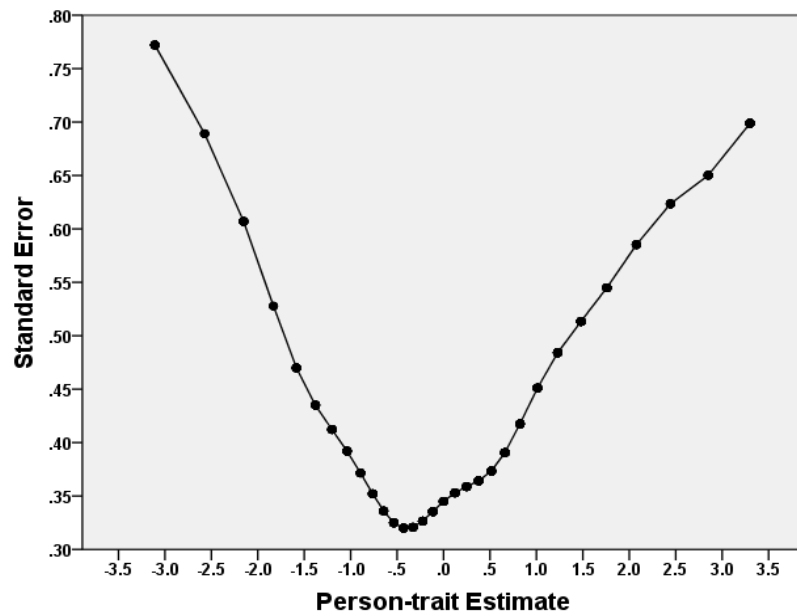


Figure 2: Calculated Person-Trait Estimates and Associated Standard Errors

Construct Validity

Results from CFA analyses revealed the proposed unidimensional model fit the empirical data well (goodness of fit index [GFI] = 0.99; Root mean square residual [RMR] = 0.02; Bentler's comparative fit index = 0.99; Root mean square of approximation [RMSEA] = 0.06). This provides evidence that the items on the SWLS are, in fact, measuring a single construct.

The SWLS significantly correlated with caregiver strain (CGSQ-RvSF; $r = -0.293$, $p < .001$) and youth symptom severity (SFSS; $r = -0.270$, $p < .001$), with lower life satisfaction

related to higher caregiver strain and higher youth symptom severity. These correlations are both medium based on Cohen's standards, consistent with empirical findings from other SWLS populations. On the other hand, the correlation between SWLS and TOES was not significant ($r = 0.094$, $p = 0.139$). This is consistent with correlations found in other SWLS samples. Together, these results suggest the construct of life satisfaction in the current sample relates to these other constructs in similar ways as found in other samples.

Results of DIF analyses based on OCI procedures are found in Table 3. For minority caregivers, the GMH statistic indicates potential differential item functioning for item 1 ($MH\chi^2 = 21.99$, $p < .001$). Additionally, the GMH statistic for item 2, based on caregiver's educational status, also indicated potential DIF ($MH\chi^2 = 10.36$, $p < .05$). To investigate the strength of the relationship between performance on these items and group membership, I calculated the average odds ratio for persons in the focal group indicating a different response category for an item as compared to person in the reference group, when persons were matched across category by SWL (total score). Matched on levels of life satisfaction, the average odds ratio for minority caregivers choosing a different response option to item 1 compared to non-minority caregivers was 0.96. This value is near to one, the value of the odds ratio when there are exactly no difference between groups in probability of responses. Therefore, it appears that the DIF detected by the GMH for item 1 for Minority caregivers is extremely small. The average odds ratio for caregivers with more than a high school diploma/GED choosing a different response option on item 2 compared to caregivers with no more than a high school diploma/GED was 1.59, when controlling for levels of life satisfaction. Thus, when matched on levels of life satisfaction, the odds a caregiver with more than a high school diploma/GED will chose a different response category is approximately 1.6 times the odds of a caregiver with no more schooling than a high school diploma/GED. This may indicate item #2 refers to a different place on the latent continuum depending on the educational status of the caregiver. That would indicate potential item bias.

Table 3: Results of OCI DIF analyses for SWLS items

SWLS Item	Low Intake SFSS			High Intake SFSS		
	GMH	LR : Uniform	LR: Non-Uniform	GMH	LR : Uniform	LR: Non-Uniform
1	2.05	1.03	0.08	8.20	0.07	1.46
2	3.69	2.02	0.00	4.05	0.50	2.63
3	1.48	0.23	0.49	1.44	0.04	1.08
4	1.58	0.52	0.13	1.81	0.58	0.00
5	3.20	3.38	0.00	2.36	1.42	1.28

SWLS Item	Higher Income			Lower Income		
	GMH	LR : Uniform	LR: Non-Uniform	GMH	LR : Uniform	LR: Non-Uniform
1	4.28	0.01	0.01	3.80	0.44	0.36
2	9.60	1.04	7.22*	9.22	0.14	5.95*
3	9.16	2.81	0.25	9.12	2.58	1.67
4	10.21	3.17	2.47	5.52	2.13	0.37
5	3.44	2.28	2.17	3.62	0.03	0.01

SWLS Item	Higher Education			Minority		
	GMH	LR : Uniform	LR: Non-Uniform	GMH	LR : Uniform	LR: Non-Uniform
1	8.89	0.02	2.09	21.99**	0.51	6.89*
2	10.36*	1.61	0.59	8.26	6.18*	1.80
3	5.91	0.14	1.88	1.90	0.06	0.00
4	3.36	0.01	0.00	2.63	0.13	2.37
5	9.16	1.36	0.24	3.11	1.13	0.25

GMH = Generalized Mantel-Haenszel statistic, LR= Logistic regression: values are chi square differences in deviance statistics

**P<.001, *p<.025 (controlling for multiple tests when applicable)

Results of the LR analysis indicated potential uniform DIF for minority caregivers on item two ($\Delta G^2 = 6.18, p < .05$). Additionally, LR analysis found evidence of nonuniform DIF on item one for minority caregivers ($\Delta G^2 = 6.89, p < .05$), item two for caregivers with lower income ($\Delta G^2 = 5.95, p < .05$), and item two for caregivers with higher income ($\Delta G^2 = 7.22, p < .05$). Calculating effect sizes allows for the interpretation of the magnitude of these items identified as having potential uniform DIF. Zumbo (1999) calculates two measures of magnitude by looking at the difference between the two reduced models in terms of their generalized coefficients of determination and the coefficients of determination rescaled by their maximum values. These values are in Table 4. All the values fall well below the proposed cutoff value of 0.13 (Zumbo,

1999). Although the LR test appears sensitive to differences in item functioning between groups, the magnitude of these differences are negligible for items across all grouping variables.

