Development of the Body Image Self–Schema Scale and the Body Image Possible Selves Scale for Thai Middle–Aged Women

Parichart Rangkakulnuwat, Linchong Pothiban, Bonnie L. Metzger, Sujitra Tiansawad, Somchai Teaukul

Abstract : Body image is related to various health behaviors and psychological status. Nowadays the number of obese Thai middle-aged women is rising and body image is the primary concern for people who seek to reduce their weight. Cognitive measures related to body image of Thai women have not been found. This study was designed to develop and examine the psychometric properties of two scales: The Body Image Self-Schema Scale (BISSS) which is used for assessing the current thoughts about the body and the importance individuals place on it and the Body Image Possible Selves Scale (BIPSS) which is used for assessing the future thoughts of the body, hopes and fears.

An instrument development design was used. Convenience sampling was employed to recruit 507 Thai women aged 40-60 years with different weights working in both public and private sectors to participate in this study. Seven steps of the instrument development process included identifying the body image concept, generating the items, determining the format, reviewing the items by six experts, testing of face validity, construct validity, concurrent validity, and reliability. The BISSS is a 27-item 7-point semantic differential (evaluative part) and 5-point Likert scale (important part), while the BIPSS is a 27-item 5-point Likert scale and composed of Hoped for and Feared subscales. Both scales comprise eight dimensions, namely feelings about the body, size estimation, facial features, attractive looks, physical fitness, weight regulation, general appearance, and body shape. The new scales demonstrate an acceptable content validity index and construct validity. Their concurrent validity with the Body Esteem Scale for Adolescents and Adults developed by Mendelson, White, and Mendelson, and the Figure Rating Scale developed by Collins, was also reported. The BISSS and the BIPSS developed in this study can be used as research and clinical tools regarding body image of Thai middle-aged women.

Thai J Nurs Res 2008; 12 (1) 40-54

Key words : body image, self schema, possible selves, scale development, psychometric testing

Background and Significance of the Study

Body image was related to healthy and unhealthy behaviors, and psychological status.[1] Throughout life women were more likely to be dissatisfied with their physical appearance than men.[2] Body dissatisfaction appeared quite stable, which particularly referred to as normative discontent in women. However, high level of body dissatisfaction

***Parichart Rangkakulnuwat**, R.N., Doctoral Candidate, Assistant Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand.*
***Linchong Pothiban**, R.N., D.S.N, Associate Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand.*
***Bonnie L. Metzger**, R.N., Ph.D., Professor, School of Nursing, University of Michigan, Ann Arbor, Michigan, USA.*
***Sujitra Tiansawad**, R.N., D.S.N, Assistant Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand.*
***Somchai Teaukul**, Ph.D., Instructor, Faculty of Humanity, Chiang Mai University, Chiang Mai, Thailand.*

was the cause of many clinical problems such as eating disorders, major depression, and body dysmorphia.[3] Excessive body dissatisfaction may induce a person to engage in self-destructive behavior such as abusive diet or diet pills, fad diets or compulsive exercise.[4] It also led to lower self-esteem, anxiety, and depression.[5] In contrast, developing a positive body image facilitated social confidence and comfort and may proceed to a healthy lifestyle change.[6]

While the obesity rate was rising and causing both global and Thai health problems,[7,8] the primary reason for obese women wanting to lose weight was a desire to change their appearance or to improve their self-image followed by health concerns.[9] Similarly, two studies found that overweight Thai women as well as overweight Thai men wanted to lose weight more for beauty reasons than for better health.[10, 11] Even nonobese Thai women attempted to reduce weight because of their body image dissatisfaction.[12] The findings revealed that body image was the strongest predictor of trying to lose weight.[13] As many cultures equated attractiveness with a good shape and body size[1] as well as emphasizing beauty, youth, and slimness, body image disturbance in women was increasing.[14] Thus, people spent much of their budget and time, attempting to alter or maintain their appearance to achieve an ideal image.[15]

Different cultures influenced people to have different perspectives of body image.[16] American and other westernized societies had negative stereotypes of obese people such as ugly, inactive,[17] and less attractive than thin people.[18] From the Thai standpoint, people looked at obesity both positively and negatively.[19] Furthermore, social values, which were influenced by the cultures, effect on weight perception.[20] For instance, African American women did not define being overweight as unhealthy, but attractive.[21] Though most Thai people accepted that beauty is more normally related with thinness, some fat women may not feel bad about being obese. Therefore, women from different cultures may not share the same body image, thoughts or concerns.[3]

Furthermore, the meaning and experience of body weight and size changed during life, therefore body dissatisfaction was not limited to the young.[22] The evidence showed that middle-aged individuals were more sensitive to fear of aging than older adults.[23] Attractive adults experienced greater occupational success and popularity. They had higher social self-esteem, better social skills, better physical and mental health, and were more extroverted, self-confident, and intelligent than less attractive adults.[1] To know how middle-aged women think about their body, a relevant instrument is needed.

A number of body image instruments had been developed based on different perspectives, concepts, and dimensions. Some authors emphasized perception; others evaluate the feeling or attitude.[3] Few instruments had attempted to measure cognitive components,[5] and few addressed the multidimensionality of body image.[24] The existing measures dealt with the evaluative part but disregarded the investment part.[25] Some measured the level of satisfaction-dissatisfaction with overall appearance or specific physical characteristics,[26, 27] while other instruments evaluated the perception of current and ideal weight or shape.[28]

In Thailand, no measure related to the body image of Thai women has been found. Although various kinds of the western instruments are available, their limitations are recognized by the researcher. Measuring only the evaluative part, less concerned about the cognitive aspect and the components of the body, as well as the influence of

cultural context on people's thought are among those limitations. The existing tools may not be appropriate for analyzing Thai women's thoughts of their body, particularly, as the body of middle age gradually deteriorates. With the strong belief that cognitive function drives behaviors, a valid body image instrument that can reflect all aspects of cognitive representation regarding body of middle-aged women is required. Subsequently, body image measures will be used to convey body image idea to health behaviors or psychological status of those women. Moreover, it will guide health personnel, including nurses, to develop specific prevention or intervention programs to overcome unhealthy behaviors or encourage healthy behaviors and psychological status in Thai women.

