The Impacts of "Immune of Life for Teen" Module Application on Coping Behaviors and Mental Health of Early Adolescents

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Abstract :

The quasi-experimental research is the later part of Health Promotion for Early Adolescents Project which focuses on the training of school teachers to use the Module "Immune of Life for Teens" developed in 1999 for evaluating its impacts. The module consist of manual and VDO cassette display a story of a teenager who have difficulty adjusting to life changes. The program aimed at improving coping skills and psychological health or mental health of junior high school children. The schoolteachers from 13 schools participated as an experimental group received training for using the module in their schools with students grades 7th-9th. The control group were 3 schools without the application of the module. Each school performed the pre-test and post-test at 1 month after the module application. The total number of the students in the study was 1,580. There were 441 students in the control group, 474 students in the experimental I (intensive training) group, and 661 students in the experimental II(not intensive training) group. Instruments used for impacts evaluation were: 1) Young Adult Coping Orientation for Problem Experiences (YA-COPE) developed by Patterson, McCubbin, and Grochowski (1983), 2) The Thai Mental Health Questionnaire (TMHQ) was a 70-item self-administered questionnaire developed by Pattrayutwat (1999) to assess mental health status.

The findings reveal that at 1 month after the module implementation both experimental I and II groups had better coping behaviors than the control group when using pretest scores as covariate ($F=9.425$, $p<0.01$ and $F=22.446$, $p<0.001$). The study also shows that at 1 month after the module implementation both experimental I and II groups had better mental health than the control group when using pretest scores as covariate ($F=6.034$, $p<0.05$ and $F= 6.596$, $p<0.001$).

The study confirmed the impacts of module **"Immune of Life for Teens"** on better coping behaviors and better mental health status among the subjects after the module implementation by their teachers. Thus, for further use of the module , intensive training for school teachers is recommended for health promotion of the early adolescents.

Key worlds:adolescent health, mental health, coping , module, immune of life

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INTRODUCTION

Recent health promotion literature advocates to the selection of a high-risk target group rather than a general adolescent population, where an emphasis is placed on targeting only those children that seem to be most problem-prone (Tenn and Devis, 1996). Adolescence has been described as the first barrier to health promotion. Youth health promotion has in normal pointed immediate and long term benefit from changing health behavior in children and adolescents with questionable scientific evidence support in the past (Kulbok Earls and Montgomery 1988).

Thus, the researchers had initiate a project focus on health promotion of the early adolescent in order to develop a research based implementing tool for school teachers and school nurses to use. In 1999, a pilot test of a module “The Immune of Life for Teen” in an adolescents health promotion project was performed in 2 schools in Bangkok and Burirum provinces. This project was originally funded by the world Health Organization. The result of the pilot test of the module was encouraging that further application of the module in other schools nation wide was suggested.

It was recognized that health promotion behaviors of individual and group are mostly related to life style which embedded within one culture the Thai adolescents develop their health promotion behavior . The adolescence years is a period of transition from childhood to adulthood as there is evident that number of health related behaviors developed during adolescence persist into adulthood and many are retain as long life behaviors (Pender, 1996). There are the formative years when the maximum amount of physical, psychological, and behavioral changes take place. It is also a time of preparation for undertaking greater responsibility and a time to ensure health all-round development (Rafei, 1997).

The transitional crisis in adolescents with the effects of various profound intrapersonal, interpersonal, and extrapersonal factors. The main causes of crisis come from profound biological changes in puberty engender feeling and extreme vulnerability and sensitivity to physical appearance. Most of health promotion document refer to adolescence as the most opportune time to establish health promotion cognitive and behavior (Smith-Hendrick, 1992). While young adolescence have increasing potential of abstract thought, their cognition still trend to be concrete and present oriented. Although parents modeling the health behaviors remain the largest influence, the attitude of schoolmates and school teachers are greatly influence adolescents perceptions of health promoting behaviors. The middle school years is believed to offer the new and greater possibility for the poor health choices (Bright Future, 1998). Therefore, early health promotion at the middle school age year grades 7th-9th can be critical point for health behavior and health promotion. Health promotion for early adolescence, therefore, is essential for later years of life. Whereas school setting has been identified as the place for interacting, learning, adopting, and adjusting health behaviors. The adolescence prefers to be more responsible for their own health with the assistance of school nurses, teacher, counselor, and significant group of

peers, Thus, the health promotion for early adolescence can be developed along with identification of health needs and intervention modules.

