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# Effects of the Personal Iceberg Metaphor Model to Promote Self-Esteem and Self-understanding among Thai Adolescents: From Clinical Practice to A School-based Prevention Program

***Rassamee Sangthong[1,2]*, Umaporn Trangkasombat[1], Chonnipa Kaewpoonsri[1], Patteera Disayawanwat[1], Chutimon Panyakham[3] and Edward McNeil[2]***

*[1]Child and Adolescent Psychiatry Unit, Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand*

*[2]Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, Hat Yai, Thailand*

*[3]Princes Sirindhorn Craniofacial Center, King Chulalongkorn Memorial Hospital, Bangkok, Thailand*

***Corresponding author:** *Rassamee Sangthong, Child and Adolescent Psychiatry Unit, Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand 10400, Epidemiology Unit, Department of Psychiatry, Faculty of Medicine, Prince of Songkla University, Hat Yai, 90110, Thailand, Tel: +66 81 598 3306, E-mail: rsangthong@yahoo.com*

## Abstract

**Purpose:** To determine the effectiveness and feasibility of the personal iceberg metaphor model program on self-esteem, self-understanding, and depression among Thai students aged 12-15 years.

**Methods:** A 2-day program using the personal iceberg metaphor model was conducted at a school in the inner-city areas of Bangkok, Thailand. The assessments included the Rosenberg Self-Esteem Scale (RSES), the Children's Depression Inventory (CDI), the self-developed questionnaires about self-understanding and opinions about the program. Descriptive statistics, paired t-tests and chi-square tests were used for data analysis.

**Results:** Most students had better self-esteem and self-understanding after completed the program. The number of students vulnerable to depression was reduced by 60% and none of them developed mood disorder. They had positive attitudes toward the program and wished to participate in the program again. Most results remained similar at 3 months follow-up.

**Conclusions:** The program was effective in improving self-esteem, self-understanding, and prevent mood disorder among adolescents. It is feasible to conduct as a school-based program.

## Keywords

Adolescent, Personal iceberg metaphor model, Self-esteem, Self-understanding, Depression

## Abbreviations

RSES: the Rosenberg Self-Esteem Scale; CDI: the Children's Depression Inventory; ML : Mom Luang ; (Def : great-great-grandchild of a king)

## Introduction

Adolescence is a transition period when a child enters into adulthood. They encounter tremendous changes in body and mind. The national surveys and surveillances consistently [1-3] reported across the regions that health risk behaviors substantially increased among adolescents including substance use, premature sexual activity and teenage pregnancy, aggressive and violent behaviors, and suicidal attempt. These risk behaviors stem from psychological problems that can be improved by appropriate interventions.

Various interventions have been developed to reduce risk behaviors [4-7]. Some developed programs for social and emotional training [8], mindfulness-based practice [9], family involvement [10,11] and positive youth development [12-15]. Programs that help adolescents understand their internal psychological process, which is a primary contribution to human's behaviors, are still lacking. Based on the Theory of Mind, understanding of self internal psychological process and others, so called mentalizing process, requires reflective function that developed by both nature and nurture in the first 5 years of life [16]. However, too much stress and adverse life experiences can inhibit this mentalizing abilities [17]. Disruptions in mentalizing increase vulnerability to adaptive breakdown and psychopathology among adolescents. Mentalizing-based treatment program can promote skills that reestablish mentalizing [17].

In clinical practice, psychotherapy is one of the intervention modalities provided to patients with psychological and/or behavioral problems. Virginia Satir developed the personal iceberg metaphor model to illuminate human's mind from abstract to concrete illustration [18]. It contains 7 levels representing 7 characters of the mind. *Behavior* is on top of the iceberg floating above the sea level and can be recognized by others. The six levels beneath the sea include *coping*, *feelings* (which includes *feelings about feelings)*, *perceptions, expectations, yearnings*, and *self*, which are in the center of the mind and are not easily recognized by both oneself and others. The model has been used as a tool for guided discovery of the youths' minds in

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psychotherapy and found effectively reduced problem behaviors in a clinical setting [18-20].

It is interesting and challenging to examine if the model would be useful for adolescents at risk in a community. Our specific objectives were (1) to determine the effectiveness of the personal iceberg metaphor model as a school-based program among Thai adolescents aged 12-15 years in improving their self-esteem, self-understanding, and reducing their odds to develop depression and (2) to assess the adolescents' opinions on the program.

