Adapting the Brief COPE for Chinese Adolescents with Visual Impairments

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Structured abstract: *Introduction:* The present research pioneered the effort in assessing adolescents' coping with visual impairment through adapting the Brief COPE in an eastern context. The first study preliminarily explored the applicability of the Brief COPE to Chinese adolescent students with visual impairments. Based on the results, the Brief COPE was modified and renamed, COPE-Revised. The second study tested the internal psychometric properties and the criterion-related validity of the COPE-Revised. Criterion-related validity was obtained through investigating the correlation between coping and self-esteem. *Method:* The first study involved 176 adolescent students with visual impairments, comprising a survey using the Brief COPE and follow-up interviews. In the second study, another cohort of 170 adolescent students with visual impairments responded to the COPE-Revised together with an inventory assessing self-esteem. *Results:* The COPE-Revised showed adequate psychometric properties. Three higher-order factors, namely self-directed, other-directed, and relinquished-control coping, were identified. The way in which self-esteem was correlated with these three dimensions of coping provided evidence for the criterion-related validity of the COPE-Revised. *Discussion:* The findings indicate that the COPE-Revised has sound psychometric properties among adolescents with visual impairments. Limitations regarding the sample-selection bias and the means of questionnaire survey among visually impaired adolescents are noted. *Implications for practitioners*: This research tailored a coping inventory for educators, counselors, and researchers who are interested in investigating adolescents' ability to cope with visual impairments. The relationship between coping with visual impairment and self-esteem found in this research has reference significance for educational and counseling services for visually impaired adolescents.

The present research applied and modified a coping measurement tool, the Brief COPE (Carver, 1997), among Chinese adolescents with visual impairments. Adolescence is a developmental period of personal and social identity, serving as a preparation for professional, familial, and personal future (Lifshitz, Hen, & Weisse, 2007). Adolescents with visual impairments tend to face typical developmental milestones during this life stage and, at the same time, experience extra strains associated with their disability (Huurre & Aro, 1998). Moreover, research has

indicated that visual impairment might lead to a feeling of inferiority (Beaty, 1991) and, for adolescent students, place them at a higher risk of mental health problems than their sighted peers (Deng, Zhu, & Cao, 2012; Huang, 2004). This trend has become more noticeable in mainland China, where the population of students with visual impairments is reported to have increased dramatically in recent years, according to the national statistical data released by the Ministry of Education of the People's Republic of China (2012). This increase is attributed to a series of Chinese governmental measures intended to promote special education and, thus, the enrollment in schools of children with disabilities has increased (Dong & Yu, 2015).

Coping is generally considered "the most potent of predictors" (Livneh, 2001, p. 153) of psychosocial adaptation to chronic illness and disabilities. The construct of coping has been frequently studied in terms of its crucial role in adjustment to adverse life experiences (Chronister, Johnson, & Lin, 2009). Results of such research might have provided an important perspective or basis for interventions and counseling services to the population concerned. On the issue of adolescents' coping strategies for stress caused by visual impairment, however, very few investigations have been made. To the authors' best knowledge, there is not an existing inventory specifically constructed to measure coping with stress caused by visual impairment.

Of numerous existing coping measurements, the Brief COPE (Carver, 1997) might be a good candidate for use with individuals with vision impairments, given its widespread application to multiple settings, including both typical (Miyazaki, Bodenhorn, Zalaquett, & Ng, 2008) and clinical (Snell, Siegert, Hay-Smith, & Surgenor, 2011) samples. Carver (1997) shortened the Coping Orientation to Problems Experienced inventory (Carver, Scheier, & Weintraub, 1989) to the Brief COPE for simplicity. The Brief COPE also stands out because it is intended to assess the core aspects of coping as summarized by Skinner and colleagues (2003). There are 14 two-item subscales in the Brief COPE, measuring 14 coping strategies: active coping, positive reframing, planning, use of emotional support, use of instrumental support, venting, self-distraction, acceptance, self-blame, behavioral disengagement, humor, denial, religion, and substance use.