Adolescents are at high health risk but the problem was well recognized. Health statistics in Thailand showed a high health risk behaviors are related to smoking and drug abuse. A half of those who smoke had started at age 15-19, and 60 percents for drug addict persons were teenagers. The most frequent reasons for start smoking were peer pressure related. According to the Police Department and The National Accident Prevention Committee, accident mortality rate in adolescence is highest when comparing to the other age groups (Division of Police Statistic, 1989 ; National Accident Prevention Committee, 1993). Transportation and other causes of accidents accounted for 54% of mortality in the population aged 15-19 of age (The National Statistics Office, 1996 cited in Punrunothai et al., 1999).

In the past, secondary schools in Thailand had adopted the policy to provide healthy environment and health education for the students, however, there were problems in managing and administration of such policy. Presently school is a focal setting for many projects aim to prevent behavioral and social problems which very much related to the adolescence health. The examples of various sectors approaches are 1) The Life Skill Development by the Department of Mental Health, the Ministry of public Health, and the General Education Department, The Ministry of Education. Recently, the Mental Health Department has developed and distributed the life skill development manual for preventing school children' s drug abuse problems for teachers in primary schools, secondary school and high schools (Chaninthayoudwong, 1999). 2) The Promotion of Solving Problems of AIDS, Prostitute, Drug Abuse Project by the Academic Development Division, the Ministry of Education. 3) Prevention and Therapy for School Children with Drug Abuse Project by Pramongkudkloa Hospital, the Thai Military. 4) Drug Abuse Survillance and Prevention by Local Police Station staffs. It is evident that almost all project targeted on the school children but implement it through school teachers. The activities in project were set program with minimal contribution from the adolescence. The follow up study by the General Education Department in 1997 showed that the number of activities provided to the students in 9 groups of school in central region were not as important as empowering the students in decision making (Education Counseling Division, 1997). Thus, it is a believe that working towards any problems solving will be best benefit when the target group' s needs are identified and allow them to participate in the problem solving process. Therefore, there is a need to have the adolescence participation that reflecting their problems and needs as well as their ideas of feasible problem solving that are acceptable to the teen group.

BACKGROUND

During the **Phase I : Identify on Health Problem and Module Development** of the project in 1999, health concerns of the early teen were identified using focus group interview study and content analysis in 224 students grade 7th– 9th in 8 schools representing each region and Bangkok. The result revealed that the concerning health issues among the early adolescents both in boys

and girls are differently identified. However, when they asked to rank the health concerns, it was found that concerns related to stress from studying, the problem with the opposite sex relationship, the unsatisfied self-image, personal health problem, and drug use in teens were most frequently mentioned. As they were asked to rank the number one health problem for them, it was found that issue related to stress caused problem for them was most important. Additionally, it was showed that rural students demonstrated a little more concern with health in relation to stress that urban area. Female students concerned about stress in relation to school achievement slightly more than male students. The data also showed that more urban adolescents were concerned with the body image than those in the rural group (Phuphaibul et al. 1999).

Obviously, health concerns of the early teen are stress related situation that can be caused by school performance, family conflict, financial difficulty, opposite sex relationship, poor self image. Therefore, the need for this age group in maintaining health should be focus on helping them to cope or to life stress that resulting from various causes. Expecting outcome of the generation next with strong immune to stressful events will ensure their future health and well being.