Table 4: Effect Sizes for DIF Items by LR method

SWLS Item	Category	Change in R ²	Change in Max R ²
2	Minority	0.0056	0.0058
1	Minority	0.0004	0.0005
2	Lower Income	0.0065	0.0068
2	Higher Income	0.0078	0.0082

R² = coefficient of determination: Max = rescaled to maximum value

Note: Values over 0.13 indicate significant DIF (Zumbo, 1999)

Use of an UCI scatterplot approach to investigate DIF is useful for obtaining a graphical representation of how items function across groups. Potential DIF is indicated when items fall away from a 45-degree line when the item estimates of the comparison groups are plotted against one another. The resulting scatterplots are found in Figure 3. The solid line is the 45-degree reference line where items without DIF would be expected to fall. An item falling significantly above that reference line indicates that item has a higher item location for the reference group compared to the focal group. An item falling significantly below the line corresponds to a higher location parameter for the focal group as compared to the reference group. A difficulty in this approach is the lack of ability to determine how far from the reference line indicates DIF. To facilitate this however, I included confidence intervals of approximately one standard error for each item parameter. Any items whose confidence intervals fail to cross the reference line would be selected for further DIF investigation. These graphs suggest that items potentially containing DIF are: Item 4 and 5 for caregivers of youth with low intake symptom severity, items 3, 4 & 5 for caregivers of youth with high intake severity; items 2 & 4 for caregivers with higher household income, item 3 & 4 for caregivers with lower household income, items 2 & 4 for caregivers with higher education and item two for minority caregivers and caregivers with higher household income; and items 2 & 4 for minority caregivers.

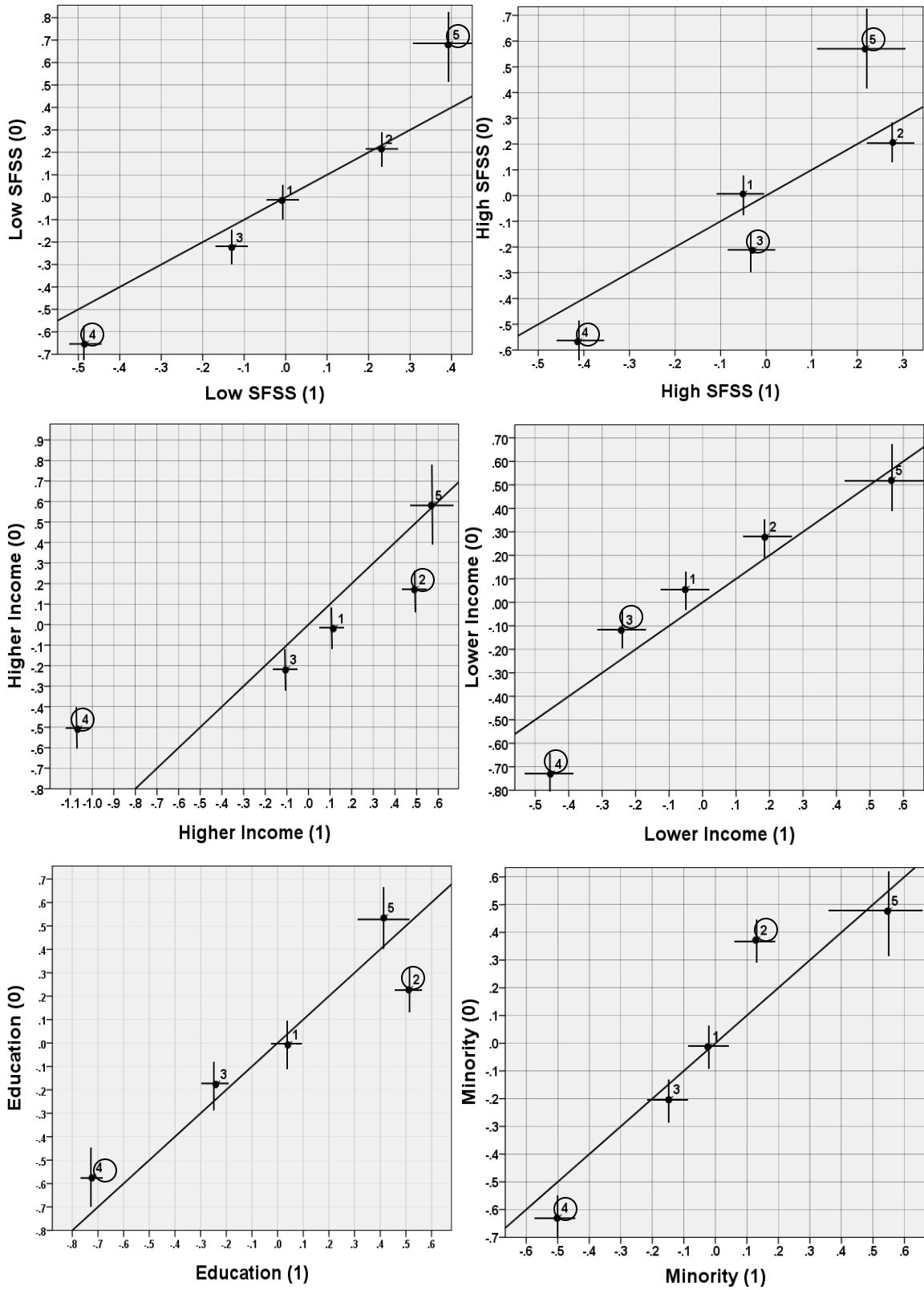


Figure 3: UCI Scatterplot Results: Comparison of Item Locations by Grouping Variables
 Note: Confidence intervals drawn around \pm SE for the item location parameter estimates.
 Items flagged for DIF are circled.

Discussion

In this paper, I evaluated the psychometric properties of the Satisfaction with Life Scale (SWLS; Diener et al., 1985) when used with caregivers of clinically-referred youth aged 11–18. This measure provides an total 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. I used CTT and IRT methods to assess item properties, scale reliability and construct validity of the SWLS.

Overall, the results suggest the psychometric properties of the SWLS are satisfactory for caregivers of clinically-referred youth. Scale scores and individual items were approximately normally distributed in the intended population. 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.

One potential weakness of the SWLS was raised by the current RSM evaluation. This involves whether the seven response categories are useful for measurement or a hindrance. Although the step parameters show the expected monotonic increase across categories, the closeness of several of them may potentially indicate the lack of differentiation between responses categories. In this case, it may be easier for respondents and result in better differentiation to use only five response categories. However, the widespread use and recognition of the SWLS with seven response categories may preclude using a different rating scheme. An advantage of the SWLS is study comparability.

In terms of reliability, the SWLS was found to have high internal consistency, adequate item-total correlations, and high separation reliability. However, another potential weaknesses of

the scale was identified based on the RSM analyses. All the items were all located near each other in the middle of the latent trait continuum. This indicates that the SWLS measure is more accurate at indicating life satisfaction levels in the middle and less accurate at the tails. For more precise measurement of the latent variable, it is desirable to have the items spread out evenly over the continuum. However, the clumping of items on one portion of the latent continuum is common in psychological measurement and presents some unique challenges in clinical measurement within the IRT framework (Reise & Waller, 2009).

CFA confirms the proposed single-factor solution model based on model fit indices (GFI, RMR, Bentler's comparative fit index). This supports previous findings with the SWLS in other samples (ex. Diener et al., 1985; Durak et al., 2010; Oishi, 2006). Additionally, consistent with expectation, the SWLS significantly related to caregiver strain and youth symptom severity and lacked a significant relationship to treatment expectations. This provides some evidence for construct validity of the SWLS in this population.

