

***The Capacity of Perceived Coping Self-Efficacy in Adolescents
with Repaired Cleft Lip and Cleft Palate***

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Asian Conference on Psychology and Behavioral Sciences 2015
Official Conference Proceedings

Abstract

Objectives: The study develops Coping Self-Efficacy Assessment and compares scores between difference gender and cleft type in Thai adolescents with cleft lip and palate.

Methods: The in-depth interview collects from 18 selective adolescents with repaired cleft lip and palate. Qualitative data is constructed items of Coping Self-Efficacy. Five experts examine content validity and questionnaire collects from 64 bilateral clefts and 157 unilateral clefts, age range 11-18 years. Participants recruited from four orthodontic clinics. Cronbach's Alpha coefficient measure internal consistency and Confirmatory Factor Analysis show construct validity. Independent sample t-test is used for statistical significant differences. The study is approved by the Human Research Ethics Committee of University.

Results: Stressful situations can category into 4 domains: physical symptoms, functional limitations, unpleasant emotions, and social exclusion. This questionnaire consists of 16 items and adolescents rate their degrees of confidence from 0 "Cannot do at all" to 10 "Highly certain can do". Three factors of their coping strategies under 4 stress domains are: Problem-focused coping factor (5 items, $\alpha = .68$); Emotion-focused coping factor (6 items, $\alpha = .79$); and Getting support from others factor (5 items, $\alpha = .76$). Overall score has excellent reliability coefficient ($\alpha = .89$). The goodness-of-fit indicate that the measurement model fit the data well. Internal consistency and reliability are strong for all factors. Score do not differ significantly between difference gender ($t=0.188$, $p>.05$) and cleft type ($t=0.634$, $p>.05$).

Conclusions: Coping Self-efficacy Assessment is a very good validity and reliability psychometric instrument. Participants both gender and cleft type have quite highly confident to cope their stress.

Keywords: adolescents, cleft, psychometric

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Introduction

Cleft lip and cleft palate (CLP) is clearly unknown cause but related to genetic and risk environment on pregnancy and mostly non-syndromic CLPs. Its prevalence in Thailand is increasingly from 1 to 2 per 1,000 newborns over the past decade (Patjanasoonorn et al., 2010). These defects typically require surgical procedures after childbirth and can cause severe morbidity and complications (Skari et al. 2006). The risk of mortality in people with cleft lip and palate was attributable to all major causes of death (Christensen et al., 2004). Children with repaired CLP are often presumed to have normal health and survival in adulthood. Although there are studies reporting the psychological and social impacts of craniofacial deformity, hearing and speech problem, and facial appearance (Johnsen, 2005) such as low self-esteem (Broder & Strauss, 1991); depression, inhibition (Kapp-Simon et al., 1992); reduced cognitive function (Kapp-Simon & Krueckeberg, 1995); internalized social anxiety (Pope & Ward, 1997); elevated parental stress (Speltz et al., 1997); reduced achievement in school (Broder et al., 1998) in CLP population. These include affected social skill development (Krueckeberg & Kapp-Simon, 1993) and peer acceptance (Broder et al., 1999).

However, many adults with craniofacial anomalies find ways to live with their difference and succeed using the measures they construct. They help others to understand that in spite of numerous challenges, healing occurs and they join nonaffected persons in the search for meaning and quality in their lives (Strauss & Fenson, 2005). Importantly, adolescents with craniofacial conditions and their families demonstrate a range of effective adaptation patterns and strategies to enhance issues having an impact on quality of life (Broder, 2001). They strive to increase adaptive coping so reduce psychological distress and improve well-being. Perceived self-efficacy, defined as a belief about changes in a person's confidence in his or her ability to cope effectively, which, according to self-efficacy theory (Bandura, 1997), is an important prerequisite to changing coping behavior.