Results of past studies have shown that the Brief COPE is a psychometrically sound measurement with certain limitations. The great majority of the scales have internal consistency coefficients higher than .60, the minimum requirement for a scale to be considered reliable (Nunnally, 1978), but some scales have demonstrated low internal consistency in a number of studies (Doron et al., 2014; Kapsou, Panayiotou, Kokkinos, & Demetriou, 2010; Snell et al., 2011; Yusoff, 2011). Resultant factor numbers of the Brief COPE from different studies varied from two (David & Knight, 2008) to 12 (Perczek, Carver, Price, & Pozo-Kaderman, 2000). Two broad factors have been repeatedly identified: one is the so-called "positive coping factor" (Miyazaki et al., 2008), which usually includes three subscales: active coping, planning, and positive-reframing (Carver, 1997; Miyazaki et al., 2008; Snell et al., 2011); the other is the social support–seeking factor involving use of emotional support and use of instrumental support (Carver, 1997; Kapsou et al.,

2010; Perczek et al., 2000; Yusoff, 2011). The remaining subscales have been quite unstable in their factor-loading distributions across studies. In addition, some subscales were scattered in different factors, such as acceptance (Carver, 1997; Miyazaki et al., 2008); self-distraction and venting (Miyazaki et al., 2008); and positive-reframing scales (Snell et al., 2011).

In their study on psychological adaptation to visual impairment, Bergeron and Wanet-Defalque (2013) utilized the Brief COPE to assess adults' coping with acquired visual impairments. However, they merely reported the internal consistencies of two out of the 14 subscales; that is, denial (α = .54) and acceptance (α = .57). It is necessary to further examine the internal psychometric properties of the Brief COPE among visually impaired persons. Limitations of the Brief COPE regarding the low reliability coefficients and unstable factor loadings of some subscales may be attributed to the fact that each subscale of the Brief COPE only contained two items. Brevity is a merit of the Brief COPE; however, it may also have sacrificed the rigor of its psychometric properties to some extent.

Against this background, the present research tested the Brief COPE in the first study in order to preliminarily explore its applicability to visually impaired Chinese adolescent students. Based on those results, the Brief COPE was modified and renamed as COPE-Revised. In the second study, the COPE-Revised scores were tested against the self-esteem scores of a group of participants to examine both the internal psychometric properties and criterion-related validity of the COPE-Revised.

The first study

The first study aimed at preliminarily exploring and, if necessary, modifying the applicability of the Brief COPE to visually impaired Chinese adolescent students. It was hypothesized that the Brief COPE would show psychometric characteristics similar to those shown in the literature. Given the limitations of the Brief COPE identified in previous studies, we anticipated that modifications might be needed for the sake of quality.

Participants and procedure

A total of 176 participants (grades 7–12) were recruited from three schools for visually impaired students in China. The responses of 168 students (117 male, 50 female, and one unclear) were usable. The ages of the participants ranged from 12 to 24 years (mean = 17.1, *SD* = 2.34). Of the participants who reported the onset of their visual impairment, 110 were born visually impaired and 53 became blind or developed low vision at different ages. Regarding the severity of their visual impairments, 70 were blind (a best corrected visual acuity of less than 0.05 or a visual field of less than 10 degrees), and 95 had low vision (a best corrected visual acuity of 0.05 to 0.3). *Blind* and *low vision* were defined according to the classification and grading of disability of the China Disabled Persons' Federation (2011).

Participants completed the questionnaire survey either on computers utilizing screen-reading software or with a slate and stylus, depending on the facilities that were available. In the latter method, the first author read the questionnaire item by item and the participants wrote their

answers in braille on heavy paper. At the beginning of the surveys, the participants were informed that they were free to withdraw from the study at any time. The survey was approved by the Human Research Ethics Committee for Non-Clinical Faculties of the authors' university. Parental consent for participants below age 18 was obtained during the parent-teacher meeting hosted by the participating schools.

