

Effectiveness of an Education Program to Reduce Negative Attitudes Toward Persons With Mental Illness Using Online Media

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Purpose The purpose of this study was to develop an educational program to reduce negative attitudes toward persons with mental illness (PMIs) using online media and to test its effectiveness.

Methods A nonequivalent control group with a pre-posttest was employed in this study. A total of 143 lay people were enrolled. The study variables were knowledge and attitudes about mental illness, and social distance. The four domains of attitudes were authoritarianism, benevolence, social restrictiveness and community mental health ideology.

Results Phase 1: In an attempt to develop an educational program, the researcher conducted interviews with lay people and families of PMIs, and reviewed the pertinent literature. Three mental health professionals were consulted after developing the program. The program consisted of eight sessions. Phase 2: Community mental health ideology differed significantly between groups after the experiment. Knowledge tended to increase in the experimental group, while social restrictiveness showed a tendency to decrease. However, the changes were not significant in either case. Authoritarianism, benevolence, and social distance were not significantly different between groups. There was a significant difference in the pattern of change over time for both groups regarding authoritarianism, benevolence, and social restrictiveness.

Conclusions The program developed here was partially effective at changing negative attitudes. The online video program can be used by community mental health nurses to enhance general knowledge and help reduce stigma. [*Asian Nursing Research* 2010;4(2):90–101]

Key Words attitude, mental disorder, education, social distance

INTRODUCTION

There are approximately 450 million people who suffer from mental illness worldwide, and one out of four people experience some form of mental illness at least once in their life (World Health Organization, 2001). In Korea, there are reportedly

2.6 million persons with mental illness (PMIs); furthermore, 30.0% of all Koreans have suffered from mental illness at least once in their life (Ministry of Health and Welfare, 2006). Even though mental illness is universal, many lay people still show negative attitudes toward PMIs despite many efforts by nurses to make people aware of mental illnesses.



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Negative attitudes are revealed by the families, friends, and mental health professionals of PMIs as well as lay people (Ross & Goldner, 2009). Negative attitudes and discrimination deprive victims of human dignity and prevent social participation (United States Department of Health and Human Services Mental Health, 1999). These negative experiences decrease self-esteem and instill feelings of shame and guilt (Lee, Hanner, Cho, Han, & Kim, 2008). Additionally, they prevent individuals from having effective interpersonal relationships, which would then lead to withdrawal and social isolation (Fung, Tsang, & Corrigan, 2008) and hinder proper treatment (Crocker, Major, & Steele, 1998). These phenomena run counter to the goal of the mental health movement to have PMIs accepted as members of the community. Thus, it is urgent for nurses in the community to develop strategies to reduce such negative attitudes.

To develop such strategies, it is important to identify factors that lead to negative attitudes. Mass media is the major cause of misperceptions about mental illness, especially television (Economou, Richardson, Gramandani, Stalikas, & Stefanis, 2009). Indeed, mass media impacts an enormous number of people at one time, even when only a single report is involved. Furthermore, such reports often cast PMIs in a negative light, as indicated by the finding that 228 of 326 news reports about PMIs in the daily newspapers portrayed such individuals as being dangerous, violent or involved in murder or attempted murder (Kim, Yoon, Lee, & Lee, 2000). Such reports cause lay people to believe that all PMIs are dangerous (Moon et al., 2008), which can cause individuals to be scared to talk with PMIs (Gureje, 2005). Lack of knowledge and experience regarding mental illness of lay people also causes misperceptions (Corrigan & Gelb, 2006). Indeed, an individual's knowledge regarding mental illness plays an influential role in shaping attitudes and perceptions about schizophrenia, and a lack of such knowledge could contribute to avoidance and social distancing behavior (Esterberg, Compton, Mcgee, Smith, & Hochman, 2008). Thus, strategies to increase knowledge about mental illness have become an important nursing intervention method as education to improve knowledge regarding

mental illness evokes changes in negative attitudes (Bell, 2006). Accordingly, it is essential to enhance education of lay people in order to change negative attitudes about mental illness in the desired direction (Lam, Kuipers, & Leff, 1993). One of the contributors to negative attitudes is a lack of opportunities to receive education regarding mental illness. Offering online classes is a good method of reaching large numbers of individuals at their homes and job sites (Borzekowski, Leith, Medoff, & Potts, 2009; Williams, Pitchforth, & O'Callaghan, 2010). The present study was conducted to develop an online educational program designed to reduce lay people's prejudice toward PMIs and to test the effectiveness of the program. Community mental health nurses can use the program to educate lay people in the community. The program developed here should help decrease negative attitudes regarding PMIs.