Theoretical Framework

It is believed that cognitive functions drive behaviors. Analyses of personal cognitive self-representation help to explain and predict how people think and feel about themselves, and how these thoughts and feelings develop and guide their behaviors. Cognitive appraisals of self attributes are operationalized as self concept.[29] One such cognitive self-representation is body image. As a self-representation, disturbances in the body image are caused by faulty cognition about the body, and can lead to irrational thoughts about self, and unrealistic and faulty behaviors.[30]

This study was developed based on the schema model,[31, 32] in which self-concept is composed of self-schema and possible selves. Self-schemas are highly elaborated organizations of knowledge about the self in the specific content domain that a person values. People may develop positive and negative schematic self-knowledge. Positive self-schemas serve as important motivators of behavior and are associated with more reliable behavioral performance in the domain.[33] In contrast, negative self-schemas inhibit behavior in the domain and are associated with negative affect state.[34] Possible selves, are conceptions of the self that individual expects, fears, wishes, and ought to be in the future.[35] Possible selves play a powerful role in motivating and regulating behaviors, and are the most effective guides for behavior when they are linked to an existing self-schema.[32] The discrepancy between self-schema and possible selves reflects some levels of dissatisfaction.[35]

For this study, body image self-schema as an element of self-concept is defined as a form of self-representation, especially the cognitive representation related to current thoughts and feelings about an individual's body, including weight, size, shape, face, fitness, attractiveness, and feeling. Body image possible selves are linked to the current body image self schema and are the cognitive representation of an individual's hopes for and fears she will become in the future regarding the same components of the body image self-schema.

Research Design

Instrument development design was used in this study, including two phases and seven steps.[36-38] Phase one, item creation, included three steps: Concept identifying, item generating, and response format determining. Phase two was instrument validation including four steps: Item reviewing, face validity and feasibility testing, construct validity and reliability testing, and concurrent validity evaluation. The target population for this study was Thai middle-aged women who worked in the public and private sectors in Muang District, Chiang Mai. Convenience sampling of 507 participants was employed in all steps of the instrument development.

Research Instruments

Two forms (1 & 2) were used by the researcher for the specific purpose of item formulation and evaluation of the face validity and feasibility of the developed instruments. Two scales (3 & 4), The Body Esteem Scale for Adolescents and Adults (BESAA) and The Figure Rating Scale (FRS) were adapted for confirming tests of concurrent criterion-related validity. The last sheet (5) was used for describing the demographic information of participants. Each one was depicted as follows:

1. Open-Ended Questionnaire was developed by the researcher. This tool was used to collect current and future ideas regarding an individual's body including seven domains: weight, size, shape, face, fitness, attractiveness, and feeling. The questionnaire comprised two parts: The participants' current thoughts about their body when seeing themselves in the mirror, and the hopes for and fears regarding their body beyond the next five years.

2. Evaluation Questionnaire developed by the researcher to assess face validity and feasibility: The clarity of the direction and items, the difficulty/ easiness in completing questionnaire, and the duration of completing questionnaire. All items except duration were examined for their difficulty and clarity by a 3-point scale ranged from not at all to moderate to difficult. The participants filled in this form after completing the proposed Body Image Self-Schema Scale and the Body Image Possible Selves Scale.

3. The Body Esteem Scale for Adolescents and Adults (BESAA). This 23-item scale was developed by Mendelson, White, and Mendelson[39] and contained three subscales: Appearance, weight, and attribution. Participants were asked to rate from 0 (never) to 4 (always). The higher the score, the more positive was the participant's body esteem. The BESAA has shown good internal consistency in all three domains (.92, .94, and .81) and test-retest reliability was high (.89, .92, and .83). The BESAA was translated into Thai and used in a research with high school students and yielded the alpha of total and three subscales were .90, .80, .90, and .70, respectively.[40] For examining the concurrent criterion-related validity of the new developed scales, two items of the BESAA were allowed to modify in accordance with Thai culture and middle-aged women. Item 6 "I think my appearance would help me get a job" was changed to "I think my appearance is suitable for my work" and item 20 "my looks help me get dates" was modified to "my looks are attractive to the opposite sex." Prior to data collection, the modified Thai version of the BESAA was tested among 17 Thai middle-aged women and demonstrated an excellent internal consistency (α = .93).

4. The Figure Rating Scale (FRS) was developed by Collins.[41] The FRS was a pictorial instrument, incorporating drawings of seven male and female child, and adult figures. The figures illustrated body weight ranging from very thin to obese. This scale was used along with the questions of self, ideal self, ideal other child, ideal adult, and ideal other adult. The test-retest reliability coefficients for figure selections revealed as follows: .71, .59, .38, .55, and .49, respectively. The criterion-related validity coefficient of this scale with actual weight and BMI were moderately correlated: .36 and .37, respectively. This study utilized only adult female pictures and two questions of current self and ideal self. The discrepancy score between self and ideal self indicated the degree of body dissatisfaction. For using as another concurrent criterion-related measure, the FRS was translated into Thai with the back translation process and

2-week interval test-retest reliability revealed the reliability coefficients of .96 for current and .79 for ideal.

5. The Demographic Information Sheet was developed by the researcher to gather personal data of the participants. It was a self-report of age, education, occupation, income, marital status, current weight and height, and perception of their body.

