Validation of the Social and Emotional Health Survey-Secondary Among Thai Secondary School Students

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Abstract

In response to growing concerns about youth depression in Thailand, positive psychology has emerged as a promising field for nurturing inner strengths and well-being. Guided by the concept of Covitality, efforts have been made to enhance positive psychological resources; however, comprehensive assessments in this area remain limited. This study aimed to develop and validate the Thai version of the Social and Emotional Health Survey-Secondary (SEHS-S) by examining its psychometric properties. Participants included 502 high school students in Bangkok, with 337 males and 165 females between the ages of 15 and 18. A Structural Equation Modeling (SEM) was employed to test Confirmatory Factor Analysis (CFA) of the second-order factor model, structural path analysis to Subjective Well-Being, and the correlational analysis and point-biserial analysis between SEHS-S outcomes and Quality-of-Life Indicators. Results adequately supported the Covitality construct of the SEHS-S, composed of 1 2 positive psychological traits ($\chi 2$ = 599.187, *df* = 461, $p < .001$; SRMR = 0.036; NNFI = 0.972; CFI = 0.977; RMSEA = 0.024, 90% CI [0.019, 0.031]). The structural path analysis indicated Covitality as a suitable predictor of high school students' subjective well-being ($\chi 2$ = 1089.51, *df* = 612, $p < .001$; SRMR = 0.060; NNFI = 0.918; CFI = 0.925; RMSEA = 0.041, 90 % CI [0.037, 0.045]). Furthermore, the correlational results revealed the SEHS-S significantly associated with self-reported academic achievement (r = 0.28, p < .001), and self-reported perceptions of school safety (r = 0.03, p = .001), but no associations to self-reported experienced depressive symptoms (r = -0.08, p = .116). These findings suggested that Thai version of SEHS-S is an appropriate tool in assessing adolescent positive mental health, particularly adolescents within high school contexts.

Keywords: Social and emotional health, Covitality, Subjective well-being, Adolescence

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Introduction

Social and emotional health has significantly played a part in promoting mental health and preventing psychological symptoms (Šouláková et al., 2019; Werner-Seidler et al., 2021). A substantial amount of research suggested that young people are capable of developing social and emotional skills, and that school-based, skill-focused programs can have a positive influence on their social, emotional, academic, and behavioral growth (Cipriano et al., 2024; Tinnes-Vigne et al., 2025; Weare & Nind, 2011). There have been various proposed models designed specifically to assess social and emotional health by using related positive psychological indicators. Social and Emotional Health Survey-Secondary assessment model (Furlong et al., 2014) has been studied extensively, reflecting itself as a robust tool for indicating youth well-being across cultures. This current study tested this assessment model, examining the suitability of using it in Thai contexts.

Youth Mental Health Assessment Situation in Thailand

In Thailand, the understanding of psychological well-being has grown in recent years. State-related agencies and private sectors are currently participating in monitoring the population's psychological health, notably youth mental health (Burnet Institute et al., 2022; Sharma et al., 2017). The findings on these monitoring attempts revealed our youth mental health crisis, a number of Thai adolescents were experiencing a disease burden due to mental disorders. While the prevalence of youth mental health challenges underscores the urgency for intervention, a more proactive approach, through increased psychological assessment, is vital not only to address deficits but also cultivate and strengthen positive mental health.

Considering recent youth mental health situations, the practice of inspecting mental health is mainly to detect highly susceptible group or to help the students achieve optimal well-being (Furlong et al., 2021), in which most of the practices occurred within schools. Whereas in Thailand, youth mental health practice has relatively focused on assessing negative mental health, screening solely for mental issues (e.g., CDI), often overlooking the positive dimensions of youth mental health and their contributions to overall well-being. For instance, elements of positive mental health contribute to the foundation of lifelong well-being and healthy social development (Kessler et al., 2007; Rutter, 1987). In addition, focusing on youth mental health can reduce the risk of mental disorders developing later in life (Weare, 2010).

Introducing Social and Emotional Health Survey-Secondary

In the progression of youth positive psychological assessment, Covitality was developed based on the sum of factors that promote well-being and positive life qualities. Specifically, Covitality, as defined by Weiss et al., (2002), is a positive psychological construct that refers to combined presence of personal strengths and supportive relationships, which promotes healthy development. Initially, the youth mental health inspection was based on the *unidimensional model of mental health*, which assumes that psychological distress is the opposite of psychological well-being. Recent findings were found to endorse the alternative framework of distress and well-being being interconnected but distinct dimensions, called the *bidimensional model of mental health*. When examined together, they provide a deeper and more comprehensive understanding of human flourishing (Keyes, 2015). Thus, the Covitality construct examines the positive aspects of youth mental health, offering a complementary perspective to assessments focused on negative dimensions, thereby facilitating a more comprehensive understanding.