Therefore, a module for school teachers, school nurses and counselors in assisting the school children grade 7th –9th to face with life stress was developed. During Phase I, the teaching-learning module is so called "**Immune of Life for Teen : THE WORLD OF KEDD**" was developed with the application of participatory learning process. The module was consisted of :

1) A Module guideline that give the instruction for users of how to adequately use the module. The preparation of the teachers were conducted prior to the application of the module.
2) A 32 minutes VDO cassette and the user instruction. The video depicted a story of a young male teen who move to a new school with personal life problem resulted from his broken family. The video had 6 short episodes of Kedd' s life . Each episode was followed by 4-6 key questions that allowed student groups to critically analyzed the situation and ways to mange if they were in that profound situation. The group resolution later would be shared with the whole classroom.
3) Book of guideline for teachers, school nurse, and counselors who are responsible for teaching the module would be used for instructing the student group discussion activity.
4) References materials for the users, both students and users were provided for discussion the topics.

The module using participatory learning principle is consistent with the Eight National Education Plan of Thailand (1997 -2001) which aims for quality improvement of learners both academically, mentally and socially. The educational reform was initiated at the ministerial level in December 1995 The reform offers operational approaches to enhance the quality of education until educational excellence is achieved in the year 2007. (The Ministry of Education, 2000). According to the educational reform initiated by the Office of National Education Commission (ONEC), the curriculum reform was

introduced to raise educational quality of all types and levels by organizing teaching/learning process inculcating in youth the desirable traits was focused. The application of the module assisted the teachers to use the students participatory learning as teaching-learning process with emphasis on acquirement of such characteristics as broad vision and outlook and inquisitive mind, as well as the use of educational technologies and media, as suggested in the reform of teaching and learning process.. (The Office of National Education Commission, 2000).

OBJECTIVE

- To study the impacts of "Immune of Life for Teen" learning module on coping behaviors and mental health of the early adolescents at 1 months after the implementation.

Hypothesis

Hypothesis I : At 1 month after the implementation , the experimental group will have better coping behaviors than the control group.
Hypothesis II : At 1 month after the implementation , the experimental group will have better mental health than the control group.

METHODOLOGY

The population of the study were students in secondary schools grade 7th –9th from both private and government schools nation wide. As the teachers were recruited through invitation for participate letters, it was therefore purposive in its nature.

The teacher training

The schools participated in this study were :

1. Control group – There were 3 schools located in Bangkok , Prae , and Prachuop Kereekun. The teachers were not trained and the module was not provided.
2. Experimental I group – The teachers were intensively trained how to use the module with the demonstration in a real classroom for 2 days. There were 6 schools located in Khon Kaen, Bangkok , Kanchanaburi , Prachinburi , Pisanulok , and Sukothai.
3. Experimental II group – The teachers were introduced to the module in brief for half a day. There were 7 schools located in Nakorn Pathom , Bangkok , Satol , Ubol Rachathani , Nakorn Rachasima , and Udorn Thani.

The impact evaluation

All schools in both experimental I and II groups could apply the module to their students as many as they would like to. But all schools were asked to randomly select approximately 100 students in each school to perform the pre test at 1

week before and the post test at 1 month after the module implementation. The total number of the students in the study was1,580. There were 441 students in the control group, 474 students in the experimental I group , 661 students in the experimental II group respectively.

The Module Implementation process

Both the experimental I and II groups, the teachers followed the module "Immune of Life for Teen" instruction in application of the module in their classes. Many of them used health education session , counseling session and free-time session as the periods for applying the module. Two 45 minutes sessions were required for completing the module activities. Participatory learning process was used in the module to involve students in small group discussion of the "World of Kedd" depicted in the V.D.O. Each episode was followed by 4-6 keys question that permit the students to critical analyze the situation and ways to handle the situation differently. At the end, "Say no" skill development was introduced with role playing method among the students. Peer discussion was motivated in order to enhance each individual experience. As the teachers conducted the classed , the researchers were invited to observe some of the classes in order to view the actual interaction among the teachers and the students.

Instruments

The instruments for pre and post-tests were :

1. Young Adult Coping Orientation for Problem Experiences (YA-COPE) developed by Patterson , McCubbin , and Grochowski (1983) translated and modified by the researchers. The original YA-COPE was 56 items were generated and grouped conceptually into the concepts of ventilation , low level, self-reliance and positive appraisal , emotional connection , family problem solving , avoidance , spiritual support , high activity level, and humor.