Stress and coping theory (Lazarus & Folkman, 1984) defines stress as a person-environment relationship that is evaluated as personally significant and as exceeding a person's resources for coping. Bandura (1997) conceptualizes coping self-efficacy as the beliefs about one's ability to perform specific coping behaviors, including taking actions that reduce the likelihood of negative outcomes and controlling one's thoughts and feelings concerning the situation. Perceiving that one has greater efficacy in a stressful situation affects cognitive, motivational, affective and decisional processes involved in the formulation and enactment of coping efforts. This concept is also relevant to stress and coping theory and the secondary appraisal of controllability. Perceived coping self-efficacy would be expected to influence quality of life in patient with craniofacial conditions.

While the use of adult coping self-efficacy measures in supplementing clinical indicators has increased (Carver et al., 1989; Chesney et al., 2006), that for children or adolescent has lagged behind, because of the difficulty of developing and validating (Sandler et al., 2000). The KIDCOPE was used as a measure of coping strategies used by adolescents (Spirito et al., 1988) and has been used extensively to examine young people's adjustment to a stressor (Stallard et al., 2001). It was used measures general stressor but adolescent with repaired CLP had frequency of difficulties experienced

(Chimruang et al. 2011). Therefore, this study aim to the development and validity and reliability testing of the Coping Self-Efficacy Assessment for repaired CLP adolescents aged 11 to 18 yrs. The aim was to produce a measure which conformed to contemporary concepts of adolescent health and had discriminative and evaluative properties, and which is applicable to adolescent with difference gender and cleft type.

Methods

Participants in the study were adolescents aged 11 to 18 years with repaired cleft lip and cleft palate. They were recruited from four orthodontic clinics at the Faculty of Dentistry, Mahidol University, Khon Kaen University, Chiang Mai University, and Prince of Songkla University in Thailand. Adolescent eligibility for participation in the study included having a congenital non-syndromic cleft lip and cleft palate, the ability to speak and read Thai, and at least 6 months for craniofacial surgery. All participants gave consent/assent to be in the study, and all procedures were approved by the Institutional Review Board at each of the respective sites.

The Coping Self-Efficacy Assessment items were generated in two studies. Study 1, the in-depth interview collects from selective adolescents with repaired CLP and parents. The participants were asked how in the past three months they had experienced the problem described. Qualitative data is constructed a preliminary pool of items. The comprehensiveness, relevance, and clarity of these items were assessed by an expert panel composed of three professionals. Study 2, a preliminary pool of 31 items was reduced to 16 items by statistics analysis process. Try-out group is 120 adolescent patients in similar conditions.

Coping Self-Efficacy Assessment was assessed with a measure of a person's perceived ability in performing specific coping behaviors when faced with life challenges. Participants were asked, 'When things aren't going well for you, or when you're having problems, how confident or certain are you that you can do the following': They were then asked to rate on an 11-point scale the extent to which they believe they could perform behaviors important to adaptive coping. Anchor points on the scale were 0 ('cannot do at all'), 5 ('moderately certain can do') and 10 ('highly certain can do'). An overall score was created by summing the item ratings. Coping Self-Efficacy Assessment was constructed based on a guideline by Lee & Bobko (1994) and Bandura (2006).

The performance of the questionnaire was assessed in a validity and reliability study. Content validity of each items was evaluated by five experts define the content of items though index of consistency. All item is analyzed for item discrimination (t -ratio $>.20$) and Pearson correlation coefficient (corrected item-total correlation $>.30$) (Aiken, 2003). Reliability for the Coping Self-Efficacy Assessment scores was measured via internal consistency coefficient alpha (Cronbach, 1951). A minimum coefficient of .70 was considered necessary and useful for making group comparisons.

Analyses included assessing construct validity through confirmatory factor analyses. We also report the following descriptive measures of model fit that are often used to evaluate the soundness of a measurement model: the standardized root mean residual

(SRMR; Bollen, 1989), the comparative fit index (CFI; Bentler, 1990), and the root mean square error of approximation (RMSEA; Browne & Cudek, 1993).