For this current study, the Covitality construct adapted in the Social and Emotional Health Survey-Secondary (SEHS-S; Furlong et al., 2014) was employed for Covitality construct investigation in Thai adolescents. SEHS-S is a strength-based survey developed implementing theories and contexts revolving adolescent's well-being, such as social-cognitive theories and social-emotional theories related to youth psychological developments and surrounding contexts. The Covitality comprises four core positive psychological constructs, including 1) Belief-in-Self, 2) Belief-in-Others, 3) Emotional Competence, and 4) Engaged Living, designed to effectively predict the synergistic effect of Covitality. It was posited that the *cumulative-assets framework* provided a better prediction of well-being compared to *isolated-asset framework*, which considered single traits such as solely gratitude, hope, or self-efficacy (Jones et al., 2012; Renshaw et al., 2014). This Covitality framework provided a more holistic view of positive psychological traits contributing to well-being. Accordingly, the Covitality level interpreted from the SEHS-S strongly predicted subjective well-being and associated with greater academic achievement, improved perceptions of school safety, reduced substance use, and fewer depressive symptoms (Lee et al., 2015). In addition to mentioned core constructs, each of the construct is cumulated with three observed positive psychological sub-constructs.

Belief-in-Self

Belief-in-Self is one of the four core positive psychological constructs built up with three positive psychological sub-constructs, namely 1) Self-Awareness, 2) Self-Efficacy, and 3) Persistence (Furlong et al., 2014). The interplay between these constructs affects adolescent well-being and achievement. Self-Awareness, involving the comprehension of one's emotion, values, and personal goals (Greenberg et al., 2017), had been shown to significantly impact life satisfaction, depression, and anxiety levels (Cho, 2023), highlighting its importance in mental health and quality of life. Furthermore, Self-Efficacy, defined as an individual's perceived capability to manage and implement goal-directed actions (Bandura, 1977), is predictive of quality of life aspects, notably academic achievement in students (Salami, 2010). Complementing these constructs, Persistence embodies the sustained effort toward a defined objective, characterized by continuous engagement with a task until completion.

Belief-in-Others

Belief-in-Others is another core positive psychological construct that consists of three positive psychological sub-constructs, including 1) School Support, 2) Family Coherence, and 3) Peer Support. Each variable is the indicators of beliefs that adolescents are supported by peers, school, and family. It is generally supported by research that these perceived supports were associated with increased psychological well-being (Holt-Lundstad et al., 2010; Jose et al., 2012). There were findings indicating that peer support was a protective factor against suicide, depression, anxiety, and stress, and was positively associated with well-being, self-esteem, and optimism (Roach, 2018). School support, regarding the support from school staff, and family coherence were connected to positive outcomes in adolescents, including higher self-esteem, self-efficacy, optimism, and better peer relationships (Carnobell et al., 1998; Gutiérrez et al., 2017; Ostermann, 2000; Resnick et al., 1997).

Emotional Competence

Emotional Competence, as a part of core positive psychological constructs, is composed of three positive psychological sub-constructs, including 1) Emotion Regulation, 2) Empathy, and 3) Self-Control. Emotional Regulation refers to intentional processes individuals utilize to regulate their emotional states, whether by maintaining, decreasing, or increasing them (Gross, 2015). Empathy is an emotional reaction originating from the understanding or awareness of another individual's circumstances or emotional experience (Eisenberg et al., 2006). Self-control is the capacity to override prevailing impulses, leading to the restraint of undesirable behaviors in favor of long-term goal achievement (Cavier &

Scheier, 1981; Metcalfe & Mischel, 1999). Emotional competence, building up from these factors, was essentially associated with well-being. Emotion Regulation proved to be beneficial for people's well-being in the face of adversity (Newman & Nezlek, 2022). Empathy was found to positively contribute to happiness through avoidance and resolution of motivational conflict (Hofmann et al., 2016).

Engaged Living

Engaged Living, the last core positive psychological construct, includes three positive psychological sub-constructs, which are 1) Optimism, 2) Zest, and 3) Gratitude. The study on the role of Engaged Living on psychological well-being by Froh et al., (2010) found that adolescents with a high level of Engaged Living tended to be more grateful, hopeful, happier, prosocial, and positive affect, higher self-esteem, and higher grades. Optimism is defined as positive future expectations, a positive mindset, belief in personal control, or self-enhancement (Alloy & Abramson, 1979; Scheier & Carver, 1985; Peterson & Seligman, 1984; Weinstein, 1980). Zest is defined as approaching life with excitement and energy, encompassing vitality and enthusiasm beyond more life satisfaction or happiness (Seligman et al., 2005; Park & Peterson, 2010). Gratitude is defined as habitual focus on and appreciation of life's positive aspects (Van Dusen et al., 2015; Wood et al., 2010).

Current Study: Enhancing Youth Mental Health Assessment in Thailand

This current study aimed to validate and develop the existing Covitality construct in Thai contexts using SEHS-S, examining the psychometric properties to determine whether this tool is feasible to utilize it for research and school practice. The purpose of this study was to incorporate SEHS-S into the range of assessment tools used in Thailand, with a particular focus on youth mental health. The standard assessment to measure specifically positive youth mental health provided by Thai state-related agencies, including Department of Mental Health, remained absent. Psychological health measures most comparable to positive mental health or youth mental health currently available include TMHI-66, THI-15, and CDI. These official tools evidenced the practice of assessing positive mental health is markedly limited, especially in youth. Therefore, the robust and extensively validated assessment was suggested to advance the assessment of Thai youth well-being, by yielding insights into psychological factors that are associated with their social and emotional development.