Data Collection

Phase 1: Item Creation

Initially the body image self-schema and body image possible selves were framed within the self-schema concept by the researcher via an extensive literature review. Step 2, an item pool was created consistently with the organizing framework. For appropriate use among Thai women, this item pool was generated accordingly to the self-report in the open-ended questionnaire given to 30 middle-aged women. Step 3 was to determining the response format by reviewing literature.

Phase 2: Instrument Validation

In step 4 the items were reviewed by the six female experts in body image concept, psychological concept, and instrument development. A content relevancy scale was used by all experts during their review of the items. Step 5 was testing the face validity and feasibility of the expert approved items. Two testings were conducted with 17 and 20 participants, respectively. The second testing was needed to validate the comprehensibility of the instruction. The participants completed the 63-item BISSS and BIPSS, and the evaluation questionnaire. Step 6 was done with 315 participants as suggested by Hair et al.[42] to determine the construct and reliability of the scales. They were asked to complete the developed 63-item BISSS and BIPSS. Finally, step 7 was the concurrent criterion-related validity and additional reliability checking among a sample of 125 middle-aged women which was calculated by using power analysis. They were asked to complete the final 27-item BISSS and BIPSS, the BESAA, and the FRS.

The study was approved by the Research Ethics Review Committee of Faculty of Nursing, Chiang Mai University. Participants were provided with a detailed explanation of the study and promised confidentiality prior to signing the study informed consent.

Data Analysis

Various methods were conducted in each step of instrument development as follows:

Phase 1: Item Creation

For item pool initiation content analysis was used to classify the items based on the meaning of the words. Three criteria were initially set up for retention or deletion of the items: high frequency, relevancy to definition of each domain, and redundancy. Additionally, item selection was finalized through a discussion with two master-prepared nurses to get the best solution.

Phase 2: Instrument Validation

For instrument validation, content validity index (CVI) were calculated to determine content validity. A CVI of .80 was acceptable.[43] Cohen's Kappa was used to test the inter-rater reliability in determining the valence (positive or negative) of each descriptor. A coefficient value of .80 or better was acceptable.[44]

To confirm the construct and reliability of scales, item analysis was used with the criteria: (1) inter-item correlation matrix between .30 and .70, (2) a corrected item-total correlation coefficient greater

than .30, and (3) alpha estimate for internal consistency if an item was deleted. The item should be kept in case the alpha dropped when it was deleted.[45] Pearson's product moment correlation was calculated to determine item-total, item-subscale, subscale-subscale correlations.

According to the schema model, body image conception includes current and future selves regarding the body. The BISSS and the BIPSS were parallel scales and were expected to contain the same components and descriptors. Therefore, only the BISSS was selected into factor analysis. Principal axis factoring and oblique rotation was used due to intercorrelation among some factors. The criteria set for analyzing and interpreting factor analysis including: (1) the factors with eigenvalues equal or greater than 1.0, (2) factor loading cutoff point of .30, and (3) difference of at least .20 between the highest loading of an item and its next highest loading. The best fit solution and parsimonious set of factors were also considered.[46]

For internal consistency reliability, Cronbach's alpha coefficient was calculated. A reliability coefficient above .70 was considered satisfactory for the new scale.[47]

For the concurrent criterion-related validity between the new scales and the existing ones, and the test-retest reliability, Pearson's product moment correlation was utilized.

Results

Phase 1: Item Creation

Seven components of body image were identified from the literature review, including weight, size, shape, face, fitness, attractiveness, and feeling. The participants generated 397 words for the body image self-schema and 405 words for the body image possible selves. After removal of the redundant items, 208 words for the BISSS and 185 words for the BIPSS were presented to the experts.

In addition, a 7-point semantic differential scale was used to measure the self-descriptiveness of their body. A 5-point Likert scale was used to assess the degree of importance for the BISSS, and hope and fear for the BIPSS.

The researcher matched the opposite meaning words from the item pool to attain equally positive and negative words. The 63 bipolar words for weight, size, shape, face, fit, attractiveness, and feeling were 4, 12, 16, 12, 6, 7, and 6 pairs, respectively.

Phase 2: Instrument Validation

The content validity of the BISSS and the BIPSS yielded the CVI of .89 for both scales, and Cohen's Kappa coefficients of .85 and .81, respectively, which were acceptable. In addition, the face validity and feasibility was tested and considered satisfactory.

According to item analysis guideline,[45] 15 items in three subscales (size, shape, and face) were eliminated because they did not meet the criteria. Thus, 48 items were retained.

To ascertain the construct validity, the assumption for factor analysis was tested. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .85, which was adequate. The Bartlett test of sphericity was large and significant (χ^2 = 7680.63, df = 1128, p = .000). This means that the variables were correlated highly enough to provide a reasonable basis for factor analysis. Exploratory factor analysis was conducted and the final solution composed of eight factors with 27 items. Factor pattern and factor loadings for the BISSS were presented in **Table 1**. All items had factor loadings greater than .40 and each item loaded on only one factor. This final result accounted for 60.7% of variance.