Instrument

The Chinese version of the Brief COPE (Carver, 1997) translated by Ye (2008) was used to assess coping. It is a 28-item inventory containing 14 subscales. Respondents are required to rate themselves on a 4-point Likert scale, indicating how often they used the strategy in responding to the stress events or experiences in each statement. To be consistent with other inventories used in the larger research project, the Brief COPE used in the present research was converted to a 6-point scale, ranging from 1 (representing "never") to 6 (representing "always"). Research has shown that reliability and validity tend to increase from two to six or more response categories (Preston & Colman, 2000); therefore, changing the Brief COPE from a 4-point scale to a 6-point one may improve its psychometric properties.

Results

The internal structure of the Brief COPE was assessed through exploratory factor analysis and reliability analysis. Results of the descriptive analysis showed that most participants (about 90%) chose one, two, or three on items in the substance use subscale and the religion subscale, indicating that these two strategies were not important to the participants. Therefore, those two subscales were excluded from subsequent analyses. Cronbach's alpha coefficient was used to estimate the internal consistency of the subscales (see Table 1).

Table 1
Cronbach's alpha values for the Brief COPE and COPE-Revised.

Scales	1st study (N = 168) Brief COPE	2nd study (N = 170) COPE-Revised
Active coping	.52	.73
Planning	.60	.74
Positive reframing	.76	.72
Instrumental support	.51	.72
Emotional support	.41	.77
Venting	.53	.73
Acceptance	.58	.70
Self-blame	.77	.75
Self-distraction	.37	.60
Behavior disengagement	.45	—
Humor	.84	—
Denial	.61	—
Social withdrawal	—	.67
Whole inventory	.75	.84

"—" indicates that the subscale was not involved in that study.

Considering that this was the first study that has tested the Brief COPE among visually impaired Chinese adolescents, exploratory factor analysis was applied to explore its factor structure. Eight factors with eigenvalues greater than 1.0 were obtained by principal components analysis with a Varimax rotation solution, accounting for 66.61% of the variance in coping (see Table 2, Kaiser-Meyer-Olkin = .70). Most of the items were loaded together with the other items in the same a priori subscale (each subscale had two items at this point), yet items in four subscales, including active coping, acceptance, self-distraction, and use of instrumental support, were fragmented.

Table 2
Principal components analysis of the Brief COPE in the first study.

	F1	F2	F3	F4	F5	F6	F7	F8
Planning 1	.750							
Planning 2	.737							
Positive reframing 2	.729							
Positive reframing 1	.707							
Active coping 1	.660							
Acceptance 2	.614							
Behavior disengagement 2		.744						
Behavior disengagement 1		.702						
Active coping 2		−.593						
Self-blame 2			.893					
Self-blame 1			.883					
Humor 2				.890				
Humor 1				.877				
Denial 1					.738			
Denial 2					.709			
Acceptance 1					−.567			
Venting 2						.803		
Venting 1						.655		
Self-distraction 2						.605		.467
Emotional support 2							.711	
Emotional support 1							.681	
Instrumental support 1							.499	
Self-distraction 1								.652
Instrumental support 2					−.404			.410

Variables with factor loadings of less than .40 are omitted.

Discussion

In general, the Chinese Brief COPE had acceptable psychometric properties among adolescents with visual impairments. However, there was still room for improvement. Problems with the Brief COPE that were identified in previous studies, as reviewed previously here, also emerged in this study. Specifically, some subscales (such as self-distraction and use of emotional support) had low reliabilities, while factor analysis results showed that some subscales (for example, active coping and acceptance) were fragmented. As discussed earlier, the fact that there were two items per subscale might be the reason. Conventionally, a minimum of three items is necessary for a subscale to be identified as a stable factor (Raubenheimer, 2004). The addition of items to the Brief COPE was thus necessitated.