I used analyses of DIF to address the question of measurement invariance, a potential threat to construct validity. In order for the measure to be unbiased, it must measure life satisfaction in the same way for different groups of caregivers. Across all categorical variables used in this study, the GMH analyses yielded two items for potential DIF, the LR technique identified four items, and inspection of the UCI scatterplots identified 14. However, effect size estimation for GMH and LR approaches yielded small or insignificant DIF effects and the scatterplot approach lacks guidelines for determining effect sizes. Still, there was very little overlap in results across these three techniques for each categorical variable. Only four items were identified by more than one technique. One would expect a highly biased item to result in significant DIF results across all techniques, especially across the two OCI approaches, which both base their comparison on the total score. The only item identified by both the GMH and LR technique was SWLS item one for minority caregivers. However, the effect sizes of this difference were small or negligible. Therefore, I conclude that the SWLS demonstrates no

significant measurement invariance across youth intake SFSS, minority caregivers or based on income, or education. Further work is needed to confirm this, with special attention given to item one for minority caregivers.

As a whole, these results provide validity evidence that indicates the appropriateness for using the SWLS to assess satisfaction with life in caregivers of clinically referred youth. However, further validation research is needed given that validation is a never-ending and circular process (Hubley and Zumbo, 1996). Additionally, further analyses are needed to evaluate the measure's predictive validity and sensitivity to change in this population.

CHAPTER II

LIFE SATISFACTION PROJECTIONS OF CAREGIVERS FOR CLINICALLY-REFERRED YOUTH: RELATIONSHIP TO YOUTH SYMPTOM SEVERITY DURING TREATMENT

Abstract

This study utilized the Satisfaction with Life Scale (SWLS) to investigate the life satisfaction of caregivers for youth receiving mental health services (n = 383). Hierarchical linear modeling (HLM) was used to estimate the linear trajectory of caregiver life satisfaction and how it relates to youth symptom severity as rated by caregivers, youth, and clinicians. Results show a significant inverse relationship between initial caregiver life satisfaction and youth symptom severity, when caregiver and clinicians rate youth symptom severity. More importantly, analyses revealed subsequent caregiver life satisfaction inversely relates to changes in youth symptom severity during treatment: A decrease in youth symptoms corresponds to an increase in caregiver life satisfaction, and vice versa. Additional caregiver characteristics significantly related to life satisfaction include marital status, age, and caregiver's previous diagnoses of an emotional, behavioral or substance use disorder. These results underscore how understanding life satisfaction in this population can aid clinical professionals in caring for the caregivers.

Introduction

Medical and psychological researchers share a concern for the well-being of informal caregivers. These are unpaid family, friends, or others voluntarily caring for ill, disabled, or otherwise dependant persons. Informal caregivers (hereafter 'caregivers'), such as the parent of a child with special needs, an adult child caring for a parent with Multiple Sclerosis or a spouse

caring for a partner with dementia, often face stressful and demanding challenges. These challenges take a toll. Research has consistently found that caregivers display decreased levels of physical and psychological health compared to non-caregivers (Pinquart & Sörensen, 2003; Zhang, Vitaliano & Lin, 2006). Once described as “invisible patients” (Manne, 2005), attention has turned to understanding and tending to the well-being of caregivers themselves. Specifically, a growing body of literature exists solely to investigate the life satisfaction of caregivers. Unfortunately, no studies purport specifically investigating the life satisfaction of caregivers of youth receiving community mental health treatment. This unique population of caregivers is the focus of the current paper.

The daily challenges presented from specific diseases or disorders affect both patients and caregivers. In fact, one of the most consistent predictors of caregiver stress is the care-receiver’s symptom severity (Awad & Voruganti, 2008; Brannan & Heflinger, 2006). Similarly, caregiver well-being not only affects the caregiver, it also influences the patient. Numerous studies document the influence caregiver well-being has on patient care and patient well-being. For example, studies of caregivers for dementia patients found caregiver quality of life related to the quality of care provided (Takai et al., 2009) and to patient quality of life (Thomas et al., 2006). Similar findings were reported for caregivers of patients with Alzheimer’s disease and other chronic disorders seen in the elderly (Teri, 1997; Thommessen, Aarsland, Braekhus, Oksengaard, Engedal & Laake, 2002). In studies of caregivers of youth with mental health disorders, aspects of caregiver well-being predicted the type, length, and continuity of mental health services received (Bickman, Foster & Lambert, 1996; Foster, 2000; Brannan, Heflinger & Foster, 2003). These studies highlight the importance of viewing the caregiver-patient dyad as one with bidirectional influences. Tending to the caregiver is beneficial to both the caregiver and the youth.

Satisfaction with Life

Satisfaction with life (SWL) is the cognitive component of subjective well-being. It is the global evaluation of the quality of one's life as a whole (Pavot & Diener, 1993). Individuals are thought to determine SWL ratings based on "chronically assessable" information and thus ratings display a modest stability over a person's life (Fujita & Diener, 2005; Heller, Watson & Ilies, 2006; Pavot & Diener, 2008). In this way, the influence of present mood shows a relatively small contribution to assessments of SWL compared to a more stable, underlying cognitive judgment (Pavot & Diener, 2008). Despite this stability, significant changes in life circumstances do impact SWL ratings over time (Fujita & Diener, 2005; Pavot & Diener, 2008). For example, Lucas, Clark, Georgellis & Diener (2003) found long-term changes in SWL relate to stressful life events such as unemployment or the death of a loved one. However, one critical limitation in understanding how this relationship operates over time, especially in the face of ongoing or chronic stress, is that most studies have been cross-sectional or pre-post designs. Better analysis of long-term trends is possible with longitudinal research designs with more measurement points.

One area of growth in the general study of SWL is the exploration of personal characteristics that predict SWL ratings. Diener, Suh, Lucas & Smith (1999) review the demographic variables investigated for predicting life satisfaction. Their review revealed that being married, having higher levels of education, and earning higher yearly incomes were associated with greater life satisfaction. There remains some debate over how SWL relates to age. In his 1967 review concerning who is happy, Wilson (1967) concluded that youth predicts happiness. Thus, the view that life satisfaction decreases with age was accepted. Later research then reported life satisfaction to increase with age (Diener & Suh, 1998) and research that is even more recent claimed SWL does not change with age (Hsu, 2010). No consensus has been reached. Finally, research has documented that individuals with emotional, behavioral or substance disorders have lower SWL than those without such disorders (Arrindell, van Nieuwenhuizen & Luteijn, 2001; Meyer, Rumpf, Hapke & John, 2004; Siedlecki, Tucker-Drob, Oishi & Salhouse,

2008). In total, these findings suggest caregiver characteristics that may be important to account for when analyzing life satisfaction.

SWL has been investigated in many caregiving populations, including caregivers for: hospitalized psychiatric patients (Moller-Liemkuhler, 2005); persons with dementia (McConaghy, & Caltabiano, 2005); stroke survivors (Grant, Bartolucci, Elliot & Giger, 2000); women with physical disabilities (Rivera, Elliott, Berry, Shewchuk, Oswald, & Grant, 2006); spouses with Alzheimer's disease (Vitaliano, Russo, Young, Becker & Maiuro, 1991); spouses in hospice (Haley, LaMonde, Han, Burton & Schonwetter, 2003); disabled children (Ha, Hong, Seltzer & Greenberg, 2008); victims of traumatic brain injury (Wells, Dywan & Dumas, 2005); and individuals with multiple sclerosis (Waldron-Perrine, Rapport, Ryan & Harper, 2008). Although the populations vary, most studies came to a similar conclusion: caregivers report lower levels of SWL than non-caregivers do. This is often attributed to the ongoing stress and personal demands that the caregivers face within their caregiving role.