Table 1 Factor pattern and factor loadings for the body image self-schema scale (n =315)

No.	BISSS items	Factors								Commu nalities
		1	2	3	4	5	6	7	8	
	Feeling about the body									
1	Feel 2 satisfied	.80								.67
2	Feel 5 confident	.78								.56
3	Feel 1 proud	.73								.61
4	Feel 6 encouraged	.70								.65
	Size estimation									
5	Size 6 small belly		-.75							.64
6	Size 5 small waist		-.70							.71
	Facial features									
7	Face 2 organ proportionate			.78						.69
8	Face 6 good looking face			.70						.50
9	Face 1 beautiful			.67						.67
10	Face 5 young face			.52						.38
11	Face 14 beautiful lips			.49						.66
	Weight regulation									
12	Weight 4 controllable				.74					.34
13	Weight 2 stable				.77					.76
	Attractive looks									
14	Attract 3 beautiful					.88				.70
15	Attract 4 good complexion					.64				.66
	Physical fitness									
16	Fit 1 agile						.83			.51
17	Fit 2 strong						.77			.74
18	Fit 5 healthy						.73			.49
19	Fit 6 fit						58			.59
	General appearance									
20	Weight 1 just right							-.72		.59
21	Weight 3 in standard range							-.68		.48
22	Size 1 just right							-.53		.39
23	Shape 4 just right							-.50		.74
	Body shape									
24	Shape 12 shapely								.70	.66
25	Shape 7 flat belly								.62	.76
26	Shape 11 slim calves								-.60	.67
27	Shape 8 pronounced waist								-.53	.57
	Eigenvalue	7.19	3.64	2.15	1.68	1.49	1.21	1.11	1.01	
	% of variance	25.23	12.17	6.41	4.78	4.16	3.13	2.64	2.22	
	Cumulative% of variance	25.23	37.40	43.81	48.59	52.75	55.87	58.51	60.73	

Note: Only positive items are presented.

Factor 1 consisted of four items: Satisfied, confident, proud, and encouraged. All of which addressed the aspect of feeling, hence, named feeling about the body. Factor 2 contained two items of how small or big the waist and belly. This thought related to size concern and was labeled as size estimation. Factor 3 comprised five items: Good looking, beautiful, young looking face, proportionate face, and beautiful lips. These items represented the face schema, and therefore, were called facial features. Factor 4 consisted of two items of controllable and stable weight which suggested an aspect of weight schema, so it was named weight regulation. Factor 5 was composed of two items of beautiful hair and good complexion which contributed to the women attractiveness. It can be described as attractive looks. Factor 6 comprised four items of agile, strong, healthy, and fit. All of which were clearly suggested the fitness of the body and named physical fitness. Factor 7 consisted of four items, two of which related to weight, one of which related to size, and the last one related to shape. Taken together, this factor seemed to index general appearance of women and was labeled general appearance. Factor 8 comprised four items of shapely, flat belly, slim calf, and pronounced waist which addressed body shape. Therefore, this factor was named body shape.

Reliability of the BISSS and the BIPSS was tested and shown in **Table 2**. The Cronbach's alpha of the first testing were .89 and .97, respectively. For the BISSS subscales, the alpha coefficients ranged from .72 to .88, whereas those of the BIPSS subscales ranged from .88 to .95, which was considered highly reliable and satisfactory for the new scale. The second testing demonstrated that the alpha coefficients of the total and subscales of the BISSS were consistent with the previous ones, except two subscales were .63 and .67. For the BIPSS, the alpha coefficients were comparable.

Table 2 The reliability coefficients of the 27-item body image self-schema scale and body image possible selves scale from the first and the second tests

Scales		Total	Subscales							
			1	2	3	4	5	6	7	8
BISSS	1st test	.89	.88	.82	.79	.73	.72	.88	.86	.80
	2nd test	.89	.88	.63	.84	.78	.73	.86	.85	.67
BIPSS	1st test	.97	.94	.94	.92	.88	.93	.93	.88	.95
	2nd test	.96	.94	.91	.95	.87	.93	.93	.76	.88

Note: 1st test n = 315, 2nd test n = 125

The concurrent criterion-related validity was tested and shown in **Table 3**. According to the magnitude of correlation suggested by Cohen,[48] the BISSS strongly correlated with the BESAA (r = .56) and moderately negative correlated with BMI (r = -.43). The difference between the BISSS and BIPSS moderately correlated with the difference between current and ideal self of the FRS (r = .36) as well as the BMI (r = .40).

Table 3 The Pearson's correlation coefficients of the 27-item body image self-schema scale and body image possible selves scale, and concurrent validity measures

New scales	Concurrent validity measures		
	BESAA*	FRS*	BMI*
BISSS	.56	-	-.43
Difference between BISSS and BIPSS	-	.36	.40

Note: Dashes indicate the correlation were not calculated
BESAA = Body Esteem Scale for Adolescents and Adults
FRS = Figure Rating Scale, BMI = body mass index
* p = .01

In sum, the BISSS and the BIPSS contained eight factors with 27 items, namely feeling about the body, size estimation, facial features, weight regulation, attractive looks, physical fitness, general appearance, and body shape. Each factor comprised 4, 2, 5, 2, 2, 4, 4, and 4 items, respectively. The BISSS included both evaluative and investment parts measured by the 7-point semantic differential scale and the 5-point Likert scale, respectively. The BIPSS comprised Hoped for and Feared subscales assessed by the 5-point Likert scale. The psychometric properties testing revealed satisfactory. The CVI and the Cohen's Kappa coefficients were greater than .80. The face validity and feasibility was acceptable. The construct validity was supported by exploratory factor analysis and showed the seven consistent factors with the proposed structure. General appearance emerged and corresponded to the main concept as one factor. The reliability of the total and subscales of the BISSS and the BIPSS were mostly in the acceptable range. Lastly, the concurrent criterion-related evidence showed that the BISSS and the BIPSS strongly to moderately correlated with the selected existing measures.

