

Assessment of Meaning in Adolescents Receiving Clinical Services in Mississippi Following the Deepwater Horizon Oil Spill: An Application of the Purpose in Life Test-Short Form (PIL-SF)

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Objectives: This study's purpose was to assess perceived meaning in adolescents. Specifically, our goals were to examine the psychometric properties of the Purpose in Life test-Short Form (PIL-SF) and its ability to predict psychological outcomes in an adolescent sample. **Method:** Aspects of well-being (self-efficacy, life satisfaction, and resilience) and psychological distress (posttraumatic stress, depression, anxiety, and general stress) were assessed in a sample of adolescents ($N = 91$; 58.2% female; mean age = 14.89) receiving clinical services following the Deepwater Horizon Oil Spill. **Results:** Meaning was positively associated with life satisfaction, self-efficacy, and resilience, and negatively associated with posttraumatic stress and depression. Meaning was not significantly related to anxiety or general stress. Females reported significantly more meaning than males, while no significant differences were noted by race/ethnicity. **Conclusions:** The PIL-SF is a useful measure with adolescents. Moreover, meaning is an important concept to consider with respect to disasters. © 2015 Wiley Periodicals, Inc. *J. Clin. Psychol.* 72:1279–1286, 2016.

Keywords: meaning; purpose in life; disaster mental health; Deepwater Horizon Oil Spill; Gulf Oil Spill; resilience; life satisfaction; self-efficacy; posttraumatic stress; depression; anxiety

In April 2010, an explosion on the Deepwater Horizon oil rig caused hundreds of millions of gallons of oil to flow into the Gulf of Mexico (referred to as the “Deepwater Horizon Oil Spill” or the “Gulf Oil Spill”). This event negatively affected the coastal communities of several U.S. states by harming wildlife, the seafood industry, and natural resources (Aiena, Baczwaski, Schulenberg, & Buchanan, 2015; Grattan et al., 2011). Additionally, a growing number of studies have documented the negative mental health effects of the spill in coastal communities (Drescher, Schulenberg, & Smith, 2014; Gill, Picou, & Ritchie, 2012; Grattan et al., 2011; Osofsky, Osofsky, & Hansel, 2011), with a smaller number of investigations focusing on positive concepts such as meaning in life, self-efficacy, and life satisfaction (Baczwaski, 2015; Drescher et al., 2012). These studies, however, focus on adults. The purpose of this study was to examine a sample of adolescents receiving clinical services in Mississippi following the Deepwater Horizon Oil Spill, with specific regard for meaning in life as assessed by the Purpose in Life test-Short Form (PIL-SF).

We collected data for the present study through a contract between Dr. Schulenberg and the Mississippi Department of Mental Health. The Mississippi Department of Mental Health funded the clinical sites through a grant program made possible by funding from BP. Dr. Schulenberg and the members of the research team evaluated the amount of clinical services provided by the sites funded under this grant.

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Meaning in life is a concept that has increasing applicability in the disaster mental health context (Schulenberg, Drescher, & Baczwaski, 2014). Meaning is a prime human motivation that is essential to human physical and emotional well-being (Frankl, 1959/2006, 2010; Heintzelman & King, 2014; Schulenberg, Hutzell, Nassif, & Rogina, 2008). According to Steger, Shin, Shim, and Fitch-Martin, meaning is the

degree to which people have achieved comprehension (through making sense of their lives and experience, developing a coherent mental model of their selves, the world around them, and their fit and interactions with the world) and have achieved purpose (through discerning, committing to, and pursuing overarching lifelong goals, aims, and aspirations). (2013, p. 166)

Thus, definitions of the term often comprise both meaning and purpose, which are often used interchangeably. However, meaning is synonymous with value, significance, and importance, while purpose is synonymous with goal, intention, and objective (Lent, 2013). For parsimony, we use “meaning” to reference both meaning and purpose in life.