Current Study

Despite the apparent abundance of research in caregiver life satisfaction, work is largely restricted to studies of caregivers for individuals with degenerative or permanent diseases such as dementia or traumatic brain injury. Few studies investigate SWL in caregivers of clinically-referred youth. While research from other caregiver populations may be applicable, some differences potentially limit generalizability to the current population. First, caregivers of clinically referred youth are often parents (birth, step or foster), whereas the majority of previous research focuses on caregivers who are spouses and adult children. This is an important distinction given the nature of the caregiver's relationship to the care recipient differentially impacts the caregiving experience (Choi & Marks, 2006; Östman, Wallsten & Kjellin, 2005). Second, in contrast to caregivers of terminal, progressive, or end-of-life disorders, mental illness

may have only a small, if any, effect on youth life expectancy (Dembling, Chen & Vochon, 1999). Thus, caregivers will likely continue their role as caregivers for many years; their young care recipients expected to outlive them. Finally, clinically referred youth may receive treatment for problems not considered degenerative or permanent in the same way as Alzheimer's or multiple sclerosis. The symptoms experienced by clinically referred youth could potentially improve with treatment. Thus, the relationship between the mental health problems of the youth and the impact felt by the caregiver may change over time depending on youth treatment (Chadda, Singh & Ganguly, 2007). For these reasons, the investigation of life satisfaction in the distinct population of caregivers of clinically-referred youth is warranted.

In the present study, the relationship between caregiver life satisfaction and youth symptom severity youth treatment are investigated over the course of youth treatment. Multiple observers including the youth, the youth's caregiver, and the youth's clinician often measure youth symptom severity. Because the views of all three respondents may contribute unique information in the treatment process, no one source is considered superior to the others (Achenbach, McConaughy & Howell, 1987). However, a historically low correspondence between the ratings of different respondents is well documented (De Los Reyes & Kazdin, 2005; Ferdinand, van der Ende & Verhulst, 2004). Thus, analyses were conducted separately with the symptom severity ratings of three different respondents: caregivers, youths, and clinicians. Additionally, the relationship between caregiver SWL and several background variables were explored. These variables were chosen based on prior research previous mentioned and include age, marital status, household income, education and previous diagnosis of an emotional, behavioral or substance use disorder. The primary research questions were: 1) Does SWL change over the course of youth treatment in relation to changes in youth symptom severity? 2) Does initial caregiver SWL relate to youth symptom severity? And 3) What caregiver background characteristics relate to initial SWL?

Methods

Participants

Participants were drawn from a larger study evaluating the effects of a measurement feedback system (Contextualized Feedback Systems™) on youth outcomes. This sample represented 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 youth who began treatment during the two and a half year data collection period with at least one valid (85% non-missing data) caregiver SWL measure. This resulted in a sample of 383 caregivers of youths receiving mental health treatment.

Caregivers ranged from 23 to 81 years old (mean = 44.6). Most were primary caregivers (96%) and lived with the youth full time (97%). Youth ranged from 11–18 years old (mean = 14.7) and 51.9% were male. The majority of caregivers in the sample were not married (54.0%), had education no higher than a High School diploma or GED (82.1%), indicated racial background as Caucasian (56.1%) and had a household income less than \$35,000 (66.6%).

Measures

Caregivers' background form. As part of the larger feedback study, caregivers completed the Caregiver Background Form during their initial/intake session. This form includes items about caregiver and youth background profiles such as age, relationship, and previous diagnoses.

Satisfaction with Life Scale (SWLS). The SWLS, developed by Diener, Emmons, Larson and Griffen (1985), is the most popular scale for measuring life satisfaction (Diener et al., 1999; Vassar, Ridge & Hill, 2008). The SWLS includes 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*). Total scores are the 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 internal consistency Chronbach’s alpha of 0.87, test-retest correlation of 0.82 and a single factor solution replicated through factor analysis (Diener et al. 1985, Neto, 1993). This gives confidence the SWLS is measuring only the construct life satisfaction.

Symptom Severity. The Symptoms and Functioning Severity Scale (SFSS: Bickman et al., 2007) was completed by the clinician, caregiver and youth bimonthly during treatment. Composed of 32 five-point Likert-type items, it yields a total score of global symptom severity and subscale scores for internalizing and externalizing behaviors. The SFSS has demonstrated sound psychometric qualities for all three respondent forms including internal consistency (range: Chronbach’s $\alpha = 0.93\text{--}0.95$), test-retest reliability (range: $r = 0.68\text{--}0.87$), construct validity, and convergent and discriminant validity. The SFSS also has established cutoffs for low, medium and high scores (see Table 1). For more information about the psychometric qualities of the SFSS, see the Peabody Treatment Progress Battery manual (PTPB: Bickman et al., 2007, 2010).

Table 1: SFSS Low, Medium, High Scores

Respondent	Low	Medium	High
Caregiver	< 58	58–73	> 73
Youth	< 45	45–63	> 63
Clinician	< 57	57–69	> 69

Data Management and Missingness

This study investigated the trajectory of SWL over time. The Satisfaction with Life Scale (SWLS) was schedule for completion by caregivers at intake and every two months during

treatment. Thus, SWLS measurements are described as nested within caregivers. Due to the nature of the study, where data collection was dependent on initiation of treatment for each client, caregivers had varying numbers of SWLS measurements. For example, youth received treatment for varying lengths of time and caregivers may have completed questionnaires at differing intervals. Table 2 shows the number of SWLS time points across caregivers. Approximately 51% of caregivers had two or more time points and 21.4% had at least three. All data was utilized in analyses where it contributed information. Thus, those with only one SWL were included in analyses concerning initial SWL but dropped when investigating change over time. Youth received treatment for an average of 4.46 months (range .25–25.67, $sd = 4.29$) with an average of 14 treatment sessions (range 1–102, $sd = 12.9$).

Table 2: Distribution of Observed SWL Time Points

No. of SWL obs.	Number Of Caregivers	% Of Caregivers	Cum. Freq. Of Caregivers
1	188	49.1	49.1
2	113	29.5	78.6
3	43	11.2	89.8
4	23	6.0	95.8
5	5	1.3	97.1
>5	11	2.9	100.0

Multiple imputation (MI) was used for missing data from the caregiver background form; specifically missing values of caregiver age, household income, marriage status, highest level of education achieved and previous diagnosis of an emotional, behavioral or substance use disorder. Following procedures suggested by McKnight, McKnight, Sidani and Figueredo (2007), missing data across subjects and variables was inspected. No discernable patterns of missingness were found indicating non-MAR. Thus, missing data was treated as MAR and five imputed data sets were created. Averaged results are presented.