Discussion

The BISSS and the BIPSS were designed to evaluate the mental representation of Thai middle-aged women regarding their body. The scales addressed both evaluative and investment parts while most body image instruments focused on the evaluative part but ignored the investment part. It is possible that an individual dissatisfied with some body parts, but those parts matter less resulting in little body image disturbance. In addition, eight factors contributed to reflect how women think and feel about their body supported the multidimensional body image constructs. The new scales

measured body parts and overall appearance because discontent with a body part did not necessarily mean whole body image dissatisfaction.[49] It can be concluded that the BISSS and the BIPSS were developed in congruence with the suggestion that broadening the focus from dissatisfaction to include the importance persons place on the self and adding other aspects of appearance rather than just body weight and shape.[25]

The BISSS and the BIPSS were suitable for using with Thai women who grew up in the Buddhist way. The idea of moderation ingrained in Thai thought. This thought was reflected by the words: Just right, suitable, average, not big and not small, not thin and not big. These kinds of words appeared in many dimensions of the item pool. Thai women also regarded fat and thin as abnormal or extreme limit; just right as the best.

Compared to other body image measures developed based on the self-schema model, the Body Weight and Shape Self-Schema Scale,[50] the Appearance Schemas Inventory-Revised (ASI-R),[51] the BISSS and the BIPSS may be more suitable instruments because they were concerned not only with current and future selves, but also the evaluative and investment parts. In addition, the scales focused on more body components, and overall appearance as well as body parts.

Regarding the components of each factor, Factor 1, "feeling about the body" addressed the affective component of body image. The internal view of the body was associated with feeling and thought.[52] Either positive or negative concerned about their bodies, their thoughts definitely related to persons' feeling. However, only body satisfaction/ dissatisfaction was quite global evaluation and insufficient to define the negative body image,[24, 25] dissatisfaction may also be related with certain affects.[3] The BISSS and the BIPSS addressed additional feeling.

Factor 2, "size estimation" reflected body areas that Thai middle-aged women are concerned with. This finding was consistent with the report of Cash that waist and abdomen were most the common concern of both sexes in any age ranges from 18 to 63 years.[53] It was in part due to the redistribution of body fat from extremities to the torso due to aging.[23]

Factor 3, "facial features" included general appearance and specific components of face. This finding was partly consistent with a study revealed that one fourth of women were concerned about nose, teeth, and face in general.[53] However, it seems that Thai women were more likely to think about their faces as a whole, not in separate parts.

Factor 4, "weight regulation" reflected how middle-aged women struggle to attain the controllability and stability of weight because weight physiologically increased as women age[54] and social standard stressed on the desirability of thinness. These scales concerned about regulating and making it controllable and suitable, while other research focused only on overall weight.[3]

Factor 5, "attractive looks" was reflected by hair and skin. Thai women accepted that black shiny hair, and white, smooth, not dry, and not wrinkled skin contributed to their attractiveness. This thought may be influenced by the advertisements of products attaining beautiful hair and good skin.

Factor 6, "physical fitness" contained items reflecting the physical fitness and general functioning in terms of health, strength, and agility. This factor supported that body image involved fitness and health as well as appearance. Active people rated their bodies more positively than inactive ones.[52] Women who were concerned about their fitness and health had a more positive feeling about their appearance.[30, 55]

Factor 7, "general appearance" drew the items from weight, size, and shape domains. All items seemed to reflect the interpretation of the overall body.[3]

Finally, Factor 8, "body shape" comprised overall body shape and the specific parts. The belly and waist in this domain were assessed in terms of flabby or protruding belly and pronounced waist, which were different views from size domain.

The psychometric properties of The BISSS and the BIPSS were well demonstrated in this study. The CVI and the Cohen's Kappa were acceptable probably because the combination of three resources of information: Literature, participants, and reviewers, called data triangulation. This method gets data validated through various perspectives on the phenomenon.[47] Moreover, all items produced in the Thai language could convey the body image idea more directly than by translation.

Construct validity of the developed scales were considered satisfactory. Though three factors: Size estimation, weight regulation, and attractive looks consisted of two items which seem not to be acceptable,[56] all of which were consistent with the proposed structures and showed acceptable reliability estimates. Moreover, three factors revealed negative loadings: Size estimation, general appearance, and body shape. These loadings suggested the interpretation in the opposite direction from the way it was written for that factor.[57] Further revision can improve this shortcoming.

Reliability estimates of the BISSS and the BIPSS across two studies showed relatively equal alpha coefficients: .89 and .97, respectively, which regarded as highly reliable and satisfactory for new scale.[47] The reliability estimates of the BISSS and the BIPSS subscales across two studies were also at an acceptable level, except two subscales (r = .63, .67) in the second study. Although the acceptable lower limit for Cronbach's alpha is .70, it may decrease to .60 in exploratory research.[58] Further improvement should be conducted to obtain higher reliability coefficient.

The concurrent criterion-related validity of the new scales was supported in this investigation. The BISSS strongly correlated with the BESAA suggesting that the BISSS related to some degree of self-esteem. The discrepancy between the BISSS and the BIPSS was moderately associated with that of current-ideal figures measured by the FRS. This may be because the FRS focuses on the overall appearance, while the new measures included body parts and general appearance. Furthermore, the moderately negative correlation between the BISSS and BMI, in part, supported that the heavier the women are, the more negative thought of their body occurs.

In summary, the Body Image Self-Schema Scale is a 27-item 7-point semantic differential and 5-point Likert scale and the Body Image Possible Selves Scale is a 27-item 5-point Likert scale. The scales aimed to measure the mental representation regarding the body of Thai middle-aged women. The BISSS assessed the current thought of an individual's body in terms of evaluation of each dimension and the importance the individual places on it, while the BIPSS measured the future thought of hoped and feared self. These new scales showed to have acceptable content, face, construct, concurrent criterion-related validity as well as internal consistence of reliability. The efficiency was presented by a reasonably brief, 27-item questionnaire, and practical for use to assess body image of Thai middle-aged women. Other properties need to be confirmed in the future.