Vandenberg and Lance (2000) suggests cut-off values of .90 for the CFI and related incremental fit indices, .08 for the RMSEA, and .10 for the SRMR. The current study was followed this approach in evaluating the global model fit tests and indices reported below. Coping Self-Efficacy Assessment was also examined composite or construct reliability ($CR > 0.70$) (Fornell & Larcker, 1981; Bagozzi & Yi, 1988) and convergent validity (Average Variance Extracted > 0.50) (Fornell & Larcker, 1981; Gerbing & Anderson, 1988). The resulting data were analyzed with the use of SPSS and LISREL. The alpha value was set at $p < .05$. Independent sample t-test is used to test for statistical significant differences between difference sex and cleft type.

Results and Discussion

Eighteen adolescents and six parents were interviewed for the previous study, and 221 participated in the validity and internal consistency reliability study. The characteristics of adolescents in terms of gender, age, cleft type, and socioeconomic status are shown in Table 1. Participants' mean age for the combined studies was 14.13 ($SD = 2.01$, range 11–18 years), 54% of participants were male, 58% were 11–14 aged, 71% of participants had unilateral cleft lip and cleft palate, the median family income was approximately \$300, and individual who get income $< \$300$ a month per 2–4 family members were 42.5% of sample group.

(Table 1.*)

Study 1 found that stressful situations can category into 4 domains: health symptoms, body functional limitations, negative emotions, and social participation limitation. Cleft lip and cleft palate affect participants' health problems or adverse effect on chewing, drinking, breathing, hearing, speech and facial expression, and cognition. All of them reported speech problems experience especially slurred words with /s/, /d/, and /r/. Participants felt weaker than their peers or sibling and always had chronic illness. Participants expressed unpleasant emotions: worry, uncertainly, shyness, boredom, moodiness and some even wept openly when they fell ill. This findings show that psychological adjustment problems close related to their facial differences and other peoples' opinions. Others' reactions to a cleft, as well as problems with appearance, hearing and speech, can made a child more vulnerable to teasing or bullying at various life stages. These obstacles also impacted their academic performance both frequently missing school and feel out of place.

Specific coping behaviors were performed to reduce the consequences of their problems. When participants obtain a fit between the controllability of the stressful events and the choice of their coping strategies, they experience less psychological and social maladjustment. Coping strategies involved 1) problem focused-coping (i.e. responses that focus on changing problematic aspects of stressful events) such as learning about CLP, analyzing and solving the problem ; 2) emotion focused-coping (i.e. responses that focus on managing emotional responses to stressful events) such as Karma belief of Buddhist, controlling unpleasant emotion, and distraction; and 3) getting support from others (i.e. seek help from parents, peers, health professionals, or significant others to cope with problem) such as parental support, peer acceptance,

and doctor-patient communication. Table 2 represented the 16-item Coping Self Efficacy Assessment questionnaire based on qualitative analysis.

(Table 2.*)

Study 2, Try-out questionnaire consists of preliminary pool of 31 items and adolescents rated their degrees of confidence with interval units from 0 ('cannot do at all'), 5 ('moderately certain can do') and 10 ('certain can do'). Although data were collected by self-completed questionnaire, the number of missing values was low. Item analysis was showed item discrimination by t-ratio range from 3.25 to 11.00 and Pearson's corrected item-total correlation range from .30 to .70. We excluded 15 items from overall scale and derived obtain items. The questionnaire was assigned to collect data in final sample. The 16-items Coping Self-Efficacy Assessment scores ranged from 1 to 176, with a mean of 126.24 and a standard deviation of 24.32 in Table 3. Overall Coping Self-Efficacy scores has good reliability coefficient ($\alpha=.89$) and excellence of item discrimination by t-ratio range from 7.04 to 13.55 and corrected item-total correlation range from 0.40 to 0.61.