   YA-Cope emerged as a self report and originally designed to identify the behaviors of freshman reported its overall internal consistency reliability of .82 (Cronbach' alpha) . From this study , its overall internal consistency reliability of .80 (Cronbach' alpha).The factor analysis of 56 items resulted in the formation of nine factors (subscales) identified above.A sum score can be obtained from the total scale by simply summing the respondent's score for each items.
2. The Thai Mental Health Questionnaire (TMHQ) was 70 items self-administered questionnaires developed by Pattrayutwat (1999) to assess mental health status. The instruments was originally developed for adult mental health by assessing stress symptoms occurred with in the past 1 month .The factorial score s composed of 5 factors namely somatics, depression, anxiety, psychotic, and social function. The instrument was standardized in Thai population. The test revealed its internal consistency reliability of 0.82 (Cronbach's Alpha) in this study . The sum of score in each factorial score were divided by the number of items . The lower score means less mental health problem or stress and the higher score means high stress.

FINDINGS

The study results were presented according to the hypothesis testing , in order to examine the impacts of the module at 1 months after the implementation.

Characteristics of the sample

The subjects were 1,580 students from 16 schools who were studying in grade 7th –9th . The schools had high variation of the number of students ranging from 225 to 2,000 students in grade 7th-9th. There were 445 students in the control group , 474 students in the experimental I group and 661 students in the experimental II group. The average age of the control, the experimental I and the experimental II groups were 13.55, 13.78 , and 13.79 respectively. The overall average age of the three groups was 13.72 year old .

Coping behaviors of adolescent

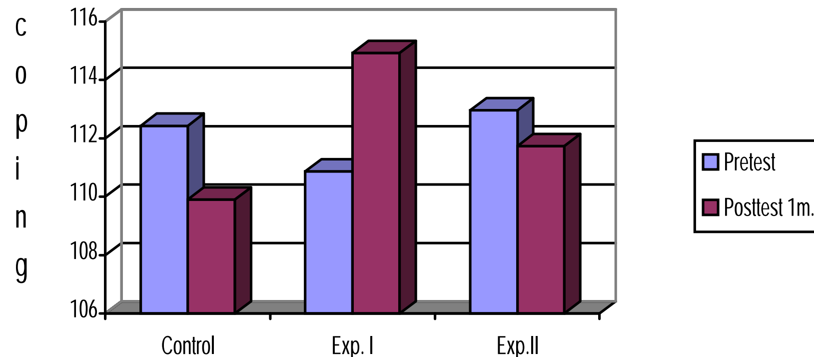
The coping behavior pretest score (YA-COPE) of the whole three groups was 112.18 with the minimum score of 36 and the maximum score of 190. The mean scores for each group for the control , experimental I and II were 112.43, 110.87 , and 112.96 respectively. The comparison of the pretest mean scores using the Analysis of Variance method, the result showed no significant difference between the three groups ($F=1.283$, $p >0.05$). Details showed in Table 1 .

Table 1 : Mean, standard deviation , and range of the pretest coping scores of the control and experimental groups.

Coping	N	Mean	S.D.	Range
Control	445	112.43	20.21	40-170
Experimental I	474	110.87	26.76	36-180
Experimental II	661	112.96	19.49	57-190
Total	1580	112.18	22.11	36-190

The mean coping behavior scores in the control group at before and at 1 month after showed a small decrease from 112.43 to 109.90 . However, the experimental I group coping score was increased from 110.87 during pretest to 114.92 at 1 month after the implementation . The experimental II group also showed a small decrease as showed in Figure 1.

Figure 1 : Mean scores of coping behaviors in control and experimental I ,II groups at before and one month after.



In comparing the means of coping behavior posttest scores between the experimental I and the control groups at 1 month after , with pretest score was a covariate using ANCOVA . Log transformation of the score was use due to the problem with slope homogenuity. The result showed a significant different between the control and the experimental I group. The experimental I group has better coping behavior than the control group when controlling for pretest score ($F=9.425$, $p< 0.01$).