## Materials and Methods

### Study site and study subjects

A middle school located in downtown areas was selected to participate in the study due to a number of students with depression, school truancy, aggressive and delinquent behaviors were reported and referred to our clinic. The school consists of 500 students from pre-kindergarten to 9th grade. However 111 students were at eligible age for participating in the study. Most of them reside in the inner-city areas. Research details were explained to the teachers at the school meeting. School teachers distributed an invitation letter and a detailed research brochure to students and their parents.

The study was conducted among students aged between 12-15 years who volunteered to participate in a 2-day program. Students with neurodevelopmental disorders, intellectual disability, and psychiatric illness were excluded based on the screening questions. At least 32 students were required to see significant changes in the primary outcomes of the study. P value to detect significant changes from pre- to post-program was set at $< 0.05$. The agreement rate of > 80% on better self-understanding and positive opinions towards the program indicated the program success.

All written informed consent were obtained from both students and parents. The research was approved by IRB of the Faculty of Medicine, Chulalongkorn University, Thailand.

### The iceberg-metaphor model program

The program had 3 objectives 1) to explain students about structures of the minds or inner world namely feelings, perceptions, and expectations using the iceberg metaphor model; 2) to explain how minds influence behaviors; and 3) to help students understand their own minds, and other people's minds better. The program was conducted by 4 psychiatrists and 1 psychologist who underwent a certified training program for psychotherapy.

The 2-day program was conducted on weekend at school. The program consisted of six lectures and various activities starting from 8.30 am to 3.30 pm. The first day began with ice-breaker activities followed by 6 sessions of 15-minute lectures using audiovisual presentations. Each lecture provided information and examples of each layer of the personal iceberg metaphor model. Various interactive activities including a question and answer session, a small group discussion, role play, exercises, drawing, coloring and games relevant to the iceberg model were selectively done after each lecture. Towards the end of the day, the students were asked to share what they had learned in a summary session. In the last session, the students were asked to practice writing down inner world based on the personal iceberg model on a given iceberg-shaped paper as their homework.

The second day began with check-in activities and a review of previous lessons. The homework was discussed and further used as a basis to understand new lessons in the lectures including a) positive feelings versus negative feelings, b) how feelings influence behaviors and c) an understanding our own minds versus other people's minds. Interactive sessions and activities were also provided after each lecture to deepen their understandings. The program ended, on a second day, by having adolescents play a game titled "Free Your Mind" as a hands-on experience how to manage negative feelings. Students thought about their unwanted unhappiness or negative feelings as holding a ball in their hands. They then threw the ball away into the basket to free their unwanted feelings.

A series of books about child psychology written by the second author were given to the school library, a gift was given to the representative teacher, and stationary was given to each student to express thanks for their participations at the end of the program.

### Assessment

Before starting the program, four sets of baseline assessment tests were given to the students including 1) baseline sociodemographic questionnaire, 2) the Rosenberg Self-Esteem Scale (RSES)-Thai version [21], 3) the Children's Depression Inventory (CDI)-Thai version [22]. Students were explained how to complete the test and they could ask any questions they might have. It took about 30 minutes to complete all these questionnaires.

The Rosenberg Self-Esteem Scale (RSES) [23] is a self-report measuring self-esteem and self-worth. It has 10 items measured in Likert scales asking about the positive sides (5 items) and the negative sides (5 items) towards oneself. The scores range in four levels from strongly agree to strongly disagree. The higher score shows the higher self-esteem. The Thai version was developed and demonstrated good internal consistency (Cronbach's alpha 0.86) [21]. The Children's Depression Inventory (CDI) is one of the most popular self-report screening for depression in children. It consists of 27 items asking about depressive symptoms during the past 2 weeks. The CDI score ranges from 0-54 in which the score of > 15 suggests a child vulnerable to depression and require further clinical assessment. The Thai version was developed and tested by the second author. The study reported reliability coefficient (Alpha) = 0.83, sensitivity = 78.7%, specificity = 91.3%, and accuracy = 87% [22,24].

At the end of the program, self-esteem, self-understanding and opinions on the program were assessed by questionnaires. Self-understanding questionnaire consists of 12 items assessing how well students understand the iceberg model and how the program affects the change of their minds from before to after the program. Students could give any comments what they liked and disliked about the program and how they would like to improve it. After 3 months, all students were reassessed on self-esteem, CDI, self-understanding and opinions about the program.

### Data management and statistical analysis

Double entry was done by EpiData software version 3.1 [25]. Descriptive statistics were used to examine baseline characteristics and summarized measured outcomes. Paired t-tests and chi-square tests were used to examine change of scores in continuous and categorical scales, respectively. The R language and environment [26,27] was used for all analyses.