Recommendations

The BISSS and the BIPSS can be used not only as a research tool but also a clinical assessment tool for health personnel, including nurses to assess clients' body image more easily and accurately because they are self-reports with suitable length. Using either the BISSS or the BIPSS is possible and depends upon the purpose of the study. The BISSS is adequate for exploring current body image thought, while the BIPSS is good for future thought. However, administering both scales at the same time, a discrepancy between these two scores suggests body dissatisfaction. Further studies to strengthen the psychometric properties of the BISSS and the BIPSS are: (1) replicating the study in another group of middle-aged women to confirm the construct of these scales, (2) studying of test-retest reliability to examine the stability and predicting of some dependent variables to test predictability of the new scales, and (3) using these new scales with other age groups, occupations, and lower educated persons to affirm the external validity. Moreover, nurse researchers can use these new scales among large samples to attain the norm of body image for the general Thai population and to identify the "cutoffs" for body image concerns among each of age group. The criteria of the body image schematic (positive or negative) and aschematic should be explored in order to indicate the type of knowledge structure to which a person belongs, as well as the relationships among eight components should be confirmed to support the linkage of the body image structures.

Acknowledgements

My deep appreciation goes to the research advisory committee. I would like to thank the owner of the existing measures who allowed me to use them and the middle-age women who participated in this study. Additionally, I would like to thank the Graduate school and the Thai Health Promotion Foundation, Thailand, for my research grant.

References

1. Pruzinsky T, Cash TF. Understanding body images: Historical and contemporary perspectives. In Cash TF, Pruzinsky T, **Body image: A handbook of theory, research, and clinical practice.** New York: Guildford Press. 2002: 3-11.
2. Feingold A, Mazzella R. Gender differences in body image are increasing. **Psychological Science.** 1998; 9: 190-5.
3. Thompson JK, Heinberg LJ, Altabe A, Tantleff-Dunn S. **Exacting beauty: Theory assessment, and treatment of body image disturbance.** Washington, DC: American Psychological Association, 1999.
4. Devlin MJ, Zhu AJ. Body image in the balance. **Journal of American Medical Association.** 2001; 286: 2159.
5. Thompson JK, van den Berg P. Measuring body image attitudes among adolescents and adults. In Cash TF, Prunzinsky T, eds. **A Handbook of theory, research, and clinical practice.** New York: The Guildford Press. 2002: 142-54.
6. Kearney-Cooke A, Striegel-Moore R. The etiology and treatment of body image disturbance. In Garner DM, Garfinkel PD, eds. **Handbook of treatment for eating disorders.** 2nd ed. New York: Guildford Press. 1997: 295-306.
7. World Health Organization. **Obesity: Preventing and managing the global epidemic.** Geneva, Switzerland: WHO, 1998.
8. Department of Health MOPH. **National food and nutrition survey IV.** Bangkok: Ministry of Public Health, 1996.
9. Cooper Z, Fairburn CG. A new cognitive behavioral approach to the treatment of obesity. **Behaviour Research and Therapy.** 2001; 39: 499-511.
10. Rangkakulnuwat P, Pothiban L. Factors related weight control behaviors in Chiang Mai obese adults. **Proceedings of the International Conference of Health Promotion: Evidence, Practice, and Policy** on Oct 20-22, 2004 at Chiang Mai, Thailand. Chiang Mai (Thailand): Chotana, 2004.
11. Somkhuanhet S. **A study of self weight reduction of persons perceived overweight in Bangkok metropolis** [thesis]. Bangkok (Thailand): Mahidol University, 1998.