Statistical Analysis

Analyses employed hierarchical linear modeling (HLM) using HLM 6 computer software (Raudenbush, Bryk & Congdon, 2004) with full maximum likelihood estimation. HLM is the most appropriate technique with the current data for two main reasons. First, multiple observations per individual are used. In order to avoid violating the independence assumption, HLM takes this hierarchical structure of the data into account where multiple time points are nested within individuals. In this way, hierarchical analyses yield a picture of variability in individual trajectories rates of SWL and enables the simultaneous estimation of the influence of variables from different levels (e.g., between- and within-caregiver effects) and their cross level interactions on the dependent variable (Raudenbush & Byrk, 2002). Second, HLM does not require an equal number or equal spacing of observations per individual, thereby accommodating the unequal number of SWL observations across caregivers. However, given that only a small portion of caregivers (22%) have three or more observations, only linear change is investigated in current analyses. Three or more observations for a larger portion of the sample are necessary to include investigation of non-linear change.

The growth models used consist of two levels: Level-1 (within-caregiver) model, and a level-2 (between-caregiver) model. The within-caregiver model enables estimation of different parameters of growth, such as initial status and rate of change in each caregiver. The between-caregiver model allows for investigation of things such as the mean rate of change for all caregivers and caregiver correlates of initial status and change. To test the primary hypothesis, that improvement in SWL would correspond to the improvement of youth's symptom severity, the recommendations of Singer and Willet (2003) were followed to model the covariation. The time-varying covariates into two pieces: a time-invariant component (i.e. Youth symptom severity at intake: SFSSin) and a time-varying component (i.e. changes in symptom severity from intake: SFSSch). Intake severity was grand mean centered to facilitate discussion concerning individuals above or below average in symptom severity.

One group of models was conducted for each of the three respondents on the SFSS: the caregiver, youth and clinician. Separate models were utilized in order to analyze individually how caregiver life satisfaction varies based on the symptom severity rating of each independent respondent. An example of the within-caregiver model (level 1) used for each caregiver in the sample is:

$$SWL_{ti} = \pi_{0i} + \pi_{1i}(Time_{ti}) + \pi_{2i}(SFSSch_{ti}) + e_{ti} \quad (1)$$

where SWL_{ti} represents the caregiver's life satisfaction of caregiver i at time t , $Time_{ti}$ represents the time in months the youth had been in treatment and $SFSSch$ indicates the change in youth's symptom severity since intake as rated by person i at time t .

The between-caregiver (level-2) model addresses research questions about variability in initial SWL, change over time and whether change in SWL is related to change in youth symptom severity. Caregiver background variables from the caregiver self-report background form were also included as predictors of initial life satisfaction. These were dummy coded as shown in Table 3. This sample shows a very limited range of household income; the highest income category was just over \$35,000 a year. Although previous research reports significant effects of income on SWL, results were small and often carried out with individuals reporting household incomes well over a million dollars. Therefore, a relationship between SWL and income is not expected in the current sample. Nonetheless, two indicators of household income were included: Income L20 and IncomeH35. Two variables for caregiver age (Younger, Older) were also included given the conflicting evidence in the literature concerning SWL and age.

An example of the level-2 model used is specified as follows:

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{SFSSin}) + \beta_{02}(\text{Diagnosis}) + \beta_{03}(\text{Married}) + \beta_{04}(\text{Education}) + \beta_{05}(\text{IncomeL20}) + \beta_{06}(\text{IncomeH35}) + \beta_{07}(\text{Younger}) + \beta_{08}(\text{Older}) + r_{0i} \quad (2a)$$

$$\pi_{1i} = \beta_{10} + r_{1i} \quad (2b)$$

$$\pi_{2i} = \beta_{20} \quad (2c)$$

which captures mean initial SWL(β_{00}), monthly rate of change in SWL(β_{10}), the initial relationship between youth's intake symptom severity and SWL(β_{01}), and the association between change in SWL and change in youth's symptom severity (β_{20}). The r_{0i} and r_{1i} are random effects. r_{0i} indicates the deviation of initial SWL for a caregiver from the mean, and r_{1i} captures deviation from mean rate of SWL change for caregivers. These residuals are assumed to be normally distributed with variance τ_{00} and τ_{11} , respectively. A small sample size resulted in a lack of degrees to investigate variance for change in symptom severity (π_{2i}). Therefore π_{2i} was included as a fixed effect only.

Table 3: Variables and Values for Dummy Variables Included in Analyses

Caregiver Characteristic	Variable Name	Values
Marriage status	Married	1: Married or living as married 0: all else
Highest level of education	Education	1: More than High School Diploma/GED 0: High School Diploma/GED or less
Household Income	IncomeL20	1: Yearly income less than \$20,000 0: Yearly income \$20,000 or more
	IncomeH35	1: Yearly income more than \$35,000 0: Yearly income \$35,000 or less
Age	Older	1: 60 years or older 0: under 60 years old
	Younger	1: under 40 years old 0: 40 years or older
Previous diagnosis of an emotional, behavioral or substance disorder	Diagnosis	1: Has previous diagnosis 0: No previous diagnosis

Results

See Table 4 for descriptive statistics for continuous variables at the initial and last time points. A few characteristics of the data are worth noting. A small positive correlation between SWL and time ($r = 0.26, p < .01$) indicates higher life satisfaction is significantly associated with youth who were in treatment longer. Additionally, matched pair t -tests indicate mean symptom severity score of the youth as rated by the caregiver ($t = 2.07, p = 0.04$), youth ($t = 6.77, p < .01$) and clinician ($t = 5.14, p < .01$) all show a small but significant decrease from intake to the last time point. Finally, correlations between SWL and SFSS ratings indicate a significant relationship between life satisfaction and symptom severity across both time points when youth symptom severity is rated by the caregiver ($r = -0.28, p < .01; r = -0.21, p < .05$) and clinician ($r = -0.20, p < .01; r = -0.17, p < .01$). This relationship was not present in the youth ratings of symptom severity.

Table 5 summarizes the results of fitting the data to the final growth models defined by equations 1 and 2 for each SFSS respondent. Prior to fitting the final model, an unconditional growth model was conducted for model comparison and variance decomposition. Between-caregiver variance ($\tau_{00} = 1.50$) constituted 62% of total model variance. The final models with predictors added displayed superior fit over the unconditional growth model for the caregiver (model difference: deviance = 436, $df = 11$, Chi square $p < .001$), youth (model difference: deviance = 423, $df = 11$, Chi square $p < .001$) and clinician (model difference: deviance = 829, $df = 11$, Chi square $p < .001$). Therefore, only final model results are reported.

The Caregiver SFSS model indicated significant variability in initial SWL among caregivers ($\tau_{00} = 1.40, p < .001$) but the mean rate of SWL change by month was not statistically different from zero ($\beta_{10} = -0.006, p = 0.77$). Additionally, the rate of change did not significantly vary between caregivers ($\tau_{11} = 0.00, p = 0.10$). Thus, on average, the mean trajectory of SWL for caregivers was flat over the course of the youth's treatment. However, a change in symptom

severity was significantly related to subsequent ratings of SWL ($\beta_{20} = -0.02$, $p < .05$). With one exception, results were identical across youth and clinician SFSS models. Change in symptom severity based on youth ratings was not related to subsequent caregiver SWL.

