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Complete Mental Health Screening: Psychological Strengths and Life Satisfaction in Korean Students

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Abstract Despite increasing interest in the role of positive psychology in youth development, its application into school-based mental health care has been limited. The South Korean government has implemented a national mental health screening for primary and secondary schools, but this initiative focuses on the identification and treatment of distress symptoms with little attention given to psychological strengths. The current study explored the use of complete mental health screening—integrating positive and negative indicators of mental health—in six primary schools in Seoul, South Korea. Using automatic three-step latent profile analyses, underlying profiles of complete mental health among Korean primary school students were identified. The relations between the identified profiles and life satisfaction were also examined. Results identified four subtypes of complete mental health. Students with higher psychological strengths were more likely to experience higher life satisfaction. Implications for researchers and practitioners are discussed.

Keywords Korean youths · Complete mental health · Schoolwide mental health screening · Life satisfaction · And latent profile analysis (LPA)

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1 Introduction

A growing interest in positive aspects of children's mental health has motivated international researchers to examine how to best identify and foster positive psychological traits. In the United States (U.S.), as early as the 1950s, statements challenging the definition of mental health as the absence of deficits emerged. Jahoda (1958) stated, "It [is] unlikely that the concept of mental health can be usefully defined by identifying it with the absence of disease" (p. 14). Seligman (1998) later noted that the field of psychology has emphasized the treatment of symptoms, often at the expense of building strengths and resilience. Recently, Keyes and Michalec (2010) coined the term "complete mental health" to introduce an alternative approach to mental health and defined it as "not merely the absence of psychopathology, but also the presence of sufficient levels of emotional, psychological, and social well-being [flourishing]" (p. 126). Following from this perspective, researchers have begun to use this alternative definition of mental health in school-based mental health practice. For example, it has been suggested that school-based mental health screening should optimally consider both positive and negative indicators of mental health—a balanced model that explains students' psychological well-being better than the traditional deficit-oriented screening (e.g., Kim et al. 2014).

Due to the traditional focus on repairing damage more than building strengths, a greater number of instruments for distress indicators of mental health have been developed and used when compared to strength-based instruments (LeBuffe and Shapiro 2004). Recognizing the lack of strength-based instruments, especially developmentally appropriate strength-based measures to identify younger children's positive psychological functioning, Furlong et al. (2013) developed the *Social Emotional Health Survey–Primary* (SEHS-P) for use with young children in the schools. Drawing upon positive psychology research, the SEHS-P was developed as a short self-report measure to assess four particular attributes—gratitude, zest, hope/optimism, and persistence—that are related to youths' well-being (Furlong et al. 2013). Previous studies of the SEHS-P have supported its psychometric properties with primary school students in the U.S. (Furlong et al. 2013), Australia (Wilkins et al. 2015), and China (Wang et al. 2017). These studies provided empirical support for using the SEHS-P to identify students' positive mental health in various countries. The current study will further explore the SEHS-P's potential use, in combination with a distress measure, to examine the utility of applying a complete mental health screening approach in the South Korean school context.

1.1 Current Status of Complete Mental Health Screening in Schools

The status of universal mental health screening in schools differs widely across countries. For example, in the U.S., less than 15% of schools engage in a systematic mental health screening (Bruhn et al. 2014), and most schools use a predominantly deficit-based model, with the aim of only identifying problem behaviors and emotional distress. In the Chinese school context, only a few high-performing schools located in large cities have adopted universal mental health screening, with little attention to positive aspects of mental health. Conversely, monitoring the mental health and well-being of students in South Korea is currently a part of routine practice; the government has implemented nationwide, mental health screening in schools to identify students at risk for emotional and behavioral problems. Since 2012, all primary and secondary

schools, approximately 10,000 schools across the country, have participated in an annual national mental health screening program (Kim et al. 2017). After the mental health screening surveys are completed, students at each school identified as at-risk are provided with services that are appropriate for their individual needs.

However, the mental health screening approach implemented in South Korea only targets mental health problems, such as depression and school violence, with no attention to students' psychological strengths and coping resources. In other words, schools in South Korea are employing screening practices that provide actionable information for only about the 10–15% of students with some levels of significant mental health problems. Such an approach is reactive in that it waits to provide students with services only after potentially debilitating problems have emerged. While South Korean schools are progressive in this universal, national approach to mental health assessment, the approach of focusing solely on deficits may benefit from revision. Including an assessment of psychological strengths associated with increased student resiliency and flourishing mental health may provide a more complete understanding of students' mental health. As South Korea is the only known country conducting national mental health screening, and other countries may be looking for guidance on best implementation practices, it is critical to focus efforts on potentially improving the process (i.e., "getting it right") prior to large-scale implementation in other countries. This study aims to contribute to the screening literature by examining a complete mental health approach to screening in South Korea.