## Results

After announcement of the program, 37 students volunteered to participate in the program. Parental written informed consent was able to obtain from all students. All students showed up on the first day of the program. However 81% (n = 30) and 97% (n = 36) returned on the second day and at 3-month follow-up, respectively.

### Demographic information

The ratio of male to female students in the program was comparable (Table 1). Most students were in their mid adolescence, and studying in 8th grade. They had poor to fair academic performance based on GPAs. Most of them lived with both parents. Majority of fathers and mothers completed high school or below. Most fathers had blue collar work whereas almost half of the mothers were housewives. Estimated family monthly income was between < 10,000 ($285) to < 50,000 THB ($1428).

### Outcome evaluation

**Self-esteem:** The score of RSES significantly increased from 27.5

**Table 1:** Baseline characteristics of participants (n = 37)
*$1 = 35 THB

| Variables | | n (%) |
|---|---|---|
| Sex | | |
| | Male | 20 (54.1) |
| | Female | 17 (45.9) |
| Age (years) | Mean (SD) | 14.1 (0.77) |
| Religion | | |
| | Buddhism | 36 (97.3) |
| | Islam | 1 (2.7) |
| Class | | |
| | M.1 | 14 (37.8) |
| | M.2 | 23 (62.2) |
| Previous GPA | Mean (SD) | 2.7 (0.9) |
| Current GPA | Mean (SD) | 2.3 (1.0) |
| Living with both mother and father | | 26 (70.3) |
| Living with only father or mother | | 9 (24.3) |
| Living with others | | 2 (5.4) |
| Father's education | | |
| | Elementary school | 8 (22.9) |
| | High school or equivalent | 25 (71.4) |
| | Bachelor's degree or equivalent | 1 (2.9) |
| | Above Bachelor's degree | 0 (0.0) |
| | others | 1 (2.9) |
| Father's occupation | | |
| | Government officer | 4 (12.1) |
| | Vendor | 12 (36.4) |
| | Employee/casual work | 10 (30.3) |
| | Others | 7 (21.2) |
| Mother's education | | |
| | Elementary school | 12 (32.4) |
| | High school or equivalent | 20 (54.1) |
| | Bachelor's degree or equivalent | 2 (5.4) |
| | Above Bachelor's degree | 2 (5.4) |
| | others | 1 (2.7) |
| Mother's occupation | | |
| | Housewife | 17 (45.9) |
| | Government officer | 2 (5.4) |
| | Vendor | 9 (24.3) |
| | Employee/casual work | 5 (13.5) |
| | Others | 4 (10.8) |
| Family income (THB)* | | |
| | < 10,000 | 15 (40.5) |
| | 10,001-50,000 | 18 (48.6) |
| | > 50,000 | 4 (10.8) |

(SD = 3.2) to 29.9 (SD = 3.0) units from pre-to-post program (P = 0.002) and remained similar at 3-month follow-up (29.8 unit, SD = 2.5 unit) suggesting better self-esteem after participating in the program.

**Depression:** The average scores of CDI significantly reduced from 16.6 (SD = 5.9) at baseline to 14.2 (SD = 6.7) units at three months follow-up (P < 0.0001). Students vulnerable to mood disorder reduced from 61.5% to 38.5% (P < 0.003). None of them revealed clinical presentation of mood disorder after 3 months follow-up.

**Self-understanding:** After participating in the program, most students (86.7%) agreed that they had better self-understanding (Table 2). More than 80% of students reported better understanding of their behaviors and feelings after the program and still remained at 3-month follow-up. The agreement rates on better understanding of their own expectation, feeling good about themselves and self-worth were initially achieved our target but decreased to below 80% at 3-month follow-up. The program moderately improved the understanding of self-perception, reasons behind their expectations, and how to handle their misperceptions and unmet expectations.

**Opinions towards the program:** Most students had positive opinions toward the program (Table 3.). All participants agreed that the program was useful and interesting. Most of them thought that the program was practical, easy to understand, and helped them to understand themselves better. They could easily explain about the program to others and would recommend others to participate in the program. After 3 months of the program, most students still reported positive opinions towards the program although the agreement rate relatively declined.

Half of the students provided qualitative comments (Table 4). They liked activities in the program and requested for having more programs at school. They suggested to have longer duration of the program and to have more numbers of fun activities in the program. Some suggested that all students should participate in the program. Other needed some individual session and wished to participate in the program again.