Table 4: Descriptive Statistics of Continuous Variables at Initial and Last Time Points

Variable	Initial Time point (N = 383)		Last Time point (N = 195)		Change ¹	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SWL	4.45	1.55	4.36	1.59	-0.16	1.45
CG SFSS score	65.20	12.33	63.10	10.49	-2.02*	11.70
Y SFSS score	56.14	13.19	51.49	14.19	-4.65**	13.33
CL SFSS score	62.01	8.86	59.63	9.04	-2.38**	8.44
Time			4.46	4.29		
r (SWL, CG SFSS)		-0.276**		-0.213*		
r (SWL, Y SFSS)		-0.061		-0.042		
r (SWL, CL SFSS)		-0.201**		-0.169**		
r (SWL, Time)				0.256**		

Note: Correlation coefficients (r) are based on Pearson's correlations. SWL = Satisfaction with life scale; Time = months since treatment start; SFSS = youth symptom severity; CG = caregiver rating; Y = youth rating; CL = clinician rating. ¹ Paired *t*-tests used to test significance of difference between time points. * $p < 0.05$. ** $p < .01$.

Research Question 1: Does SWL change over the course of youth treatment in relation to changes in youth symptom severity?

Although results indicated a non-significant linear relationship of Time (β_{10}) and its variability (τ_{11}) for caregiver life satisfaction, predicted SWL was higher or lower than intake values when changes in youth symptom severity were taken into account. A change in youth symptom severity from intake was related to subsequent caregiver SWL in the caregiver ($\beta_{20} = -0.021$, $P < .05$) and clinician ($\beta_{20} = -0.024$, $P < .05$) SFSS models. Thus, holding all other variables constant, a one-point decrease in youth's symptom severity according to the caregiver predicted a 0.021-point higher SWL. Similarly, a one-point decrease in youth symptom severity according to

the clinician predicted a 0.024-point higher caregiver. The reverse was also true: an increase in youth symptom severity rated by the clinician or caregiver related to a lower caregiver SWL. The relationship between change in symptom severity and caregiver SWL was not significant in the youth SFSS model ($\beta_{20} = -0.011$, $p = 0.092$).

To inspect the magnitude of the relationship between caregiver SWL and changes in symptom severity rated by the caregiver and clinician, consider a youth with a change in symptom severity one standard deviation above the mean change compared with a youth displaying no change. According to the caregiver SFSS model, the mean change from first to last time points is 2.02 (SD = 11.70; see Table 4). Thus, improvement one standard deviation above the mean ($11.70 + 2.02 = 13.72$) predicts a caregiver life satisfaction 0.29 points higher ($13.72 * 0.021$) than when no change in symptom severity is present ($0 * 0.021$), holding all else constant. This is approximately 1/5 of a standard deviation increase in SWL. Similarly, youth improvement one standard deviation above the mean in the clinician model ($2.38 + 8.44 = 10.82$), predicts a caregiver life satisfaction 0.26 points higher ($10.82 * 0.024$) than when there is no improvement. This amounts to approximately 1/6 of a standard deviation increase in SWL. Although these changes seem small, according to Pavot & Diener (2008), these amounts can make the difference between a caregiver reporting neutral life satisfaction and reporting slight positive satisfaction. However, this relationship also exists in the reverse direction. An increase in youth symptom severity predicts a lower SWL in the caregiver and clinician SFSS models. These results provide evidence that youth progress in treatment in terms of symptom severity (according to the caregiver and clinician) is related to future caregiver life satisfaction, for better or for worse.

Table 5: Parameter Estimates, by SFSS Respondent, for final Two-Level Growth Curve Models of Caregiver SWL

	Caregiver SFSS			Youth SFSS			Clinician SFSS		
	Parameter Estimate	SE	95% CI (lower, upper)	Parameter Estimate	SE	95% CI (lower, upper)	Parameter Estimate	SE	95% CI (lower, upper)
Fixed Effects									
Initial SWL									
Intercept (β_{00})	4.092**	0.207	(3.686, 4.497)	4.065**	0.248	(3.579, 4.550)	4.105**	0.278	(3.559, 4.651)
SFSSin (β_{01})	-0.028**	0.006	(-0.163, -0.039)	-0.005	0.006	(-0.016, 0.006)	-0.024*	0.010	(-0.042, -0.005)
Diagnosis (β_{02})	-0.928**	0.174	(-1.270, -0.586)	-1.036**	0.186	(-1.400, -0.678)	-0.807**	0.226	(-1.250, -0.364)
Married (β_{03})	0.463**	0.147	(0.175, 0.752)	0.559**	0.159	(0.248, 0.870)	0.450*	0.195	(0.067, 0.832)
Education (β_{04})	0.089	0.186	(-0.275, 0.453)	0.274	0.213	(-0.144, 0.691)	0.260	0.234	(-0.198, 0.718)
IncomeL20 (β_{05})	-0.173	0.179	(-0.524, 0.179)	-0.021	0.233	(-0.478, 0.435)	-0.137	0.269	(-0.664, 0.391)
IncomeH35 (β_{06})	0.319	0.191	(-0.055, 0.692)	0.299	0.258	(-0.207, 0.805)	0.318	0.261	(-0.194, 0.830)
Younger (β_{07})	0.289	0.152	(-0.012, 0.585)	0.261	0.181	(-0.094, 0.615)	0.319	0.199	(-0.072, 0.710)
Older (β_{08})	0.521*	0.233	(0.064, 0.979)	0.511*	0.233	(0.050, 0.968)	0.481*	0.236	(0.018, 0.944)
Time									
Intercept (β_{10})	-0.006	0.012	(-0.031, 0.019)	-0.013	0.018	(-0.049, 0.022)	-0.012	0.016	(-0.044, 0.019)
SFSSch									
Intercept (β_{20})	-0.021*	0.010	(-0.050, -0.001)	0.011	0.007	(-0.002, 0.024)	-0.024*	0.011	(-0.046, -0.003)
Random effects (variance estimates)									
Intercept (τ_{00})	1.029			1.074			1.025		
Growth (τ_{11})	0.000			0.001			0.001		
Proportion of net Between-Caregiver variance explained^a									
Intercept		0.307				0.287			0.316

Note: Time is scaled in months and zero corresponds to intake. CI's were constructed using 1.96*SE; ^aCompared to unconditional growth model: $\tau_{00} = 1.50$ (62% of total variance).

** indicates significance at $p < .001$; * indicates significance at $p < .05$;

Research Question 2: Does initial caregiver SWL relate to youth symptom severity?

As seen in Table 5, caregiver's initial life satisfaction was significantly related to the youth's symptom severity when the SFSS was completed by the caregiver ($\beta_{01} = -0.028$, $p < .001$) and Clinician ($\beta_{01} = -0.024$, $p < .001$), but not the youth. This means, holding all other variables constant, for every one unit of symptom severity above the mean reported on the SFSS by the caregiver or clinician, the caregiver's initial life satisfaction is lower by 0.028 and 0.024 points respectively. To make this finding more meaningful, the caregiver SFSS results are inspected with more detail. Take the case of a youth with an intake symptom severity score one standard deviation (12.33) above and a youth with intake symptom severity one standard deviation below the mean. This compares a youth with a low severity score of 52.87 to a youth with a high severity score of 77.53 (see Table 1). This corresponds to a 24.66-point difference in intake severity. According to model results, the difference between these caregivers in initial SWL is a predicted 0.69 points ($24.66 * 0.028$), when all other variables are equal. This is nearly half a standard deviation difference in initial SWL, the difference between slight dissatisfaction and slight satisfaction according to Pavot and Diener (2008). The same comparison made with clinician rated youth symptom severity yields a total difference in initial caregiver SWL of 0.43 points or slightly more than one fourth of a standard deviation difference.