The PIL-SF (Schulenberg & Melton, 2010; Schulenberg, Schnetzer, & Buchanan, 2011; Appendix) is a four-item abbreviated version of Crumbaugh and Maholick’s (1964) 20-item Purpose in Life test. The measure was designed to assess meaning as outlined by Frankl (e.g., 1959/2006, 2010) and contains items that reference both meaning and purpose. The PIL-SF was developed on the basis of a series of factor-analytic studies that were conducted to determine the dimensionality of the PIL (Schulenberg & Melton, 2010; Schulenberg et al., 2011). The abbreviated form (items 3, 4, 8, and 20) garnered compelling psychometric support in these studies and has since been used in research as a more “pure” measure of the meaning and purpose in life concept.

The PIL-SF yields reliable scores (coefficient alphas in the .80s) and significantly correlates, as expected, with an array of variables, suggesting greater well-being and less psychological distress (Schulenberg & Melton, 2010; Schulenberg et al., 2011). However, although the initial psychometric support for the PIL-SF is impressive, it is a recently derived measure that has not been used extensively in research studies (Bronk, 2014) and has yet to be used with an adolescent sample. Adolescence is a critically important developmental time with respect to meaning, which is related to many positive health outcomes (Batthyany & Russo-Netzer, 2014; Bronk, 2014; Hicks & Routledge, 2013; Melton & Schulenberg, 2008).

Therefore, this study aimed to evaluate the significance of meaning as assessed by the PIL-SF in adolescents receiving clinical services following the Deepwater Horizon Oil Spill ($N = 91$). Descriptive data and reliability coefficients were calculated. Because there are no adolescent data available with respect to the PIL-SF, analyses are also reported by sex and race/ethnicity. The relationship of meaning to a range of well-being (satisfaction with life, self-efficacy, and resilience) and psychological distress (posttraumatic stress, depression, anxiety, and general stress) variables was examined. We hypothesized that PIL-SF scores would be reliable, significantly and positively associated with other well-being variables, and significantly and negatively associated with psychological distress indices.

These hypotheses were primarily based on studies of adults receiving clinical services following the Deepwater Horizon Oil Spill, which employed the same measures and administration procedures as this study of adolescents (Aiena, Buchanan, Smith, & Schulenberg, 2015; Aiena, Baczwaski, et al., 2015; Baczwaski, 2015; Drescher et al., 2012). These studies of adults reported: PIL-SF scores are reliable; significant and positive relationships (r s greater than .50) with indices of self-efficacy, satisfaction with life, and resilience (Aiena, Baczwaski, et al., 2015; Drescher et al., 2012); and significant and negative relationships (r s ranging from $-.24$ to $-.44$) between PIL-SF scores and indices of depression, anxiety, and stress, as well as posttraumatic stress (Aiena, Buchanan, et al., 2015; Baczwaski, 2015). No statistically significant differences were expected with respect to sex and race/ethnicity, consistent with Baczwaski’s (2015) study of adults.

Method

Participants

Data were collected from 91 adolescents (58.2% female; mean [*M*] age = 14.89, standard deviation [*SD*] age = 1.91, ages ranged from 11 to 18 years) receiving services at mental health facilities on the Mississippi Gulf Coast following the Deepwater Horizon Oil Spill. The sample was primarily White/Non-Hispanic (48.4%, *n* = 44), Asian American (23.1%, *n* = 21), and Black (19.8%, *n* = 18).

PIL-SF. The PIL-SF (Schulenberg et al., 2011; Appendix) is a four-item scale designed to assess perceived meaning in life. PIL-SF items are rated on a 7-point response scale with different anchors for each item; e.g., “I have discovered . . .” 1 (*no mission or purpose in life*) to 7 (*clear-cut goals and a satisfying life purpose*). PIL-SF scores range from 4 to 28. Higher scores suggest higher perceived meaning. Cronbach’s alpha was calculated to be .89 in this sample.