When comparing the means coping behavior posttest scores between the experimental II and the control groups at 1 month after , with log transformation of the scores and pretest was a covariate using ANCOVA . The significant difference between coping behavior scores of the control and experimental II groups was found ($F = 22.446$, $p <0.001$) . The hypothesis I was accepted.

When comparing the means coping behavior posttest scores between the experimental II and the control groups at 1 month after , with log transformation of the scores and pretest was a covariate using ANCOVA . The significant difference between coping behavior scores of the control and experimental II groups was found ($F = 22.446$, $p <0.001$) . The hypothesis I was accepted. At 1 month after the implementation , the experimental group had better coping behaviors than the control group.

Mental Health

While the test results could be interpreted as interval or categorical scales, the higher score means more stress , while the abnormal score can be identified by those score is higher or lower that t – score of 40-60 in each subscale (Pattrayutwat 1999) . The pretest scores suggested that among the 5 mental health factors namely 1) somatic , 2) depression ,3) anxiety , 4) psychotic , and 5) social factors , more adolescents demonstrate abnormality in social dimension than others (73%) while other abnormalities incidence was between 22.3-38.9 %. When testing the mental health scores among the control and experimental I , II using Chi ^{2} test. The results depicted the significant different among the 3 groups ($p< 0.01$ and $p< 0.05$) in all factors in the pretest as showed in Table 2 .

Table 2 : Comparison of mental health pretest scores of the control and experimental I ,II groups using Chi ^{2} test.

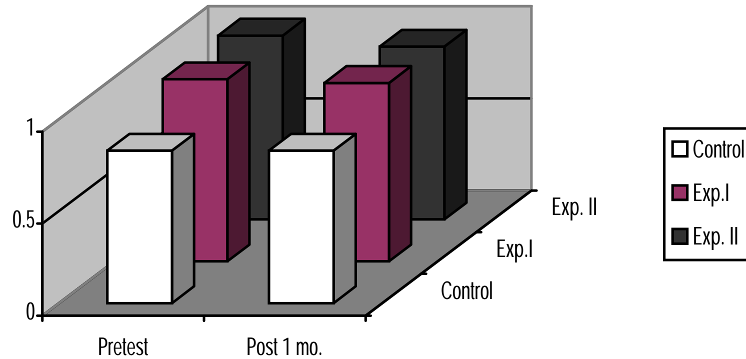
Mental Health	**Normal N (%)**	**Abnormal N (%)**	**Chi ^{2}**
Somatic	*965 (61.1)*	*615 (38.9)*	*17.531***
❑ Control	304 (68.3)	141 (31.7)	
❑ Experimental I	292 (61.6)	182 (38.4)	
❑ Experimental II	369 (55.8)	292 (44.2)	
Depression	*1,073(67.3)*	*507 (32.3)*	*15.747***
❑ Control	334 (75.1)	111 (24.9)	
❑ Experimental I	300 (63.3)	174 (36.7)	
❑ Experimental II	439 (66.4)	222 (33.6)	
Anxiety	*992 (62.8)*	*588 (37.2)*	*26.655***
❑ Control	324 (72.8)	121 (27.2)	
❑ Experimental I	278 (58.6)	196 (41.4)	
❑ Experimental II	390 (59.0)	271 (41.0)	
Psychotic	*1,228(77.7)*	*352 (22.3)*	*7.412**
❑ Control	366 (82.2)	79 (17.8)	
❑ Experimental I	362 (79.4)	112 (23.6)	
❑ Experimental II	500 (75.6)	161 (24.4)	
Social	*426 (27.0)*	*1,154(73.0)*	*44.584***
❑ Control	169 (38.0)	276 (62.0)	
❑ Experimental I	126 (26.6)	348 (73.4)	
❑ Experimental II	131 (38.0)	530 (80.2)	

* $p<0.05$, ** $p<0.01$

The mean mental health total scores in the control group at before and at 1 month after showed the same figure of 0.83 and 0.83 . However, the score of the experimental I group was slightly decreased from 0.99 at pretest to 0.97 at 1

month after . But the experimental II group also showed a small decrease from 1.00 to 0.94 as showed in Figure 3.

Figure 3: Mean pretest and post test at 1 and 6 months scores of mental health of the control group and the experimental I and II groups.