Research Question 3: What caregiver background characteristics relate to initial SWL?

Prior SWL research reported marriage status, age, income, educational level, and previous diagnosis of an emotional, behavioral or substance use problem significantly related to SWL. As such, these variables were included as caregiver covariates in all final models (see Table 5). Results were similar across all three models with few exceptions. For simplicity, only caregiver SFSS model results are reported in text for the current research hypothesis.

Consistent with the literature, married status significantly related to initial SWL ($\beta_{03} = 0.46$, $p < 0.001$). When all other variables are held constant, married caregivers (or those living as

married) have a predicted life satisfaction nearly half a point higher than those not married (e.g. those who are divorced, separated, widowed, or never married). This is nearly a third of a standard deviation (1.55/.46) difference.

Results of parameter estimates for the age dummy variables found being older significantly related to initial caregiver life satisfaction ($\beta_{08} = 0.52, p < 0.05$). Holding all other variables constant, caregivers at least 60 years old have over half a point higher (0.52; slightly more than 1/3 of a standard deviation) predicted average initial life satisfaction compared to their younger counterparts. This supports Diener & Suh's (1998) conclusion concerning the relationship between age and life satisfaction. No significant relationship between caregivers under forty and life satisfaction was found ($\beta_{07} = 0.29, p = 0.06$).

Income was not significantly related to SWL in this sample. No difference was found in initial SWL between caregivers reporting a yearly household income greater than \$35,000 and those earning less ($\beta_{06} = 0.312, p = 0.22$). Similarly, no difference was found for caregivers reporting a yearly household income less than \$20,000 compared to those earning more ($\beta_{05} = -0.17, p = 0.40$). These insignificant results were expected given the limited range of income in this sample. Highest education level achieved also yielded insignificant results. Caregivers with more than a high school diploma (or GED) did not differ on initial SWL compared to caregivers with less education ($\beta_{04} = 0.09, p = 0.679$).

Consistent with previous research findings, reporting a previous diagnosis of an emotional, behavioral or substance use disorder significantly predicts initial caregiver life satisfaction ($\beta_{02} = -0.93, p < 0.001$). Holding all else constant, caregivers reporting a previous emotional, behavioral or substance use disorder have an average predicted life satisfaction nearly one point lower (-0.93) than those reporting no previous disorder. This is two-thirds of a standard deviation difference.

Discussion

The present study investigated the trajectories of life satisfaction of caregivers for youth receiving mental health treatment. The relationship between life satisfaction and youth symptom severity was also examined. Several findings are noteworthy. On the most global level, caregivers reported average life satisfaction in the neutral range (Mean = 4.45; see Table 4) and this level remains consistent throughout the youth's treatment. Using unpaired *t*-tests, the mean value was compared to means reported for other samples using the SWLS (see Table 6). Samples are listed by decreasing means. Caregivers of clinically-referred youth have significantly lower levels of life satisfaction compared to several non-caregiving samples including new mothers ($t = 9.96$, $p < .001$, Drake, Humenick, Amankwaa, Younger & Roux 2007), Dutch and English female adults ($t = 9.58$, $p < .001$, van Loon, Tijhuis, Surtees & Ormel, 2001; $t = 5.36$, $p = 0.02$, Maltby & Day, 2004 respectively) and US college students ($t = 4.43$, $p < .001$, Pavot & Diener, 2008). Additionally, caregivers of clinically-referred youth have similar mean levels of life satisfaction to other caregiving samples including elderly caregivers ($t = 1.10$, $p = 0.27$, Vitaliano et al., 1991), family caregivers of women with physical disabilities ($t = 0.79$, $p = 0.43$, Rivera, et al., 2006), mothers of children with autism ($t = 0.33$, $p = 0.74$, Ekas, Lickenbrock & Whitman, 2010) mothers of children with Down Syndrome ($t = 0.27$, $p = 0.79$, Griffith, Hastings, Nash & Hill, 2010) and institutional caregivers of people with disabilities ($t = 0.87$, $p = 0.383$, Lin, Lin & Wu, 2010). Although differences could be due to sampling differences, these comparisons provide support that caregivers of clinically-referred youth display levels of life satisfaction lower than non-caregiving adult samples and levels similar to other caregiver samples.

Table 6: Comparison of SWL Means in Different Published Samples

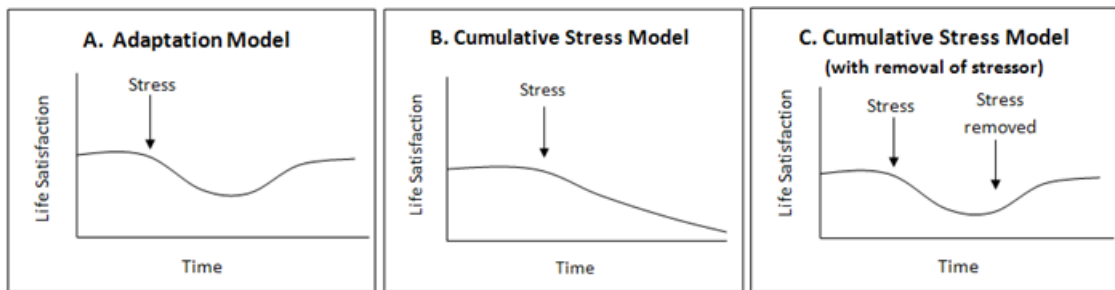
Sample Characteristics	Mean (SD)	N	<i>t</i> ^a
1. Mothers 2–4 months after giving birth	5.61 (0.85)	207	9.96**
2. Dutch Adults (Female)	5.14 (1.16)	1431	9.58**
3. Caregivers of spouses with cancer	5.05 (1.37)	314	5.36**
4. US College students (weighted average)	4.78 (1.16)	1179	4.43**
5. English Adults (Female)	4.74 (1.34)	214	2.30*
6. Relatives of 1 st hospitalized patients w/ schizophrenia or depression	4.64 (1.60)	83	1.01
7. Institutional caregivers of people with disabilities	4.60 (0.90)	88	0.87
8. Mothers of children with Down Syndrome	4.55 (1.50)	19	0.27
9. Caregivers of clinically-referred youth	4.45 (1.55)	383	
10. Mothers of children with autism spectrum disorder	4.40 (1.33)	119	0.33
11. Family caregivers of women with physical disabilities	4.26 (1.72)	48	0.79
12. Elderly Caregivers	4.24 (1.54)	79	1.10

Notes: ^a= unpaired *t*-test with current sample. **p*<.05. ***p*<.001. Samples: 1 = Drake, Humenick, Amankwaa, Younger & Roux (2007); 2 = van Loon, Tjihuis, Surtees & Ormel (2001); 3 = Kim, Carver, Deci & Kasser (2008); 4 = Pavot & Diener (2008); 5 = Maltby & Day (2004); 6 = Moller-Leimkuhler (2005); 7 = Lin, Lin & Wu (2010); 8 = Griffith, Hastings, Nash & Hill (2010); 9 = current study; 10 = Ekas, Lickenbrock & Whitman (2010); 11 = Rivera, Elliott, Berry, Shewchuk, Oswald & Grant (2006); 12 = Vitaliano et al. (1991).