**Table 2:** Changes in self-understanding after completing the program

| Item | Post-test n (%) | 3-month follow-up n (%) |
|---|---|---|
| I understand my behaviour better | 26 (86.7) | 29 (80.6) |
| Agree | 1 (3.3) | 2 (5.6) |
| Disagree | 3 (10.0) | 5 (13.9) |
| Not sure | 3 (10.0) | 5 (13.9) |
| I know my feelings better | | |
| Agree | 27 (90.0) | 33 (91.7) |
| Disagree | 1 (3.3) | 1 (2.8) |
| Not sure | 2 (6.7) | 2 (5.6) |
| I can manage my feelings better | | |
| Agree | 23 (76.7) | 28 (77.8) |
| Disagree | 2 (6.7) | 3 (8.3) |
| Not sure | 5 (16.7) | 5 (13.9) |
| I sometimes have misperception | | |
| Agree | 18 (60.0) | 22 (61.1) |
| Disagree | 7 (23.3) | 6 (16.7) |
| Not sure | 5 (16.7) | 8 (22.2) |
| I can manage my misperception better | | |
| Agree | 20 (66.7) | 16 (44.4) |
| Disagree | 2 (6.7) | 6 (16.7) |
| Not sure | 8 (26.7) | 14 (38.9) |
| I understand my expectations better | | |
| Agree | 24 (80.0) | 21 (58.3) |
| Disagree | 2 (6.7) | 4 (11.1) |
| Not sure | 4 (13.3) | 11 (30.6) |
| I know the reasons behind my expectations | | |
| Agree | 17 (56.7) | 21 (58.3) |
| Disagree | 2 (6.7) | 6 (16.7) |
| Not sure | 11 (36.7) | 9 (25.0) |
| I can manage the unmet expectation better | | |
| Agree | 18 (60) | 23 (63.9) |
| Disagree | 3 (10) | 7 (19.4) |
| Not sure | 9 (30) | 6 (16.7) |
| I can handle criticism better | | |
| Agree | 17 (56.7) | 17 (47.2) |
| Disagree | 4 (13.3) | 7 (19.4) |
| Not sure | 9 (30.0) | 12 (33.3) |
| I feel good about myself more than before | | |
| Agree | 25 (83.3) | 28 (77.8) |
| Disagree | 2 (6.7) | 8 (22.2) |
| Not sure | 3 (10.0) | 0 (0.0) |
| I feel worthy more than before | | |
| Agree | 27 (90.0) | 27 (75.0) |
| Disagree | 1 (3.3) | 1 (2.8) |
| Not sure | 2 (6.7) | 8 (22.2) |
| I understand myself better | | |
| Agree | 26 (86.7) | 28 (77.8) |
| Disagree | 1 (3.3) | 1 (2.8) |
| Not sure | 3 (10.0) | 7 (19.4) |

**Table 3:** Opinions on the iceberg metaphor model program.

| Items | Post-test n (%) | 3-month follow-up n (%) |
|---|---|---|
| The program is useful | | |
| Agree | 30 (100.0) | 34 (94.4) |
| Disagree | 0 (0.0) | 0 (0.0) |
| Not sure | 0 (0.0) | 2 (5.6) |
| The program is practical | | |
| Agree | 29 (96.7) | 33 (91.7) |
| Disagree | 0 (0.0) | 1 (2.8) |
| Not sure | 1 (3.3) | 2 (5.6) |
| Duration of the program is appropriate | | |
| Agree | 22 (73.3) | 27 (75.0) |
| Disagree | 2 (6.7) | 3 (8.3) |
| Not sure | 6 (20.0) | 6 (16.7) |
| The content is interesting | | |
| Agree | 30 (100.0) | 31 (86.1) |
| Disagree | 0 (0.0) | 1 (2.8) |
| Not sure | 0 (0.0) | 4 (11.1) |
| The iceberg is easy to understand | | |
| Agree | 26 (86.7) | 31 (86.1) |
| Disagree | 1 (3.3) | 0 (0.0) |
| Not sure | 3 (10.0) | 5 (13.9) |
| The iceberg helps me understand my worries | | |
| Agree | 23 (76.7) | 23 (63.9) |
| Disagree | 2 (6.7) | 3 (8.3) |
| Not sure | 5 (16.7) | 10 (27.8) |
| The iceberg helps me understand myself better | | |
| Agree | 28 (93.3) | 32 (88.9) |
| Disagree | 0 (0.0) | 2 (5.6) |
| Not sure | 2 (6.7) | 2 (5.6) |
| The iceberg helps me understand others better | | |
| Agree | 19 (63.3) | 25 (69.4) |
| Disagree | 2 (6.7) | 5 (13.9) |
| Not sure | 9 (30.0) | 6 (16.7) |
| I can easily tell other people about the iceberg model | | |
| Agree | 21 (70.0) | 19 (52.8) |
| Disagree | 2 (6.7) | 3 (8.3) |
| Not sure | 7 (23.3) | 14 (38.9) |
| I can easily explain about what I have learned from the program to other people | | |
| Agree | 26 (86.7) | 23 (63.9) |
| Disagree | 1 (3.3) | 2 (5.5) |
| Not sure | 3 (10.0) | 11 (30.6) |
| I would recommend this program to others | | |
| Agree | 25 (83.3) | 23 (63.9) |
| Disagree | 1 (3.3) | 1 (2.8) |
| Not sure | 4 (13.3) | 12 (33.3) |