To observe the psychometric properties of SEHS-S developed in Thai contexts, students were asked to assess each positive psychological trait (or sub-constructs) along with filling other measures for validating purposes, including measures assessing subjective well-being and quality of life. In terms of data analysis, aspects of validity were tested on the Covitality construct adapted in SEHS-S with the structural equation modeling techniques. Covitality was tested within the model itself and with mentioned measures to validate if SEHS-S interpretations would align with its conceptual groundings. Ultimately, the model's selected aspects of validity were examined.

Objective

To develop and validate psychometric properties of the Social and Emotional Health Survey-Secondary in secondary school students in Thai contexts.

Method

Structural Equation Modeling (SEM) was employed in this current study, a quantitative psychometric validation study, to evaluate construct validity, convergent validity, and predictive validity of the Social and Emotional Health Survey-Secondary with the data collected from high school students in Thailand.

Participants

The recruited sample targeted on adolescents studying in Bangkok, Thailand. The minimum required sample size was calculated using Monte-Carlo simulation (Muthén & Muthén, 2002), indicating approximately two hundred participants in providing sufficient power for the proposed model. Inclusion criteria were 1) currently studied in high school, and 2) aged between 15-18 years at the time of filling the survey. School characteristics collected in this study included single-sex schools and mixed-sex schools, which are also government and private schools. No other inclusion criteria were specified.

The collected sample consisted of 502 high school students with 338 male respondents (M_{age} = 16.78, *SD* = 0.90) and 165 female respondents (M_{age} = 17.13, *SD* = 0.86). There were students who practiced Buddhism (89.64%), Christianity (3.19%), Islam (0.60%), other religions (1.55%), or identified as atheists (4.38%). Most of the students lived with parents (97.21%). Some students lived alone (0.80%), lived with friends (0.40%), and other types of living status (1.60%), such as living with relatives.

Procedures

Thai version of the Social and Emotional Health Survey-Secondary (SEHS-S) was developed and translated with the permission and advice from one of the corresponding authors of the original study (Furlong et al., 2014). Using the cross-cultural translation technique (Brislin, 1970), forward and backward translation processes were assisted by the corresponding authors whose expertise is related to mental health matters and English-Thai professionals and bilinguals. For backward translation of the survey, the corresponding author of the original study conducted a congruences index rating, examining the content validity of the translated version of the survey.

Surveys were distributed by purposive sampling through high schools and courses offered to high school students in Bangkok. The surveys were provided to the target samples, including the respondent information sheet together with the questionnaires. Researchers instructed the sample in each class on the consent form, which required both their own consent as adolescents and their parents' consent for proceeding any further data collection. The students were told to consider answering each item with their experiences within the past few weeks, except for the item that ask about a specific duration (e.g. 'During the past 12 months, how would you describe the grades you mostly received at school?').

Measures

1. Demographic variables

The students were required to report binary gender identity (e.g., male, female), age, religion, and their living status (e.g., living with parents, alone).

2. Thai Covitality: Thai version of Social and Emotional Health Survey-Secondary

Assessing the positive psychological traits in the form of cumulative-assets framework, the Thai version of Social and Emotional Health Survey-Secondary (SEHS-S) was employed to validate this novel positive psychological model in Thai contexts. The original survey developed by Furlong et al. (2014) was translated into Thai with cross-cultural translation protocol (Brislin, 1970). The traits included in this model were conglomerated from the studies that found meaningful relationships between them and youth subjective well-being (e.g., Froh et al., 2009, Hanson & Kim, 2007) called Covitality. As Covitality is the second-order structure model, it was constructed from 12 positive psychological variables, streamlining into 4 first-order latent variables, and eventually onto one second-order latent variable. Each positive psychological variable or subfactor was assessed using 3 items

(See Table 1). The students were asked to rate each item from 1 (not at all true of me) to 4 (very much true of me). This scale demonstrated good reliability (α = 0.88).

Table 1 Description of Covitality Subscales, Sample Items, and Cronbach's Alpha

Second-order factor	First-order factors	Subfactors	Sample items	Cronbach's alpha
Covitality	1. Belief-in-Self	1.1 Self-Awareness	I understand my moods and feelings	0.84
		1.2 Self-Efficacy	I can do most things if I try	
		1.3 Persistence	I try to answer all the questions asked in class	
	2. Belief-in-Others	2.1 School Support	At school, there is a teacher or some other adults who always want me to do my best	0.84
		2.2 Family Coherence	My family really gets along well with each other	
		2.3 Peer Support	I have a friend my age who really cares about me	
	3. Emotional Competence	3.1 Emotional Competence	I can deal with being told no	0.71
		3.2 Empathy	I try to understand what other people feel and think	
		3.3 Self-Control	I think before I act	
	4. Engaged Living	4.1 Optimism	Each day I look forward to having a lot of fun	0.85
		4.2 Zest	On most days I feel energetic	
		4.3 Gratitude	On most days I feel grateful	

2. Subjective Well-Being

By assuming that the Thai version of SEHS-S, composed of sets of positive psychological traits, is associated with subjective well-being, the well-constructed measures were employed to evaluate this assumption. Subjective well-being (SWB) as defined by Diener (1984) is the cognitive and affective evaluations of one's life, reflecting how good and desirable life is deemed to be. According to Diener, SWB can be assessed using

a combination of two assessments, including the Positive and Negative Affect Scale (PANAS; Watson et al., 1988) and the Satisfaction with Life Scale (SWLS; Diener et al., 1985).

2.1 Thai version of Positive and Negative Affect Scale (PANAS).

The Thai version of Positive and Negative Affect Scale (PANAS) developed by Thisaphak (2005) is a self-reported scale consisting of items asking the respondent to evaluate their recent emotional experiences (e.g. 'Happy', 'Depressed', 'Excited') by rating the intensity of each emotional aspect as provided in the scale. The rating ranged from 1 (very untrue of me) to 7 (very true of me). Affect dimensions were calculated separately between the Positive Affect (PA) and the Negative Affect (NA). Both dimensions indicated good reliability (PA's α = 0.89, NA's α = 0.90).

2.2 Thai version of Satisfaction with Life Scale (SWLS).

The Thai version of Satisfaction with Life Scale (SWLS) developed by Thisaphak (2005) is a self-reported scale consisting of items asking the respondent to evaluate their overall life satisfaction (e.g. 'I'm satisfied with my life') by rating the level of agreement with the given statement. The rating ranged from 1 (strongly disagree) to 7 (strongly agree). This scale indicated an acceptable reliability (α = 0.72).

3 Quality-of-Life Indicators

Validating the Thai version of SEHS-S to the broader concepts of well-being, the brief measures of Quality-of-Life Indicators were included in this current study. The items were selected from the CHKS Core Module A (California Department of Education, n.d.), the Perceived School Safety Index of the California School Climate Index (California Department of Education, n.d.), and the US Youth Risk Behavior Surveillance Survey (Eaton et al., 2012), which assessed 1) academic achievement, 2) perceptions of school safety, and 3) experienced depressive symptoms. In this study, academic achievement was assessed with a self-reported item: 'During the past 12 months, how would you describe the grades you mostly received in school?', with the rating of 1 (mostly F's) to 8 (mostly A's). Perceptions of school safety were assessed using 2 self-reported items: 'I feel safe in my school', with the rating of 1 (strongly disagree) to 5 (strongly agree), and 'How safe do you feel when you are at school?', with reverse-coded responses ranging from 1 (very safe) to 5 (very unsafe). Lastly, the experienced depressive symptoms were assessed with a self-reported item: 'During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more in a row that you stopped doing some usual activities?', with response options of 1 (yes) and 2 (no).

Data Analysis

Data analyses were conducted using the framework of SEM technique with 3 sub-analyses to examine the psychometric properties of the Thai version of SEHS-S, including construct validity analysis, predictive validity analysis, and concurrent validity analysis.

Construct validity analysis was conducted using confirmatory factor analysis (CFA). Initially, CFA was applied to the Covitality model with two steps. First, the measurement model was tested with 36 measured variables onto the 12 positive psychological variables (see Table 3). Second, the measurement model was tested with higher latent variables, from 12 positive psychological variables onto 4 first-order latent variables and onto the second-order latent variable subsequently.

The predictive validity analysis was run using the structural path analysis. The full Covitality model was tested with the latent variable of Subjective Well-Being, composed with observed variables of Positive Affect, Negative Affect, and Life Satisfaction.

The concurrent validity analysis was run using bivariate analysis, including correlational analysis and point-biserial analysis. Correlational analysis was applied to examine the convergent validity by exploring the relationships between overall Covitality scores and academic achievement, and perceptions of school safety. Point-biserial analysis was applied to examine the divergent validity by exploring the relationship between overall Covitality scores and experienced depressive symptoms.

In this current study, several criteria were employed to assess model fit using combined judgements. The determination of fit indices included the Santora-Bentler scaled statistics, comparative fit index (CFI; Bentler, 1990), non-normed fit index (NNFI; Bentler & Bonnet, 1980), standardized root-mean-square (SRMR), and root-mean-square error of approximation (RMSEA; Steiger & Lind, 1980) with 90% interval. Covitality items are ordinal variables that violated the assumption of multivariate normality, as revealed by the inspection of multivariate normality in the collected data (Mardia's multivariate kurtosis coefficient: 620.6419, $p < .01$). Hence, the Robust Maximum Likelihood (MLR) estimator was applied using robust statistics in R studio (V.2024.4.2.764) data analysis and statistical software. Referencing Hu and Bentler's (1999) criteria: SRMR < 0.08 indicating a satisfactory fit, RMSEA < 0.06, NNFI and CFI ≥ 0.95.