General Self-Efficacy Scale. The General Self-Efficacy Scale (GSES; Schwarzer & Jerusalem, 1995) is a 10-item measure used to assess general, or global, self-efficacy. The response format ranges from 1 (*not at all true*) to 4 (*exactly true*); e.g., “I am confident that I could deal efficiently with unexpected events . . .” 1 (*not at all true*) to 4 (*exactly true*). Scores on this measure range from 10 to 40. Higher scores suggest higher perceived self-efficacy. Cronbach’s alpha was calculated to be .94 in this sample.

Satisfaction with Life Scale. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson, & Griffin, 1985) is a five-item measure of life satisfaction that employs a 7-point Likert-type response format; e.g., “In most ways my life is close to my ideal . . .” 1 (*strongly disagree*) to 7 (*strongly agree*). Scores range from 5 to 35. Higher scores suggest greater life satisfaction. Cronbach’s alpha was calculated to be .84 in this sample.

Resilience Scale. The 14-item Resilience Scale, or RS-14, was developed to measure five characteristics of resilience, including purposeful life, perseverance, equanimity, self-reliance, and existential aloneness (Wagnild, 2009). The RS-14 uses a 7-point Likert-type response format. Item responses are summed to produce a total score ranging from 14 to 98, with higher scores indicating greater resilience (see www.resiliencecenter.com for RS-14 item content). Cronbach’s alpha was calculated to be .92 in this sample.

PTSD Checklist-Stressor Specific Version. The PTSD Checklist-Stressor Specific Version (PCL-S; Weathers, Huska, & Keane, 1991) assesses for the presence of PTSD symptoms, in this case symptoms related to the Deepwater Horizon Oil Spill. The 17 items of the PCL-S (e.g., “Repeated, disturbing dreams of the stressful experience?”) represent the three PTSD symptom clusters from the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (re-experiencing, avoidance, and hyperarousal; American Psychiatric Association, 2000). Each item is rated on a Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*), with total scores ranging from 17 to 85. Higher scores reflect more PTSD symptoms. Cronbach’s alpha was calculated to be .96 in this sample.

Depression Anxiety Stress Scales. The 21-item version of the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995), the DASS-21, comprises separate seven-item scales that assess depression, anxiety, and stress symptoms, respectively. Each item is a statement (e.g., “I found it hard to wind down”) that is rated on a Likert-type scale ranging from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). Scores on the depression, anxiety, and stress scales of the DASS-21 range from 0 to 42. Higher scores indicate greater presence of symptoms. Cronbach’s alphas were calculated to be .92, .88, and .88 for the depression, anxiety, and stress scales, respectively.

Table 1
Descriptive Statistics and Correlation Coefficients for Measures Administered to the Sample

Measure	N	Minimum Maximum		Mean	SD	1	2	3	4	5	6	7	8
		score	score										
(1) Meaning	86	4	28	21.34	5.41	.63*	.45*	.62*	-.32*	-.26*	-.13	-.19	
(2) Self-efficacy	85	10	40	29.91	7.50		.50*	.76*	-.46*	-.31*	-.14	-.29*	
(3) Life satisfaction	85	5	35	20.96	7.42			.57*	-.35*	-.24*	-.15	-.28*	
(4) Resilience	79	14	98	69.34	18.39					-.40*	-.42*	-.32*	-.34*
(5) PTSD symptoms	81	17	68	31.41	15.67					.50*	.42*	.51*	
(6) Depression	84	0	42	9.26	10.74						.82*	.86*	
(7) Anxiety	85	0	42	8.00	9.71							.81*	
(8) Stress	83	0	42	12.07	10.78								

Note. SD = standard deviation; PTSD = posttraumatic stress disorder.

*Significant ($p \leq .05$).

