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The Effect of Empowerment Program on Health Education Teachers with Health Insurance Education

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Abstract: Taiwan has been promoting its national health insurance (NHI), which provides people with appropriate medical resources; however, health insurance education is missing from schools, and teachers lack relevant teaching abilities. This study describes the development of the health insurance education empowerment program (HIEEP) to promote effective teaching on educators. A two-group parallel-controlled trial was conducted with health education teachers, in which participants learned to discuss its importance through demonstration and practice. The questionnaire measured their teaching effectiveness in HIEEP using a baseline measurement and a one-week follow-up measurement. Of 196 people that started the trial, 186 completed it. The intervention effects were evaluated using the Johnson-Neyman method. The results showed that in the experimental group, the program raised all teachers' variable scores, which evaluated health insurance meaning, teaching competence, self-determination, and impact. The empowerment program can provide teachers will allow for more effective health insurance education.

Keywords: Empowerment program, health education, health education teachers, health insurance education, medical resources.

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Introduction

Taiwan launched its National Health Insurance (NHI) in 1995 to provide the public with low-cost and convenient medical care (Aboumatar et al., 2013). Owing to longer life expectancies and medical technology innovations, implementing NHI has resulted in higher demand for medical care, with medical expenses increasing as a result (Cheng et al., 2018; Lee et al., 2014). Adults have an insufficient understanding of health insurance and are unfamiliar with related policies (Adegboyega et al., 2020; Liu et al., 2019; Sui et al., 2006). Most studies have shown that people lack a clear understanding of health insurance and often think that having healthcare means that they have to 'go to the doctor more often, take more medicine, and get more examinations (Chiang, 2014; Huang et al., 2012). To avoid moral hazards and wasted healthcare resources, a shift from income-oriented governments and educational institutions to education-oriented institutions would promote the value and importance of medical resources (Chang et al., 2016). In the United Kingdom, the Department of Health has established communication channels through its website about its National Health Service (National Health Service, 2017), and Germany has also reported that health insurance helps people stay healthy and thus reduces premiums (McGuire et al., 2021). It is clear that countries are committed to promoting various projects to ensure the expected use of medical resources.

Students are not sufficiently aware of NHI, and relevant educational materials are limited. A study of 315 junior high school students in Taiwan revealed that 30.5% stop taking their medicine when they do not feel sick, and 12.6% often forget to take their medicine (Ji et al., 2009). Of 1,456 students in primary and secondary schools in Taiwan, only 40% are aware of the insurance concepts of self-help and mutual protection and their benefits (Tseng, 2014). A previous study used content analysis to probe the relationship between health insurance and health textbooks in Taiwan's primary schools (Chang et al., 2016). The study found that insurance content represented 1.59% of the textbooks for grades 1-3 and 0.95% of the textbooks for grades 4-6, which is insufficient for ensuring that students understand the concept of insurance.

Because of the necessity of health insurance education, the Ministry of Health and Welfare and the Ministry of Education in Taiwan promoted a project in 2013, which invited experts to develop educational objectives, connotations, and

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evaluation tools (Tung, 2013). Insurance education is expected to be included in the routine school curriculum to help promote the importance of learning about and ensuring the proper use of medical resources. Teachers play an important role in insurance education in schools, and survey results show that health education teachers generally feel confident in their teaching abilities (Chin & Chen, 2007; Gao & Lin, 2010). However, less than half of health educators feel confident about the communication and advocacy skills that are required for health education (Fisher & Cummings, 2016). Health educators need to work more explicitly within an educational framework that considers social contexts, health inequalities, and the limitations of behavioral change models (Dyson et al., 2016; Wright et al., 2018).

Many teachers agree on the importance of insurance education and are willing to participate in related conferences to understand the concepts and learn teaching strategies (Tung, 2013). In addition, teacher empowerment derives from self-efficacy, self-motivation, and believing that they need to make a decision. Conger and Kanungo (1988) described empowerment as taking action when an individual is stressed. Their theory advocated for task assessment, including measures of impact, competence, meaning, and opportunity (Conger & Kanungo, 1988). Thomas and Velthouse (1990) posited that the mechanisms of empowerment can be analyzed through the concepts of individual attribution, evaluation, and development prospects, which can encourage progressions from an individual process to practice. Spreitzer also indicated that psychological empowerment and the process of empowerment will change with an individual's work attitude and that change adjusts according to the work environment (Spreitzer, 1995).