Theoretical framework

The program was developed based on cognitive behavioral theory. This theory assumes that human behavior is affected not by events or situations themselves, but through interpretation of such events based on perception, thoughts, and recognition (Edelson, 1984). Emotional problems caused by distorted cognition are not life events in and of themselves. Distorted cognition and irrational beliefs can be changed to positive thoughts by cognitive restructuring (Rachman, 1997).

METHODS

Study design

This study employed a nonequivalent control group pretest-posttest design using convenient samples.

Study sample

As a representative of lay people, students enrolled at two online universities in Seoul were selected conveniently. They were adult learners with various jobs and their majors were not related to health care. Before starting the study, a letter explaining its purpose was sent to each school and permission was

received. One school was assigned to an experimental group and the other to a control group. The purpose and process of the study were then announced on a bulletin board maintained by the schools. Initially, a total of 159 people were enrolled (79 in the experimental group and 80 in the control group); however, 10 people in the experimental group and 6 people in the control group dropped out of the study. As a result, there were 143 participants, 69 in the experimental group and 74 in the control group. To test the difference between the two groups, Cohen's formula (1992) was used, where an alpha at .05 was set as the significant level, $d = .80$ for effect size, and .80 of statistical power ($1 - \beta$). Sample size in each group was determined to be 26.

The participants in each group were contacted by telephone and the study purpose and process were explained. In addition, informed written consent was provided by all participants via e-mail.

Instruments

Knowledge regarding mental illness

The instrument used to measure knowledge regarding mental illness was developed by Sim (2005). The instrument included 20 questions regarding mental illness that were answered by placing an O or X next to each question. The total score ranged from 0 to 20 points, with higher scores indicating greater knowledge.

Attitudes toward PMIs

The Community Attitude toward PMIs (CAMI) developed by Taylor and Dear (1981) and translated into Korean by Lee et al. (1996) was used in this study. The CAMI is a self-report scale designed to measure the negative and positive attitudes towards mental illness and PMIs.

The CAMI consists of the following four domains: (a) authoritarianism, which refers to a view of the PMIs as someone inferior and who requires coercive handling; (b) benevolence, which refers to a paternalistic and sympathetic view of the PMIs; (c) social restrictiveness, which is a belief that the PMIs are a threat to society and should be avoided; (d) community mental health ideology, which is the

acceptance of mental health services and PMIs in the community.

The instrument employed a 5-point Likert-type scale with 40 questions. There were four dimensions consisting of 10 questions each. Lower scores in authoritarianism and social restrictiveness and higher scores in benevolence and community mental health ideology indicated that the respondent had a more positive attitude toward mental illness.

When CAMI was developed, Cronbach's alpha of the scale was reported to be .68 for authoritarianism, .76 for benevolence, .80 for social restrictiveness and .88 for community mental health ideology. Internal consistency was also good in this study as Cronbach's alpha was .72 for authoritarianism, .76 for benevolence, .80 of social restrictiveness and .70 for community mental health ideology.

Social distance

The social distance scale developed by Westie (1959) and translated into Korean by Song et al. (1997) was used. This scale includes eight questions that measure subjective distance toward mental illness and eight questions that measure subjective familiarity, all of which are answered either "yes" or "no". The total score range is from 0 to 36, with higher scores indicating a smaller social distance. The Cronbach's alpha was .90 in the study of Song et al. and .91 in this study.

Data collection

Pretests in both groups were conducted one week before the program started. The program was provided to the experimental group for 4 weeks. Posttest I was administered immediately after program completion in both groups and posttest II was administered 2 months after program completion.

The questionnaire was uploaded on to two different web sites, one for the experimental group and the other for the control group. The completed questionnaire was e-mailed to the researchers.