In order to offer a basis for modifications and to triangulate the results of the questionnaire survey, interviews with nine students and two teachers (each with over 10 years of experience teaching students with visual impairments) were carried out. The students were interviewed as a focus group, and they were asked about the major stressors in their lives and how they dealt with them. Then the first author read each item of the Brief COPE to the students and asked how they understood each statement, in order to determine the

intelligibility of the items to them. In addition, the first author asked the two teachers about their perceptions of the major stressors for visually impaired secondary school students, and how they found students coping with the stress.

Based on the results of the survey and interviews, four modifications were made to raise the appropriateness of the Brief COPE for adolescents with visual impairments. First, five subscales (substance use, religion, humor, behavior disengagement, and denial) were dropped from the Brief COPE in the second study. These strategies were very rarely used by visually impaired Chinese adolescents, according to results from the first study. Similar results were found in existing research that utilized the Brief COPE among Chinese college students (Ye, 2008). Therefore, cultural differences between the west and east could be a possible reason for these differences. Second, as a result of the interviewees' opinions, two items were revised to be more understandable (see Table 3). Third, one item was added to each subscale from the Brief COPE. Those added items were borrowed from the corresponding subscales of the COPE (Carver et al., 1989). Last, a new subscale named social withdrawal was constructed to examine the coping strategy of avoiding contact with families and friends when faced with stress. This subscale was added in the second study because it was an essential coping strategy for dealing with stress related to visual impairment as indicated by the interviewees. The revised inventory was renamed COPE-Revised. Table 3 shows the full version of COPE-Revised.

The second study

The second study aimed at testing the internal psychometric properties and the criterion-related validity of the COPE-Revised. Criterion-related validity was obtained through investigating the correlation between coping and self-esteem. The literature has documented a close relationship between these two constructs. Specifically, relevant research indicated that adolescents' self-esteem was correlated positively with problem-focused coping (Ficková, 2000), proactive coping strategies such as problem solving, and seeking support (Lodge & Feldman, 2007; Phinney & Chavira, 1995; Umana-Taylor, Vargas-Chanes, Garcia, & Gonzales-Backen, 2008). Their self-esteem correlated negatively with avoidant coping strategies such as ventilating feelings, relaxation, and avoiding problems (Chapman & Mullis, 1999); tension reduction strategies (such as crying and screaming) and wishful thinking (Lodge & Feldman, 2007); and emotion-focused coping strategies (wishful thinking, resignation, and blaming others) (Beka et al., 2006).

Accordingly, it was expected that coping strategies such as active coping, positive reframing, planning, and seeking social support would be more adaptive and positively correlated with self-esteem, whereas coping strategies such as venting, self-distraction, social withdrawal, acceptance, and self-blame would be more maladaptive and negatively correlated with self-esteem.

Participants and procedure

Participants were 174 students from an additional four schools for visually impaired students in China. There were 170 usable responses from 99 males and 71

Table 3
The COPE-Revised.

Subscales	Items
Positive reframing	I try to see it in a different light, to make it seem more positive.
	I look for something good in what is happening.
	I learn something from the experience.
Planning	I try to come up with a strategy about what to do.
	I think hard about what steps to take.
	I make a plan of action.
Active coping	**Original:** I concentrate my efforts on doing something about the situation I'm in.
	Modified: I concentrate my efforts to solve the problem.
	I take action to try to make the situation better.
	I take direct action to get around the problem.
Self-distraction	I turn to work or other activities to take my mind off things.
	Original: I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
	Modified: I play with my phones or surfing online to think about it less.
	I sleep more than usual.
Instrumental support	I get help and advice from other people.
	I try to get advice or help from other people about what to do.
	I ask people who have had similar experiences what they did.
Emotional support	I get emotional support from others.
	I get comfort and understanding from someone.
	I talk to someone about how I feel.
Venting	I say things to let my unpleasant feelings escape.
	I express my negative feelings.
	I let my feelings out.
Self-blame	I criticize myself.
	I blame myself for things that happened.
	I think that it was my own fault.
Acceptance	I accept the reality of the fact that it has happened.
	I learn to live with it.
	I accept that this has happened and that it can't be changed.
Social withdrawal	I avoid being with people.
	I keep things to myself.
	I spend time alone.

females. The ages of the participants ranged from 13 to 24 years (mean = 17.05, *SD* = 2.34). Ninety-five participants were born visually impaired, and 71 reported acquiring their visual impairment at different ages. Eighty-one participants were blind, and 87 had low vision. The same procedure that was used in the first study was adopted for the second study.