CFA model use data in Study 2 by assigning each of the 16 items to factor. The overall fit of this model was very good on a descriptive basis: Chi-Square=124.96, $df=101$, $p < .05$, $NFI=.91$, $CFI=.98$, $RMSEA =.04$, $SRMR=.06$, and $CAIC_{model} < CAIC_{saturated}$. Factor loadings from the final CFA model appear in Figure 1 and Table 4. Confirmatory factor analysis can reduce 16 items to 3 factors of their coping strategies under 4 stressful events: 1) problem-focused coping factor (5 items, mean score=8.00, $\alpha=.68$), 2) emotion-focused coping factor (6 items, mean score=7.70, $\alpha=.79$), and 3) getting support from others factor (5 items, mean score=8.03, $\alpha=.76$). Internal consistency and reliability are strong for all factors. The Coping Self-Efficacy Assessment scores do not differ significantly between difference gender ($t=0.18$, $p>.05$) and cleft type ($t=0.63$, $p>.05$) in Table 5.

(Table 3.*)

(Figure 1.*)

(Table 4.*)

(Table 5.*)

The Coping Self-Efficacy Assessment was developed to measure adolescents' evaluations of their coping-self efficacy within challenge life. Confirmatory factor analyses of the Coping Self-Efficacy Assessment revealed three factors: use problem-focused coping, use emotion-focused coping, and get support from others. The three derived 16-items demonstrate good reliability and validity. The Coping Self-Efficacy Assessment is not conducted a specific stressful situation but assessed individual's confidence with effort to choose coping strategies. Thus, the score changing can be attributed to differ in their one's confidence regarding the ability to cope. It is difficult to assess such changes with instruments that assess coping directly, such as the Ways of Coping scale (Folkman & Lazarus, 1988), because such measures are intended to assess coping in relation to specific stressful events. Even if participants are asked to focus on a chronic, in recurring event, are difficult to interpret. However, the role of positive emotions in the stress process and the meaning-based coping processes found importantly (Folkman & Moskowitz, 2000, 2004). Further study should including self-efficacy related to meaning-based coping in craniofacial conditions, such as

reordering life goals and searching for the benefits associated with enduring a stressful period.

These results confirm that stressful situations affect to psychosocial adjustment of adolescents with repaired cleft lip and cleft palate. Young people with a facial disfigurement may be vulnerable to a range of psychosocial adjustment difficulties. Facial and speech differences create stigmata that jeopardize an individual's sense of well-being (Goffman, 1963). In essence such conditions can be potential adversities like other social impediments. Although data generally support the 'beauty is good' theory (Eagley et al., 1991), what have we really learned from the psychological study of adolescents with craniofacial differences?

Coping of adolescents who had a noticeable facial difference was most strongly correlated with positive consequences, adolescents who had learned to cope with having a facial difference reported more positive consequences of having a facial difference (Patrick et al., 2007). In addition, Berger and Dalton (2011) support that psychosocial adjustment in adolescents was predicted by their social experiences and maternal well-being. Satisfaction with appearance, perceived speech problems, and the use of avoidant coping strategies were also important factors relating to their adjustment. As might be expected, stigma and negative self-image were positively correlated with coping, suggesting that adolescents with repaired CLP who experience more stigma are more likely to employ coping strategies, which appears to be more likely to result in positive consequences, although no causal or temporal association can be inferred and not differ between gender or cleft type.

This psychometric instrument is distinguished by its focus on the coping self-efficacy of living with craniofacial condition as perceived by the youth themselves. The perceptual items are known only to the youth and reflect their evaluation of what it is like to be living with this condition. The instrument would thus be useful in assessing these views. The items are selected and scored such that groups and individuals with a higher perceived coping-self efficacy can be identified. The measure may be used to complement the current widespread reliance on clinician-derived outcome measures of aesthetics and function to provide a more patient-centered profile for comparisons of treatment effects.

However, there are two limitations to the present study. First, the sample is specific population based who have non-syndromic repaired cleft lip and cleft palate. This may limit generalizability to other populations, particularly persons coping with conditions other than craniofacial conditions. Second, Average Variance Extracted (AVE) in a latent variable slightly below 0.50 might be acceptable in new measurement model of first time study. Ping (2009) suggested the measurement in need replicate convergent validity and held to a higher significance requirement (factor loading significant $|t| > 2.2$ and $CR > 0.70$).

Conclusion

Coping Self-efficacy Assessment is a very good validity and reliability psychometric instrument. This finding indicate that participants both gender and cleft type have quite highly confident to cope their pressure. The measurement is now ready for wider use in intervention studies. Such applications will importantly yield data to evaluate perceived coping ability of adolescent with cleft lip and cleft palate.

Table 1. Socio-demographic characteristics of adolescents (n=221)

Demography	n	percentage
Gender		
Male	120	54.30
Female	101	45.70
Age (y)		
11 -14	129	58.37
15 -18	92	41.63
Cleft type		
Unilateral cleft lip and cleft palate	157	71.04
Bilateral cleft lip and cleft palate	64	28.96
SES (family income per family members)		
income < \$300 a month per 5-10 members	30	13.6
income < \$300 a month per 2-4 members	94	42.5
income > \$300 a month per 5-10 members	20	9.0
income > \$300 a month per 2-4 members	77	34.9

Table 2 Content categories of Coping Self-Efficacy Assessment

Item	Coping Self-Efficacy Assessment	Stress situations and coping strategies			
		Health symptoms	Body functional limitations	Negative emotions	Social participation limitations
1	When facial scar contracture obviously, I understand repaired CLP surgery may affect its.	Problem-focused coping			
2	When facial scar contracture obviously, I accept the problem in the hope that it will go away.	Emotion-focused coping			
3	I can consult the doctor about health problems.	Getting support from others			
4	I have carefully chewing food.		Problem-focused coping		
5	I can laugh or smile in public.		Emotion-focused coping		
6	When mumbled or slurred speech, I let talk with others frequently.		Getting support from others		
7	When mumbled or slurred speech, I can attend speech therapy with professional.				
8	When feeling difference from others, I can take my mind off the issue.			Emotion-focused coping	
9	When self-dissatisfied my cleft, I can calm down.				
10	When feeling difference from others, I can stop imagine.				
11	When self-dissatisfied my cleft, I can request sympathy from others.			Getting support from others	
12	When doctor appointment in studying time, I can clear up my schoolwork in time.				Problem-focused coping
13	When teasing or bullying, I can be attracted to teasers or bully.				
14	I can arrange every doctor appointments despite of studying time.				
15	When teasing or bullying, I can put up with others.				Emotion-focused coping
16	When teasing or bullying, I can request help from my family or friends.				Getting support from others

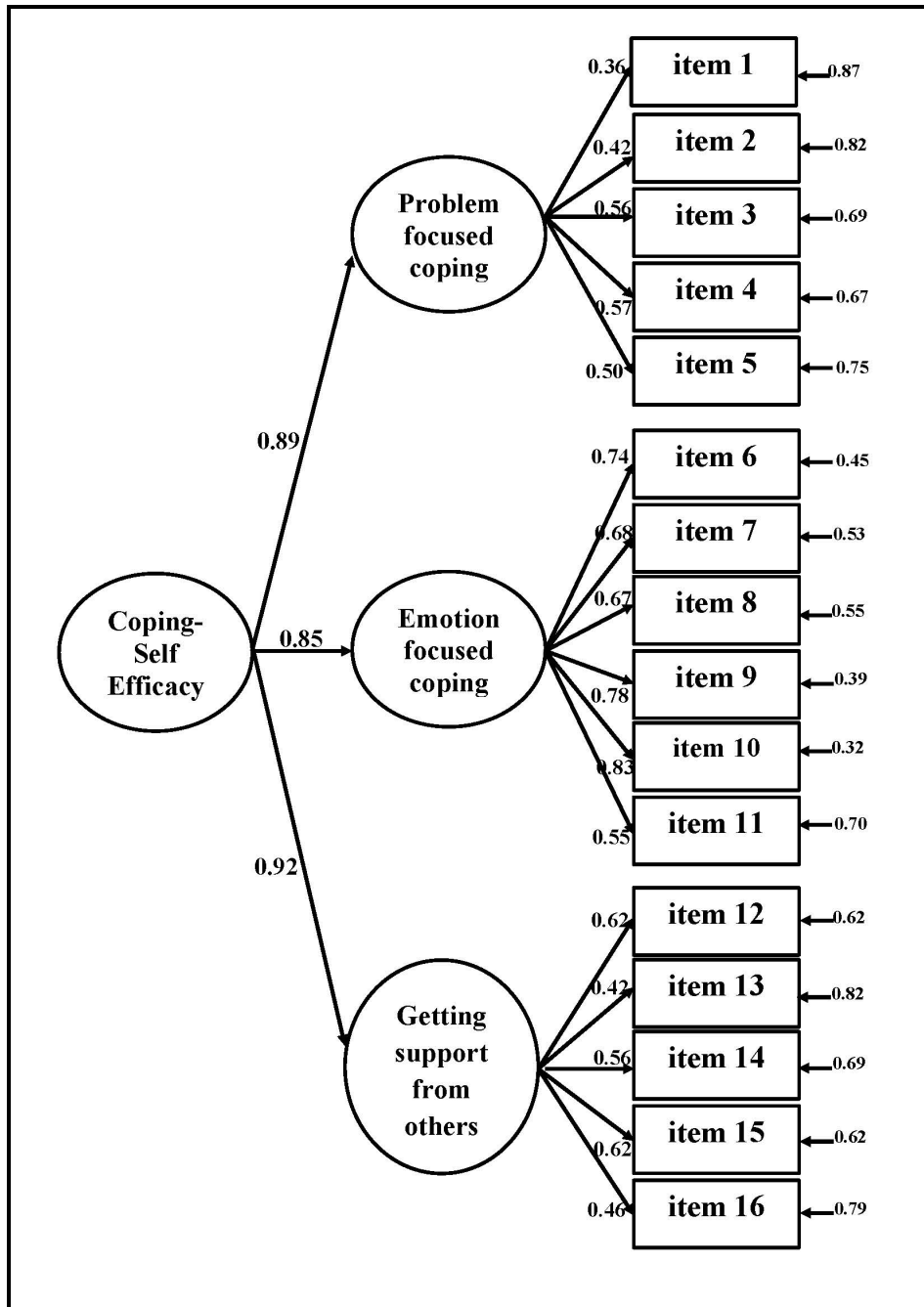


Figure 1: Confirmatory factor analysis loadings of 16-items Coping Self-Efficacy Assessment

Table 3 Descriptive data, item analysis, and internal consistency of the Coping Self-Efficacy Assessment and subscales

Coping Self-Efficacy Assessment	Number of items	Mean score	SD	t-ratio	Corrected item-total correlation	Cronbach α
Problem-focused coping	5	40	12.25	7.04-11.09	0.40-0.60	.68
Emotion-focused coping	6	46.2	14.64	10.21-13.55	0.54-0.61	.79
Getting support from others	5	40.15	12.45	8.28-11.91	0.48-0.61	.76
Total scale	16	126.24	24.32	7.04-13.55	0.40-0.61	.89

Table 4 Construct reliability and convergent validity of the Coping Self-Efficacy Assessment and subscales

Coping self-efficacy factors	Factor loading	R ²	CR	AVE
Problem-focused coping	0.89	0.80	-	-
Emotion-focused coping	0.85	0.72		
Getting support from others	0.92	0.85		
3-factors	-	-	0.89	0.36

Table 5 Coping Self-Efficacy Assessment scores by gender and cleft type

Category groups		Mean score	SD	t	p-value
Gender	Female	126.56	25.92	0.18	0.85
	Male	126.08	23.04		
Cleft type	Bilateral CLP	128	26.72	0.63	0.52
	Unilateral CLP	125.6	23.36		

*p < 0.05

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