Human Research Ethics

This study was approved by the Human Research Ethics Committee, Set 1, Chulalongkorn University, Bangkok, Thailand (070/67).

Results

Construct Validity

Collected data were first tested with CFA (n = 502), employing the Covitality model structure of the original Social and Emotional Health Survey-Secondary (SEHS-S; Furlong et al., 2014). The referenced Covitality structure was constructed as a 12-subfactor model (e.g., Self-Efficacy, School Support, Emotional Regulation, Optimism), where each subfactor was associated with 3 measured variables. The CFA assessing 36-item measured variables onto 12-subfactor structure indicated that this model adequately fit the data, $\chi 2$ = 822.50, *df* = 528, $p < .001$; SRMR = 0.053; NNFI = 0.941; CFI = 0.951; RMSEA = 0.035, 90% CI [0.029, 0.039]. Compared to the original model, a few items exhibited weaker or non-significant factor loadings on their respective subfactor structures, suggesting potential variations in construct presentation. Following this analysis, the model modification was applied to enhance its utility for research and school practice. In the process of selecting the optimal modification after several modifications, 2 items were removed from the model, resulting in a 12-subfactor structure with 34 items (see Table 2). This revised model indicated that it fit the data better, $\chi 2$ = 599.187, *df* = 461, $p < .001$; SRMR = 0.036; NNFI = 0.972; CFI = 0.977; RMSEA = 0.024, 90% CI [0.019, 0.031]. Although the $\chi 2$ p-value is less than .05, it is widely recognized that the $\chi 2$ statistic is overly sensitive in large samples (N > 200), often rejecting well-fitting models (Kline, 2016; Byrne, 2012). Alternative fit indices were vital in this context to indicate that the model fits the data well according to conventional standards (Hu & Bentler, 1999). The 34-item SEHS-S version showed acceptable to good significant factor loadings on their respective subfactor structure. When ideal factor loadings are generally above .50, many authoritative sources (e.g., Hair et al., 2010; Tabachnick & Fidell, 2013; Comrey & Lee, 1992) consider loadings above .30 as minimally acceptable or statistically meaningful, particularly complex models or when item content is theoretically central. Given that alternative items were not available and the indicator was conceptually aligned with the latent construct, retaining it maintains content validity while preserving the model's integrity. Hence, this model was maintained for the second stage of CFA analysis.

Table 2 Standardized Factor Loadings for the Covitality Subscales for Total Sample (N = 502)

Items and Scales	Loadings (original model)	Loadings (modified model)
1. Belief-in-Self		
1.1 *Self-Efficacy*		
1.1.1 I can work out my problems.	0.56	0.57
1.1.2 I can do most things if I try.	0.52	0.51
1.1.3 There are many things that I do well.	0.64	0.64
1.2 *Self-Awareness*		
1.2.1 There is a purpose to my life.	0.44	0.43
1.2.2 I understand my moods and feelings.	0.78	0.78
1.2.3 I understand why I do what I do.	0.43	0.44
1.3 *Persistence*		
1.3.1 When I do not understand something, I ask the teacher again and again until I understand.	0.65	0.65
1.3.2 I try to answer all the questions asked in class.	0.67	0.67
1.3.3 When I try to solve a math problem, I will not stop until I find a final solution.	0.53	0.54
2. Belief-in-Others		
2.1 *School Support* (At my school there is a teacher or some other adult who)		
2.1.1 ...always wants me to do my best.	0.78	0.78
2.1.2 ...listens to me when I have something to say	0.75	0.75
2.1.3 ...believes that I will be a success.	0.71	0.71
2.2 *Family Coherence*		
2.2.1 My family members really help and support one another.	0.78	0.78
2.2.2 There is a feeling of togetherness in my family.	0.88	0.88
2.2.3 My family really gets along well with each other.	0.89	0.90
2.3 *Peer Support* (I have a friend my age who)		
2.3.1 ...really cares about me.	0.80	0.80
2.3.2 ...talks with me about my problems.	0.86	0.86
2.3.3 ...helps me when I'm having a hard time.	0.82	0.82

Items and Scales	Loadings (original model)	Loadings (modified model)
3. Emotional Competence		
3.1 *Emotional Regulation*		
3.1.1 I accept responsibility for my actions.	0.70	0.70
3.1.2 When I make mistake I admit it.	0.75	0.75
3.1.3 I can deal with being told no.	0.56	0.56
3.2 *Empathy*		
3.2.1 I feel bad when someone gets their feelings hurt.	0.61	0.61
3.2.2 I try to understand what other people go through.	0.88	0.88
3.2.3 I try to understand how other people feel and think.	0.77	0.77
3.3 *Self-Control**		
3.3.1 I can't wait for what I want.*	0.11	------
3.3.2 I don't bother others when they are busy.	0.31	0.31
3.3.3 I think before I act.	0.57	0.54
4. Engaged Living		
4.1 *Optimism*		
4.1.1 Each day I look forward to having a lot of fun.*	0.29	------
4.1.2 Overall, I expect more good things to happen to me than bad things.	0.88	0.81
4.1.3 I usually expect to have a good day.	0.81	0.82
4.2 *Zest*		
4.2.1 On most days I feel energetic.	0.78	0.78
4.2.2 On most days I feel active.	0.88	0.88
4.2.3 On most days I feel enthusiastic.	0.81	0.81
4.3 *Gratitude*		
4.3.1 On most days I feel grateful.	0.80	0.80
4.3.2 On most days I feel thankful.	0.84	0.88
4.3.3 On most days I feel appreciative.	0.76	0.81

*Items removed during confirmatory factor analysis (CFA) to improve overall model fit

Consequently, the identical sample tested in the first stage was employed to validate the identified factor structure of 34-item SEHS-S for the second stage. Concerning the nature of psychometric studies, several alternative factor structures were tested to identify plausible models that could explain the relationships among the items. Regarding the assumption of significant correlations among four core positive psychological constructs

(i.e., Belief-in-Self, Belief-in-Others, Emotional Competence, Engaged Living), Model 1 examined this correlated 4 first-order factors model. The findings from CFA indicated all the subfactors loaded moderately on their 4 respective first-order latent constructs (see Figure 1). The model adequately fit the data as follows, $\chi 2$ = 770.23, *df* = 509, $p < .001$; SRMR = 0.053; NNFI = 0.950; CFI = 0.954; RMSEA = 0.033, 90 % CI [0.028, 0.038].

Model 2 extended the analysis by validating the model with a second-order latent construct, assuming that all the first-order latent constructs loaded onto the general second-order latent construct. This model's CFA result indicated adequate fit to the data, $\chi 2$ = 785.99, *df* = 511, $p < .001$; SRMR = 0.055; NNFI = 0.948; CFI = 0.953; RMSEA = 0.034, 90% CI [0.029, 0.039]. Both models demonstrate good fit to the data, leaving the room for the model selection. The decision was made based on statistical criteria and conceptual grounding. Considering parsimony as an essential criterion for model selection, the second-order factor model was favored over the correlated 4 first-order latent constructs model since these factors parsimoniously promoted the second-order latent construct, Covitality. Thus, Model 2 was identified as the preferred solution for validity analysis.

Predictive Validity

Structural path analysis of the SEHS-S Covitality model was conducted in relation to subjective well-being. Using the identical sample (n = 502) as in CFA, we examined the associations among the first-order latent constructs, the second-order latent construct, and the subjective well-being latent construct within a structural path analysis. In other words, the association among four core positive psychological constructs, Covitality, and adolescents' subjective well-being outcomes was tested to observe predictive validity. The criterion values revealed that the 4 first-order domains and the latent variable Covitality have a strong positive relation, as well as between Covitality and subjective well-being latent construct. The subjective well-being latent construct consisted of 3 observed variables (i.e., Positive Affect, Negative Affect, Life Satisfaction) streamlined into one latent variable, Subjective Well-Being. Moreover, the overall structural model proved to adequately fit the data, $\chi 2$ = 1089.51, *df* = 612, $p < .001$; SRMR = 0.060; NNFI = 0.918; CFI = 0.925; RMSEA = 0.041, 90 % CI [0.037, 0.045].

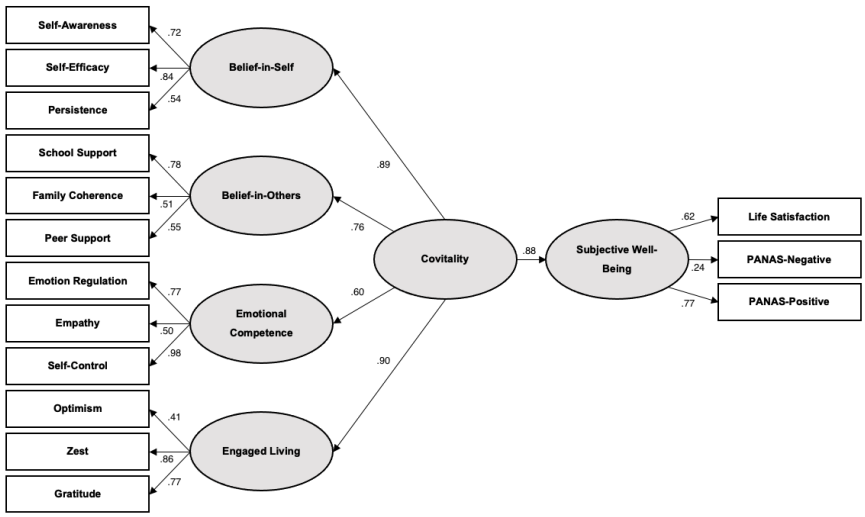

Figure 1 Covitality Model Underlying the Social and Emotional Health Survey-Secondary

Concurrent Validity

To further examine the validity of the SEHS-S in its relation to a broader concept of well-being, the sum scores of the SEHS-S were calculated to test with Quality-of-Life Indicators. The concurrent validity analysis was carried out by using convergent and divergent validity analysis. The statistical analyses applied included correlational analysis and point-biserial analysis.