Instruments

COPE-Revised

The COPE-Revised was composed of 10 three-item subscales. They were active coping, positive reframing, planning, use of emotional support, use of instrumental support, venting, acceptance, self-distraction, self-blame, and the newly constructed subscale social

withdrawal. As in the first study, a 6-point Likert-scale format was adopted.

Rosenberg Self-Esteem Questionnaire

The Rosenberg Self-Esteem Questionnaire (RSE, Rosenberg, 1965) has 10 items: five were positively worded and the other five were negatively worded. The RSE assesses self-esteem as a unidimensional construct with two polar opposite factors (positive vs. negative) (McKay, Boduszek, & Harvey, 2014). Although it was designed for sighted people, researchers have validated it among people with visual impairments (Dodds, Bailey, Pearson, & Yates, 1991). In their validity studies, Dodds and his colleagues retained nine items with item-total correlations higher than 0.5. The present study adopted these nine items to measure self-esteem.

Results

Psychometric analysis

As shown in Table 1, Cronbach's alpha coefficients of 10 subscales all exceeded .60 (Nunnally, 1978). To cross-validate the COPE-Revised, both exploratory factor analysis and confirmatory factor analysis were conducted. Three factors were retained according to the Scree plot and forcedly extracted using maximum likelihood with Promax rotation solution (see Table 4). The three factors explained 38.35% of the total variances of the data (Kaiser-Meyer-Olkin = .80).

The exploratory factor analysis results indicated that the 10 subscales of the COPE-Revised could be converged to three higher-order factors. Active coping, positive reframing, and planning were combined in the first factor. This factor was termed *self-directed coping* because the subsumed coping strategies most basically refer to making use of one's own behavioral and cognitive efforts in dealing with stress and problems. The second factor was composed of venting, use of emotional support, use of instrumental support, and self-distraction. As can be seen, these four strategies indicate one's tendency to turn to other people (for instance, use of instrumental support) and things (such as self-distraction) when facing stress. Hence, this factor was named *other-directed coping*. The last factor contained social withdrawal, acceptance, and self-blame, and was named *relinquished-control coping* to indicate the absence of an attempt to deal with the situation (see also Weisz, McCabe, & Dennig, 1994).

A confirmatory factor analysis was conducted via Amos 21 to test the three-dimensional model in line with the results from the exploratory factor analysis. According to Hu and Bentler (1999), the fitness of a model can be evaluated by the values of RMSEA ($\leq$ 0.6) and SRMR ($\leq$ .08), and CFI and TLI close to or greater than .95, respectively. Although these criteria for CFI and TLI have been criticized as being too stringent, such indices with values greater than .90 reflect a reasonably good model fit (Marsh, Hau, & Wen, 2004). After being revised according to modification indices, the results for the three-dimensional model showed acceptable model fit: Chi-square ($df = 387, N = 170$) = 547.39, $p < .001$, root mean squared error of approximation (RMSEA) = .05, standardized root mean square residual (SRMR) = .07, and comparative fit index (CFI) = .91, Tucker-Lewis index (TLI) = .90.

The nine-item Rosenberg Self-Esteem Questionnaire showed a good Cronbach's

Table 4
Patter matrix of the COPE-Revised in the second study.

Subscale items	Factor 1	Factor 2	Factor 3
Active coping 2	.827		
Planning 2	.799		
Planning 1	.698		
Positive reframing 2	.683		
Planning 3	.662		
Active coping 3	.632		
Active coping 1	.597		
Positive reframing 3	.586		
Positive reframing 1	.526		
Emotional support 2		.695	
Instrumental support 1		.672	
Emotional support 1		.655	
Instrumental support 2		.618	
Emotional support 3		.614	
Venting 3		.589	
Venting 2		.515	
Venting 1		.494	
Self-distraction 3		.457	
Self-distraction 1		.408	
Self-distraction 2		.399	
Instrumental support 3	.352	.365	
Self-blame 3			.655
Self-blame 2			.639
Social withdrawal 3			.568
Acceptance 1			.566
Social withdrawal 1			.559
Self-blame 1			.536
Acceptance 3			.517
Social withdrawal 2			.476
Acceptance 2			.428

Variables with factor loadings of less than .30 are omitted.

alpha coefficient, which was .74. Confirmatory factor analysis results confirmed the good data fit of the questionnaire model with two factors. The model fit indices of the model were as follows: Chi-square ($df = 26$, $N = 170$) = 43.72, $p < .05$, RMSEA = .06, SRMR = .06, CFI = .96, and TLI = .94.

The relationship between coping and self-esteem

Correlation analysis results (see Table 5) showed that the three self-directed coping strategies were significantly positively correlated with self-esteem, that those three relinquished-control coping strategies were significantly negatively correlated with self-esteem, and the four other-directed coping strategies were not statistically significantly correlated with self-esteem.

Discussion

The second study provided evidence for the good internal reliability and validity of the COPE-Revised. It obviously

Table 5
Correlations between coping and self-esteem.

	Active coping	Positive reframing	Planning	Emotional support	Instrumental support
Self-esteem	.384***	.468***	.394***	.069	.121
	Venting	Self-distraction	Social withdrawal	Self-blame	Acceptance
Self-esteem	.033	−.005	−.382***	−.469***	−.343***

*** $p < .001$.

achieved better psychometric properties than the Brief COPE. This study identified a hierarchical structure of coping with three higher-order dimensions (self-directed coping, other-directed coping, and relinquished-control coping). Considering the fact that only 38.35% of the variance was explained by the three factors, this model should be subjected to further testing. Be that as it may, this three-factor structure of coping is useful and constructive. Statistically, confirmatory factor analysis results lend further support to this model. Theoretically, these three factors make substantive sense because they are conceptually clear and mutually exclusive.

Moreover, correlation analysis results further justified these three higher-order categories. The significant positive correlation of the subscales subsumed under self-directed coping, and the negative correlation of the subscales relevant to relinquished-control coping with self-esteem found in this study are consistent with what has been shown in the literature. Scholars have frequently reported that coping strategies directly dealing with problems were correlated with higher levels of self-esteem (Ebata & Moos, 1991; Ficková, 2000; Phinney & Chavira, 1995; Umana-Taylor et al., 2008), while avoidant coping was correlated with lower levels of self-esteem (Beka et al., 2006; Chapman & Mullis, 1999). In the literature, the use of emotional support and use of instrumental support have usually been positively correlated with self-esteem, while the opposite has been true for venting and self-distraction (Beka et al., 2006; Chapman & Mullis, 1999). However, in this study, the correlation between the other-directed coping strategies and self-esteem did not reach statistical significance, which contradicted results in previous research. In this case, the present results imply that coping strategies cannot be simply classified as either adaptive or maladaptive in terms of their relationships with other criterion-related variables (for example, self-esteem in the present study). Instead, there is a neutral party, the other-directed coping herein, which stands for those strategies that may be irrelevant to self-esteem.

General discussion

The objective of this research was to validate and adapt the Brief COPE for adolescents with visual impairments in the Chinese context. To this end, two studies were conducted. In the first study, the COPE-Revised resulted from modifying the Brief COPE. In the second study, the COPE-Revised demonstrated robust

internal psychometric properties and criterion-related validity. What is worth noting is that a hierarchical structure of coping with three higher-order factors was identified and confirmed.

This research is of great significance both for assessment of coping and for research on visually impaired persons. First, as noted earlier, this research is a pioneering effort to examine the reliability and validity of the Brief COPE among visually impaired participants; by so doing, the applicability of this inventory has been broadened. More importantly, the resultant COPE-Revised achieved a balance between good psychometric properties and brevity, with the identification of a three-factor structure (self-directed coping, other-directed coping, and relinquished-control coping). With the help of this newly discovered factor structure, it is believed that researchers will be able to measure coping in a more comprehensive and pertinent fashion, and to examine relations of coping to other constructs from a totally different perspective.

Second, the COPE-Revised is customized for adolescents with visual impairments. On the one hand, this customization has enriched the rare literature on coping responses to visual impairment. On the other hand, it will help to advance future research on this population's coping and on the associated psychosocial outcomes. As such, practitioners in related fields would gain insights into ways of providing educational, intervention, and counseling services to visually impaired individuals.

There are at least two limitations in the present research, however. The first concerns a sample selection bias. For better representativeness of this specific population, adolescent students with visual impairments in mainstream schools and special comprehensive schools should be approached in the future. Second, the results obtained in this research are specific to the sample of visually impaired Chinese adolescents. Therefore, caution is necessary if generalizations are to be made to different populations facing different stressors or in other sociocultural contexts.

References

Beaty, L. A. (1991). The effects of visual impairment on adolescents' self-concept. *Journal of Visual Impairment & Blindness, 85*(3), 129–130.

Beka, A., Dermitzaki, I., Christodoulou, A., Kapetanos, G., Markovitis, M., & Pournaras, J. (2006). Children and adolescents with idiopathic scoliosis: Emotional reactions, coping mechanisms, and self-esteem. *Psychological Reports, 98*(2), 477–485.

Bergeron, C. M., & Wanet-Defalque, M.-C. (2013). Psychological adaptation to visual impairment: The traditional grief process revised. *British Journal of Visual Impairment, 31*(1), 20–31.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*(1), 92–100.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267–283.

Chapman, P. L., & Mullis, R. L. (1999). Adolescent coping strategies and self-esteem. *Child Study Journal, 29*(1), 69–77.

China Disabled Persons' Federation. (2011). *Chinese classification and grading of disability*. Retrieved from http://www.chinadp.net.cn/datasearch_/aboutUs/2011-04/29-7739.html

Chronister, J., Johnson, E., & Lin, C.-P. (2009). Coping and rehabilitation: Theory, research, and measurement. In F. Chan, E. D. S. Cardoso, & J. A. Chronister (Eds.),

Understanding psychosocial adjustment to chronic illness and disability: A handbook for evidence-based practitioners in rehabilitation. New York: Springer.

Deng, X., Zhu, Y., & Cao, Y. (2012). On the characteristics of and the relationship between visually-impaired primary school students' mental health and social anxiety. *Chinese Journal of Special Education, 149*(11), 42–46.

David, S., & Knight, B. G. (2008). Stress and coping among gay men: Age and ethnic differences. *Psychology and Aging, 23*(1), 62–69. doi: http://dx.doi.org/10.1037/0882-7974.23.1.62

Dodds, A. G., Bailey, P., Pearson, A., & Yates, L. (1991). Psychological factors in acquired visual impairment: The development of a scale of adjustment. *Journal of Visual Impairment & Blindness, 85*(7), 306–310.

Dong, Y., & Yu, S. (2015). A study of the development of special education: Effects, predicament and solutions. *A Journal of Modern Special Education, 24*(9), 12–17.

Doron, J., Trouillet, R., Gana, K., Boiché, J., Neveu, D., & Ninot, G. (2014). Examination of the hierarchical structure of the Brief COPE in a French sample: Empirical and theoretical convergences. *Journal of Personality Assessment, 96*(5), 567–575.

Ebata, A. T., & Moos, R. H. (1991). Coping and adjustment in distressed and healthy adolescents. *Journal of Applied Developmental Psychology, 12*(1), 33–54.

Ficková, E. (2000). Psychometric relations between self-esteem measures and coping with stress. *Studia Psychologica, 42*(3), 237–242.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55.

Huang, B. (2004). An investigation on students' mental status of Zhejiang School for the Blind. *Chinese Journal of Special Education, 45*(3), 39–42.

Huurre, T. M., & Aro, H. M. (1998). Psychosocial development among adolescents with visual impairment. *European Child & Adolescent Psychiatry, 7*(2), 73–78.

Kapsou, M., Panayiotou, G., Kokkinos, C. M., & Demetriou, A. G. (2010). Dimensionality of coping: An empirical contribution to the construct validation of the Brief COPE with a Greek-speaking sample. *Journal of Health Psychology, 15*(2), 215–229.

Lifshitz, H., Hen, I., & Weisse, I. (2007). Self-concept, adjustment to blindness, and quality of friendship among adolescents with visual impairments. *Journal of Visual Impairment & Blindness, 101*(2), 96–107.

Livneh, H. (2001). Psychosocial adaptation to chronic illness and disability: A conceptual framework. *Rehabilitation Counseling Bulletin, 44*(3), 151–160.

Lodge, J., & Feldman, S. S. (2007). Avoidant coping as a mediator between appearance-related victimization and self-esteem in young Australian adolescents. *British Journal of Developmental Psychology, 25*(4), 633–642.

Marsh, H. W., Hau, K.-T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling, 11*(3), 320–341.

McKay, M. T., Boduszek, D., & Harvey, S. A. (2014). The Rosenberg Self-Esteem Scale: A bifactor answer to a two-factor question? *Journal of Personality Assessment, 96*(6), 654–660.

Ministry of Education of the People's Republic of China. (2012). *Basic information of special education.* Retrieved from http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s6200/201201/129542.html

Miyazaki, Y., Bodenhorn, N., Zalaquett, C., & Ng, K.-M. (2008). Factorial structure of Brief COPE for international students attending U.S. colleges. *College Student Journal, 42*(3), 795–806.

Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.

Perczek, R., Carver, C. S., Price, A. A., & Pozo-Kaderman, C. (2000). Coping, mood, and aspects of personality in Spanish translation and evidence of convergence with English versions. *Journal of Personality Assessment, 74*(1), 63–87.

Phinney, J. S., & Chavira, V. (1995). Parental ethnic socialization and adolescent coping with problems related to ethnicity. *Journal of Research on Adolescence, 5*(1), 31–53.

Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: Reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica, 104*(1), 1–15.

Raubenheimer, J. (2004). An item selection procedure to maximize scale reliability and validity. *South African Journal of Industrial Psychology, 30*(4), 59–64.

Rosenberg, M. (1965). *Society and adolescent self-image*. Princeton, NJ: Princeton University.

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*(2), 216–269.

Snell, D. L., Siegert, R. J., Hay-Smith, E. J. C., & Surgenor, L. J. (2011). Factor structure of the Brief COPE in people with mild traumatic brain injury. *The Journal of Head Trauma Rehabilitation, 26*(6), 468–477.

Umana-Taylor, A. J., Vargas-Chanes, D., Garcia, C. D., & Gonzales-Backen, M. (2008). A longitudinal examination of Latino adolescents' ethnic identity, coping with discrimination, and self-esteem. *The Journal of Early Adolescence, 28*(1), 16–50.

Weisz, J. R., McCabe, M. A., & Dennig, M. D. (1994). Primary and secondary control among children undergoing medical procedures: Adjustment as a function of coping style. *Journal of Consulting and Clinical Psychology, 62*(2), 324–332.

Ye, S. (2008). *A longitudinal study of subjective well-being among Chinese university students: The roles of personality, attribution, and coping* (Doctoral thesis). University of Hong Kong, Pokfulam, Hong Kong, China.

Yusoff, M. S. B. (2011). The validity of the Malay Brief COPE in identifying coping strategies among adolescents in secondary school. *International Medical Journal, 18*(1), 29–33.

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