Program implementation

Video was uploaded twice a week, on Monday and Thursday, for 4 weeks. The program remained on the websites throughout the experimental period so that

participants could watch the video again whenever they wanted. During the experiment, each participant was called every Tuesday and Friday to ensure that they had watched.

Data analysis

SPSS (SPSS Inc., Chicago, Illinois, USA) was used to analyze the data. Demographic characteristics are presented as numbers and frequencies. Differences between groups were evaluated by χ^2 test and analysis of variance. In addition, a paired *t* test was conducted to analyze differences in the results of pre and posttest I, and pre and posttest II between groups. Repeated measures two-way analysis of covariance was used to test differences among measurement points. Education level, social restrictiveness, and community mental health ideology were analyzed after assigning the variable as covariates.

Ethical considerations

This study was approved by the university review board. The purpose, procedure and anonymity policy were explained to all participants prior to the start of the program and informed written consent was received from all participants. In addition, all participants were informed that they had a right to drop out of the program at any time during the experiment. Small rewards were given to all participants.

RESULTS

Phase 1: Program development

Interviews, literature review, and consultation with mental health professionals were used to develop this program. For needs assessment, 10 lay people and 10 family members of PMIs were interviewed. The participants were asked what they thought should be included in the mental illness awareness program and what they would like to know about mental illness. In addition, literature regarding negative attitudes, stigma, discrimination, programs for PMIs and cognitive behavioral theory were reviewed to develop the program. Anxiety disorder, mood disorder, and schizophrenia were selected as specific

mental illnesses about which the interviewee wanted to know. The contents of the program were education about anxiety disorder, mood disorder, and schizophrenia, cognitive restructuring, changing automatic thoughts and distorted cognition. After developing this program, two nursing professors and one psychiatrist were consulted.

The program consisting of eight sessions and the subject matter of the sessions included anxiety disorder, mood disorder, and schizophrenia (Table 1). The educational content of the videos was produced after the contents of each session were determined.

Phase 2: Program effectiveness

Demographic characteristics and homogeneity test

There were 143 participants in this study, 69 in the experimental group and 74 in the control group. The study group consisted of 86.7% women, and 62.2% of the participants were 20–40 years of age, while 36.4% were older than 40 years old. Overall, 53.1% of the participants had graduated from high school. The monthly income ranged from 1–3 million KRW for 36.4% of the participants and 3–5 million KRW for 33.6%. There were no significant differences in gender, age or monthly income between groups, but the education level differed significantly (Table 2).

Variables related to mental illness and homogeneity

Overall, 53.2% of the participants reported a “moderate” degree of interest in mental illness, while 32.2% reported a “high” degree of interest. When asked if they had any previous education on mental illness, 77.6% responded “no” and 22.4% responded “yes”. Additionally, 67.1% of the respondents reported that there was not a mental health center in their community. Finally, 39.2% answered “fair” and 32.3% answered “high” when asked if they had a desire to be a mental health professional.

There were no differences in the degree of interest in mental illness, experience with mental illness, presence of PMIs individuals in the community, presence of mental health centers in the community or desire to be a mental health professional between groups (Table 3).

Table 1*Intervention Program*

Session	Goal	Contents	Run-time (min)
1	Introduction	Explanation of the purpose and process of the program	20
2	Understanding of anxiety and mood disorder	Explanation of causes, symptoms, treatment, and prognosis of anxiety disorder and mood disorder	20
3	Understanding of schizophrenia	Explanation of causes, symptoms, treatment, and prognosis of schizophrenia	20
4	Cognitive restructuring	Education on the relationship among thoughts, feelings and behavior. Self-awareness of the negative thoughts about persons with mental disorder	20
5	Recognition of the fallacy of automatic thoughts	Recognition the fallacy of automatic thoughts by thinking whether evidence supports the thoughts or not	20
6	Changing negative thoughts to positive thoughts	Substitution of negative thoughts for positive thinking	15
7	Changing from distorted beliefs to reasonable beliefs	Time to change distorted cognition to reasonable beliefs Practicing expression of their thoughts to positive language	20
8	Summarization and closing	Review overall course and closing	20

Table 2*Comparison of General Characteristics Between the Experimental and Control Groups*