Spreitzer outlined four aspects of empowerment: self-esteem, locus of control, information, and reward (Spreitzer, 1995). Thomas and Velthouse (1990) also investigated four measures, including meaning, which refers to the goal or value of the work, with the sense of value having a close relation to beliefs and work role; competency, which refers to the individual's belief in improving their actions, agency, beliefs, personal mastery, and effort-performance expectancy; self-determination, which is a process of decision-making that refers to autonomy in the process of continuing behavior; and impact, which refers to the degree that individuals influence work strategies, administrative processes, or results. In the case of primary and secondary school teachers, expert or normative strategies are used to enhance growth performance. The theory of empowerment proposed by Spreitzer also provides variable measurements that highly reflect the psychological situation in the present study (Ke & Zheng, 2010). When teachers face job stress, they feel a loss of power and status, which affects students' learning efficacy (Fan, 2012). This study analyzed psychological empowerment using confirmatory factor analysis. Previous studies have pointed out that meaning, competence, self-determination, and impact are positively correlated to teaching performance (Conger & Kanungo, 1988; Rhodes et al., 2009; Spreitzer, 1995; Thomas & Velthouse, 1990). Most studies claim that the models can effectively predict educator motivation and efficiency (Allameh et al., 2012; Fook et al., 2011; Lee & Nie, 2013); when teachers feel empowered, it improves their professional abilities and allows them to achieve their work objectives (Dobber et al., 2012; Ergeneli et al., 2007; Rhodes et al., 2009; Thomas & Velthouse, 1990).

After a review of Taiwan's health insurance education, it is evident that we need to emphasize its value by improving the ability of teachers to effectively educate students on the topic (Chang et al., 2016; Huang et al., 2012; Ji et al., 2009; Tung, 2013). We used the concept of psychological empowerment to design the Health Insurance Education Empowerment Program (HIEEP) for teachers, which teaches meaning, or the value and importance of health insurance education; competence, which includes the teaching skills needed for health insurance education; self-determination, which is the autonomy to make decisions in terms of educational content and teaching processes; and impact, or the ability to influence peers and the administrative system (Spreitzer, 1995). The purpose of the study was to analyze the HIEEP effectiveness of health education teachers by evaluating their meaning, teaching competence, self-determination, and impact, as a reference for schools to promote health insurance education in the future.

Methodology

Research Design

Based on a quasi-experimental design, we used a pretest–posttest analysis of the teachers' HIEEP proficiency. We used documents obtained from the Ministry of Education in Taiwan to recruit primary and secondary school teachers. A total of 106 teachers formed the experimental group that participated in the nine-hour training during summer vacation. The control group included 90 teachers who did not receive the experimental treatment, although they were given questionnaires. We conducted a baseline and one-week follow-up analysis, collecting 186 questionnaires (95% recovery rate).

The respondents were predominantly women. The average age was 39.65 years, and 58.0% of the experimental group had master's degrees, while 50.0% of the control group had graduated from university. Most of the teachers in both groups taught at the junior high school level (experimental: 54.0%; control: 58.8%), followed by elementary school (experimental: 46.0%; control: 41.2%).

Implementation

The HIEEP was developed based on previous literature and the concept of psychological empowerment (Dobber et al., 2012; Ergeneli et al., 2007; Rhodes et al., 2009). The program was delivered in three three-hour sessions—The Weigher,

The Educator, and The Advancer—for a total of nine hours. We invited six experts in the field for five meetings to develop the program. In the first session, the meaning and value of health insurance was discussed with videos, lectures, and personal reflection exercises. The teaching materials included multimedia, pictures, animation, films, and post-it notes. The policy and history of the NHI were introduced, and the social dilemmas prior to the introduction of health insurance were presented. We created a “hope tree” made of post-it notes to describe the feelings, expectations, benefits, and obstacles in health insurance education.

In the second session, we promoted health insurance teaching effectiveness through the clarification of values, lectures, and demonstrations. The teaching materials included a digital learning textbook, a teacher’s empowerment handbook, and a CD-ROM. These materials displayed and clarified changes in the health insurance program and indicated areas to emphasize when teaching. In the demonstration, the lecturer presented insurance songs, the Wayne Map, and the Monopoly game. During the third session, the lecturer demonstrated a common educational model, and teachers were invited to design and practice their own models and receive feedback from the lecturers.