Several interesting discoveries describe how caregiver SWL functions over the course of youth treatment. First, no linear relationship between SWL and time was found. This is not necessarily surprising given two conceptual models found in the literature hypothesizing how SWL functions over time in face of ongoing stressful events, the adaptation model (Diener, Lucas & Scollon, 2006) and the cumulative stress model (Ha et al., 2008). The adaptation model suggests that life events exert temporary negative influences on SWL but long-term exposure to a constant stressor will raise the person’s ability to adapt with the challenge, thus resulting in a rise in life satisfaction back to baseline levels. On the other hand, the cumulative stress model posits that ongoing stressors build tension and negative emotions, slowly decreasing SWL over time without displaying a return to baseline. Either conceptualization yields a non-linear trajectory. Within the adaptation model, caregiver SWL decreases as the youth begins his/her struggle with mental health challenges but increases back to baseline as the caregiver adapts to caring for a youth with mental health needs (see figure 1a). The cumulative stress model displays caregiver

SWL remaining stable until the ongoing stress of caring for a child with mental health needs continues to slowly decrease life satisfaction over time (see figure 1b). However, based on the logic of the cumulative stress model, youth improvement in symptom severity may remove the ongoing stressor, returning caregiver SWL to baseline levels (see figure 1c). All three of these hypothesized non-linear life satisfaction trends may explain the lack of a significant linear effect of time in the current study. However, analysis of non-linear long-term trends requires an adequate proportion of the sample to have three or more measurement points. Unfortunately, this was not available in the current data. Future work should investigate non-linear trajectories of SWL in caregivers of clinically-referred youth.

Figure 1: Conceptual Models of Longitudinal Life Satisfaction when Under Chronic Stress



Although the linear effect and variability of time were insignificant, findings indicate trajectories of caregiver life satisfaction may not necessarily remain flat throughout youth treatment. In fact, changes in youth symptom severity significantly correspond with changes in caregiver life satisfaction. When youth symptom severity improves (as rated by the clinician or caregiver) predicted caregiver SWL is significantly higher than if the youth shows no improvement in symptom severity. If we assume that treatment success for the youth is defined in terms of a reduction of symptom severity then this corresponds to an improvement for the caregiver's life satisfaction. However, a youth who deteriorates within treatment (i.e. increases in symptom severity) also corresponds to a lower predicted caregiver SWL. Both changes in

caregiver SWL may be clinically relevant to a clinician in terms of the treatment process.

However, as noted later, it is not possible to ascribe a causal direction to this relationship with these data.

Interestingly, the significant relationships between caregiver SWL and youth symptom severity were found only in the caregiver and clinician SFSS respondent models. These results were not present for the youth rated symptom severity. However, low agreement between informants is well established regarding psychopathology in youth (Achenback et al., 1987; Cantwell, Lewinsoln, Rohde & Seeley, 1997; Molina, Pelham, Blumenthal & Galiszewski, 1998) and the strength of the (dis)agreement varies based on the pair of respondents compared (De Los Reyes & Kaszin, 2005). Consistent with the literature, the manual for the SFSS (Bickman et al., 2010) reports the lowest inter-rater correlation between the youth and the clinician ($r = 0.34$) followed by the youth-caregiver correlation ($r = 0.40$) and the clinician-caregiver correlation ($r = 0.48$). Caregiver and clinician ratings of youth symptom severity yield results that are more similar. Caregiver and youth ratings of symptom severity correspond less. Another explanation for the lack of significance found in the youth SFSS model is that youth report lower average SFSS scores with higher variability and standard errors of measurement compared to caregivers and clinicians (Bickman et al., 2007). The lack of comparable findings in the youth SFSS model may be due to higher error variance of symptom severity when the SFSS is rated by the youth.

Although the investigation of the relationship between caregiver background information and initial life satisfaction confirmed several hypotheses, one result is especially striking: Caregivers reporting a previous diagnosis of an emotional, behavioral or substance use disorder report a significantly lower level of life satisfaction. These caregivers have a predicted life satisfaction score nearly one entire point lower than those without a previous diagnosis. While this may not be surprising, it could be important clinical information for the clinician to address during the youth's treatment. Knowing a caregiver has a past diagnosis may encourage clinicians to offer referrals for the caregiver's own treatment. Not only might this be personally beneficial to

the caregiver, but taking care of the caregiver is also vital for the continued support and care of the youth.

Limitations and Future Directions

One limitation of the present study is that the number of SWL points per caregiver varied widely, with a large number of caregivers having only one data point. Although one advantage of using HLM is that all data are used in the model, parameter estimates would be more precise if caregivers had at least three SWLS. This is because only caregivers with more than one time point contributed information to time-dependent parameter estimates. However, the collection of more ongoing data will provide for a stronger analysis in the near future, including analysis of non-linear trends over time.

A related limitation of this study concerns data collection within a real-world setting. Researchers had little control over missingness and variability in amount of caregiver data. Unlike conditions possible within lab-based investigations, researchers collecting data for the current study did not control the scheduled frequency of youth treatment sessions (e.g. weekly, bimonthly, etc.) or the actual administration of the questionnaires. Although a questionnaire administration schedule was provided, clinicians made decisions concerning session frequency and if/when questionnaires were administered. For example, during sessions where clinicians reported dealing with emergencies, they often also reported foregoing questionnaire administration. However, the real-world nature of the larger study where the current data was taken is also considered a strength. These results were found under typical conditions within community mental health treatment.

Finally, although current findings are informative for describing relationships between variables, no causal claims can be made. Concluding that caregiver SWL impacts youth symptom severity is as viable as concluding that caregiver SWL impacts youth symptom severity. In fact, the literature fails to conclude which factor constitutes the independent and dependent variable in

this relationship (Early et al., 2002). Popular thought is that the relationship is reciprocal. More research is needed to explore this complex relationship in greater depth.

Implications for Research, Policy, and Practice

It is especially important in the future to employ research designs that allow for the assessment of non-linear trends and include information concerning the length of time youth have had mental health issues. This will provide a clearer picture of the functional form of trajectories for caregiver life satisfaction. These trajectories can then be compared with the hypothesized models of longitudinal SWL under conditions of chronic stress. The use of more complex models is also important for untangling the directionality of the relationship between SWL and youth symptom severity. Information gained from such analyses will provide insight where interventions may be best directed for improving caregiver SWL: the youth or the caregiver. Such work could also assess what factors mediate the association between SWL and symptom severity such as caregiver coping skills or other sources of family/community support. This may provide clinicians with direction for treatment suggestions targeting caregivers during the youth's treatment process.

In summary, this study examined the association between life satisfaction and youth symptom severity in caregivers for clinically-referred youth. Results indicate a significant inverse relationship between initial caregiver SWL and youth symptom severity when caregivers or clinicians rated symptoms. Additionally, changes in caregiver life satisfaction correspond inversely with caregiver and clinician reported changes in youth symptom severity. Although the causal direction of these relationships are unknown, results further confirm the concept that caregivers may be considered "invisible patients" (Manne, 2005) within the youth's treatment process. Given their important role in the youth's treatment process, attention to the well-being of caregivers is essential.

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