12. Sritipsukho P, Pacharapaisan N. Inappropriate weight management among Thai women consuming anorectics prescribed by private clinics in Bangkok. **Journal of Medical Association Thailand.** 2004; 87: 1477-81.
13. Anderson LA, Eyler AA, Galuska DA, Brown DR, Brownson RC. Relationship of satisfaction with body size and trying to lose weight in a national survey of overweight and obese women aged 40 and older, United States. **Preventive Medicine.** 2002; 35: 390-6.
14. Thompson JK. **Body image disturbance: Assessment and treatment.** Elmsford (NY): Pergamon Press, 1990.
15. Robertson JF, Diekmann JM. Measuring body image. In Franle-Stromborg M, Olsen SJ, eds. **Instruments for clinical health care research.** 2nd ed. Sudbery (MA): Jones and Barlett. 1997: 213-24.
16. Senekal M, Albertse EC, Momberg DJ, Groenewald CJ, Visser EM. A multidimensional weight-management program for women. **Journal of The American Dietetic Association.** 1999; 99: 1257-64.
17. Tiggemann M, Rothblum ED. Gender differences in social consequences of perceived overweight in the United States and Australia. **Sex Roles.** 1988; 18: 75-86.
18. Robinson BE, Bacon JG, O'Reilly J. Fat phobia: Measuring, understanding, and changing anti-fat attitudes. **International Journal of Eating Disorders.** 1993; 14: 467-80.
19. Daoduong S. **Meaning of obesity and antiobesity among female undergrad students** [thesis]. Bangkok (Thailand): Mahidol University, 2002.
20. Cachelin FM, Rebeck RM, Chung GH, Pelayo E. Does ethnicity influence body-size preference?: A comparison of body image and body size. **Obesity Research.** 2002; 10: 158-66.
21. Allan J, Mayo K, Michel Y. Body size values of White and Black women. **Research in Nursing and Health.** 1993; 16: 323-33.
22. Tiggemann M, Stevens C. Body image across the life span: The meaning of weight at different ages. **Proceedings of the Body Image Conference.** Australia, 1999.
23. Whitbourne SK, Skultety KM. Body image development: Adulthood and aging. In: Cash TF, Pruzinsky T, eds. **Body image: A handbook of theory, research, and clinical practice.** New York: Guildford Press. 2002: 83-98.
24. Cash TF. Body image: Past, present, and future. **Body Image.** 2004; 1: 1-5.
25. Cash TF. Cognitive-behavioral perspectives on body image. In Cash TF, Pruzinsky T, eds. **Body image: A handbook of theory, research, and clinical practice.** New York: Guildford Press. 2002: 38-46.
26. Rosen JC, Reiter J, Orosan P. Assessment of body image in eating disorders with the Body Dysmorphic Disorder Examination. **Behaviour Research and Therapy.** 1995; 33: 77-84.
27. Slade PD, Dewey ME, Newton T, Brodie D, Kimle G. Development and preliminary validation of the Body Satisfaction Scale (BSS). **Psychology and Health.** 1990; 4: 213-20.
28. Allison DB, Hoy K, Feurnier A, Heymsfield SB. Can ethnic differences in men's preferences for women's body shapes contribute to ethnic differences in female obesity? **Obesity Research.** 1993; 1: 425-32.
29. Brown JD. **The Self.** Boston (MA): McGraw-Hill, 1998.
30. Freedman R. Cognitive-behavioral perspectives on body-image change. In: Cash TF, Pruzinsky T, **Body images: Development, deviance, and change.** New York: Guildford Press. 1990: 272-95.
31. Markus H, Zajonz RB. The cognitive perspective in social psychology. In Lindzey G, Aronson E, eds. **Handbook of social psychology.** 3rd ed. Hillsdale (NJ): Lawrence Erlbaum. 1985: 137-230.
32. Stein KF. Schema model of the self-concept. **Image Journal of Nursing Scholarship.** 1995; 27: 187-93.
33. Cross SE, Markus HR. Self-schemas, possible selves, and competent performance. **Journal of Educational Psychology**. 1994; 86: 423-38.
34. Cyranowski JM, Andersen BL. Schemas, sexuality, and romantic attachment. **Journal of Personality and Social Psychology.** 1998; 74: 1364-79.
35. Markus H, Nurius P. Possible selves. **American Psychologist.** 1986; 4: 954-69.
36. Cohen RJ, Swerdlik ME. **Psychological testing and assessment: An introduction to tests and measurement.** 6th ed. Boston: McGrawHill, 2005.
37. DeVellis RF. **Scale development theory and applications.** 2nd ed. California: Sage, 2003.
38. Mishel MH. Methodological studies: Instrument development. In Brink PJ, Wood MJ, eds. **Advanced design in nursing research.** 2nd ed. Thousand Oaks, CI: SAGE, 1998: 235-82.
39. Mendelson BK, White DR, Mendelson MJ. **Manual for the Body-Esteem Scale for adolescents and adults.** Unpublished manuscript. Center for Research in Human Development, Montreal, Quebec, Canada, 1998.
40. Gunta A. **Body image dissatisfaction and use of food products and drugs for weight control among adolescent women** [thesis]: Chiang Mai University Chiang Mai, (Thailand), 2002.

41. Collins MC. Body figure perceptions and preferences among preadolescent children. **International Journal of Eating Disorders.** 1991; 10: 199-208.
42. Hair JF, Anderson RE, Tatham RL, Black WC. **Multivariate data analysis.** 5th ed. New Jersey: Prentice Hall, 1998.
43. Davis LL. Instrument review: Getting the most from a panel of experts. **Applied Nursing Research.** 1992; 5: 104-7.
44. Burns N, Grove SK. **The practice of nursing research: Conduct, critique, & utilization.** 4th ed. Philadelphia (PA): W.B. Saunders, 2001.
45. Ferketich S. Focus on psychometrics: Aspects of item analysis. **Research in Nursging & Health.** 1991; 14: 165-8.
46. Munro BH. **Statistical methods for health care research.** 4th ed. Philadelphia: Lippincott, 2001.
47. Polit DF, Hungler BP. **Nursing Research: Principles and methods.** 6th ed. Philadelphia (PA): Lippincott Williams & Wilkins, 1999.
48. Cohen J. **Statistical power analysis for the behavioral sciences.** 2nd ed. Hillslade (NJ): Lawrence Erlbaum, 1988.
49. Grogan S. **Body image: Understanding body dissatisfaction in men, women and children.** New York: Routledge, 1999.
50. Stein KF, Hedger KM. Body weight and shape self-cognitions, emotional distress, and disordered eating in middle adolescent girls. **Archives of Phychiatric Nursing.** 1997; XI: 264-75.
51. Cash TT, Melnyk SE, Hrabosky JI. The assessment of body image investment: An extensive revision of the Appearance Schemas Inventory. **International Journal of Eating Disorders.** 2004; 35: 305-16.
52. Cash TF, Prunzinsky T. **Body images: Development, deviance, and change.** New York: Guilford Press, 1990.
53. Cash TF, Phillips KA, Santos MT, Hrabosky JI. Measuring "negative body image": Validation of the Body Image Disturbance Questionnaire in a nonclinical population. **Body Image.** 2004; 1: 363-72.
54. Hetherington MM, Burnett L. Ageing and the pursuit of slimness: Dietary restraint and weight satisfaction in elderly woman. **British Journal of Clinical Psychology.** 1994; 33: 342-5.
55. Cash TF, Hicks KL. Being fat versus thinking fat: Relationships with body image, eating behaviors, and well-being. **Cognitive Therapy and Research.** 1990; 14: 327-41.
56. Streiner DL. Figuring out factors: The use and misuse of factor analysis. **Canadian Journal of Psychology.** 1994; 39: 135-40.
57. Leech NL, Barrett KC, Morgan, GA. **SPSS for intermediate statistics: Use and interpretation.** London: Lawrence Erlbaum, 2005.
58. Robinson JP, Shaver PR, Wrightsman LS. **Measures of personality and social psychological attitudes.** San Diego (CA): Academic Press, 1991.