Table 1. Health Insurance Education Empowerment Program (HIEEP) Content

Session	Content	Intervention	Variables
The Weigher	<ol style="list-style-type: none"> 1. Class welcome: Play the video and discuss the motivation behind NHI education. 2. The balancer: Introduce the NHI policy, history, characteristics, and content. 3. Hope tree: Discuss “meaning,” “resistance,” “expectation,” and “harvest” of health insurance education, write the words on Post-it notes, and change them in a dynamic way. 	Video interviews, lecture, reflection	Meaning, self-determination, impact
The Educator	<ol style="list-style-type: none"> 1. The value: Compare the societal changes before and after health insurance education and clarify the teaching emphasis. 2. Teaching resources: Digital learning textbook, teacher's empowerment handbook, audio-visual media CD-ROM, school textbooks, and health insurance education publication. 3. Demonstration: Teachers experience the creative teaching activities including Monopoly game, song creation, Wayne map, and other teaching strategies. 	Values clarification, lecture, demonstration	Meaning, teaching competence and self-determination
The Advancer	<ol style="list-style-type: none"> 1. Module: The lecturer demonstrates the three learning stages of the teaching module and asks teachers to share practical experiences. 2. Module and feedback: The lecturer develops the health insurance education modules, and each group practices and receives feedback from trainees and lecturers. 	Modeling, demonstration, practice	Teaching competence, self-determination, impact

Instruments

The questionnaire for the HIEEP was developed according to Spreitzer’s psychological empowerment scale (Spreitzer, 1995) and showed a high degree of internal consistency with a Cronbach’s alpha of .7 (Ergeneli et al., 2007; Spreitzer, 1995). We also invited 11 insurance and public health experts to verify the content’s validity and the appropriateness, importance, and clarity of the topics, and to calculate the content validity index (.91) with better representation and adaptability. We also conducted a pretest with 53 teachers in a central county to estimate its applicability. The Cronbach’s alpha was recalculated and determined to be .93, representing higher internal consistency.

The questionnaire was divided into four sections, each comprising six questions, giving 24 questions in total. Each section had its own topic and statements pertaining to that topic. For example, a meaning section statement is “I am proud to participate in health insurance education”; for the teaching competence section, a statement is “I can present an effective teaching strategy for health insurance education”; for self-determination, a statement is “I have autonomy in the formulation of the health insurance education program”; and an impact section statement is “My opinion is taken into account at school to promote health insurance education.” The participants chose answers ranging from “very much disagree” to “very much agree,” and each answer was assigned a score from 1 to 10 points. Higher scores indicated that the teachers felt empowered by health insurance education.

Data Analysis

Statistical analyses were completed using IBM SPSS 22.0 software. The groups were analyzed using a descriptive statistical analysis of their social demographics and chi-square tests. To examine HIEEP effectiveness, we used the pretest score as the covariate and the post-test score as the dependent variable. A regression coefficient was determined for both the experimental and control groups. However, several assumptions should be tested before analyzing covariance for both groups. Of particular concern is the assumption of homogeneity of regression slopes; the Johnson-

Neyman technique is the strongest alternative to analysis of covariance in experimental designs when this assumption has been violated.

Results

Teacher Empowerment Outcomes

Table 2 shows the means and standard deviations for the pretest and posttest scores. The experimental group showed progress due to empowerment effects in meaning, teaching competence, self-determination, and impact. In addition, in the control group, teachers regressed in the meaning and teaching competence sections.

We used a homogenous regression coefficient to examine the differences between the two groups (Table 3). The results showed that all the F -values (meaning: $F = 18.07$, $p < .001$; teaching competence: $F = 20.72$, $p < .001$; self-determination: $F = 6.24$, $p < .05$; impact: $F = 6.80$, $p < .05$) were contrary to the homogeneity of regression slopes assumption. Therefore, we used the Johnson–Neyman method to examine the score differences.