Procedure

The adolescents participating in this study did so as part of a larger grant-funded project that provided clinical services to residents of the Mississippi Gulf Coast following the Deepwater Horizon Oil Spill (see Aiena, Baczwski, et al., 2015; Drescher et al., 2012, 2014; Walters et al., 2014 for studies involving the adult sample)¹. Sites where data were collected ($N = 9$) included community mental health centers, a mentoring program, an art therapy program, a domestic violence center, and private counseling organizations providing services in school, home, and outpatient settings. The adolescents were either new clients or clients who were already receiving services at the time data were collected. Detailed data on course of therapy are not available because the research primarily focused on documenting the amount of services provided by sites, as well as the effects of the spill on those affected and receiving services.

We obtained informed consent from a parent/legal guardian and assent from youths who chose to participate². The questionnaire battery comprised demographic information and indices of well-being (PIL-SF, SWLS, GSES, and RS-14) and psychological distress (PCL-S, DASS-21). Respondents completed the questionnaires in paper-and-pencil or computerized format (Qualtrics) at the site where services were received. The Institutional Review Boards of MS DMH and The University of Mississippi approved data collection.

Results

Describing the Sample Via the Measures Administered

Table 1 depicts means and standard deviations for the measures administered. Although there are no interpretive cutoffs for the PIL-SF scores, the overall mean was 21.34, or 5.39 per item (4 being neutral). In terms of the other measures of well-being, self-efficacy values tended to be at the higher end of the scale, with average life satisfaction (Diener, 2006) and resilience on the low end (Wagnild, 2009). Mean scores of psychological distress were not suggestive of clinically

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²Because of logistical difficulties, parents were not always available to consent to the research. As a result, the sample of adolescents was smaller than anticipated. Moreover, it is unclear how many adolescents were unable to participate due to a lack of parental consent. Thus, although we were able to document the amount of services provided by the facilities, we are not able to comment with confidence about the effect of the spill on the adolescent sample.

Table 2

Descriptive Statistics and Reliability Coefficients for the Purpose in Life test-Short Form by Race/Ethnicity

	<i>N</i>	Mean	<i>SD</i>	Alpha coefficient
Black	16	21.19	5.53	.94
White	42	21.76	5.68	.91
Asian	20	20.10	5.45	.89

Note. *SD* = standard deviation.

significant difficulties in the areas of posttraumatic stress, depression, anxiety, or general stress (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Crawford, Cayley, Lovibond, Wilson, & Hartley, 2011).

Psychometric Aspects of the PIL-SF

Three participants did not complete the PIL-SF and two participants had one missing item. Participants were excluded from analyses pairwise. Analysis of the four PIL-SF items resulted in a Cronbach's alpha of .89, indicating a high degree of internal consistency reliability (Clark & Watson, 1995; Murphy & Davidshofer, 2005). An analysis of reliability for each item removed indicated that reliability ranged from .83 for removal of item 4, .87 for removal of items 2 and 3, and .88 for item 1, further indicating a highly reliable scale. Inter-item correlations ranged from $r(85) = .57$ (items 2 and 3) to $r(85) = .80$ (items 3 and 4). The items were also positively correlated with the total score, with correlations ranging from $r(84) = .84$ to $r(84) = .92$.

Predictive Validity of the PIL-SF

Table 1 presents correlations between meaning, well-being, and psychological distress. As expected, adolescents who reported higher levels of perceived meaning also reported significantly higher life satisfaction, self-efficacy, and resilience (r s ranging from .45 to .63). These correlations may be considered medium to large in magnitude by interpretive standards (Cohen, 1988) and were remarkably similar to those reported for the adult sample (Aiena, Baczowski, et al., 2015; Drescher et al., 2012).

With respect to the relationship between meaning and psychological distress, meaning was a significant negative predictor of two of the four negative clinical outcomes: depression and posttraumatic stress. These significant correlations (r s ranged from $-.26$ to $-.32$) may be considered medium in magnitude by interpretive standards (Cohen, 1988). Unlike the adult sample, meaning was not significantly associated with anxiety or general stress.

Demographic Differences

A series of analyses were performed to examine demographic trends in the measurement of meaning in life in adolescents. Examination of mean sex differences revealed that female adolescents ($M = 22.48$, $SD = 4.95$) reported significantly more meaning in life than male adolescents ($M = 19.59$, $SD = 5.67$), $t(84) = 2.50$, $p = .01$, $d = 0.54$. The PIL-SF had acceptable reliability in both males (alpha = .91) and females (alpha = .87) and the two alpha values were not significantly different, $\chi^2(1) = 0.77$, $p = .38$.

Although several race/ethnicities were represented in the sample, a majority of participants (90.7%) were White, Black, or Asian and these three ethnicities were more closely examined. Table 2 presents means, standard deviations, and alpha coefficients. A one-way analysis of variance revealed no significant differences between the three groups, $F(2, 75) = 0.60$, $p = .55$. In addition, the PIL-SF was equally reliable in all three groups of participants, $\chi^2(2) = 1.24$, $p = .54$.

Discussion

This study's purpose was to assess perceived meaning in a sample of adolescents receiving clinical services following the Deepwater Horizon Oil Spill, with particular regard for the psychometric properties of the PIL-SF. A number of indices of well-being and psychological distress were included. As expected, we found significant and positive correlations between PIL-SF scores and indices of life satisfaction, self-efficacy, and resilience. Also as anticipated, we found significant and negative correlations between PIL-SF scores and indices of posttraumatic stress and depression. Although meaning scores were not significantly associated with indices of anxiety and stress, the correlations were in the expected direction. Overall, as hypothesized, higher meaning scores were associated with greater well-being and decreased psychological distress.

As for reliability, PIL-SF scores were highly reliable whether examined by sample, by sex, or by race/ethnicity. These data are consistent with reports of PIL-SF use with adult samples. Although no PIL-SF score differences by sex were anticipated, it is interesting that females tended to report greater meaning than did males. Perception of meaning may differ somewhat when considering male and female adolescents (Brassai, Piko, & Steger, 2011, 2013). Finally, as hypothesized, there were no statistically significant differences in meaning scores by race/ethnicity.

Limitations

With respect to study limitations, first and foremost, we were unable to collect data from as many adolescents as would have been ideal. This limitation was primarily because, at many of the facilities, parents were not always readily available to provide informed consent. It is not known how many adolescents were unable to participate in the study as a result of this limitation.

As for another limitation, although the sample was recruited through a number of mental health facilities, they reported only a mild level of psychological distress. It is not known whether adolescents reporting more severe symptoms would have responded differently on the PIL-SF. The reasons for this finding are unclear. One possibility is that because participants were receiving psychosocial services, their clinical problems were somewhat attenuated at the time of data collection. Thus, based on the sample size and the functioning of the sample, we regard these results as promising but in need of further study. It would be useful in future studies to compare clinical samples with nonclinical samples (e.g., middle and high school students) to further verify the psychometric properties of the PIL-SF. Along these lines, longitudinal studies employing the PIL-SF would also be informative. Future studies may also wish to examine how meaning in life differs among male and female adolescents.

Conclusion

Limitations aside, two conclusions are drawn with confidence. First, the PIL-SF appears to be a useful measure with adolescents, possessing sound psychometric properties. Second, meaning appears to be a useful concept to consider in relation to disasters such as the Deepwater Horizon Oil Spill.

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Appendix

PIL-SF

Directions: For each of the following statements, circle the number that would be most nearly true for you. Note that the numbers always extend from one extreme feeling to its opposite kind of feeling. "Neutral" implies no judgment either way, try to use this rating as little as possible.

- | | | | | | | | |
|-------------------------------------|---|---|---|-----------|---|---|---|
| 1. In life I have: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| no goals or aims at all | | | | (neutral) | | | very clear goals and aims |
| 2. My personal existence is: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| utterly meaningless without purpose | | | | (neutral) | | | very purposeful and meaningful |
| 3. In achieving life goals I have: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| made no progress whatsoever | | | | (neutral) | | | progressed to complete fulfillment |
| 4. I have discovered: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| no mission or purpose in life | | | | (neutral) | | | clear-cut goals and a satisfying life purpose |

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