## Discussion

This is a newly developed school-based prevention program conducted among adolescents residing in the inner-city areas and had low socio-economic status. Poverty and inner-city deprived areas are risk factors of delinquent and conduct behaviors [28-30]. The study sample were drawn from high risk population and were likely to have risk behaviors. It was therefore appropriate to conduct such a study in this vulnerable group.

The program is brief but has shown promising results in many ways. The program could significantly increase self-esteem, self-understanding, and reduced odds to develop mood disorder. These psychological outcomes largely contribute to human's behaviors. A study reported Nigerian adolescents with low self-esteem were 1.7 times more likely to be sexually active and engaged in risky sexual behaviors compared to adolescents with high self-esteem [31]. Low self-esteem is also related to aggression, anti-social behaviors, and delinquency [32]. Moreover, low self-esteem during adolescence predicts poor health and criminal behaviors during adulthood [33]. After participating in the 2-day program self-esteem of the students significantly increased and could be maintained for at least 3 months. As a result, the program may prevent or reduce adolescents' risk taking behaviors.

Self-understanding in this study was determined by understanding of feelings, perception, expectation. Understanding of self could lead to healing and correction of obstacles in the mind. It could reduce anxiety and prevent psychosocial stress [34]. The program provided a hands-on experience how to manage their negative feelings. However students still had difficulties in managing their negative feelings, misperceptions, and unmet expectations.

The study reported 61.5% of students potentially developed mood disorder. Depression and mood problems are related to problematic digital gaming behaviors, substance use, self-harm, and suicidality among adolescents [35-38]. At 3-month follow-up, none of them developed mood disorder. As a result, the program has potential to reduce risk-taking behaviors related to depression.

This program is practical and feasible to be used among adolescents at school. The issues worth further examined were the optimal duration and frequency of the program. Some coping techniques to help students manage their feelings, perception and expectation better may be useful to add.

Use of self-comparison from pre- to post-intervention and lack of randomization cannot warrant the causal relationship between the intervention and the outcomes. Based on the results of this study, the program could be further developed and tested by a well design randomized controlled trial.

**Table 4:** Comments on the iceberg metaphor model program (n = 18).

| | |
|---|---|
| 1. | "I like everything in the program. (5) The iceberg model is easy to understand and very useful. (2) It makes me understand myself better. I can control my emotion better. I can also share other people about the iceberg model. The facilitators are so nice." |
| 2. | "I have learned a lot from the program. I can make use of the iceberg model in my daily life." |
| 3. | "I want to learn more about the iceberg model. I want it to be more fun and have more games. (3)" |
| 4. | "This is a very good program. (2) It can help me understand myself and other people better. (6)" |
| 5. | "The model is so easy to understand." |
| 6. | "The program is very useful." |
| 7. | "I want to participate in the program every day." |
| 8. | "I can understand my friends better." |
| 9. | "I want to participate in the program again. Everyone in the school should participate in the program.(2)" |
| 10. | "I am very happy to participate in the program. (2)" |
| 11. | "It would be good if the length of the program could be extended so I can learn more. (4)" |
| 12. | "The program should be adjusted for age group, like having more games for students in primary level and having more information for students in a secondary level. Variety of activities should be added. (3)" |
| 13. | "The program is so much fun." |
| 14. | "I also want an individual session so I can understand better." |
| 15. | "I want the school to have this kind of activity again. (2)" |

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## Implications and Contribution

This study demonstrated an improvement in self-esteem, self understanding and prevention of mood disorder among adolescents after knowing about the structure of their minds by participating in the program. What is inside the mind will eventually externalize into behaviors. The program could be further developed and tested to prevent and reduce health risk behaviors among adolescents at school.

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