1.2 Previous Complete Mental Health Screening Literature

Greenspoon and Saklofske (2001) conducted an initial examination of complete mental health screening in schools to support the need for assessing both positive and negative indicators of mental health. They assessed both psychological strengths (i.e., subjective wellbeing, SWB) and symptoms (i.e., psychopathology, PTH) of 407 elementary school students, and proposed four rational mental health groups with different levels of SWB and PTH (i.e., high SWB + low PTH, low SWB + high PTH, low SWB + low PTH, high SWB + high PTH). Other complete mental health studies have also classified students into one of these four logically derived mental health groups using dichotomized levels (high or low) of SWB and PTH. Across different studies (e.g., Antaramian et al. 2010; Kelly et al. 2012; Lyons et al. 2012; Suldo and Shaffer 2008), the high SWB and low PTH group (e.g., 43%–67%, across studies, of screened students) was named as flourishing, complete mental health, positive mental health, or well-adjusted. The high SWB and high PTH group (e.g., 11%–36%, across studies) was named as struggling, symptomatic but content, or externally maladjusted. Additionally, the low SWB and low PTH group (e.g., 5%–13%, across studies) was named as languishing, vulnerable, or dissatisfied. Finally, the low SWB and high PTH group (e.g., 8%–44%, across studies) was named as floundering, troubled, or distressed.

Kim et al. (2017) pointed out limitations of algorithms used in previous studies to form the four complete mental health groups, such as noting that most studies relied on predetermined values as a decision point (e.g., raw scores, sample means, standard deviations, or *T*-scores) to assign students into one of the four mental health groups. For example, students were classified as having high PTH if they had a *T*-score of 60 or higher on PTH measures (e.g., Venning et al. 2013) and as having high SWB if they had a *T*-score of 40 or higher on SWB measures (e.g., Antaramian et al. 2010; Lyons et al.

2012). The proportion of students in each group, which greatly varied across studies, was determined using logically-driven cut scores, and thus, did not reflect possible underlying, empirical profiles of youth complete mental health (Kim et al. 2017).

To address this limitation, Kim et al. (2017) conducted latent profile analyses (LPAs) using a Korean adolescent sample to explore the potential advantages of an empirically-driven approach to classify student complete mental health. In this first application of LPA analysis for school-based complete mental health screening, the authors separately examined and identified five profiles of strength and three profiles of distress and then crosstabulated them to create 15 complete mental health groups. However, this method may not be the best approach to identify parsimonious and accurate groups of complete mental health; Kim et al. (2017) identified mental health and distress profiles separately, which can explain how different groups of children experience mental health and distress distinctively, but may not accurately reflect underlying profiles of complete mental health. Instead of examining positive and negative indicators of mental health separately and combining them to reflect complete mental health, an examination of profiles considering both mental health and distress simultaneously may yield more accurate and parsimonious patterns of complete mental health among children.

Recognizing the limitations of previous approaches to form complete mental health classes when conducing school based screening, this study modified and extended the Kim et al. (2017) LPA analysis in an attempt to more accurately identify underlying latent relations among indicators of psychological strength and distress. This study aimed to empirically examine the underlying profiles of complete mental health among primary school students that include profiles based on strength and distress measures considered simultaneously. Due to documented gender differences in well-being indicators among South Korean students (Rees and Main 2015), the current study also examined complete mental health profiles and their relations with life satisfaction separately for Korean male and female students. Our intention in carrying out these analyses is to provide information that may help schools better identify, understand, and address the complete mental health needs of students.

2 Method

2.1 Participants

The sample included 1757 students from six public elementary schools located in Seoul, South Korea. All students self-reported their ethnicity as Korean, which is representative of the student population in South Korea (i.e., 0.86% of non-Korean students; Korea Ministry of Education and Human Resources Development 2013). There were 848 (49%) males and 887 (51%) females, and 519 (30%) fourth-grade, 594 (34%) fifth-grade, and 618 (36%) sixth-grade students.

2.2 Measures

2.2.1 Social Emotional Health Survey-Primary

The Social Emotional Health Survey-Primary (SEHS-P; Furlong et al. 2013) is a 16-item self-report behavior rating scale developed to measure youths' school-specific

well-being. It is comprised of four subscales including: Gratitude (e.g., *I am lucky to go to my school*); Zest (e.g., *I wake up in the morning excited to go to school*); Optimism (e.g., *When I have problems at school, I know they will get better in the future*); and Persistence (e.g., *When I get a bad grade, I try even harder the next time*). Participants respond to each item by selecting one of four answer options: *almost never, sometimes, often,* or *very often*. The SEHS-P has shown internal reliability and convergent validity with other indicators of youth well-being. For example, The SEHS-P was significantly ($p < .001$) positively correlated with the *Psychological Sense of School Membership Scale*'s (PSSM; Goodenow 1993) Acceptance (male $r = .55$, female $r = .48$) and Caring Relationships (male $r = .59$, female $r = .39$) subscales. Furthermore, internal consistency reliability of each subscale was at least adequate (Cronbach's $\alpha = .70$ for Gratitude, .75 for Zest, .66 for Optimism, and .76 for Persistence; Furlong et al. 2013). In the current sample, the internal consistency (Cronbach's α) was .78 for Gratitude, .78 for Zest, .77 for Optimism, and .81 for Persistence subscales.

2.2.2 Me and my School

The Me and My School Questionnaire (M&Ms.; Deighton et al. 2013) is a self-report measure developed to measure emotional and behavioral difficulties. The M&Ms. was used as a measure of distress, to be used in combination with the SEHS-P to assess for complete mental health in students. The emotional difficulties subscale has 10 items (e.g., *I worry a lot*) and the behavioral difficulties subscale has 6 items (e.g., *I lose my temper*). Participants respond to each item by selecting one of three answer options: *never, sometimes,* or *always*. Higher scores indicate more emotional and behavioral problems. Previous validation has been carried out with children as young as eight years old in community and school samples (e.g., Deighton et al. 2013). Initial validation of psychometric properties revealed that the measure has good content validity, internal reliability, construct validity, and minimal item-bias (Deighton et al. 2013). Patalay et al. (2014) reported that the scale has good internal reliability (emotional difficulties $\alpha = .84$; behavioral difficulties $\alpha = .82$). In the current sample, the internal consistency (Cronbach's α) was .82 for the emotional difficulties and .63 for the behavioral difficulties subscales.

2.2.3 Brief Multidimensional Student Life Satisfaction Scale

The Brief Multidimensional Student Life Satisfaction Scale (BMSLSS; Seligson et al. 2003) is a five-tem self-report measure designed to assess global life satisfaction among youth ages 8–18 years. The BMSLSS was used as a measure of quality of life among students. Specifically, each item represents one of the five life satisfaction domains including family, friends, school, self, and living environment (Seligson et al. 2003). Students rate their satisfaction with life on a four-point scale, ranging from 1 (*never*) to 4 (*almost always*). Higher mean scores represent higher levels of global life satisfaction. Good reliability coefficients for the total score have been reported: .68 for elementary (Seligson et al. 2005), .75 for middle (Seligson et al. 2003), and .81 (Zullig et al. 2001) for high school students. Additionally, its criterion-related validity with other validated measures of life satisfaction has been acceptable; correlations of

.66 with the *Multidimensional Student Life Satisfaction Scale* (MSLSS; Huebner 1994) and .74 with the *Student Life Satisfaction Scale* (SLSS; Huebner 1994) in previous studies (Funk et al. 2006; Seligson et al. 2003). The BMSLSS has been shown to positively correlate with the adaptive scales ($r = .45$ to .65) and negatively correlate with the clinical scales ($r = -.17$ to $-.69$) of the *Behavior Assessment System for Children – Self-Report of Personality* (BASC-SRP; Reynolds and Kamphaus 1992; Funk et al. 2006). The internal consistency (Cronbach's α) of the five-item BMSLSS was .95 in the current sample.

2.3 Procedure

University IRB approval was obtained. Data for this study were collected during the 2013–2014 school year. Prior to survey administration, parent permission was obtained. Students were informed that their participation was voluntary and they may stop participating at any time. Students were also told that their responses would remain anonymous if they decided to participate. Students completed the paper-pencil survey in their homeroom class. The survey included a total of 40 items, including three demographic questions (i.e., grade, sex, and ethnicity) and 37 questions asking them to report their psychological strengths and distress, and life satisfaction. The survey administration took approximately 30 min. Teachers and proctors were available to answer student questions during test administration, and students were instructed to answer the questions truthfully.

2.4 Data Analytic Strategy

Normality of subscale distributions were assessed via examination of histograms and cutoff values of |2.0| for skewness (Chou and Bentler 1995), and |7.0| for kurtosis (Curran et al. 1996). All values of skewness and kurtosis were within acceptable limits for the four SEHS-P subscales, the two M&Ms. subscales, and the BMSLSS total score, suggesting no major violations to normality. LPA and other mixture models utilize Full Information Maximum Likelihood (FIML) estimation, which allows and accounts for data that are incomplete or missing at random (MAR; Enders and Bandalos 2001; Nylund et al. 2007). This estimation procedure has been compared to other techniques for handling missing data (e.g., listwise deletion, pairwise deletion, similar response pattern imputation), and was found to be a more efficient and accurate method (Enders and Bandalos 2001). See Table 1 for means, standard deviations, and correlations for all variables.

2.4.1 Automatic three-Step Mixture Model

An automatic three-step mixture model was implemented using Mplus version 7.1 (Muthén and Muthén 1998–2012) and SPSS 24 statistical software. The three-step method has been shown to be less biased than older options for estimating the effects of covariates and distal outcomes in mixture models (Asparouhov and Muthén 2013). A separate analysis was conducted for each gender group, and life satisfaction was added as a distal outcome in the analyses. Initially, profiles underlying student complete mental health were explored using ratings of psychosocial strength and distress. An

Table 1 Correlation matrix, means, and standard deviations for study variables ($N = 1757$)

	1	2	3	4	5	6	7
1. Total	1						
2. Gratitude	.88**	1					
3. Zest	.90**	.71**	1				
4. Optimism	.88**	.75**	.74**	1			
5. Persistence	.83**	.60**	.68**	.59**	1		
6. Emo diff	−.21**	−.13**	−.20**	−.25**	−.15**	1	
7. Beh diff	−.15**	−.13**	−.14**	−.14**	−.12**	.52**	1
M	2.63	2.86	2.36	2.72	2.57	1.43	1.53
SD	0.60	0.69	0.67	0.68	0.70	0.37	0.38
Skewness	0.13	−0.11	0.35	−0.04	0.10	0.94	0.66
Kurtosis	−0.51	−0.70	−0.30	−0.50	−0.51	0.56	0.24

Emo Diff Emotional Difficulties, *Beh Diff* Behavioral Difficulties

**$p < .01$

LPA with 1 to 5 classes was specified using continuous data from the four positive mental health domains of the SEHS-P (*gratitude, zest, optimism,* and *persistence*) and the two negative mental health domains of the M&Ms. (*emotional difficulties* and *behavioral difficulties*) to investigate the underlying typologies of complete mental health. This LPA model explores how the conceptual framework underlying complete mental health represents the observed data from a person-centered approach (compared to previous factor analytic/variable-centered approaches). After deciding on the most parsimonious model, a conditional model was specified and life satisfaction was included as a distal outcome (step 1 of the 3-step method). In step 2, the classification error was automatically fixed to the logit values for each indicator and individuals were assigned to their most likely latent classes. In Step III, a mixture model was estimated with measurement parameters that were fixed at values that account for the measurement error in the class assignment and a distal variable (i.e., life satisfaction) was included in the model.

To decide the best fitting model, various fit statistics were reviewed, including the Bayesian Information Criterion (BIC; Schwarz 1978), Adjusted BIC (ABIC; Sclove 1987), *p*-values for the Lo-Mendall-Rubin Test (LMRT; Lo et al. 2001), and the Bootstrap Likelihood Ratio Test (BLRT; McLachlan and Peel 2000). In addition, entropy was considered when determining the accuracy of a model in predicting class membership (DiStefano and Kamphaus 2006).

3 Results

3.1 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was conducted to test the fit of the previously known PEASS factor structure. Using 16 items shown in Table 2 as measured

variables, we tested the four-factor model. The model adequately fit the data, $\chi^2 = 1337.62$, $df = 582$, $p < .05$; SRMR = .069; NNFI = .958; CFI = .968; RMSEA = .062, 90% CI [.058, .067]. As expected, each item showed high factor loadings on its corresponding four subfactors. All parameter estimates were found to be statistically significant ($p < .01$, see Table 2). Internal consistency estimates suggest strong reliability for the overall score ($\alpha = .92$).

3.2 Complete Mental Health Groups and Gender

LPA models for both genders, which included the four continuous subscales of the SEHS-P (i.e., gratitude, zest, optimism, and persistence) and two continuous subscales of the M&Ms. (i.e., emotional difficulty and behavioral difficulty) were run by first specifying a single class, independence model, followed by the exploration of models with additional classes. Fit information and entropy values for LPA models with one to five classes for males and females are provided in Tables 3 and 4, respectively. Based on model fit information and conceptual rationale, the four-class model appears to be the most parsimonious and provides the best fit to the data for both male (BIC =

Table 2 Standardized factor loadings for the SEHS-P scales

Items and scales	Loadings
Gratitude	
I say "thank you" when people help me at school	.50
I feel lucky to go to my school	.74
I am thankful that I get to learn new things at school	.77
I feel lucky to have nice teachers at my school	.75
Zest	
I get excited when I learn something new at school	.66
I get excited about my school projects	.68
I wake up in the morning excited to go to school	.73
I get excited when I am doing my class assignments	.67
Optimism	
When I have problems at school, I know they will get better in the future	.55
I expect good things to happen at my school	.71
Each week, I expect to feel happy in class	.76
I expect to have fun with my friends at school	.65
Persistence	
I finish all my class assignments	.72
When I get a bad grade, I try even harder the next time	.66
I keep working and working until I get my schoolwork right.	.69
I do my class assignments even when they are really hard for me	.80

Response prompt for all items: Please mark the response that shows how true each of these statements is about you. All values were statistically significant at $p < .05$. N 1757. Response options for all items: 1 *not at all true of me,* 2 *a little true of me,* 3 *pretty much true of me,* 4 *very much true of me*

Table 3 Fit information and entropy values for LPA phase 1 with 1–5 classes for complete mental health for males ($N = 848$)

# of classes	Log likelihood	BIC	ABIC	LMRT *p*-value	BLRT *p*-value	# of Free parameters	Entropy
1	−4133.644	8348.203	8310.095	–	–	12	–
2	−3416.029	6960.174	6899.835	0.00	0.00	19	.85
3	−3192.267	6559.849	6477.281	0.00	0.00	26	.82
4	**−3104.698**	**6431.911**	**6327.113**	**0.00**	**0.00**	**33**	**.80**
5	−3042.420	6354.555	6227.527	0.16	0.00	40	.80

Bolded values indicate preferred model based on fit indices

6431.911, ABIC = 6327.113, BLRT *p*-values < .001) and female groups (BIC = 7165.724, ABIC = 7060.940, BLRT *p*-values < .001). Figures 1 and 2 provide profile plots and class proportions, with the four subscales of the SEHS-P and two subscales of the M&Ms. on the *x*-axis and mean scores across the *y*-axis for male and female groups respectively. Four identified classes for both genders include: *Flourishing* (highest strengths and lowest distress), *Moderate Flourishing* (moderate strengths and moderate distress), *Moderate Languishing* (low strengths and moderate distress), and *Languishing* (lowest strengths and moderate/highest distress). Of 848 male students, 119 (14%) students were classified into the *Flourishing* group, 242 (29%) students into the *Moderate Flourishing* group, 340 (40%) into the *Moderate Languishing* group, and 147 (17%) into the *Languishing* group. Additionally, of 895 female students, 148 (17%) were classified into the *Flourishing*, 339 (38%) into the *Moderate Flourishing*, 339 (38%) into the *Moderate Languishing*, and 69 (10%) into the *Languishing* groups.

3.3 Complete Mental Health and Life Satisfaction

The relations between complete mental health groups and life satisfaction were explored. Means, standard deviations, and *F* tests for each of the four profiles of complete mental health for both gender groups are presented in Table 5. Significant mean

Table 4 Fit information and entropy values for LPA phase 1 with 1–5 classes for complete mental health for females ($N = 895$)

# of classes	Log Likelihood	BIC	ABIC	LMRT *p*-value	BLRT *p*-value	# of Free Parameters	Entropy
1	−4619.226	9320.014	9281.904	–	–	12	–
2	−3882.000	7893.140	8932.800	0.00	0.00	19	.82
3	−3591.906	7360.530	7277.959	0.00	0.00	26	.84
4	**−3470.724**	**7165.724**	**7060.940**	**0.00**	**0.00**	**33**	**.85**
5	−3400.089	7072.050	6945.017	0.16	0.00	40	.83

Bolded values indicate preferred model based on fit indices

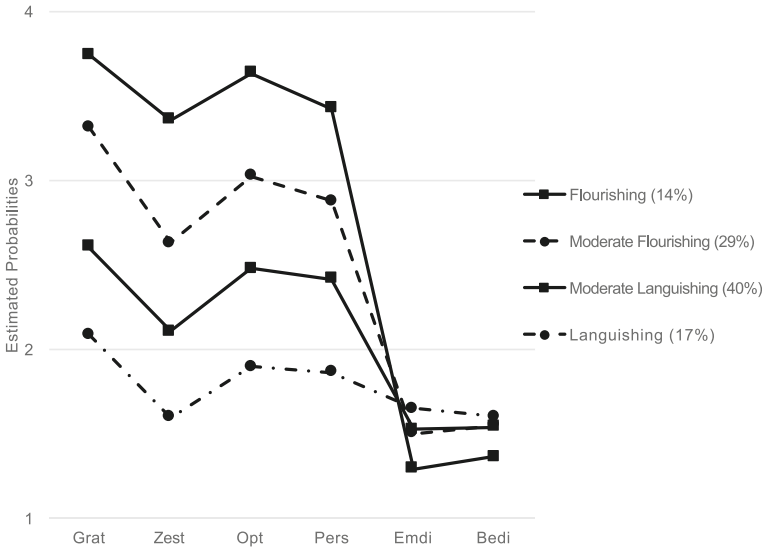

Fig. 1 Conditional complete mental health profile plots and class proportions for males; Grat = Gratitude, Opt = Optimism, Pers = Persistence, Emdi = Emotional difficulties, Bedi = Behavioral difficulties

differences ($p < .001$) were found across all class comparisons among both male, χ^2 (3) = 1574.08, $p < .001$, and female, χ^2 (3) = 1994.45, $p < .001$, groups. For both genders, the *Flourishing* group reported the highest life satisfaction, followed by the *Moderate Flourishing* group, *Moderate Languishing* group, and *Languishing* group. Results supported that the more complete a student's mental health is, the more the student feels satisfied with his or her life.

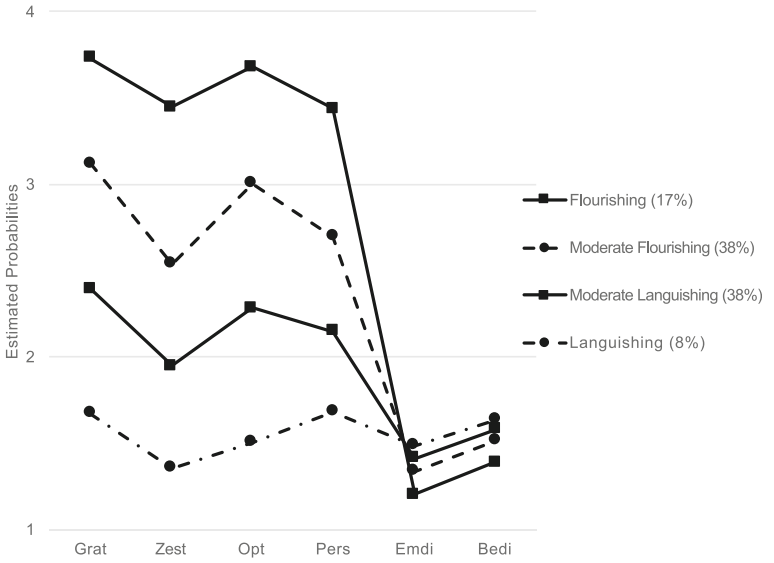

Fig. 2 Conditional complete mental health profile plots and class proportions for females; Grat = Gratitude, Opt = Optimism, Pers = Persistence, Emdi = Emotional difficulties, Bedi = Behavioral difficulties

Table 5 Equality tests of means of life satisfaction across complete mental health groups

	Male		Female	
Class comparisons	*F*	*d*	*F*	*d*
Overall	1574.08***		1994.46***	
Flourishing vs. moderate flourishing	151.93***	1.25	311.37***	1.55
Flourishing vs. moderate languishing	857.80***	2.85	1397.10***	3.19
Flourishing vs. languishing	1310.09***	4.30	1295.63***	4.48
Moderate flourishing vs. moderate Languishing	232.21***	1.46	267.05***	1.43
Moderate flourishing vs. languishing	623.92***	2.76	555.80***	2.79
Moderate languishing vs. languishing	149.57***	1.30	181.63***	1.50
	M (SD)		*M (SD)*	
Overall (Male $N = 848$; Female $N = 895$)	2.73 (.73)		2.72 (.80)	
Flourishing ($n = 119$; $n = 69$)	3.72 (.42)		3.77 (.42)	
Moderate flourishing ($n = 242$; $n = 339$)	3.15 (.49)		3.02 (.54)	
Moderate languishing ($n = 340$; $n = 339$)	2.45 (.47)		2.26 (.52)	
Languishing ($n = 147$; $n = 148$)	1.85 (.45)		1.40 (.62)	

***$p < .001$

4 Discussion

This study examined underlying profiles of complete mental health among primary school students, inclusive of information about student's strengths and distress. Results were consistent with previous investigations that identified four complete mental health groups (e.g., Lyons et al. 2012; Suldo and Shaffer 2008). However, while the four complete mental health groups in the literature were *created* by the dichotomous levels (i.e., high and low) of PTH and SWB using logically driven cut scores, the four underlying profiles of complete mental health in the current study were *identified* empirically based on observable response patterns of the participants, not pre-specified research-defined cutpoints. Furthermore, results were inconsistent with previous findings regarding the proportion of students classified into each group. For example, the proportion of students in the *Flourishing* group was significantly lower than previously reported. Specifically, when the dichotomous levels of PTH and SWB were used to classify student complete mental health, approximately 43%–67% of students were identified as flourishing (having high psychological strengths and low psychological distress; Antaramian et al. 2010; Lyons et al. 2012). However, in the current study, 14% of male and 17% of female South Korean students were classified as *Flourishing*. These results may reflect differences due to varying methods in creating groups and/or cultural differences—most previous studies were conducted in Western cultures including the U.S., Canada, and Australia. The present study found fewer *Flourishing* students, but there were more *Moderate Flourishing* and *Moderate Languishing* students in this South Korea sample. This suggests that fewer students in South Korean primary schools are equipped with psychological strengths when compared to those in Western countries; however, additional research is needed to

make direct comparisons. Results, however, are consistent with the Organization for Economic Co-operation and Development (OECD) study released in 2014 reporting that South Korean students have higher academic performance, but are the least happy children among all surveyed countries.

Another important finding is that there were larger differences in the levels of psychological strengths than in the levels of psychological distress across the complete mental health groups. This finding suggests that the experience of psychological distress among primary school students in South Korea varies less than their experience of psychological strengths. These findings support that the absence of psychological distress is not equivalent to the presence of psychological strengths. Thus, the addition of positive psychology measures with traditional deficit-based measures could improve the identification of students with diverse levels of mental health functioning. The national school-based mental health screening in South Korea currently only focuses on the identification and treatment of psychological symptoms. The results of the present study indicate that a complete mental health approach in the screening could enhance South Korea's laudable efforts to address students' mental health needs.

The current study contributed to the broader complete mental health literature by examining gender differences in underlying profiles of complete mental health. Four complete mental health groups were identified for both males and females, but differences existed in the proportions of students classified into each mental health group. Specifically, more males were identified as *Languishing* (17%) than *Flourishing* (14%), while more females were identified as *Flourishing* (17%) than *Languishing* (10%). Furthermore, the mental health group with the highest proportion of students was the *Moderate Languishing* group (40%) for males, but for females, the highest proportion of students were classified as *Moderate Flourishing* and *Languishing* groups (38% for both). Inconsistent with previous findings that more females reported lower levels of well-being in South Korea (Rees and Main 2015), the current study found that males were more likely than females to report having low levels of psychological strengths. It is possible that the current sample, collected from Seoul, was more representative of children living in the urban city compared to the previous study that collected participants from all provinces of South Korea. However, with a limited number of studies investigating gender differences in psychological strengths, additional investigations are needed to better understand complete mental health functioning across gender groups. Additionally, the relations between complete mental health groups and life satisfaction were explored for both genders. Results supported previous findings that higher levels of psychological strengths are significantly correlated with higher youth life satisfaction (e.g., Kim et al. 2017). No gender differences were found in the levels of life satisfaction across complete mental health groups. These results confirm the need to implement services that foster positive psychological characteristics among primary school students to enhance positive development as proactive early interventions.

4.1 Study Limitations

This study has several limitations that offer avenues for future research. First, although large, the sample consisted of six elementary schools in Seoul, the capital city of South Korea, which limits the generalizability of findings of this study and suggests the inclusion of students with more diverse characteristics and backgrounds. Another

limitation was the limited range of response options on the M&Ms. (i.e., *never, sometimes, always*), which may not have sufficiently captured the degree of distress youths experienced. Future studies could consider psychological distress instrument with a wider range of response options to capture the levels of distress experienced by students. Finally, a richer set of quality of life indicators such as academic performance, social relationships, and health outcomes could be examined to further expand understanding of the complete mental health and its connection with students' life functioning.

4.2 Implications for Researchers and Practitioners

This study informs researchers and practitioners regarding the importance of identifying and cultivating strengths among South Korean primary school students to foster student complete well-being. According to the results, Korean primary school students, both males and females, report experiencing a wider range of psychological strengths than distress, and their complete mental health status is significantly correlated with their life satisfaction. However, the current mental health services in South Korean schools continue to be deficit-oriented, with the primary aim of identifying and reducing already-developed mental health problems, which is a necessary but incomplete objective of school-based mental health screening. The results of this study show that including a measure of psychological strengths in combination with distress measures in school-based screening surveys adds unique, non-redundant information about students' complete mental health, and has the potential to inform early prevention services. Gathering information on both strengths and distress provides actionable information for 100% of the students who took the time to respond, and expands the range of mental health prevention and intervention services that schools can provide. Such an approach supports schools' broader educative mission to not only limit students' distress, but to foster their complete, robust development.

References

Antaramian, S. P., Huebner, E. S., Hills, K. J., & Valois, R. F. (2010). A dual-factor model of mental health: Toward a more comprehensive understanding of youth functioning. *American Journal of Orthopsychiatry, 80*, 462–472. https://doi.org/10.1111/j.1939-0025.2010.01049.x.

Asparouhov, T., & Muthén, B. (2013). *Auxiliary variables in mixture modeling: A 3-step approach using Mplus* [Online web notes]. Available from: http://statmodel.com/examples/webnotes/AuxMixture_submitted_corrected_webnote.pdf

Bruhn, A. L., Woods-Groves, S., & Huddle, S. (2014). A preliminary investigation of emotional and behavioral screening practices in K-12 schools. *Education and Treatment of Children, 37*, 611–634. https://doi.org/10.1353/etc.2014.0039.

Chou, C., & Bentler, P. M. (1995). Estimates and tests in structural equation modeling. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 37–55). Thousand Oaks, CA: Sage.

Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods, 1*, 16–29. https://doi.org/10.1037/1082-989X.1.1.16.

Deighton, J., Tymms, P., Vostanis, P., Belsky, J., Fonagy, P., Brown, A., Martin, A., Patalay, P., & Wolpert, M. (2013). The development of a school-based measure of child mental health. *Journal of Psychoeducational Assessment, 31*, 247–257. https://doi.org/10.1177/0734282912465570.

DiStefano, C., & Kamphaus, R. W. (2006). Investigating subtypes of child development: A comparison of cluster analysis and latent class cluster analysis in typology creation. *Educational and Psychological Measurement, 66*, 778–794. https://doi.org/10.1177/0013164405284033.

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal, 8*, 430–457. https://doi.org/10.1207/S15328007SEM0803_5.

Funk, B., Huebner, E., & Valois, R. (2006). Reliability and validity of a brief life satisfaction scale with a high school sample. *Journal of Happiness Studies, 7*, 41–54. https://doi.org/10.1007/s10902-005-0869-7.

Furlong, M. J., You, S., Renshaw, T. L., O'Malley, M. D., & Rebelez, J. (2013). Preliminary development of the positive experiences at school scale for elementary school children. *Child Indicators Research, 6*, 753–775. https://doi.org/10.1007/s12187-013-9193-7.

Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools, 30*, 79–90. https://doi.org/10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X.

Greenspoon, P. J., & Saklofske, D. H. (2001). Toward an integration of subjective well-being and psychopathology. *Social Indicators Research, 54*, 81–108. https://doi.org/10.1023/A:1007219227883.

Huebner, E. S. (1994). Preliminary development and validation of a multidimensional life scale for children. *Psychological Assessment, 6*, 149–158. https://doi.org/10.1037/1040-3590.6.2.14.

Jahoda, M. (1958). *Current concepts of positive mental health*. New York, NY: Basic Books.

Kelly, R. M., Hills, K. J., Huebner, E. S., & McQuillin, S. (2012). The longitudinal stability and dynamics of group membership in the dual-factor model of mental health: Psychosocial predictors of mental health. *Canadian Journal of School Psychology, 27*, 337–355. https://doi.org/10.1177/0829573512458505.

Keyes, C. L. M., & Michalec, B. (2010). Viewing mental health from the complete state paradigm. In T. L. Schied & T. N. Brown (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 125–134). New York, NY: Cambridge University Press.

Kim, E., Furlong, M. J., Dowdy, E., & Felix, D. E. (2014). Exploring the relative contributions of the strength and distress components of dual-factor complete mental health screening. *Canadian Journal of School Psychology, 29*, 127–140. https://doi.org/10.1177/0829573514529567.

Kim, E., Dowdy, E., Furlong, M. J., & You, S. (2017). Multiple profiles of mental health and. quality of life among Korean adolescents. *School Psychology International, 38*, 98–116. https://doi.org/10.1177/0143034316682296.

LeBuffe, P. A., & Shapiro, V. B. (2004). Lending "strength" to the assessment of preschool social-emotional health. *The California School Psychologist, 9*, 51–61. https://doi.org/10.1007/BF03340907.

Lo, Y., Mendell, N., & Rubin, D. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*, 767–778. https://doi.org/10.1093/biomet/88.3.767.

Lyons, M. D., Huebner, E. S., Hills, K. J., & Shinkareva, S. V. (2012). The dual-factor model of mental health: Further study of the determinants of group differences. *Canadian Journal of School Psychology, 27*, 183–196. https://doi.org/10.1177/0829573512443669.

McLachlan, G., & Peel, D. (2000). *Finite mixture models*. New York, NY: Wiley.

Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus statistical analysis with latent variables: User's guide* (7th ed.). Los Angeles, CA: Authors.

Nylund, K., Asparouhov, T., & Muthen, B. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling: An Interdisciplinary Journal, 14*, 535–569. https://doi.org/10.1080/10705510701575396.

Organization for Economic Co-operation and Development. (2014). *PISA 2012 results in focus: What 15-year-olds know and what they can do with what they know.* Available from www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf

Patalay, P., Deighton, J., Fonagy, P., Vostanis, P., & Wolpert, M. (2014). Clinical validity of the me and my school questionnaire: A self-report mental health measure for children and adolescents. *Child and Adolescent Psychiatry and Mental Health, 8*, 17. https://doi.org/10.1186/1753-2000-8-17.

Rees, G., & Main, G. (2015). Children's views on their lives and well-being in 15 countries: A report on the Children's Worlds survey, 2013–14. York, UK: Children's Worlds Project (ISCWeB).

Reynolds, C. R., & Kamphaus, R. W. (1992). *BASC: Behavior assessment system for children*. Circle Pines, MN: American Guidance Service.

Schwarz, G. (1978). Estimating the dimension of a model. *Annals of Statistics, 6*, 461–464. https://doi.org/10.1214/aos/1176344136.

Sclove, L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika, 52*, 333–343. https://doi.org/10.1007/BF02294360.

Seligman, M. E. P. (1998). *Learned optimism* (2nd ed.). New York, NY: Pocket Books.

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2003). Preliminary validation of the brief multidimensional students' life satisfaction scale (BMSLSS). *Social Indicators Research, 61*, 121–145. https://doi.org/10.1023/A:1021326822957.

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2005). An investigation of a brief life satisfaction scale with elementary school children. *Social Indicators Research, 73*, 355–374. https://doi.org/10.1007/s11205-004-2011-3.

Suldo, S. M., & Shaffer, E. J. (2008). Looking beyond psychopathology: The dual-factor model of mental health in youth. *School Psychology Review, 37*, 52–68.

Venning, A., Wilson, A., Kettler, L., & Eliott, J. (2013). Mental health among youth in South Australia: A survey of flourishing, languishing, struggling, and floundering. *Australian Psychologist, 48*, 299–310. https://doi.org/10.1111/j.1742-9544.2012.00068.x.

Wang, C., Yang, C., Jiang, X., & Furlong, M. J. (2017). Validation of Chinese version of the Social Emotional Health Survey-Primary. *International Journal of School & Educational Psychology*. First online: 09 June 2017. https://doi.org/10.1080/21683603.2016.1272026.

Wilkins, B., Boman, P., & Mergler, A. (2015). Positive psychological strengths and school engagement in primary school children. *Cogent Education, 2*, 1–11. https://doi.org/10.1080/2331186X.2015.1095680.

Zullig, K. J., Valois, R. F., Huebner, E. S., Oeltmann, J. E., & Drane, J. W. (2001). Relationship between perceived life satisfaction and adolescents' substance abuse. *Journal of Adolescent Health, 29*, 279–288. https://doi.org/10.1016/S1054-139X(01)00269-5.