Table 2. Teacher Group Frequency Distribution

Variables	Group	Pretest		Posttest	
		Mean	SD	Mean	SD
Meaning	Experimental	7.78	1.66	8.78	1.12
	Control	6.98	1.65	6.90	1.78
Teaching competence	Experimental	7.22	1.63	8.38	1.29
	Control	6.09	2.06	6.03	2.03
Self-determination	Experimental	6.96	1.93	8.04	1.59
	Control	5.64	2.27	5.71	2.21
Impact	Experimental	6.51	1.89	6.80	2.23
	Control	5.49	2.25	5.72	2.02

SD=standard deviation

Table 3. Test for Homogeneity of Regression Slopes Using a General Linear Model

Variable	Type III Sum of Squares	df	Mean square	F	p
<u>Meaning</u>					
Corrected Model	60.23a	3	120.08	111.28	.000
Intercept	103.71	1	103.71	96.11	.000
Treatment	40.93	1	40.93	37.93	.000
Pre-Meaning Score	185.47	1	185.47	171.88	.000
Treatment*Pre-Meaning	19.50	1	19.50	18.07	.000
Error	196.39	182	1.08		
Total	12203.36	186			
<u>Teaching Competency</u>					
Corrected Model	580.17a	3	193.39	187.58	.000
Intercept	102.19	1	102.19	99.13	.000
Treatment	51.73	1	51.73	50.18	.000
Pre-Teaching Competency Score	272.89	1	272.89	264.69	.000
Treatment*Pre-Teaching Competency	21.36	1	21.36	20.72	.000
Error	187.64	182	1.03		
Total	10665.64	186			
<u>Self-determination</u>					
Corrected Model	641.91a	3	213.97	141.83	.000
Intercept	126.65	1	126.65	83.95	.000
Treatment	367.69	1	367.69	243.72	.000
Pre-Self-determination Score	34.80	1	34.80	23.07	.000
Treatment*Pre-Self-determination	9.42	1	9.42	6.24	.010
Error	274.58	182	1.51		
Total	9937.39	186			
<u>Impact</u>					
Corrected Model	360.84a	3	120.28	40.46	.000
Intercept	151.92	1	151.92	51.11	.000
Treatment	30.21	1	30.21	10.16	.000
Pre-Impact Score	259.15	1	259.15	87.18	.000
Treatment*Pre-impact	20.22	1	20.22	6.80	.010
Error	540.99	182	2.97		
Total	8186.22	186			

Figure 1 shows the intersections of the regression line between the experimental and control groups: 9.61, 9.46, 9.73, and 6.23 for meaning, teaching competence, self-determination, and impact, respectively. These show that although the experimental group's pretest scores began below the intersections, they improved significantly after the intervention and their scores became higher than in the control group, indicating that the program positively affected the teachers' performance. The experimental group teachers were significantly better than the control group at rates of 85% (meaning), 91% (teaching competence), 95% (self-determination), and 72% (impact). Comparing the former high scores of the experimental group, which were not significantly higher than those of the control group due to the ceiling effect, can highlight the significance of the improvements made by the experimental group.