First, the convergent validity analysis explored the relationship between students' overall Covitality scores and their self-reported academic achievement with correlational analysis. It was found a moderate positive correlation between Covitality scores and self-reported academic achievement, $r(478) = 0.28$, $p < .001$. This finding supported the practical relevance of the Covitality model in predicting students' academic achievement, suggesting that a higher score in Covitality is associated with a higher score in self-reported academic achievement.

Second, another convergent validity analysis explored the relationship between student's overall Covitality scores and their self-reported perceptions of school safety. Likewise, a marginally positive correlation was found between Covitality scores and self-reported perceptions of school safety, $r(478) = 0.03$, $p = .001$. This finding supported the Covitality model practical relevance predicting student's perceptions of school safety, suggesting higher score in Covitality is associated with higher score in self-reported perceptions of school safety.

For the discriminant validity analysis, the point-biserial analysis was conducted to test a relation between overall Covitality scores and their self-reported experienced depressive symptoms in the past 12 months. There was no identified significant association between Covitality scores and self-reported experienced depressive symptoms, $r(426) = -0.08$, $p = .116$. This finding was yet to support the Covitality model in predicting the experienced depressive symptoms, indicating that higher score in Covitality didn't result in lesser experienced depressive symptoms.

Discussion

This current study offered a notable support for the construct developed on the Thai version of Social and Emotional Health Survey-Secondary (SEHS-S), contingent upon specific criteria employed for evaluation leading to a range of interpretations. The development of SEHS-S was introduced by a prior cross-national study that examined its hierarchical factor structure in youth (Lee et al., 2016; Piqueras et al., 2019; You et al., 2014). This current study aimed to explore the construct of Covitality and its relationships to subjective well-being and quality of life, this study provided initial validation evidence for the SEHS-S among Thai adolescents studying in high school.

SEHS-S Validation among Thai Adolescents Studying in High School

Diverging from the studies of SEHS-S across different countries, including study validated in Asian countries (Japan, Iida et al., 2024; Korean, Lee et al., 2016), the Confirmatory Factor Analysis (CFA) indicated that the majority of the items loaded onto their respective subfactors, except for 2 items. For clarification, each item was loaded onto the respective subfactor of Self-Control and Optimism, which showed weak and non-significant loadings, resulting in removing these items from the model. The modified model was then left with 12 subfactor structure loaded with 34 items. The item loadings ranged from .31 to .90 for the modified version (see Table 2).

Considering the 2 items that exhibited weak or non-significant loading onto subfactors, there were statistical reasons behind. First, the item (item no. 3.3.1 in Table 2) that is loaded onto the subfactor of Self-Control, was the only item that got reverse-worded throughout the cross-cultural translation process, which might partially cause weak and non-significant loading. This reverse-worded item was removed due to its loading, despite its conceptual alignment with the latent construct. While reversing this item was necessary to

maintain natural linguistic expression and semantic clarity in Thai, but it could confuse respondents, leading to different practical interpretations (van de Vijver & Hambleton, 1996; van Sonderen et al., 2013). This item's psychometric performance remained limited, and it was therefore excluded to enhance overall model fit. Second, another item (item no. 4.3.1 in Table 2) is loaded onto the subfactor of Optimism. Another item was excluded due to evidence of cross-loading, which indicated ambiguity in its association with two subfactors, Optimism and Zest, and potentially compromised level of model fit. When translated into Thai, 'each day I look forward to having a lot of fun' could be interpreted with the aspect of Zest as much as Optimism. By removing these mentioned items from the model, the fit improved drastically.

Originally, SEHS-S version (Furlong et al., 2014) employed for validation of this study was trimmed from 51-item SEHS to 36-item SEHS for simplifying purposes. Selected items in the 36-item SEHS modified in the United States might have contained items that were not reflected well in Thai contexts. Further study is needed for modifying the plausible model with variations of the items from the original study.

The construct validity analysis of the model with first-order latent variables alone (i.e., Belief-in-Self, Belief-in-Others, Emotional Competence, and Engaged Living) and model with the second-order factor (i.e., Covitality) yielded similar results in model fit. The model validated with first-order latent variables as fully correlated model proved to have an excellent fit. The model validated extensively to the second-order latent variable also revealed to have an excellent fit as well. Considering the fit indices from both models, the additional model specifications were warranted. Given the theoretical foundation of Covitality, this second-order factor ought to be retained. Covitality is the aggregate sum of factors that promote well-being and positive life qualities, representing the combined presence of personal strengths and supportive relationships (Weiss et al., 2022). Covitality, as the second-order factor in this model, was added for streamline the positive psychological traits into one accumulating characteristic, which provided the conceptual integration and improved predictive efficiency into a single composite factor. The model with second-order factor offered a more applicable solution in predicting and interpreting the respondent's subjective well-being and quality of life. Additionally, Covitality had been validated in the previous studies and proved to be theoretical justified with a strong fit (Furlong et al., 2014; Lee et al., 2014).

Further model validity analysis, including predictive validity analysis and concurrent validity analysis, supported Covitality and its relation to positive desirable outcomes. The predictive validity analysis revealed that higher level of Covitality was associated with higher level of subjective well-being aligning with previous Covitality studies (Boman et al., 2017; Iida et al., 2019). The concurrent validity analysis, which examined both convergent and divergent validity, indicated that higher overall Covitality scores were positively associated with self-reported academic achievement and self-reported perception of school safety aligning with the previous studies (Iida et al., 2019; Lee et al., 2014). Point-biserial analysis found no significant association between overall Covitality scores and self-reported experienced depressive symptoms.

Overall, this current study's findings supported the validity of SEHS-S as a positive psychological assessment that provides information on four core positive psychological constructs that predict subjective well-being. However, this finding diverges from those reported in previous studies, The Covitality score has yet to be used as a predictor of mental health problems in adolescents. This lack of prediction of negative mental health supported the arguments of *bidimensional model of mental health*, suggesting that positive mental health and negative mental health are interconnected but distinct dimensions (Keyes, 2005).

Significance of Implementing SEHS-S in Thailand

Youth mental health concerns are becoming more imminent in Thailand, considering the reported data administered by the state-agencies (Burnet Institute et al., 2022; Sharma et al., 2017). These neglected issues may lead to undesirable consequences in the future. Failure to address positive psychological traits and their attributes as promoting factors for mental health could result in more prevalent mental health concerns. Regarding the established tools used to assess youth mental health, there was yet to be a measure that assesses positive psychological constructs. The Thai version of SEHS-S would serve as the measure assessing positive psychological constructs. With the model developed with respect to adolescent social and psychological development, SEHS-S proved to be an optimal measure for assessing youth well-being. SEHS-S was specifically designed for assessing adolescents who have undergone the education system, promoting its application in school contexts. Moreover, SEHS-S was positioned as a strength-based tool for assessing students, distinguishing from the traditional mental health model assessment that often focuses on

mental challenges. Distributing SEHS-S throughout schools in Thailand would enhance awareness of youth mental health, focusing on the significance of positive mental health. The application of this assessment could be developed and integrated with Social and Emotional Learning (SEL) interventions or employed with the mental challenges assessment to yield a more holistic understanding of youth mental health that leads to a flourishing life.

Strengths and Limitations

Considering the strengths of this current study, several strengths were implied. First, the analytic results proved the Covitality constructs as a robust statistical model, ensuring valid findings. Second, the study simultaneously examined multiple psychological factors, allowing for a comprehensive understanding of their individual and combined contributions to youth well-being. This multifaceted approach provides richer insights and enhances the ecological validity of the model. Together, these strengths promote the application of this current study's findings in practical settings, supporting their relevance for real-world implementation and future research.

In terms of limitations, it is uncertain whether the Covitality level, which is the sum of the positive psychological constructs, can predict negative mental health in the Thai context. Using self-reported experienced depressive symptoms as a measure was not as robust as expected. A study conducted with Thai high school students in preparation for university admission (Uratanamnee & Lerdsamran, 2017) revealed that most of the students had a high to severe level of stress, moderate to low levels of anxiety, and several of them reported a high level of depression. In Thailand, the duration of studying in high school is usually considered a critical period for university admission. This suggests that high school students may experience depression even when having a high Covitality level, due to the effect of admission preparation.

Recommendations

The Thai version of the Social and Emotional Health Survey-Secondary appears well-suited for adolescents aged 15–18 who are enrolled in high schools with similar cultural and educational backgrounds to those represented in this study. It is particularly useful for assessing positive mental health in areas related to social and emotional development, making it a valuable tool in both research settings and counseling contexts where a comprehensive understanding of well-being and individual strengths is needed.

While this study provides evidence supporting the survey's structural validity using Structural Equation Modeling (SEM), further psychometric evaluation is recommended, particularly longitudinal invariance testing and test-retest reliability, before applying the survey in repeated measures or program evaluation designs. These additional steps would help ensure the tool's stability and accuracy over time.

In its current validated form, the survey can be effectively used in cross-sectional research to explore positive psychological traits and their relationship with well-being outcomes. However, researchers and practitioners should be cautious when applying items that showed low or cross-loadings in this study, especially in new populations or settings. These items may require further validation before being relied upon in high-stakes applications. For contexts involving important decision-making, such as evaluating interventions or shaping policy, it is advisable to complement the survey data with qualitative insights or behavioral observations. A triangulated approach can offer a more nuanced and trustworthy understanding of youth mental health.

Conclusion

Developing the survey based on the original SEHS-S (Furlong et al., 2014) for Thai contexts, this current study provided evidence for the Thai version of SEHS-S as a robust tool for assessing several positive psychological constructs, which are predictive of subjective well-being and quality of life. Additionally, this version of SEHS-S could be used in conjunction with interventions related to youth mental health or youth well-being, ensuring its practical relevance.

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