Characteristics	Category	Experimental (n = 69) n (%)	Control (n = 74) n (%)	Total (n = 143) n (%) ^a	χ^2	p
Gender	Male	11 (15.9)	8 (10.8)	19 (13.3)	0.37	.462
	Female	58 (84.1)	66 (89.2)	124 (86.7)		
Age (yr)	≤ 40	38 (55.1)	52 (61.3)	91 (63.6)	4.55	.095
	> 40	31 (44.9)	21 (28.7)	52 (36.4)		
Education	High school	30 (43.5)	46 (62.2)	76 (53.1)	1.46	.004
	College	39 (56.5)	28 (37.8)	67 (46.9)		
Monthly income (10,000 KRW)	< 100	4 (5.8)	7 (9.5)	11 (7.7)	4.41	.086
	100–300	31 (44.9)	21 (28.4)	52 (36.4)		
	301–500	20 (28.9)	28 (37.8)	48 (33.6)		
	> 500	14 (20.4)	18 (24.3)	32 (22.4)		

^aPercentages do not add up to 100% due to rounding.

Table 3*Comparison of Variables Related to Mental Illness Among Groups*

Variables	Category	Experimental (n = 69)	Control (n = 74)	Total (n = 143)	χ^2	p
		n (%) ^a	n (%)	n (%) ^a		
Interest in mental illness	Low	9 (13.0)	12 (16.2)	21 (14.6)	1.93	.588
	Middle	36 (52.1)	40 (54.1)	76 (53.2)		
	High	24 (34.8)	22 (29.7)	46 (32.2)		
Experience with education about mental illness	Yes	19 (27.5)	13 (17.6)	32 (22.4)	2.04	.153
	No	50 (72.5)	61 (82.4)	111 (77.6)		
Exposure to PMIs	Yes	21 (30.4)	22 (29.7)	43 (30.1)	0.18	.611
	No	48 (69.6)	52 (70.3)	100 (69.9)		
Having a mental health center in the community	Yes	26 (37.7)	21 (28.4)	47 (32.9)	1.40	.237
	No	43 (62.3)	53 (71.6)	96 (67.1)		
Desire to be a mental health professional	Low	20 (29.0)	21 (28.4)	41 (28.7)	2.69	.612
	Fair	29 (42.0)	27 (36.5)	56 (39.2)		
	High	20 (29.0)	26 (35.1)	46 (32.2)		

Note. PMIs=persons with mental illness. ^aPercentages do not add up to 100% due to rounding.

Table 4*Comparison of Knowledge, Attitudes and Social Distance Between Groups*

Variables	Experimental (n = 69)	Control (n = 74)	t	p
	M ± SD	M ± SD		
Knowledge	14.48 ± 1.61	14.78 ± 2.33	-0.90	.372
Attitudes				
Authoritarianism	24.15 ± 4.32	22.85 ± 3.99	1.86	.065
Benevolence	39.44 ± 4.19	40.59 ± 4.75	-1.52	.131
Social restrictiveness	25.56 ± 5.14	23.62 ± 5.56	2.15	.033
Community mental health ideology	35.61 ± 5.15	37.70 ± 5.22	-2.41	.017
Social distance	14.35 ± 9.39	14.74 ± 8.30	-0.25	.104

Homogeneity of dependent variables

The results of a *t* test revealed that there were no differences in knowledge ($t = -0.90$, $p = .372$), authoritarianism ($t = 1.86$, $p = .65$), benevolence ($t = -1.52$, $p = .131$) or social distance ($t = -0.25$, $p = .104$) between groups. However, the restrictiveness ($t = 2.15$, $p = .033$) and community mental health

ideology ($t = -2.41$, $p = .017$) did differ between groups (Table 4).

Effectiveness of the program

The changes in the variables used to measure the effectiveness of the program are presented in Table 5. Education level, social restrictiveness, and community

Table 5

Effects of Program on Knowledge, Authoritarianism, Benevolence, Social Restrictiveness, Community Mental Health Ideology, and Social Distance

Variables	Group	Pre-test M±SD	Post-test I M±SD	Post-test II M±SD	Source	F	p
Knowledge	E	14.48±1.61	16.39±1.29	16.72±1.12	G	0.47	.493
	C	14.78±2.33	15.89±1.86	16.53±2.71	T	0.74	.476
					G×T	2.36	.096
Attitudes							
Authoritarianism	E	24.15±4.32	22.64±3.76	23.09±3.91	G	0.02	.904
	C	22.85±3.99	23.41±3.82	23.36±4.47	T	0.71	.494
					G×T	5.56	.004
Benevolence	E	39.44±4.19	40.53±3.89	41.30±3.80	G	0.03	.858
	C	40.59±4.75	40.28±3.19	40.23±4.42	T	6.37	.002
					G×T	9.51	.000
Social restrictiveness ^a	E	25.56±5.14	22.93±5.22	22.26±5.06	G	0.03	.859
	C	23.62±5.56	23.54±4.84	22.91±5.00	T	0.13	.724
					G×T	6.77	.010
Community mental health ideology ^a	E	35.61±5.15	37.93±4.75	36.95±4.71	G	29.70	.000
	C	37.70±5.22	38.97±4.80	36.85±4.45	T	3.23	.074
					G×T	3.57	.061
Social distance	E	14.35±9.39	16.16±6.87	16.90±6.53	G	0.35	.558
	C	14.74±8.30	15.18±8.20	16.23±7.56	T	0.39	.679
					G×T	1.36	.261

Note. E=experimental group; C=control group; G=group; T=time. ^aANCOVA analysis with pretest scores as covariate.

mental health ideology were treated as covariables because they were not homogeneous.

Knowledge about mental illness

There were no differences between groups in the degree of the knowledge about mental illness. After the program, although a tendency of increasing knowledge was observed in both groups, these increases were not significant ($F=.47$, $p=.493$). There was also a tendency of increasing knowledge during posttest I and posttest II, but these differences were not significant ($F=.74$, $p=.476$). Finally, there were no significant differences in knowledge between groups over time ($F=2.36$, $t=.096$) (Table 5; Figure 1).

Attitudes toward persons with mental illness

Authoritarianism

There were no significant differences in the degree of authoritarianism between groups in the pre and posttest. Moreover, no significant changes in authoritarianism were observed in the experimental group over time ($F=.71$, $p=.494$). Finally, there was a significant interaction between time and group ($F=5.56$, $p=.004$) (Table 5; Figure 2).

Benevolence

There was no significant difference in benevolence between groups. There was a tendency for the degree of benevolence to increase in the experimental group but the difference was not significant

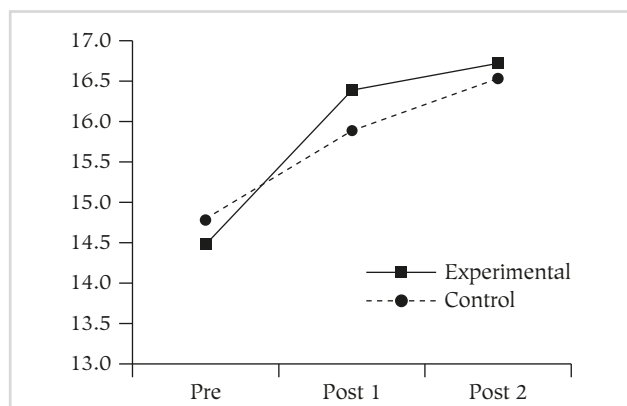


Figure 1. Changes in the knowledge score.

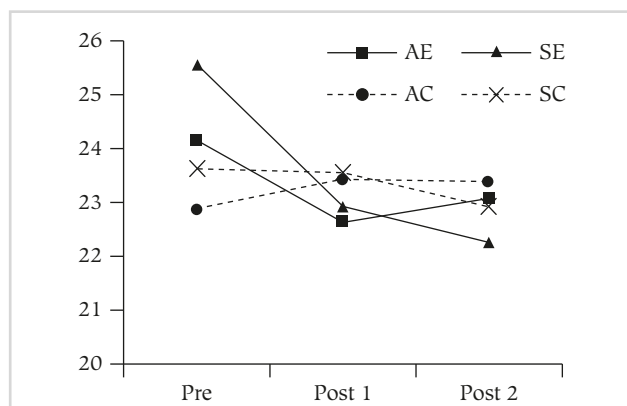


Figure 2. Changes in the authoritarianism and social restrictiveness scores. AE=Authoritarianism of experimental group; AC=authoritarianism of control group; SE=social restrictiveness of experimental group; SC=social restrictiveness of control group.

($F=.03, p=.858$). The degree of benevolence was significantly different at posttest I and posttest II ($F=6.37, p=.002$), and there was a significant difference in the pattern of change over time for both groups ($F=6.77, p=.010$) between time and group ($F=9.51, p=.000$) (Table 5; Figure 3).

Social restrictiveness

There was a tendency for the score to decrease, but this difference was not significant ($F=.03, p=.859$). In the experimental group, the score was decreased at posttest I and posttest II, but the change was not significant ($F=.13, p=.724$). There was a significant

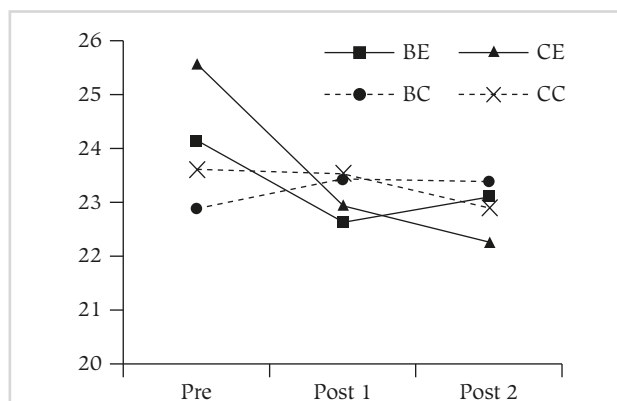


Figure 3. Changes in the benevolence and community mental health ideology scores. BE=benevolence of experimental group; BC=benevolence of control group; CE=community mental health ideology of experimental group; CC=community mental health ideology of control group.

difference in the pattern of change over time for both groups ($F=6.77, p=.010$) (Table 5; Figure 2).

Community mental health ideology

Community mental health ideology was significantly different between groups ($F=29.70, p=.000$). There was no significant difference in the pattern of change over time in either group ($F=3.57, p=.061$) (Table 5; Figure 3).

Social distance

There was no significant difference in the social distance between groups. ($F=.35, p=.558$) after posttest I and posttest II. Finally, there were no significant differences in the measurement time ($F=.39, p=.679$) and the pattern of change over time in either group ($F=1.36, p=.261$) (Table 5; Figure 4).

DISCUSSION

Negative attitudes toward PMIs are based on either a lack of knowledge or inaccurate knowledge (Sherman, 1996). The overall attitude toward community mental health was better in the experimental group than in the control group. Benevolence changed over time

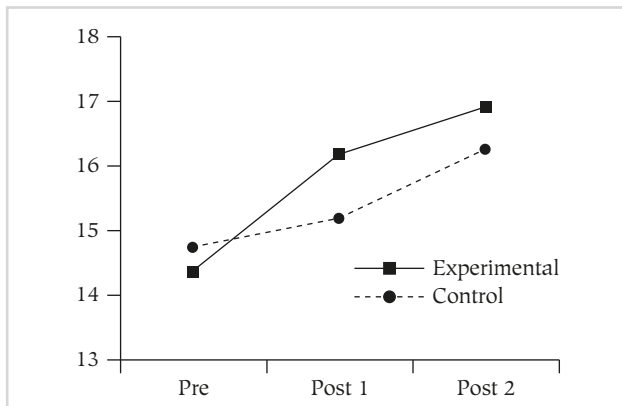


Figure 4. Changes in the social distance score.

in the experimental group. However, knowledge, authority, restriction of social activity and social distance did not differ significantly between groups and did not change over time. Although there were no significant differences between groups, the mean score of knowledge about mental illness tended to increase in the experimental group, as indicated by scores of 14.48 during the pretest, 16.39 at posttest I and 16.72 at posttest II. These results are consistent with the results of a prior study: Participants' knowledge reportedly increased after the "In Our Own Voice" mental health education program was provided to 114 undergraduate students (Wood & Wahl, 2006). Although education is an important strategy in increasing knowledge regarding mental illness, not all forms of education achieve this goal. Knowledge is an important factor in the development of positive attitudes (Economou et al., 2009), but it is reported that knowledge is only related to positive attitudes among people who had more personal contact with PMIs (Eack & Newhill, 2008).

Indeed, in a study in which three versions of school-based stigma reduction programs were compared; education alone, education followed by video-based contact, and video-based contact followed by education. Education alone did not change knowledge, attitude and social distance. However, education in conjunction with video-based contact resulted in improved attitudes and knowledge (Chan, Mak, & Law, 2009). It has also been reported that individuals who were educated regarding mental illness showed

fewer negative attitudes and less discrimination toward PMIs (Corrigan & Gelb, 2006).

The mean benevolence and community mental health ideology, which were considered to be positive attitudes toward PMIs, were 24.15 and 35.61 during the pretest. This score was very high when compared with the results of a previous study in which benevolence was 22.8 and community mental health ideology was 26.9 (Sakong & Chae, 2001). When people have knowledge regarding mental illness and volunteer experience positive attitude in terms of their community mental health ideology are high (Jung & Baik, 2005). The community mental health ideology is that people need to have a positive attitude regarding the founding of mental health facilities in the community and that PMIs have a right to live in the community. It is believed that because the participants in the present study already had a positive attitude toward PMIs, there were no significant changes in community mental health ideology observed upon completion of this study.

Social distance was not changed because authoritarianism and benevolence were not changed significantly in this study. It has been stated that the factors that influence social distance are the perception that PMIs are dangerous (Bauman, 2007). Social distance is negatively correlated with familiarity, whereas it is positively correlated with the belief that PMIs are dangerous (Corrigan, Green, Lundin, Kubiak, & Penn, 2001). Even though this study program was only partially effective at changing negative attitudes toward PMIs, it revealed that online education programs have promise when it comes to battling negative attitudes. This is similar to the results of a previous study in which a cognitive behavioral online video program for depressive male adolescents effectively reduced depressive symptoms and perceived social stigma (O'Kearney, Gibson, Christensen, & Griffiths, 2006). Similarly, a Computer-Assisted Anti-stigma Intervention Program for reducing prejudice toward PMIs was also found to reduce stigma while increasing knowledge (Lapshin, Wasserman, & Finkelstein, 2006). Online education programs have also been found to effectively increase knowledge regarding medication and medication

compliance (Seo & Kim, 2009) and reduce negative attitudes and stigma toward mental illness (Griffiths & Christensen, 2007). Thus, mental health nurses in the community can upload this online video program to the home page of their community mental health centers.

There are several possible reasons for the lack of significant differences in knowledge about mental illness, authoritarianism, social restrictiveness, and social distance between groups in this study. One is that the education time allotted for each session was relatively short when compared with traditional off-line programs. The education segment lasted from 10 to 20 minutes during each session, which is likely not enough time to develop a comprehensive understanding of the concept of cognitive behavioral theory. Therefore, the shortage of time likely prevented cognitive restructuring. Another possibility is that, although online education is effective, there are some limitations to this teaching method. For example, there is limited interaction between the educator and the participants. Accordingly, unilateral education online alone may have only limited ability to change irrational beliefs and dysfunctional thoughts. Finally, prejudice and negative attitudes toward PMIs are formed over long periods of time; thus, programs designed to change such attitudes need also to be applied for a long time and repeatedly. Even though there are limitations, this study has significance and importance regarding the use of online video education programs with lay people for changing negative attitudes.

CONCLUSIONS

This study was done to develop and test the effectiveness of an education program to reduce lay people's negative attitudes toward PMIs using online media. The program consisted of eight sessions based on cognitive behavioral theory. A total of 143 lay people participated in the study, 69 experimental group and 74 in the control group. Knowledge about mental illness was measured. As a result, community mental health ideology differed significantly between groups

at the end of the program. Benevolence increased at posttest I and posttest II in the experimental group, even though there was no significant difference. The program developed here was partially effective at changing negative attitudes toward PMIs, so it is recommended that the nurses working at the community level use the program to educate lay people. Further studies are needed to develop more effective programs with larger timeframes and a greater degree of interaction between educators and participants.

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