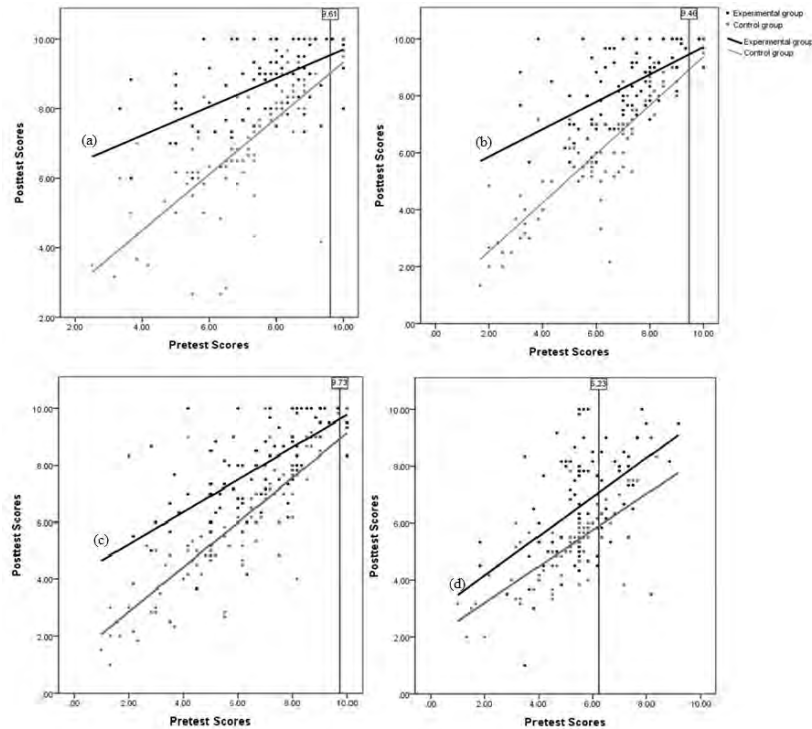


Figure 1: Johnson-Neyman Plot of the Simple Slope of Each Groups' Scores in Meaning, Teaching Competence, Self-Determination, and Impact.

(a)=meaning, (b)=teaching competence, (c)=self-determination, and (d)=impact

Discussion

Our research demonstrates that the HIEEP can improve teacher effectiveness. Many studies investigating psychological empowerment have pointed out that it can improve teachers' organizational commitment or satisfaction (Bin Abdullah et al., 2015; Hamid et al., 2013; Khany & Tazik, 2016; Qing et al., 2020). In another study referencing psychological empowerment, they gave each other feedback about their experiences, had discussions with leaders, and wrote personal reflections, which also significantly improved their cognition-based trust (Ergeneli et al., 2007). Another study conducted post-graduate teacher education program in the Netherlands, which effectively improved their focusing on elaboration and decision making (Dobber et al., 2012). Psychological empowerment frameworks can thus be widely used in courses for teachers, not only organizational commitment, but also teaching abilities.

The described HIEEP can improve the abilities of elementary and middle school teachers to promote health-related issues, such as health insurance education. Currently, school health education attaches great importance to health literacy, which includes general knowledge about health, the ability to collect information about health, and the ability to handle health conflicts (McDaid, 2016). However, school teachers generally lack the professional knowledge and skills for health literacy, and therefore cannot teach it well (Lamanauskas & Augienė, 2019). Other studies have pointed out that teacher empowerment programs should enhance teachers' attentiveness to health issues, increase the impact of their teaching, and improve their teaching quality (Coe et al., 2014; Timperley, 2008). We used the HIEEP to disrupt the frameworks of previous teacher curricula, allowing teachers to think about the meaning of issues, exert influence, and support their ability to act. It could also help them teach health literacy effectively.

Previous studies (Liu et al., 2019; Sui et al., 2006) have indicated that adults have insufficient understanding of health insurance; however, they are not familiar with copayments and their policies. Many studies therefore suggest that the government should set up an educational platform to teach about the proper use of health insurance resources (Chiang, 2014; Huang et al., 2012). At present, this empowerment program can be integrated into the education of the public so

that teachers can learn about the purpose of NHI, think about the impacts of health insurance, and further encourage decisions that value health care resources.

Conclusion

In conclusion, after participating in the HIEEP, the experimental group had significantly improved teaching effectiveness through measures of meaning, teaching competence, self-determination, and impact. The program thus achieved our goal. We can continue using this program to promote health insurance education and improve the teaching effectiveness of primary and secondary school teachers. However, few researchers have focused on insurance education specifically. This study used a model to empower teachers and improve health insurance education efficiency.

Recommendations

We provide the following conclusions and directions for future study:

1. HIEEP should focus on promoting teachers' understanding of insurance, possibly extending it to other subjects in the social field so that students can gain an in-depth understanding of health insurance.
2. HIEEP should be integrated into the training. The government should also encourage teachers to influence school policies and obtain administrative resources, thus promoting efficiency.
3. We recommend that teaching results be analyzed on-site, which would include work to improve student attitudes or behaviors and adjusting the insurance education content according to actual teaching needs.
4. We recommend interviewing teachers to see how they gained or felt after the intervention for future research.

Limitations

Some limitations should be highlighted. First, psychological empowerment was a dependent variable; it can also be used as a mediator to explore future causal relationships. Second, it is not easy to realistically evaluate the effects of the program through a questionnaire. Third, the sample may not be representative, given the participants' high motivation regarding health insurance; as such, making conservative inferences from the results is advised.

Authorship Contribution Statement

Tung: Conceptualization, design, supervision. Chang: Analysis, writing, reviewing.

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