การพัฒนาแบบวัดแบบแผนภาพลักษณ์ปัจจุบันและแบบแผนภาพลักษณ์อนาคตสำหรับหญิงไทยวัยกลางคน

ปาริชาต รังคกูลนุวัฒน์, ลินจง โปธิบาล, บอนนี แอล เม็ทซเกอร์, สุจิตรา เทียนสวัสดิ์, สมชาย เตียวกุล

บทคัดย่อ: ภาพลักษณ์มีความเกี่ยวข้องกับพฤติกรรมสุขภาพและภาวะทางจิตใจ ปัจจุบันพบว่า จำนวนหญิงไทยวัยกลางคนเป็นโรคอ้วนเพิ่มขึ้น และภาพลักษณ์เป็นสิ่งสำคัญที่สุดที่ทำให้บุคคลแสวงหาการลดน้ำหนัก แต่ไม่พบว่ามีเครื่องมือเพื่อประเมินภาพลักษณ์ของหญิงไทยวัยกลางคน โดยเฉพาะการวัดด้านความคิด การศึกษานี้เป็นการพัฒนาและทดสอบคุณสมบัติความเที่ยงและความตรงของแบบวัดจำนวน 2 ชุด ได้แก่ แบบวัดแบบแผนภาพลักษณ์ปัจจุบัน ซึ่งใช้เพื่อประเมินความคิดในปัจจุบันและความสำคัญที่บุคคลมีให้กับร่างกายของตน และแบบวัดแบบแผนภาพลักษณ์อนาคต ซึ่งใช้เพื่อประเมินความคิดในอนาคตเกี่ยวกับร่างกาย ประกอบด้วยความหวังและความกลัวเกี่ยวกับร่างกายของตน

การศึกษานี้เป็นการพัฒนาเครื่องมือ ใช้วิธีการสุ่มกลุ่มตัวอย่างตามสะดวกได้หญิงไทยเข้าร่วมในการศึกษาจำนวน 507 คน มีอายุระหว่าง 40-60 ปี ที่มีน้ำหนักต่างๆ กัน ทั้งจากหน่วยงานรัฐบาลและเอกชน กระบวนการพัฒนาเครื่องมือประกอบด้วย การระบุแนวคิดเกี่ยวกับภาพลักษณ์ การสร้างข้อคำถาม การเลือกรูปแบบของเครื่องมือ การตรวจสอบข้อคำถามโดยผู้เชี่ยวชาญจำนวน 6 ท่าน การทดสอบความตรงเฉพาะหน้า ความตรงเชิงโครงสร้าง ความตรงตามสภาพ และความสอดคล้องภายในของเครื่องมือ แบบวัดแบบแผนภาพลักษณ์ปัจจุบันประกอบด้วยข้อคำถามความคิดเห็นเกี่ยวกับร่างกาย 27 ข้อ ซึ่งประเมินโดยซีมานติก ดิฟเฟอเรนเชียลสเกล 7 ระดับ และความคิดเห็นเกี่ยวกับความสำคัญของสิ่งนั้น ซึ่งประเมินโดยลิเคิร์ทสเกล 5 ระดับ ส่วนแบบวัดแบบแผนภาพลักษณ์อนาคตประกอบด้วยแบบวัดความหวัง และแบบวัดความกลัว แต่ละแบบวัดย่อย ประกอบด้วย 27 ข้อคำถาม ซึ่งประเมินโดยลิเคิร์ทสเกล 5 ระดับ แบบวัดทั้ง 2 ชุด ประกอบด้วย 8 องค์ประกอบ คือ ความรู้สึกต่อร่างกาย การประมาณขนาดตัว ส่วนประกอบบนใบหน้า สิ่งดึงดูดความสนใจ ความฟิตของร่างกาย การควบคุมน้ำหนัก ภาพรวมของร่างกายและรูปร่าง การศึกษาครั้งนี้แสดงให้เห็นว่า แบบวัดดังกล่าวมีดัชนีความตรงตามเนื้อหา และความตรงเชิงโครงสร้างอยู่ในระดับเป็นที่ยอมรับ รวมทั้งมีความตรงตามสภาพซึ่งได้ทดสอบความสัมพันธ์กับแบบวัดความเชื่อมั่นในรูปร่างสำหรับวัยรุ่นและผู้ใหญ่ของเมนเดลสัน ไวท์ และเมนเดลสัน และแบบวัดการประมาณค่าของรูปร่างของคอลลินส์ แบบวัดแบบแผนภาพลักษณ์ปัจจุบัน และแบบวัดแบบแผนภาพลักษณ์อนาคต ที่พัฒนาขึ้นสามารถใช้เป็นเครื่องมือในการศึกษาวิจัยและในคลินิกเพื่อประเมินภาพลักษณ์ของหญิงไทยวัยกลางคนได้

วารสารวิจัยทางการพยาบาล 2008; 12(1) 40-54

คำสำคัญ : ภาพลักษณ์, แบบแผนความคิดปัจจุบัน, แบบแผนความคิดอนาคต, การพัฒนาเครื่องมือ, การทดสอบคุณสมบัติเครื่องมือ

ปาริชาต รังคกูลนุวัฒน์ *R.N., Doctoral Candidate*
ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย
ลินจง โปธิบาล *R.N., D.S.N รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*
บอนนี แอล เม็ทซเกอร์ *R.N., Ph.D., ศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมิชิแกน แอน อาร์เบอร์ มิชิแกน สหรัฐอเมริกา*
สุจิตรา เทียนสวัสดิ์ *R.N., D.S.N ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*
สมชาย เตียวกุล *Ph.D., อาจารย์ คณะมนุษยศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย*