Knowing when someone is resilient: Development and validation of a measure of adaptive functioning among war-affected Sri Lankan Tamils

Alexandra O'Neill [a], Nuwan Jayawickreme [a], Laura E.R. Blackie [b], A. Demaske [c], Michelle A. Goonasekera [d], Eranda Jayawickreme [c,e,*]

[a] Department of Psychology, Manhattan College, United States
[b] School of Psychology, University of Nottingham, UK
[c] Department of Psychology, Wake Forest University, United States
[d] Clinical Trials Service Unit, Nuffield Department of Population Health, University of Oxford, UK
[e] Program for Leadership and Character, Wake Forest University, United States

ARTICLE INFO

ABSTRACT

Current measures of adaptive functioning are typically validated using samples from Western populations, which limit their utility in non-Western populations. The present study examines the development and utility of a locally derived measure of adaptive functioning, the Penn/RESIST/Peradeniya Competencies (PRPC) Scale, among Tamil survivors of the Sri Lankan civil war. This scale—developed using data from 622 qualitative interviews of war-affected Sri Lankan Tamils—was administered to three samples of war survivors ($N = 539$) and was shown to have a three-factor structure that overlapped with domains identified through coding of the qualitative data: religious faith, community respect, and family responsibility. These three domains predicted lower levels of impaired functioning in daily life, as well as lower levels of depression and anxiety as measured by culturally sensitive assessments. Additionally, these domains predicted subjective trajectories of life satisfaction indicative of an adaptive sense of personal identity. These results highlight the value of culturally sensitive measures of adaptive functioning.

1. Introduction

Resilience involves the ability to navigate and function well in life despite adversity (Luthar & Brown, 2007). When examining and studying resilience, it is important to clarify what it means for someone to be functioning effectively in a specific environment (Masten, Lucke, Nelson, & Stallworthy, 2021). These criteria may include physical health, achieving developmental milestones, fulfilling social responsibilities, and beliefs about one's own functioning and the world. It is therefore evident that culture and context play crucial roles in dictating what it means to

adapt well in society (Jayawickreme, Jayawickreme, & Seligman, 2013). As a result, identifying culture-specific aspects of adaptive functioning is important to both accurately represent adaptive functioning and resilience among that population and help promote positive mental health outcomes through appropriately targeted interventions. In this study, we present findings from three samples of Sri Lankan Tamil war survivors that indicate the validity and utility of the Penn/RESIST/Peradeniya Competencies (PRPC) Scale. As we outline in this paper, these findings indicate that the PRPC scale captures distinctive aspects of adaptive functioning among Sri Lankan Tamil war survivors that both predict mental health and aid in understanding the key domains of resilient functioning in this population.

1.1. Background

Adaptive functioning is a multifaceted construct indicating the extent to which individuals can successfully function in society and fulfill their own life goals in an environment despite challenges and adversity (Clauss-Ehlers, 2008). Furthermore, adaptive functioning has been shown to predict future risk exposure, self-esteem, developmental trajectories, as well as allowing for new opportunities for development in children (Ungar, 2012). Research on adaptive functioning as an indicator of resilience has focused on identifying biological and social factors that could subsequently be used to develop interventions that promote such functioning (Luthar & Brown, 2007). Since resilience is a product of environmental interactions, however, measures of functioning validated in one context may not capture functioning in other environments and cultures (Panter-Brick, 2015; Ungar & Liebenberg, 2011).

1.1.1. Conceptualizing resilience

Recent work has defined resilience as a) sustained positive adjustment following adversity and b) recovery displayed after initial maladjustment following negative life events (Luthar & Brown, 2007). This definition highlights the interactional nature of resilience with an individual's environment in the context of positive adjustment. Positive adjustment is context-dependent, since the very nature of this construct involves *adjusting* to a specific environment, which will clearly differ across cultures, as societal standards and goals for individuals can be culture-specific (Christophe et al., 2019).

One underlying reason for differences in what constitutes adaptive functioning is culture, i.e., the set of values, beliefs, knowledge, norms and practices that is required to function in a particular context (Goodenough, 1994). An example of these cultural differences is seen in the differences of responses to war and political violence in Bosnian and Palestinian youth (Barber, 2008, 2013). Both groups were exposed to and had to *make sense* of their experience of violent conflict and violence. Similar adverse events were experienced by both groups, but the responses of the youth and subsequent mental health outcomes were strikingly different. Barber (2008, 2013) examined the differences in the beliefs of the youth regarding the war. Palestinian youth believed that the war had a legitimate purpose and were actively engaged in the war effort. Conversely, the Bosnian youth described the war as senseless and without purpose. Consequently, the Bosnian youth showed higher rates of depression and posttraumatic stress associated with the war. This discrepancy in beliefs about war and violence leading to different individual mental health outcomes is indicative of the role of cultural master narratives in shaping how individuals make sense and adapt to adverse life events (McLean & Syed, 2015).

Relatedly, a key predictor of individual mental health outcomes in an Afghan school setting was the ability to keep children in school; in this specific setting, the ability to keep children in school was indicative of geographic, economic, and social stability (Panter-Brick & Eggerman, 2012). The education of children was also seen as an expression of hope for economic advancement and stability of the family. This may be seen as both a result of the collective resilience present in Afghan families and as a reflection of the overall cultural importance of education in Afghan

culture. However, cultural expectations can also be detrimental to mental health outcomes when they are not realized (Panter-Brick, 2015). Specifically, the inability to attain important cultural milestones such as completing education or maintaining a job have led to the feeling of *entrapment* among Afghans. This sense of entrapment was associated with severe distress, anxiety, and depression, as well as increased violence (Panter-Brick & Eggerman, 2012).

In addition to culture, other contextual factors also play a role in the way functioning is defined and attained by individuals. For example, Dupree (2004) identified that amidst ongoing crises in Afghanistan, the family unit was regarded as the only stable institution for individuals that provided continuous support in both social and economic contexts. Thus, Afghans exemplify collective resilience within families and communities (Panter-Brick & Eggerman, 2012). As a result, it is not solely political violence that plays a role in individual mental health outcomes; rather, everyday violence found in families and neighborhoods impacted the mental health of Afghan children as militarized violence. In summary, resilience can manifest differently across cultures and geographical settings due to expectations and support systems that are both culturally and contextually guided.

1.1.2. Existing measures of adaptive functioning

Although most measures of adaptive functioning have not been tailored for a specific population, there has been an increase in the development of culturally sensitive measures of functioning that build on the social ecology model of resilience. The development of the Child and Youth Resilience Measure (CYRM-28; Ungar & Liebenberg, 2011) demonstrates the challenges in creating culture-general measures. Even after extensive collaboration across many countries and communities, researchers were not able to find a common model that fit the data across all sampled populations. This result indicates that while resilient functioning may have some commonalities across populations, the way it manifests itself in different cultures is likely different.

One example of a culture-specific measure of adaptive functioning is the Chinese Life Purpose Orientation (CLPO) questionnaire, which was developed for use among Chinese college students (Wang, You, & Huang, 2020). *Purpose orientations* are the content of one's purpose and differences in these orientations have been found to result in differing life outcomes (Hill, Burrow, Brandenberger, Lapsley, & Quaranto, 2010). Specifically, researchers (Wang, Jia, You, & Huang, 2021) observed high correlations between purpose orientations and well-being. The results from this study suggest that the large cultural emphasis on family and community values are factors of purpose orientations among Chinese college students (Wang, You, & Huang, 2020). The importance of cultural values and beliefs in specifying domains of resilient functioning can also be seen in the development of the Multiracial Challenges and Resilience Scale (MCRS), where the observed domains of functioning for multiracial adults were appreciation of human differences and multiracial pride (Salahuddin & O'Brien, 2011). These two factors that can be thought of as both values and beliefs were constitutive of resilient functioning in this context and are specific to this population.

1.2. The current study

The purpose of the present study was to develop and validate a culture- and context- specific measure of adaptive functioning for Tamil survivors of the Sri Lankan civil war. This conflict—between the Sri Lankan armed forces and the Liberation Tigers of Tamil Eelam (LTTE), a Tamil separatist group—lasted from 1983 to 2009 and resulted in at least 100,000 deaths and over 800,000 internally displaced (Jayawickreme, Jayawickreme, & Miller, 2010; Vhurumuku, Nanayakkara, Petersson, Kumarasiri, & Rupasena, 2012). During the war, many Tamil civilians endured the traumas of shelling, aerial bombardment, food and water shortages, loss of shelter, loss of employment, loss of material goods, rape, torture, and forced recruitment into LTTE (Harrison, 2012). As of 2016, there were still over 45,000 displaced Sri Lankans (the vast

majority Tamil) still living in the country and dealing with the lasting effects of the war, including marked poverty and psychological distress (United Nations High Commissioner for Refugees, 2016; Jayawickreme et al., 2017).

1.2.1. Development of the penn/RESIST/Peradeniya Competencies (PRPC) scale

The PRPC scale was developed using qualitative data collected through the Social Policy Analysis and Research Center (SPARC) at the University of Colombo, Sri Lanka, in collaboration with the Asia Foundation under the 'Reducing the Effects and Incidence of Torture' (RESIST) Programme (Jayawickreme, Jayawickreme, Goonasekera, & Foa, 2009; the summary below is adapted from this paper). As part of this project, 622 participants were interviewed and asked to describe the characteristics of individuals in their lives who were doing well. These data were coded with NVivo coding software (QSR International, 2006), and involved the analysis of two separate translations (from Tamil to English) of these data. E. Jayawickreme and two trained coders utilized the open coding method (Strauss, 1987; Berg, 2006) to systematically identify and extract the main themes/topics/issues. To this end, the coders counted words, themes, items, concepts and semantics present in the data. These concepts and categories were based on common themes and experiences related to psychological distress and well-being. These were drawn solely from the database, with minimum influence of prior conceptions of trauma and wellbeing (see Guarnaccia, Rivera, Franco, & Neighbors, 1996; for a similar method).

Following this, we engaged in thematic analysis of the data. Thematic analysis is a dynamic process where a master scheme is developed to organize the data under major themes and subthemes. This analysis involves the interaction of two processes: specification of the content characteristics (basic content elements) being examined and application of explicit rules for identifying and recording these characteristics. Initial coding revealed three preliminary groups of concepts: *relationship with family and community*, *religious and social involvement*, and *personal growth*. While a range of concepts were noted in the data, examples of more frequently cited attributes of doing well were 'having good/well motivation' (having positive thoughts to fulfil goals), 'being of good morality,' 'showing benevolence to others', 'having unity of family', and 'being a good member of the community'.

Further thematic analysis of the qualitative data pointed towards the existence of five distinct and more narrow clusters: thinking the right thoughts, family responsibilities, religion, fulfilling family needs, and achievement/education. Each cluster was represented with items such as the following (see Table 1 for the full list, and Jayawickreme et al., 2009 for further details), for a total of 21 items:

- Right thoughts: e.g., I am well motivated to accomplish my daily life tasks
- Needs: e.g., I can successfully fulfill my family's needs
- Family: e.g., There is a strong sense of harmony in my family
- Religion: e.g., I fulfill my religious responsibilities; I have strong religious faith
- Education: e.g., I place a great emphasis on education
- Prosocial attitudes: e.g., I have the respect of my community

The present set of three studies builds on this initial work (see Fig. 1 for an overview). Since the goal of the PRPC scale is to identify domains of adaptive functioning among Sri Lankan Tamil war survivors, we additionally determined its validity by examining its association with multiple measures of functioning and mental health. To establish convergent validity, we examined the association between the PRPC scale and satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985). In addition, we also examined its association with perceptions of posttraumatic growth, since previous research has identified post-traumatic growth as one key indicator of adaptation following adversity (Jayawickreme & Blackie, 2014; Masten, Lucke, Nelson, & Stallworthy,

Table 1
EFA *Analysis of PPR Competencies Scale with PCA Oblimin Loadings.*

	Factor 1	Factor 2	Factor 3
Religious Faith			
I have been a successful parent/role model for children	.503		
There is a strong sense of harmony in my family	.572		
I fulfill my religious responsibilities	.777		
I have a strong religious faith	.875		
I have a lot of patience when dealing with life's problems	.565		
I believe that my life's destiny is being fulfilled	.611		
I place a great emphasis on education	.414		.476
Family Responsibility			
I can successfully fulfill my family's needs		.82	
I have the necessary skills to provide for myself and my family		.71	
There are no problems with my family situation		.66	
I earn a sufficient income for myself and my family		.79	
I have been able to educate my children well		.515	.37
I have remained resilient in the face of/I face up to life's challenges		.39	
Community Respect			
I assist my community whenever they need help			.656
I am a successful member of my community			.61
I am able to successfully deal with the problems that I have encountered in my life			.633
My community is doing well/in harmony			.48
I have the respect of my family			.71
I do my utmost to overcome life's challenges			.82
I have the respect of my community			.71
Non-Loading Items			
I am well-motivated to accomplish my daily life tasks			

Note: Loadings lower than 0.395 are not reported Bolded Items indicate items included in 8-item PRPC Scale.

2021). We further examined the PRPC scale's association with functional impairment, since a previous study of Sri Lankan war survivors found that functional impairment was shown to be mitigated by increased agency and positive need fulfillment (Jayawickreme, Jayawickreme, Zachry, & Goonasekera, 2019).

We also assessed the relationship between the PRPC scale and a measure of depression and anxiety that included local idioms of depression and anxiety (the Penn/RESIST/Peradeniya War Problems Questionnaire; Jayawickreme, Jayawickreme, & Miller, 2010), as well as with assessments of intrusive and deliberative rumination. The process of thinking repetitively about a particular aspect of oneself or environment can be unconstructive (e.g., intrusive) or constructive (e.g., deliberative; Watkins, 2008). Repetitive thought appears to be a universal phenomenon and is often expressed in non-Western cultures through the idiom of distress "thinking too much" (Kaiser et al., 2015).

Finally, we examined the relationship between the PRPC domains and subjective trajectories of life satisfaction, and in particular, perceived trajectories of one's life satisfaction over time. These subjective evaluations of one's life satisfaction in the past, present, and future are closely associated with mental health outcomes and functioning (Busseri & Peck, 2015; Wilson & Ross, 2001). Positive upward trajectories in life satisfaction have been found to be normative and indicative of optimism and positive functioning (Busseri & Peck, 2015). However, high functioning individuals perceive life satisfaction to be relatively stable over time (Busseri & Peck, 2015; Busseri, Choma, & Sadava, 2009; Keyes & Ryff, 2000; Lachman, Röcke, Rosnick, & Ryff, 2008). In general, such life satisfaction trajectories provide a reflection of current mental health and functioning, as well as optimism about the prospects for future well-being (Busseri & Peck, 2015).
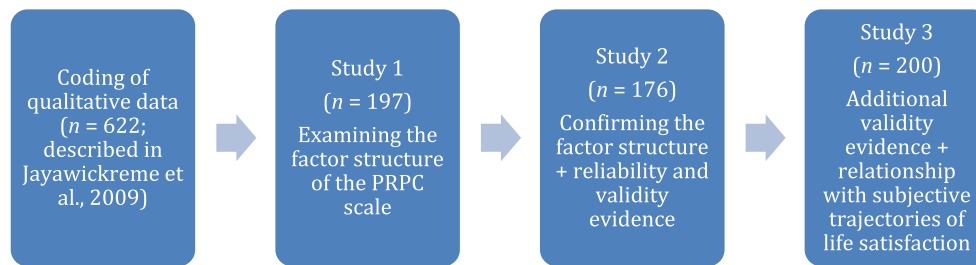
Fig. 1. Flow diagram of studies.

2. Study 1

In Study 1, we used exploratory factor analysis to examine the factor structure of the PRPC scale.

2.1. Participants

Participants were recruited at offices run by the Family Rehabilitation Center (FRC), a nongovernmental organization based in Sri Lanka. The FRC provides psychological counseling services as well as other psychosocial support to displaced individuals in the northern and eastern provinces of Sri Lanka. One-hundred-and-ninety-seven Tamil participants were recruited, of which 163 were male, 31 were female, and 9 did not identify gender ($M_{Years} = 42.83$, $SD = 14.36$). Study 1 was conducted in 2009; study procedures were reviewed and approved by the Institutional Review Board at the University of Pennsylvania as well as the Ethics Committee at the University of Peradeniya in Sri Lanka.

2.2. Measures

Each participant completed a demographics form indicating their age, ethnicity, information about their family situation, and level of religiosity. They also completed the original 21-item version of the PRPC scale, as well as multiple measures of well-being, mental health and functioning not relevant to the present analyses.

2.3. Procedure

Individuals were asked to participate after already completing a counseling session to make it clear that participation in the study was not mandatory to receive services. If participants agreed, another session was scheduled. Prior to the interview, informed consent was obtained through a written form. Staff members from the FRC were also present to give clarity on any questions regarding the informed consent form. As compensation, participants in this study were given 100 Sri Lankan rupees after completing the interview, which is equivalent to approximately US $1.

Since all the measures given to participants were first developed in English, we first followed a process to translate them into Tamil, the participants' native language. The first step of this process involved two native Tamil and fluent English speakers translating the measures themselves. To validate these translations, the translators also used a translation monitoring form (van Ommeren et al., 1999). This form allows one to record the first translations and subsequent back translations of the individual items in each measure. By using this form, the translators were able to identify translated items that were not accurate and/or difficult to understand. After this evaluation, the measures in Tamil were then translated back into English again by two physicians who spoke Tamil and English. These English translations were then reviewed by the researchers, and lastly the reviewed English measures were translated back into Tamil by two other bilingual physicians.

2.4. Statistical analysis

Missing data were dealt with through multiple imputation (Schlomer, Bauman, & Card, 2010). Specifically, we utilized the Markov chain Monte Carlo method for arbitrary missing data (Schafer, 1997) to impute missing observations using the MI and MIAnalyze procedures available in SAS (Version 9.2). The Markov chain Monte Carlo method creates multiple imputations by using simulations from a Bayesian prediction distribution for normal data. Individuals who had completed fewer than 50% of the items on any of the measures in the study were omitted from the analyses. The other measures in this dataset were the PTSD Symptom Scale–Self Report (Foa, Riggs, Dancu, & Rothbaum, 1993), the Penn/-RESIST/Peradeniya War Problems Questionnaire (Jayawickreme, Jayawickreme, & Miller, 2010), the Beck Depression Inventory (Beck & Steer, 1987), the Post-Traumatic Growth Inventory- Short Form (Cann et al., 2010), the Satisfaction with Life Scale (Diener et al., 1985), and the World Health Organization Disability Assessment Schedule 2.0 (WHO-DAS-II; Janca et al., 1996). Before imputation, 7.88% of the scale data were missing across all the measures.

Exploratory factor analysis (EFA) was subsequently performed with the primary goal of identifying salient and interpretable factors and reducing the scale. The underlying factor structure was identified using an orthogonal maximum-likelihood EFA with oblimin rotation using SAS v9.1. Parallel analysis and Velicer's minimum average partial (MAP) test were utilized to statistically estimate the number of viable factors. Items that had factor loadings greater than 0.6 and loaded onto only one factor were retained. The EFA was then repeated to ensure that all factors were interpretable with alphas >0.75.

Once an optimal underlying factor structure was obtained, the score for each of the scales was computed through simple addition. Relationships between these scales and the other measures of mental health and functioning were assessed using correlational tests and regression analysis.

3. Results – Study 1

3.1. Exploratory factor analysis (EFA)

The EFA process for the PPRC scale resulted in an eight-item, three-factor solution with an overall α of 0.83. Preliminary analysis revealed a four-factor structure, but one factor was eliminated because only one item greater than 0.5 loaded uniquely on that factor. Additionally, since the goal of the current scale development was to identify coherent coping strategies, items were removed to enhance the conceptual coherence of each factor. The full list of item loadings can be found in Table 1.

Religious Faith ($\alpha = 0.82$). These two items reflect beliefs about religious faith and responsibilities:

I. I fulfill my religious responsibilities
II. I have a strong religious faith

Family Responsibility ($\alpha = 0.778$). These three items relate to individuals' ability to fulfill the needs of their family and accomplish important family duties:

I. I can successfully fulfill my family's needs
II. I have the necessary skills to provide for myself and my family
III. I earn a sufficient income for myself and my family

Community Respect ($\alpha = 0.828$). These three items consist of items assessing the extent to which individuals can garner the respect of their family and community:

I. I am a successful member of my community
II. I have the respect of my family
III. I have the respect of my community

4. Study 2

In Study 2, we confirmed the factor structure of the PRPC scale as identified in Study 1 using confirmatory factor analysis. In addition, we examined the validity and reliability of the final version of the PRPC scale. We hypothesized that the PRPC subscales would be positively correlated with posttraumatic growth and life satisfaction. Additionally, we predicted that the subscales would be negatively correlated with functional impairment and symptoms of psychopathology.

4.1. Participants

Study 2 consisted of 176 Tamil individuals who were also receiving psychological counseling at the FRC, of which 124 were female and 52 were male ($M_{Years} = 43.8$, $SD = 1.70$). Data from Study 2 was collected. As in Study 1, the procedures for Study 2 were reviewed and approved by the Institutional Review Board at the University of Pennsylvania and the Ethics Committee at the University of Peradeniya in Sri Lanka.

4.2. Measures

The Posttraumatic Growth Inventory - Short Form (PTGI-SF; Cann et al., 2010) is a 10 item short form version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The original PTGI is a 21-item measure that was developed to measure the significant positive change that individuals perceive following trauma (PTG; Tedeschi & Calhoun, 1996). The PTGI-SF was developed to assess posttraumatic growth in individuals who could not physically take the full PTGI or for situations where there are issues with time for data collection. This shorter measure was demonstrated to be both reliable and valid with exploratory and confirmatory factor analyses, $\alpha = .86$ (Cann et al., 2010). Additionally, the PTGI-SF captures most of the variance of the PTGI and the five-factor structure of the PTGI-SF was found to be equivalent to that of the original PTGI (Cann et al., 2010). Thus, the results demonstrate that the PTGI-SF allows for a shorter assessment of posttraumatic growth without significant loss of information from the original PTGI. Cronbach's α for the PTGI-SF in the current sample was excellent, $\alpha = 0.88$.

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) is a five-item measure used to evaluate individuals' overall satisfaction with life (SWL). The SWLS uses a 7-point scale ranging from 1 ("strongly disagree") to 7 ("Strongly agree") and scores are analyzed using a total score, which range from 5 to 35. When initially developed, the SWLS had good internal consistency with Cronbach's alpha ranging from $\alpha = .79$ to 0.89 (Pavot & Diener, 2008). Since development, the SWLS has been shown to have internal reliability, construct validity, and test-retest reliability with several studies (Pavot & Diener, 2008). Additionally, the SWLS has been shown to be correlated with other clinical measures. In fact, the SWLS was found to be strongly negatively correlated with the Beck Depression Inventory ($r = -0.72$) (Blais, Vallerand, Pelletier, & Briere, 1989; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Cronbach's α for the SWLS in the current sample was excellent, $\alpha = 0.90$.

The Penn/RESIST/Peradeniya War Problems Questionnaire (PRPWPQ) is a 159-item scale that measures three facets of war problems:

1) Trauma Exposure (17 items), 2) War-Related General Problems (82 items), and 3) War-Related Psychological and Behavioral Problems (60 items; N. Jayawickreme et al., 2017; N. Jayawickreme, Jayawickreme, Atanasov, Goonasekera, & Foa, 2012; N. Jayawickreme et al., 2009). Each of these three main types of problems are divided into specific subsections. Trauma exposure is divided into the two sections of torture (9 items) and other war trauma (8 items). War-Related General Problems is divided into the five subsections of family problems (17 items), economic problems (10 items), social problems (26 items), lack of basic needs (9 items), and physical problems (19 items; N. Jayawickreme et al., 2017). Lastly, War-Related Psychological and Behavioral Problems is divided into three sections which includes anxiety (18 items), depression (21 items) and other symptoms (18 items). In the sections of Trauma Exposure and War-Related General Problems, participants indicate whether or not they experienced the event or problem. In the section of Psychological and Behavioral Problems, a 5-point Likert scale was utilized to assess the degree to which symptoms and problems impact individual quality of life. For analysis, each section was treated as distinct and summed separately. This measure was created and developed for the purpose of assessing the experiences of Sri Lankan war survivors using local idioms of distress. The PRPWPQ and other culturally specific measures using these local idioms of distress have demonstrated incremental validity over translated measures not developed for the population in question (Rasmussen, Miller, & Verkuilen, 2018). In our studies, all subscales of the Psychological and Behavioral Problems section of the PRPWPQ had excellent reliability: Anxiety subscale ($\alpha = 0.93$), Depression subscale ($\alpha = 0.92$), and Negative Perception subscale ($\alpha = 0.88$).

The World Health Organization Disability Assessment Schedule 2.0 (WHODAS-II; Janca et al., 1996) is a 12 item self-report measure that assesses impairment of individuals over the fixed period of time of the last 30 days. This measure is scored on a Likert scale ranging from 0, "none," to 4, "extreme/cannot do." The WHODAS-II has six distinct factors of functional impairment that it measures: understanding and communication, self-care, mobility, interpersonal relationships, work and household roles, and community and civic roles (Janca et al., 1996). The scores of each participant are analyzed as a disability sum of each item. This score can range from a 0, meaning no disability, to the maximum of 48, which indicates complete disability. A systematic review of the WHODAS-II across 94 countries and 811 studies indicated that the WHODAS-II is a reliable and valid measure of disability across contexts and populations (Federici, Bracalenti, Meloni, & Luciano, 2017). In the current study, the WHODAS-II reliability was good; $\alpha = .80$.

4.3. Procedure

The procedure for Study 2 was identical to that in Study 1.

5. Results: Study 2

5.1. Descriptive statistics

Descriptive statistics for the measured variables can be found in Table 2. Average item scores were calculated for subscales of the PRPC scale and the PRPWPQ; total scores were calculated for the PTGI, SWLS and the WHODAS-II.

5.2. Confirmatory factor analysis

We performed a confirmatory factor analysis (CFA) using R's lavaan package to confirm the three-factor solution of the PRPC identified in Study 1: religious strength (2 items), family responsibility (3 items), and community respect (3 items).

The results of the CFA tested on this three-factor measurement model for the 8-item scale ($N = 310$) show an adequate fit of this model ($\chi^2 = 59.668$, $df = 17$, $p < .001$, CFI $= 0.925$, SRMR $= 0.063$, and RMSEA $= 0.09$ with the 90% confidence interval (0.066–0.115).

Table 2
Descriptive statistics for variables measured in study 2.

	Mean	Standard Deviation	Lowest Score	Highest Score
Religious Strength - PRPC	4.03	.90	1	5
Family Responsibility - PRPC	3.08	1.05	1	5
Community Respect - PRPC	3.97	.83	2	5
WHODAS-II	28.35	9.10	12	53
PTGI	40.81	9.32	19	60
SWLS	17.60	8.22	5	35
Anxiety Subs. PRPWPQ	2.33	.77	1	4
Depression Subs. PRPWPQ	2.32	.67	0	3.92
Neg. Perception Subs. PRPWPQ	2.18	.70	1	3.88

5.3. Internal consistency

The Religious Strength subscale had the highest internal consistency of all the subscales; $\alpha = .81$. The Family Responsibility subscale had acceptable internal consistency; $\alpha = .71$, while the Community Respect subscale showed good internal consistency; $\alpha = .79$. Overall, the 8-item PRPC scale had an acceptable internal consistency; $\alpha = .76$.

5.4. Convergent and discriminant validity

All correlations and effect sizes in Studies 2 and 3 were evaluated in line with Cohen's (1988) recommendations. Evidence of strong convergent and divergent validity for the PRPC scale can be seen in Table 3. As predicted, all three subscales of the PRPC scale were positively related with the PTGI. The strongest of these correlations was with the Religious Strength subscale, which demonstrated a moderate-to-high relationship with PTG, $r = 0.46$, $p < .01$. Similarly, the three subscales were also positively related with SWL and the strongest correlation was with the Family Responsibility subscale, which demonstrated a moderate-to-high relationship with SWL, $r = 0.433$, $p < .01$.

Also aligned with our hypotheses, the subscales of the PRPC scale were negatively related with functional impairment, as measured by the WHODAS-II. The strongest negative correlation was with Religious Strength, which demonstrated a moderate relationship with functional impairment, $r = -0.324$, $p < .01$. Further evidence of the discriminant validity of the PRPC scale can be seen with significant negative correlations between the all subscales of the PRPC scale and subscales of the PRPWPQ measure of war-related psychological problems.

5.5. Subscales of PRPC as predictors of WHODAS-II and SWLS

Multiple linear regression models were fitted to the data to investigate if the subscales of the PRPC scale predict impaired functioning (WHODAS-II) and life satisfaction (SWLS). The PRPC subscales accounted for a significant amount of variance in the WHODAS-II, $F(3,161) = 6.70$, $p < .001$, $R^2 = .111$. However, the coefficients revealed that only Community Respect was a significant predictor of WHODAS-II,

with a 1 SD increase in Community Respect resulting in a 0.241 SD decrease in disability ($\beta = -0.241$, p = .005). The regression analyses of the SWLS revealed that the PRPC subscales accounted for a significant amount of variance in SWL, $F(3,145) = 14.75$, $p < .001$, $R^2 = 0.234$. The coefficients revealed that both Family Responsibility and Community Respect were significant predictors of SWL. Specifically, a 1 SD increase in Family Responsibility resulted in a 0.366 SD increase in life satisfaction ($0\beta = .366$, $p < .001$), and a 1 SD increase in Community Respect resulted in a 0.234 SD increase in life satisfaction ($0\beta = .234$, $p = .004$). Full results for both regression models are shown in Table 4.

6. Study 3

In Study 3, we further investigated the validity of the PRPC and its subscales, as well as the effect of each subscale on subjective trajectories of life satisfaction. We further predicted that the subscales would be negatively correlated with intrusive and deliberate rumination, as well as symptoms of psychopathology.

6.1. Participants

Study 3 was conducted in 2014 and included 200 Tamil individuals, including 41 males and 159 females ($M_{Years} = 35.58$, $SD = 12.77$). Study procedures were approved by the Institutional Review Board at Wake Forest University.

6.2. Measures

The Temporal Satisfaction with Life Scale (TSL; Pavot, Diener, & Suh, 1998) consists of 15 items that assess an individual's personal feelings of life satisfaction in the past and present as well as what they believe their life satisfaction will be in the future. The TSL is measured on a 7-point Likert scale that ranges from 1 ("Strongly Disagree") to 7 ("Strongly Agree") and asks the degree to which participants agree with statements about life satisfaction. This measure and its structure have been validated in American and Chinese populations, as well as translated into German (McIntosh, 2001; Ye, 2007; Trautwein, 2004). When administered to different populations, including Turkish and Spanish samples, internal consistency of the TSL has been very high, with an average of 0.89 overall (Tomás, Galiana, Oliver, Sancho, & Pinazo, 2016; Akyurek, Efe, & Aki, 2019). In this current study, internal consistency was also very good; $\alpha = .83$.

The Event Related Rumination Inventory (EERI) is a 20-item measure of deliberate and intrusive rumination (Cann et al., Calhoun, Tedeschi, Triplett, Vishnevsky, & Lindstrom, 2011). Each type of rumination is assessed with 10 items, with the time frame for responses focusing on the few weeks after the event was experienced. The purpose of this scale is to measure the processing of an event with rumination in a neutral way, not implying resilience nor prolonged distress (Cann et al., 2010). An example of an item measuring deliberate rumination is "I thought about whether I could find meaning from my experience; " an example of an item measuring intrusive rumination is "Reminders of the event brought back thoughts about my experience." In the current study, internal consistency was high for both the intrusive and deliberate rumination subscales ($\alpha = 0.82$ for both subscales). Descriptives for these measures are provided in Table 5.

Table 3
Convergent and discriminant validity coefficients in study 2.

	Religious Strength	p-value	Family Responsibility	p-value	Community Respect	p-value
WHODAS-II	−.065	0.411	-.317**	<.001	−0.123	0.118
PTGI	.406**	<.001	.429**	<.001	.517**	<.001
SWLS	.173*	0.034	.531**	<.001	.464**	<.001
Anxiety Subs. PRPWPQ	0.097	0.	-.224**	0.004	0.032	0.689
Depression Subs. PRPWPQ	0.247**	0.001	-.221**	0.005	−0.098	0.215
Neg. Perception Subs. PRPWPQ	.306**	<.001	−0.188*	0.016	−0.031	0.691

Note. ** Significant at $\alpha = 0.01$.*Significant at.$\alpha = 0.05$.

Table 4
Coefficient Summary for Multivariate Linear Regression of Satisfaction with Life and Impaired Functioning (as measured by the WHODAS-II) on Religious Faith, Family Responsibility and Community Status in Study 2 (N = 146).

Outcome	Predictor	b^c	SE	95% CI	β^c	t	p
Satisfaction with Life[a]	Constant	−1.075	3.649	(-8.287, 6.136)		-.295	.769
	Religious faith	-.079	.732	(-1.527, 1.368)	-.009	-.108	.914
	Family responsibility	2.862	.600	(1.676, 4.047)	.366	4.770	<.001
	Community status	2.439	.831	(.797, 4.081)	.234	2.936	.004
Disability[b]	Constant	45.476	3.960	(37.655, 53.296)		11.483	<.001
	Religious faith	−1.225	.870	(-2.944, .493)	-.117	−1.408	.161
	Family responsibility	-.498	.679	(-1.838, .842)	-.058	-.734	.464
	Community status	−2.688	.948	(-4.560. −.815)	-.241	−2.835	.005

Note. [a]$R^2 = 0.234$, $F(3, 145) = 14.749$, $p < .001$; [b]$R^2 = 0.111$, $F(3, 161) = 6.701$, $p < .001$. [c]The Roman letter b refers to the estimated regression coefficient, while the Greek letter β refers to the standardized estimates.

6.3. Procedure

The procedures administered in Study 3 were identical to those in Study 1 and 2.

7. Results: Study 3

7.1. Convergent and discriminant validity

Convergent and discriminant validity coefficients for the PRPC can be found in Table 6. The subscales of the PRPC scale were negatively correlated with Intrusive Rumination, with the strongest correlation being a small-to-moderate one with the Family Responsibility Subscale ($r = -0.264$, $p < .01$). All three subscales were also negative correlated with the Negative Perception and Depression subscales of the PRPWPQ. Community Respect had a significant, moderate correlation with Negative Perception, ($r = -0.304$, $p < .01$), and Family Responsibility had a significant, moderate correlation with Depression ($r = -0.311$, $p < .01$). Both Community Respect and Family Responsibility had significant, small-to-moderate correlations with the Anxiety Subscale of the PRPWPQ, but no correlation was found between Religious Strength and the Anxiety Subscale.

7.2. Mixed ANOVA for life satisfaction trajectories

Following Busseri et al. (2009), we ran a series of mixed ANOVAs to examine the relationship between the PRPC domains and subjective evaluations of past, present, and anticipated future life satisfaction.

Table 5
Descriptive statistics for variables measured in study 3.

	Mean	Standard Deviation	Lowest Score	Highest Score
Religious Strength - PRPC	4.41	.81	1	5
Family Responsibility - PRPC	3.52	.89	1	5
Community Respect - PRPC	4.19	.75	1.67	5
Intrusive Rumination	1.97	.59	0	3.29
Deliberate Rumination	1.97	.56	.4	3.11
Anxiety Subs. PRPWPQ	3.08	.89	1	4.85
Depression Subs. PRPWPQ	2.84	.95	1	5
Neg. Perception Subs. PRPWPQ	2.36	.92	1	5
Past TSL	21.89	8.45	5	35
Present TSL	19.27	7.71	5	35
Future TSL	22.70	5.97	9	35

7.2.1. Religious strength

A 2 × 3 mixed ANOVA with level of Religious Strength (high, low) as a between-subjects factor and estimate of life satisfaction during a time period (past, present, or future) as a within-subjects factor revealed a main effect of level of Religious Strength, $F(1, 196) = 15.58$, $p < .001$, $\eta_p^2 = 0.074$. There was also a main effect of life satisfaction, $F(1.588, 392) = 14.92$, $p < .001$, $\eta_p^2 = 0.071$. However, there was no interaction between Religious Strength and life satisfaction, $F(1.588, 392) = 1.393$, $p = .249$, $\eta_p^2 = 0.007$.

Follow-up Bonferroni adjusted pairwise comparisons revealed significant differences between those low and high in Religious Strength for present life satisfaction; Mean Difference = −4.11, $SD = 1.06$, $p < .001$, $d = 0.55$ and future life satisfaction; Mean Difference = −2.52, $SD = 0.834$, $p = .003$, $d = 0.43$. There were no significant differences in the estimates of past life satisfaction between those high and low in Religious Strength; Mean Difference = −2.08, $SD = 1.20$, p = .085, $d = 0.25$. Thus, those high in Religious Strength estimated that the past to be approximately the same as those low in Religious Strength. However, people high in Religious Strength estimated their present and future life satisfaction higher than those low in Religious Strength. Table 7 shows the descriptive statistics for life satisfaction at each time for Religious Strength.

Additional follow-up Bonferroni adjusted pairwise comparisons reveal the life satisfaction trajectories of those high and low in Religious Strength. These results can be seen in Table 8 and Fig. 2. Individuals low in Religious Strength indicated that their past life satisfaction was significantly higher than their present life satisfaction and that their future life satisfaction would be higher than their present. People with high Religious Strength indicated no difference between their past and present or past and future life satisfaction. However, these individuals predicted that their future life satisfaction would be higher than their present life satisfaction.

7.2.2. Family responsibility

A 2 × 3 mixed ANOVA with level of Family Responsibility (high, low) as a between-subjects factor and estimate of life satisfaction during a time period (past, present, or future) as a within-subjects factor revealed a main effect of level of Family Responsibility, $F(1, 196) = 5.23$, $p = .023$, $\eta_p^2 = 0.026$, and of life satisfaction, $F(2, 392) = 13.267$, $p < .001$, $\eta_p^2 = 0.063$. In addition, there was a significant interaction between Family Responsibility and life satisfaction, $F(2, 392) = 7.490$, $p = .007$, $\eta_p^2 = 0.037$. Follow-up Bonferroni adjusted pairwise comparisons revealed significant differences between those low and high in Family Responsibility for present life satisfaction; Mean Difference = −3.83, $SD = 1.09$, $p = .001$, $d = 0.55$, and future life satisfaction; Mean Difference = −2.46, $SD = 0.854$, $p = .004$, $d = 0.42$. There were no significant differences in the estimates of past life satisfaction between those high and low in Family Responsibility; Mean Difference = 1.08, $SD = 1.23$, $p = .415$, $d = 0.12$. Thus, those high in Family Responsibility

Table 6
Convergent and discriminant validity coefficients in study 3.

	Religious Strength	p-value	Family Responsibility	p-value	Community Respect	p-value
Intrusive Rumination	**-.166**	**0.02**	**-.264**	**< .001**	**−0.157**	**0.028**
Deliberate Rumination	0.066	0.357	−0.1	0.893	0.1	0.884
Anxiety Subs. PRPWPQ	−0.089	0.215	**-.195**	**0.006**	**-.165**	**0.02**
Depression Subs. PRPWPQ	**-.233**	**0.001**	**-.311**	**< .001**	**-.28**	**< .001**
Neg. Perception Subs. PRPWPQ	**-.195**	**0.006**	**-.162**	**0.023**	**-.304**	**< .001**

Note. Correlations that are bolded are significant at $p = .05$.

Table 7
Descriptives for temporal life satisfaction for subscales of the PRPC.

	High Religious Strength		Low Religious Strength		High Family Responsibility	High Family Responsibility	High Community Respect	Low Community Respect
	M	SD	M	SD	M SD	M SD	M SD	M SD
Past Life Satisfaction	23.02	8.15		8.62	21.27 8.37	22.28 8.52	22.95 7.98	20.36 8.92
Present Life Satisfaction		7.59	17.40	7.33	21.61 7.63	17.78 7.41	21.09 7.75	16.64 6.88
Future Life Satisfaction	24.08	5.78	21.56	5.90	24.21 5.90	21.74 5.83	24.17 5.70	20.58 5.72

Table 8
Pairwise comparisons of life satisfaction estimations for subgroups of PRPC subscales.

	Time Comp.	Mean Diff.	SE	p
Low Religious Strength	Past -Present	3.546*	1.031	.001
	Past - Future	−0.611	0.88	.488
	Present Future	−4.157*	0.636	<.001
High Religious Strength	Past- Present	1.511	1.129	.182
	Past- Future	−1.056	0.964	.275
	Present- Future	−2.567*	0.697	<.001
	Past-Present	4.504*	0.954	<.001
	Past-Future	0.537	0.817	.512
Low Family Responsibility	Present-Future	−3.967*	0.602	<.001
	Past-Present	−0.338	1.196	.778
	Past-Future	−2.935*	1.025	.005
High Family Responsibility	Present-Future	−2.597*	0.755	.001
	Past-Present	3.715*	1.191	.002
	Past-Future	-.222	1.015	.827
Low Community Respect	Present-Future	−3.938*	0.738	<.001
	Past-Present	1.863	0.991	.062
	Past-Future	−1.222	0.845	.150
High Community Respect	Past-Future	−3.085*	0.614	<.001

Note. *Significant at.$p < .05$

estimated the past to be approximately the same as those low in Family Responsibility. However, people high in Family Responsibility estimated their present and future life satisfaction to be higher than those low in Family Responsibility. Table 7 shows the descriptive statistics for life satisfaction at each time for Family Responsibility.

Additional follow-up Bonferroni adjusted pairwise comparisons reveal the life satisfaction trajectories of those high and low in Family Responsibility. These results can be seen in Table 8 and Fig. 3. Participants who were low in Family Responsibility indicated that their past life satisfaction was significantly higher than their present life satisfaction. There were no differences between past and future life satisfaction for individuals low in Family Responsibility. Lastly, individuals who were high in Family Responsibility indicated no differences between their past and present life satisfaction. However, these individuals indicated that their future life satisfaction would be better than their past and present life satisfaction.

7.2.3. Religious strength

A 2 × 3 mixed ANOVA with level of Community Respect (high, low) as a between-subjects factor and estimate time period (past, present, or future life satisfaction) as a within-subjects factor revealed a main effect of level of Community Respect, $F(1, 196) = 23.42, p < .001, \eta_p^2 = 0.107$, and of life satisfaction, $F(2, 392) = 16.292, p < .001, \eta_p^2 = 0.077$. In addition, there was a significant interaction between Community Respect

and life satisfaction, $F(2, 392) = 1.018, p = .362, \eta_p^2 = 0.005$. . Follow-up Bonferroni adjusted pairwise comparisons revealed significant differences between those low and high in Community Respect for all three time periods of life satisfaction: past; Mean Difference $= −2.59$, $SD = 1.21$, p $= .034$, d $= 0.31$, present; $M = −4.44, SD = 1.07$ p $< .001$, d $= 0.6$ and future; Mean Difference $= −3.59, SD = 0.83, p < .001$, d $= 0.63$. Table 7 shows the descriptive statistics of life satisfaction at each time for Community Respect.

Additional follow-up Bonferroni adjusted pairwise comparisons reveal the life satisfaction trajectories of those high and low in Community Respect. These results can be seen in Table 8 and Fig. 4. Participants who were low in Community Respect indicated that their past life satisfaction was higher than their present life satisfaction and predicted that their future life satisfaction would be higher than their present. Lastly, individuals who were high in Community Respect indicated that their past life satisfaction did not differ significantly from their present or future life satisfaction. However, individuals high in Community Respect did predict that their future life satisfaction would be higher than their present life satisfaction.

8. Discussion

The current study investigated the validity and utility of a locally-derived psychometric tool for assessing adaptive functioning among war-affected Sri Lankan Tamils. Of note, the items for the PRPC scale were created using extensive qualitative data where individuals identified key traits and behaviors of resilient people they knew. Study 1 established the presence of three distinct domains: religious strength, community respect, and family responsibility. We subsequently administered the measure to two further samples, along with measures of mental health and high and low functioning.