In comparison of the means mental health posttest scores between the experimental I and the control groups at 1 month after , when controlling for pretest score differences using ANCOVA. The results showed the difference of the mental health between the control group and the experimental group when controlling for the pretest score ($F=6.034$, $p< 0.05$).

When comparing the means coping mental health posttest scores between the experimental II and the control groups at 1 month , when controlling for pretest score differences using ANCOVA . The ANCOVA result also showed significant difference between mental health scores of the control and experimental II groups ($F = 6.596$, $p< 0.001$). Therefore the hypothesis II was accepted, that was 1 month after the implementation , the experimental group had better mental health than the control group.

DISCUSSION

The **Immune of Life for Teen** Module developed in Phase I in 1999 has revealed its contribution to the adolescent health. The process of teacher training using participatory learning principle in conducting group work with adolescents. While the learning is based on the learner experience and interaction among the learners and learner , learners and facilitators are essential.

Teachers were divided into 2 groups. The findings for hypothesis testing showed that the teachers who were intensively trained and less intensively trained could conduct the module in classes at satisfactory level. From observation, the experimental I group with demonstration of application of the module in classroom seemed to be better prepared and had less difficulty in preparation of the teaching plan. During the application session , communication both verbally and non-verbally are recognized as the knowledge exchanging mean. Teacher acted as facilitator to assist the learner

in order to bring their own experience into the knowledge development process that the learner can express their ideas , share their experiences and learn from each other. The **Immune of Life for Teen** was implemented successfully as the participatory learning process is excellent for working with adolescents , who are in formative stage of cognitive development. Through learning process, they can hypothesize the cause of the problem and solution to the problem . Additionally, they can participate in the learning activity very well as they can bring their own experience into the knowledge development process. At the end of each session, conceptualization can be done as the result of the learner initiative and polishes by the teacher or the facilitator. The module was used in working with adolescents using participatory learning in coping skill development that allow learners to have critical thinking and creative thinking Other than participatory learning is the key reason for the success, it was noticeable that whose schools who accepted the invitation to join this project in the experiment groups were highly interested in improving adolescent health, and ready in participate the project activities.The motivation and readiness of the schools and the teachers, therefore add to the success of the module implementation.

It is important to note that both methods of teacher training contribute to the successful implementation of the module. It might due to most teachers were acquainted with participatory learning principle now since the Educational Reform Policy in Thailand is focusing on *Student centered education* . Therefore, the distribution of the module packages with brief introduction to the module , V.D.O. “The World of Kedd” , and the instruction guideline could be sufficient enough for teachers to be able to apply the module in school. However, from the teachers’ comments after application of the module , some teachers from the experimental II group requested more intensive training for them to ease the class or lesson planing.

RECOMMENDATION

Overall evaluation of the module, this module is beneficial to adolescent health and recommended for further implementation in all schools , in particular the children grade 7-9. Following recommendation for further study and implementation are:

1. Distributing of the knowledge gained from this study and distribute the module through the Ministry of Education for further implementation. Junior high schools grade 7 to 9 are specially targeted.
2. Examine the effectiveness of the application of the module, with and without modification of the module in different age groups , for example : late school age group (10-12 years old) , or late adolescents (16-18 years old).
3. More studies on adolescents’ internal and external factors influencing their health are recommended : such as – motivation, learnt behavior , self efficacy, peer influence, family role modeling and family influence etc. It is also suggested that family should participate more in the health promotion of the adolescents.
4. Alternative module materials should be explored as many schools may have limited audio visual instruments.

5. The cohort study of adolescents to examine the enduring effect of the module impacts is suggested for further study.
6. Additional module development focused on adolescent's physical health, sexual health , accident prevention , and drug used prevention are recommended. It was now recognized that integrated life skill development learning is needed . The developed module provide alternative approach to the life skill development which resulting from the adolescents' needs and concerns from Phase I study.

Finally, this report is the final phase of the three years project aimed to promote adolescent health. The results are satisfactorily demonstrated. The researchers hope that the module will be disseminated and used widely in the future.

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