The findings of studies 2 and 3 provide evidence for the PRPC scale being a valid and reliable measure of adaptive functioning among war-affected Sri Lankan Tamils. Specifically, high scores on all three subscales of the PRPC were associated with low levels of depression, while the community respect subscale of the PRPC significantly predicted lower functional impairment. Furthermore, overall life satisfaction was significantly predicted by both the religious strength and family responsibility subscales of the PRPC. Lastly, scores on the subscales of the PRPC were associated with adaptive subjective trajectories of life satisfaction. In the following section, we discuss the implications of these findings for the utility of the PRPC as a measure of adaptive functioning, the practical utility of this measure for counselors working with this population, and future directions for research on culture-specific domains of adaptive functioning.
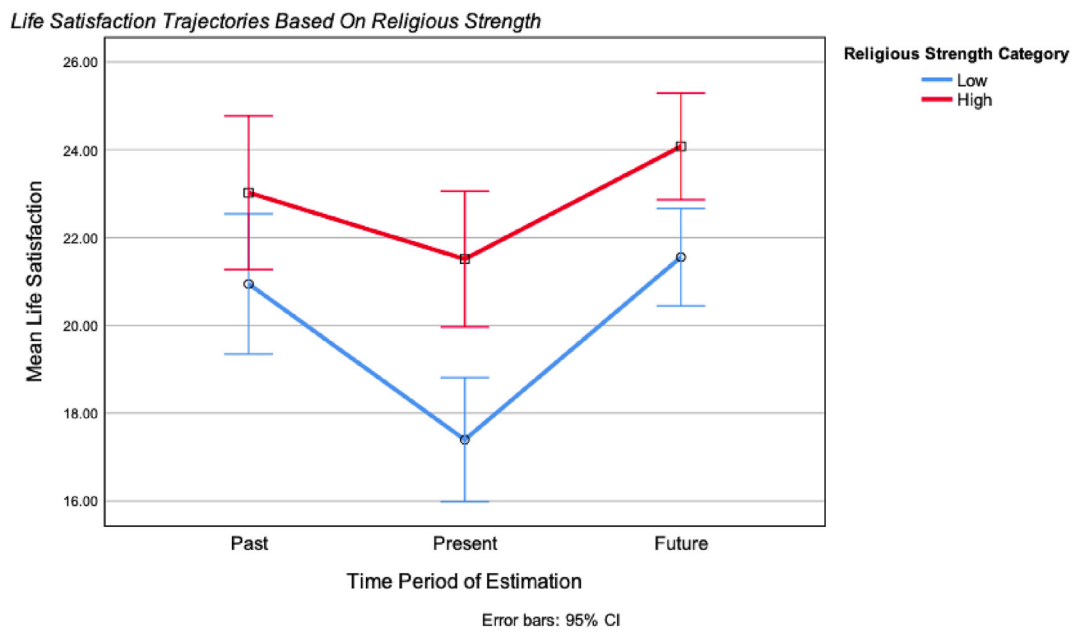
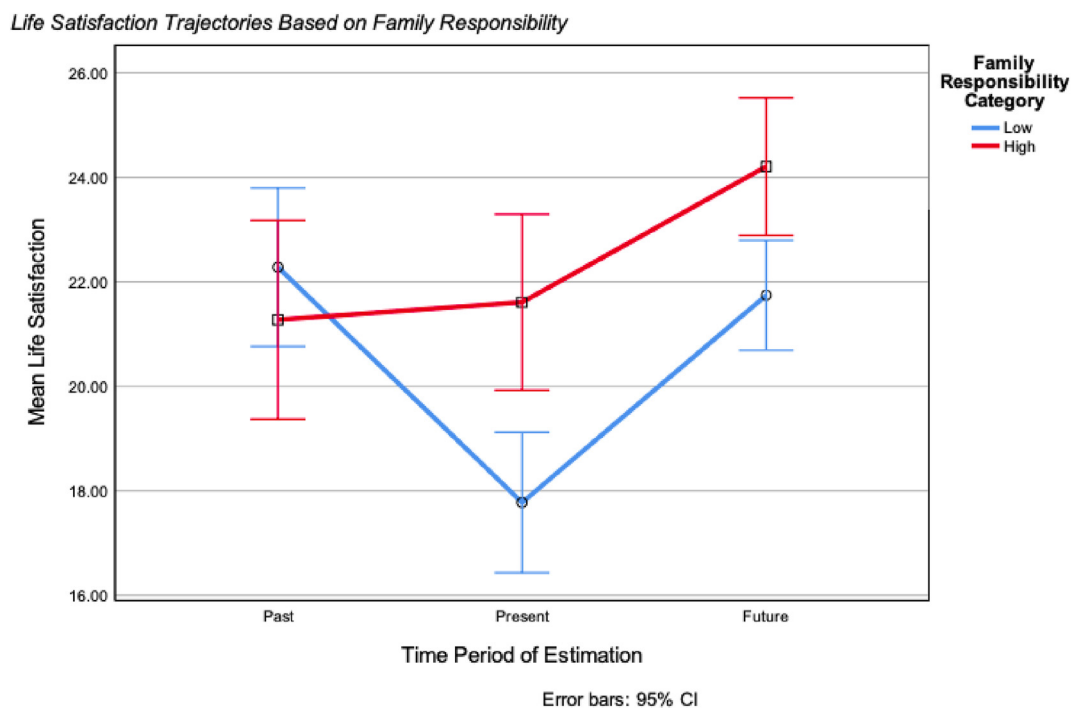**Fig. 2.** Life Satisfaction Trajectories Based on Religious Strength.

Fig. 3. Life Satisfaction Trajectories Based on Family Responsibility.

8.1. Utility of the PRPC

We identified three distinct domains that war-affected Sri Lankan Tamils characterized as differentiating individuals who are functioning well from those who are not. When utilizing the PRPC measure that assessed these three domains, we found that these lay beliefs about adaptive functioning predicted improved functioning and mental health. These findings are not surprising given past studies that have found that identifying specific criteria for functioning is crucial to accurately assessing individual levels of resilience (Masten, Lucke, Nelson, & Stallworthy, 2021).

Of note, the domain of family responsibility was found to be the strongest predictor of mental health outcomes in this population (see Jayawickreme et al., 2019, for additional correlational evidence). This domain was correlated with low anxiety, depression, negative perception, and disability, as well as high overall satisfaction with life and perceptions of posttraumatic growth. These findings are not surprising given that the family responsibility subscale focused on satisfying basic needs for the self and family, which would in turn increase material welfare and lower levels of both individual and family stress. Additionally, Somasundaram & Sivayokan (2013) found that the family unit was a protective factor against mental health problems. Individuals high in family responsibility additionally presented a clear upward trajectory for life satisfaction, with the present being more satisfying than the past, and a prediction of the future being better than the present. Moreover,
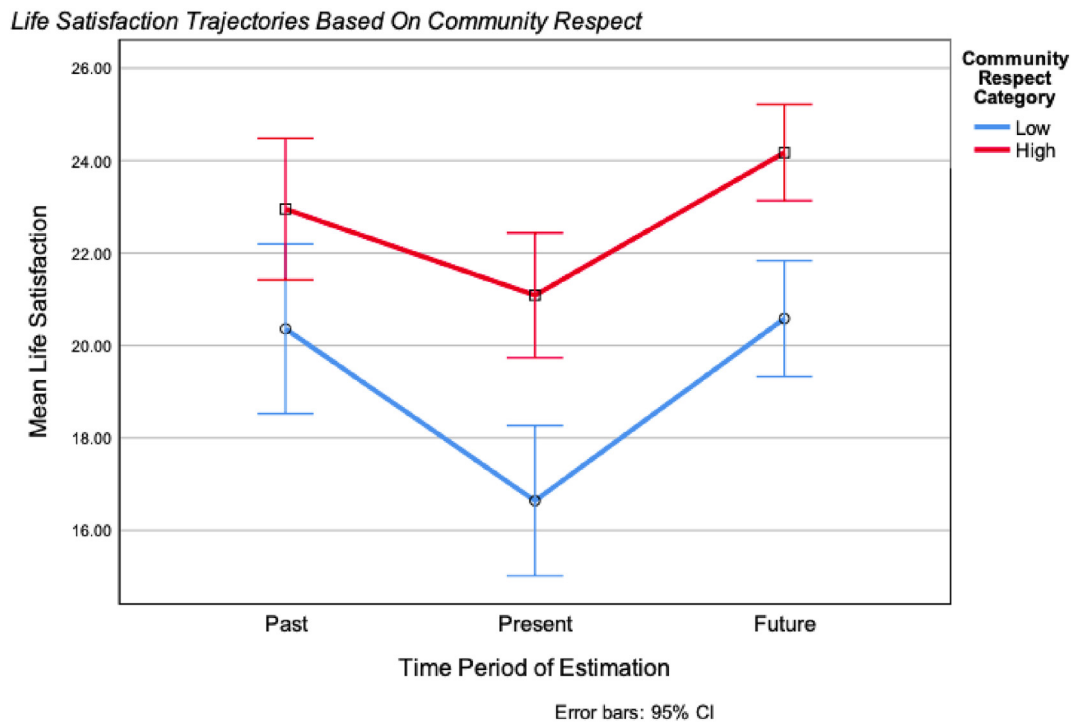
Life Satisfaction Trajectories Based On Community Respect

Fig. 4. Life Satisfaction Trajectories Based on Community Respect.

individuals low in family responsibility rated past life satisfaction higher than individuals high in family responsibility, which may indicate lower levels of mental health (Busseri & Peck, 2015). Uniquely, family responsibility is the only domain in this measure to present this upward trajectory among those high in family responsibility. Previous studies have shown that this upward trajectory is correlated closely with adaptive functioning (Shmotkin, 1998). Busseri and Peck (2015) further found evidence for this upward trajectory in life satisfaction among non-depressed people. Among depressed individuals, a pattern similar to our findings for individuals low in family responsibility was observed, with the past and future being perceived as better than the present. These findings suggest that family responsibility is a key predictor of adaptive beliefs indicative of well-being in this population.

The religious strength subscale of the PRPC was also correlated with low levels of depression and negative perception (but not anxiety), as well as high levels of perceived posttraumatic growth. In a previous study of Sri Lankan war survivors, traditional beliefs and rituals were found to be a protective factor against mental health issues in Northern Sri Lankans and helpful in adaptive development (Somasundaram & Sivayokan, 2013). Therefore, it is not surprising that the current study found that the religious strength of individuals contributes to resilience and mental health outcomes in meaningful ways. We note that the life satisfaction trajectories of those high in religious faith show higher past and future life satisfaction and low present life satisfaction. Additionally, individuals who are high in religious strength had higher overall life satisfaction than those who are low in religious strength, but the trajectory pattern was the same for both groups.

Similar to both religious strength and family responsibility, individuals who indicated high levels of community respect reported high posttraumatic growth and overall satisfaction with life. Previous research has shown that collective and community resilience influences individual resilience in Sri Lanka, which would explain why being a successful member of one's community would positively influence mental health outcomes (Béné et al., 2016). However, Studies 2 and 3 showed inconsistent correlations between the community respect subscale and assessments of impairment, anxiety, and depression. In Study 2, no significant relationship was observed for these variables, while in Study 3

significant relationships were observed. The community respect subscale of the PRPC focuses on respect from family and community, as well as being a successful member of one's community. Finally, the life satisfaction trajectories of individuals high in community respect followed the same pattern as those high in religious faith: high past and future satisfaction, and lower present life satisfaction. Individuals who were high in community respect had higher life satisfaction than those low in community respect, but the shape of the trajectories did not differ.

In summary, the PRPC scale identifies key domains that affords a better understanding of what constitutes adaptive functioning among war-affected Sri Lanka Tamils. Therefore, we recommend using the PRPC as a supplemental measure of functioning when evaluating this population. We acknowledge that the WHODAS-II measure of functioning has been continuously shown to be reliable and valid across populations, and in a previous study predicted mental health outcomes in a sample of Sri Lankan war survivors (Jayawickreme et al., 2019). Therefore, utilizing the PRPC and WHODAS-II together would provide a more comprehensive measure of functioning, measuring general domains in the WHODAS-II while also paying particular attention to the culturally specific domains identified in the PRPC scale.

8.2. Implications for future research

A greater understanding of adaptive functioning-in-context allows for more targeted intervention strategies. The findings of the current study suggest that the basis of any intervention program must include aid in satisfying the material needs of individuals. This is indicated by family responsibility being the strongest predictor of well-being, which points to the ability to satisfy the needs of the self and family. Thus, while the intervention should include material aid, it cannot simply be an intervention that involves passive provision of resources. Rather, it should focus on helping individuals gain the skills necessary to have agency in providing for themselves and their families (Jayawickreme et al., 2019). Secondly, it is important for individuals working with this population to understand that adaptive functioning is not only thought about in terms of individual functioning, but also in terms of community status. Thus, interventions should focus again on agency to be able to contribute

positively to one's community and gain the respect of those in their families and communities.

One argument against the method employed in the study concerns whether the time-consuming and expensive development of these culturally specific measures of functioning is justified and necessary for all contexts. Indeed, the current research focused on the development of one of the few resilience measures developed for non-Western populations. Nevertheless, we highly encourage developments of similar scales across more populations. When additional scales and domains are identified, it would be prudent to analyze similarities and differences between these measures in order to possibly identify domains of functioning in individuals common across multiple cultures and contexts.

8.3. Limitations

Participants for this research were recruited through the Family Rehabilitation Center (FRC) where they were receiving counseling services. Thus, it is likely that individuals who had access to this center were overall adapting at a higher level and might not represent the experience of all displaced individuals in Sri Lanka. In addition to the overall sample, the subsamples of individuals who were low and high in family responsibility and community respect were significantly skewed. Most individuals indicated low levels of family responsibility and community respect. This could be either because overall levels of well-being are low among the population as a whole or a result of inadequate sampling. In the future, a larger sample size as well as a more representative sample of war-affected individuals would help alleviate these concerns. In addition, the gender composition of the three examined samples were skewed, with the sample in Study 1 being predominately males and the samples in Studies 2 and 3 being predominately females. There may very well be gender differences in the experience of resilience in the Sri Lankan context, since men and women have had to deal with distinct stressors and traumas during and after the Sri Lankan civil war (e.g., Affleck, Thamotharampillai, Jeyakumar, & Whitley, 2018; Witting, Lambert, Wickrama, Thanigaseelan, & Merten, 2016). However, the similarity of the factor structure of the PRPC in Study 1 (whose sample was predominantly male) and Study 2 (whose sample was predominantly female) suggests that the measure is tapping into dimensions of resilience that are found across genders.

An additional limitation is that the final eight-item PRPC scale excludes several items that did not load onto the three factors. Among the excluded items were a few unique idioms of resilience (e.g., "I have a lot of patience dealing with life's problems," "I face up to life's challenges," see Table 1). These excluded items may be indicative of additional dimensions of adaptive functioning (such as secondary control; Stagnaro, Blackie, Helzer, & Jayawickreme, 2016). Future research should explore these possible domains of functioning denoting resilience. Lastly, this study implemented only self-report measures of functioning and mental health. Future studies should also include non-subjective measures such as informant-based measures of functioning.

9. Conclusion

In conclusion, we presented findings from three samples of Sri Lankan war survivors that examined the validity and utility of the PRPC scale. The domains of functioning identified by the PRPC scale were associated with low levels of distress and functional impairment. Additionally, the PRPC scale predicted positive mental health outcomes in individual life satisfaction trajectories. Our findings indicate that the PRPC scale captures key aspects of adaptive functioning among Sri Lankan war survivors and can therefore uniquely aid in understanding the needs of this population and in the creation of intervention strategies.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Affleck, W., Thamotharampillai, U., Jeyakumar, J., & Whitley, R. (2018). "If one does not fulfil his duties, he must not be a man": Masculinity, mental health and resilience amongst Sri Lankan Tamil refugee men in Canada. *Culture Medicine and Psychiatry, 42*(4), 840–861.

Akyurek, G., Efe, A., & Aki, E. (2019). Psychometric properties of the temporal satisfaction with life scale among Turkish people. *Psychiatry and Clinical Psychopharmacology, 29*(2), 204–211. https://doi.org/10.1080/24750573.2018.1445898

Barber, B. K. (2008). Contrasting portraits of war: Youths' varied experiences with political violence in Bosnia and Palestine. *International Journal Of Behavioral Development, 32*(4), 298–309. https://doi.org/10.1177/0165025408090972.

Barber, B. K. (2013). Annual research review: The experience of youth with political conflict—challenging notions of resilience and encouraging research refinement. *Journal of Child Psychology and Psychiatry, 54*(4), 461–473. https://doi.org/10.1111/jcpp.12056.

Beck, A. T., & Steer, R. A. (1987). *Manual for revised Beck depression inventory*. San Antonio, TX: Psychological Corporation.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561–571. https://doi.org/10.1001/archpsyc.1961.01710120031004

Béné, C., Al-Hassan, R. M., Amarasinghe, O., Fong, P., Ocran, J., Onumah, E., et al. (2016). Is resilience socially constructed? Empirical evidence from Fiji, Ghana, Sri Lanka, and vietnam. *Global Environmental Change Part A: Human & Policy Dimensions, 38*, 153–170.

Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction with Life Scale". *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement, 21*(2), 210–223. https://doi.org/10.1037/h0079854

Busseri, M. A., Choma, B. L., & Sadava, S. W. (2009). "As good as it gets" or "the best is yet to come"? How optimists and pessimists view their past, present, and anticipated future life satisfaction. *Personality and Individual Differences, 47*(4), 352–356. https://doi.org/10.1016/j.paid.2009.04.002

Busseri, M. A., & Peck, E. (2015). Do (even) depressed individuals believe that life gets better and better? The link between depression and subjective trajectories for life satisfaction. *Clinical Psychological Science, 3*(5), 715–725. https://doi.org/10.1177/2167702614547265

Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., et al. (2010). A short form of the posttraumatic growth inventory. *Anxiety, Stress & Coping, 23*(2), 127–137. https://doi.org/10.1080/10615800903094273

Cann, A., Calhoun, L. G., Tedeschi, R. G., Triplett, K. N., Vishnevsky, T., & Lindstrom, C. M.

Christophe, N. K., Stein, G. L., Martin Romero, M. Y., Chan, M., Jensen, M., Gonzalez, L. M., et al. (2019). Coping and culture: The protective effects of shift-&-persist and ethnic-racial identity on depressive symptoms in Latinx youth. *Journal of Youth and Adolescence, 48*(8), 1592–1604. https://doi.org/10.1007/s10964-019-01037-8

Clauss-Ehlers, C. S. (2008). Sociocultural factors, resilience, and coping: Support for a culturally sensitive measure of resilience. *Journal of Applied Developmental Psychology, 29*(3), 197–212. https://doi.org/10.1016/j.appdev.2008.02.004.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Dupree, N. H. (2004). The family during crisis in Afghanistan. *Journal Of Comparative Family Studies, 35*(2), 311–331.

Federici, S., Bracalenti, M., Meloni, F., & Luciano, J. V. (2017). World Health Organization disability assessment schedule 2.0: An international systematic review. *Disability & Rehabilitation, 39*(23), 2347–2380. https://doi.org/10.1080/09638288.2016.1223177

Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress, 6*, 459–473. https://doi.org/10.1002/jts.2490060405

Goodenough, W. H. (1994). Towards a working theory of culture. In R. Borofsky (Ed.), *Assessing cultural anthropology* (pp. 262–275). New York: McGraw-Hill.

Guarnaccia, P. J., Rivera, M., Franco, F., & Neighbors, C. (1996). The experiences of ataques de nervios: Towards an anthropology of emotions in Puerto Rico. *Culture, Medicine and Psychiatry, 20*(3), 343–367.

Harrison, F. (2012). *Still counting the dead: Survivors of Sri Lanka's hidden war*. London: Portobello.

Hill, P. L., Burrow, A. L., Brandenberger, J. W., Lapsley, D. K., & Quaranto, J. C. (2010). Collegiate purpose orientations and well-being in early and middle adulthood. *Journal of Applied Developmental Psychology, 31*(2), 173–179. https://doi.org/10.1016/j.appdev.2009.12.001.

Janca, A., Kastrup, M., Katschnig, H., Lopez-Ibor, J. J., Mezzich, J. E., & Sartorius, N. (1996). The World health organization short disability assessment schedule (WHODAS-II): A tool for the assessment of difficulties in selected areas of functioning of patients with mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 31*(6), 349–354. https://doi.org/10.1007/BF00783424

Jayawickreme, E., & Blackie, L. E. (2014). Post–traumatic growth as positive personality change: Evidence, controversies and future directions. *European Journal of Personality, 28*(4), 312–331.

Jayawickreme, N., Jayawickreme, E., Atanasov, P., Goonasekera, M. A., & Foa, E. B. (2012). Are culturally specific measures of trauma-related anxiety and depression needed? The case of Sri Lanka. *Psychological Assessment, 24*(4), 791–800. https://doi.org/10.1037/a0027564.

Jayawickreme, N., Jayawickreme, E., Goonasekera, M. A., & Foa, E. B. (2009). Distress, wellbeing and war: Qualitative analyses of civilian interviews from north eastern Sri Lanka. *Intervention, 7*(3), 204–222. https://doi.org/10.1097/WTF.0b013e328334636f

Jayawickreme, E., Jayawickreme, N., & Miller, E. (2010). Triumphalism, fear and humiliation: The psychological legacy of Sri Lanka's civil war. *Dynamics of Asymmetric Conflict, 3*(3), 208–222. https://doi.org/10.1080/17467586.2010.531031

Jayawickreme, E., Jayawickreme, N., & Seligman, M. E. P. (2013). From trauma victims to survivors: The positive psychology of refugee mental health. In K. M. Gow, & M. J. Celinski (Eds.), *Mass trauma: Impact and recovery issues* (pp. 313–330). Nova Science Publishers.

Jayawickreme, E., Jayawickreme, N., Zachry, C. E., & Goonasekera, M. A. (2019). The importance of positive need fulfillment: Evidence from a sample of war-affected Sri Lankans. *American Journal of Orthopsychiatry, 89*(2), 159–169. https://doi.org/10.1037/ort0000300

Jayawickreme, E., Mootoo, C., Fountain, C., Rasmussen, A., Jayawickreme, E., & Bertuccio, R. F. (2017). Post-conflict struggles as networks of problems: A network analysis of trauma, daily stressors and psychological distress among Sri Lankan war survivors. *Social Science & Medicine, 190*, 119–132. https://doi.org/10.1016/j.socscimed.2017.08.027.

Kaiser, B. N., Haroz, E. E., Kohrt, B. A., Bolton, P. A., Bass, J. K., & Hinton, D. E. (2015). "Thinking too much": A systematic review of a common idiom of distress. *Social Science & Medicine, 147*, 170–183.

Keyes, C. L. M., & Ryff, C. D. (2000). Subjective change and mental health: A self-concept theory. *Social Psychology Quarterly, 63*(3), 264–279. https://doi.org/10.2307/2695873

Lachman, M. E., Röcke, C., Rosnick, C., & Ryff, C. D. (2008). Realism and illusion in Americans' temporal views of their life satisfaction: Age differences in reconstructing the past and anticipating the future. *Psychological Science, 19*(9), 889–897. https://doi.org/10.1111/j.1467-9280.2008.02173.x

Luthar, S. S., & Brown, P. J. (2007). Maximizing resilience through diverse levels of inquiry: Prevailing paradigms, possibilities, and priorities for the future. *Development and Psychopathology, 19*(3), 931–955. https://doi.org/10.1017/S0954579407000454.

Masten, A. S., Lucke, C. M., Nelson, K. M., & Stallworthy, I. C. (2021). Resilience in development and psychopathology: Multisystem perspectives. *Annual Review of Clinical Psychology, 17*, 521. https://doi.org/10.1146/annurev-clinpsy-081219-120307.

McIntosh, C. N. (2001). Report on the construct validity of the temporal satisfaction with life scale. *Social Indicators Research, 54*(1), 37–56. https://doi.org/10.1023/A:1007264829700

McLean, K. C., & Syed, M. (2015). Personal, master, and alternative narratives: An integrative framework for understanding identity development in context. *Human Development, 58*(6), 318–349.

van Ommeren, M., Sharma, B., Thapa, S., Makaju, R., Prasain, D., Bhattarai, R., et al. (1999). Preparing instruments for transcultural research: Use of the translation monitoring form with Nepali-speaking Bhutanese Refugees. *Transcultural Psychiatry, 36*(3), 285–301. https://doi.org/10.1177/136346159903600304

Panter-Brick, C. (2015). Culture and resilience: Next steps for theory and practice. In L. C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities, 11* pp. 233–244). Springer Science + Business Media. https://doi.org/10.1007/978-94-017-9415-2_17.

Panter-Brick, C., & Eggerman, M. (2012). Understanding culture, resilience, and mental health: The production of hope. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice* (pp. 369–386). Springer Science + Business Media. https://doi.org.www.library.manhattan.edu/10.1007/978-1-4614-0586-3_29.

Pavot, W., & Diener, E. (2008). The Satisfaction with Life Scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology, 3*(2), 137–152. https://doi.org/10.1080/17439760701756946

Pavot, W., Diener, E., & Suh, E. (1998). The temporal satisfaction with life scale. *Journal of Personality Assessment, 70*(2), 340–354. https://doi.org/10.1207/s15327752jpa7002_11

Rasmussen, A., Miller, K., & Verkuilen, J. (2018). Conceptualization and measurement of traumatic events among Refugees and other war-affected populations: Theory, research and clinical practice. In N. Morina, & A. Nickerson (Eds.), *Mental health of refugee and conflict-affected populations* (pp. 327–339). Cham: Springer. https://doi.org/10.1007/978-3-319-97046-2_16.

Salahuddin, N. M., & O'Brien, K. M. (2011). Challenges and resilience in the lives of urban, multiracial adults: An instrument development study. *Journal of Counseling Psychology, 58*(4), 494–507. https://doi.org/10.1037/a0024633.

Schlomer, G. L., Bauman, S., & Card, N. A. (2010). Best practices for missing data management in counseling psychology. *Journal of Counseling Psychology, 57*(1), 1–10 ((Supplemental)) https://doi.org/10.1037/a0018082.supp.

Shmotkin, D. (1998). Declarative and differential aspects of subjective well-being and its implications for mental health in later life. In J. Lomranz (Ed.), *Handbook of aging and mental health: An integrative approach* (pp. 15–43). Plenum Press. https://doi.org/10.1007/978-1-4899-0098-2_2.

Somasundaram, D., & Sivayokan, S. (2013). Rebuilding community resilience in a post-war context: Developing insight and recommendations—a qualitative study in Northern Sri Lanka. *International Journal of Mental Health Systems, 7*. https://doi.org/10.1186/1752-4458-7-3.

Stagnaro, E., Blackie, L. E. R., Helzer, E. G., & Jayawickreme, E. (2016). Making meaning in the context of ethnopolitical warfare: Secondary control as a resource. In P. Russo-Netzer, S. E. Schulenberg, & A. Batthyany (Eds.), *Clinical perspectives on meaning: Positive and existential psychotherapy* (pp. 89–109). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-41397-6_5.

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455–471. https://doi.org/10.1002/jts.2490090305

Tomás, J. M., Galiana, L., Oliver, A., Sancho, P., & Pinazo, S. (2016). Validating the temporal satisfaction with life scale in Spanish elderly: A bifactor model application. *Behavioral Psychology/Psicología Conductual: Revista Internacional Clínica y de La Salud, 24*(3), 555–567.

Trautwein, U. (2004). Die temporalen Facetten der Lebenszufriedenheit [The temporal facet of life satisfaction. A German adaptation of the scale of Pavot, Diener and Suh (1998)]. *Diagnostica, 50*(4), 182–192. https://doi.org/10.1026/0012-1924.50.4.182

Ungar, M. (2012). Social ecologies and their contribution to resilience. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice* (pp. 13–31). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-0586-3_2.

Ungar, M., & Liebenberg, L. (2011). Assessing resilience across cultures using mixed methods: Construction of the Child and youth resilience measure. *Journal of Mixed Methods Research, 5*(2), 126–149. https://doi.org/10.1177/1558689811400607.

United Nations High Commissioner for Refugees. (2016). *Global trends: Forced displacement in 2015*. Geneva, Switzerland: United Nations High Commissioner for Refugees.

Vhurumuku, E., Nanayakkara, L., Petersson, A., Kumarasiri, R. H. W. A., & Rupasena, L. P. (2012). *Food security in the northern and eastern provinces of Sri Lanka*. Colombo, Sri Lanka: *United Nations World Food Program*.

Wang, T., Jia, Y., You, X. Q., & Huang, X. T. (2021). Exploring well-being among individuals with different life purposes in a Chinese context. *Journal of Positive Psychology, 16*(1), 60–72. https://doi.org/10.1080/17439760.2019.1663253

Wang, T., You, X. Q., & Huang, X. T. (2020). *Chinese life purpose orientation questionnaire: Assessing purpose orientations among Chinese college students*. Applied Developmental Science. https://doi.org/10.1080/10888691.2020.1815535.

Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin, 134*(2), 163–206.

Wilson, A. E., & Ross, M. (2001). From chump to champ: People's appraisals of their earlier and present selves. *Journal of Personality and Social Psychology, 80*(4), 572–584. https://doi.org/10.1037/0022-3514.80.4.572

Witting, A. B., Lambert, J., Wickrama, T., Thanigaseelan, S., & Merten, M. (2016). War and disaster in Sri Lanka: Depression, family adjustment and health among women heading households. *International Journal of Social Psychiatry, 62*, 425–433. https://doi.org/10.1177/0020764016650213

Ye, S. (2007). Validation of the temporal satisfaction with life scale in a sample of Chinese university students. *Social Indicators Research, 80*(3), 617–628. https://doi.org/10.1007/s11205-006-0010-2