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Using the Transtheoretical Model to Investigate Stages of Change in Regular Volunteer Service among Seniors in Community

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***Abstract*—**Background: Taiwan now is an aging society. Research on the elderly should not be confined to caring for seniors, but should also be focused on ways to improve health and the quality of life. Senior citizens who participate in volunteer services could become less lonely, have new growth opportunities, and regain a sense of accomplishment. Thus, the question of how to get the elderly to participate in volunteer service is worth exploring. Objective: Apply the Transtheoretical Model to understand stages of change in regular volunteer service and voluntary service behaviour among the seniors. Methods: 1525 adults over the age of 65 from the Renai district of Keelung City were interviewed. The research tool was a self-constructed questionnaire, and individual interviews were conducted to collect data. Then the data was processed and analyzed using the IBM SPSS Statistics 20 (Windows version) statistical software program. Results: In the past six months, research subjects averaged 9.92 days of volunteer services. A majority of these elderly individuals had no intention to change their regular volunteer services. We discovered that during the maintenance stage, the self-efficacy for volunteer services was higher than during all other stages, but self-perceived barriers were less during the preparation stage and action stage. Self-perceived benefits were found to have an important predictive power for those with regular volunteer service behaviors in the previous stage, and self-efficacy was found to have an important predictive power for those with regular volunteer service behaviors in later stages. Conclusions/Implications for Practice: The research results support the conclusion that community nursing staff should group elders based on their regular volunteer services change stages and design appropriate behavioral change strategies.

***Keywords*—**Seniors, stages of change in regular volunteer services, volunteer service behavior, self-efficacy, self-perceived benefits.

I. Introduction

THE United Nations uses the proportion of elders over the age of 65 in the population as a dividing line, such that when the elderly population accounts for more than 7% of the total population, the community is considered an aging society, and when the elderly population accounts for more than 14%, the community is considered an aged society [1]. Taiwan's population over the age of 65 exceeded 7% of the total population in 1993, and by the end of December 2012, it had reached 10.89% of the total population [2]. The rate of aging for the population has been very fast, and it is predicted that by 2017, the proportion of the population over the age of 65 will reach 14%, making Taiwan meet the WHO definition of an aged society. By 2025, that proportion will reach 20%, officially making Taiwan a hyper-aged society, and by 2050, the population over the age of 65 is expected to reach 36.7% [2].

Given the rapid growth of the aging population, elderly individuals might expect an average of a decade or two of life after the statutory retirement age, and during those long and leisurely days, they should actively learn positive self-adjustment and think about making contributions to society after retirement. If we could encourage the elderly to participate in community volunteer services, use their wisdom and experiences to participate and integrate into society and community activities more, they would continue to operate as social partners of the society as a whole. Most senior citizens have rich life experiences, and many of them have accumulated a lifetime of knowledge and expertise, which indeed make them a valuable asset to the society and nation. For senior citizens who are willing to participate in volunteer services, such services could be an antidote for loneliness, provide new growth opportunities, and allow them to regain a sense of accomplishment [3].

The stages of change are one of the concepts of the transtheoretical model. The transtheoretical model is a method and principle that uses behaviour change stages to integrate behavioural change, which has the central idea of a change of intent. It is comprised of four main concepts: 1. stages of change, 2. processes of change, 3. self-efficacy, and 4. decisional balance, including self-perceived benefits and self-perceived barriers [4]. Since behaviour change is not a dichotomy, when switching from unhealthy behaviours directly to healthy behaviours, individuals would have to sway between the stages of behaviour change. If education could intervene and an appropriate strategy could be designed according to the stages of change the subject is in, the effect of the intervention would be more effective [4]. The behaviour change stages are: 1. the precontemplation stage: no intention to adopt healthy behaviours within the next six months; 2. the contemplation stage: a problem has been noticed, and there is an intent to begin corrective action in the next six months; 3. the preparation stage: a desire exists to seek resources to start healthy behaviours, but this target has not yet been reached; 4. the action stage: refers to an individual who has already

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adopted healthy behaviours, but has not yet maintained those behaviours for six months; 5. the maintenance stage: when the healthy behaviour or behaviours have continued for six months or more [5]. The behaviour experiences, cognitive recognition and explanation would be different for those in different stages of change, and the decision to adopt such behaviour is influenced by important factors such as decision-making trade-offs and self-efficacy, where decision-making trade-offs are a relative result of the benefits and obstacles of an individual adopting said behaviour [5].

The researchers in this study applied the transtheoretical model to understand the behaviour stage of change for elders participating in regular voluntary service, in order to facilitate the future applications of an integrated transtheoretical model strategy to introduce activity into the senior citizens volunteer service behaviours. This study used elders in the Renai district in Keelung City of Taiwan as subjects to explore the different stages of regular volunteering behaviour and in the hopes of formulating appropriate regular volunteering services education proposals for elders in different stages of behaviour, as well as using the study results as a reference for administrative units to promote senior citizen volunteering service plans and the implementation of policy. The purposes of this study were as follows: 1. Understanding the factors of self-efficacy and self-perceived benefits, the status of self-perceived barriers, volunteer service behaviours and the current situation of regular volunteer service stages of change among research subjects; 2 Exploring the relationships between self-efficacy, self-perceived benefits, self-perceived barriers and their volunteer service stages of change; 3. Investigating the prediction capability of self-efficacy, self-perceived benefits and self-perceived barriers on various stages of regular voluntary services.

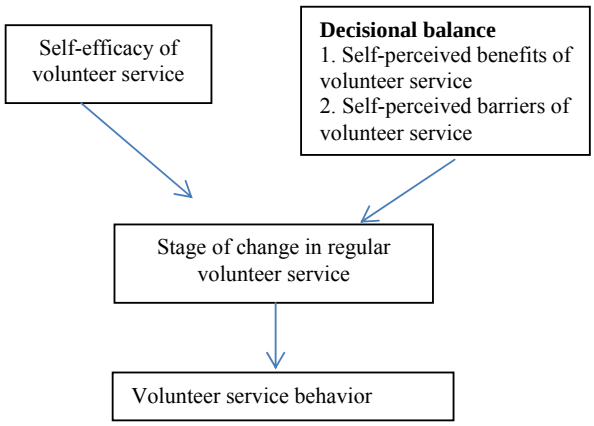

Fig. 1 Research Structure

II. Materials and Methods

A. Research Structure

The structure of this research was proposed according to the research objectives and relevant literatures (Fig. 1). It focused on the self-efficacy, decisional balance, and the relationship between volunteering services and its stages of change.

B. Data Collection and Ethic Concerns

The statistic population in this research included the old people aged over 65 in Ren-Ai District in Keelung City, Taiwan. There were totally 6,995 people aged over 65 in the 29 administration units of Ren-Ai District. This research targeted all the old people in the administration unit and obtained 1,932 samples by randomly selecting samples in Hung-Chiao unit, Kuang-Hwa unit, and Chi-Ren unit. The sampling was conducted under the approval of the Health Bureau of Ren-Ai District in Keelung City. All the research targets were the people over 65 without obvious body impairment. Qualified interviewers who received necessary trainings were appointed to conduct these one-on-one interviews with old people. The survey was conducted during the period from May 2013 to July 2013. All the interviewers have obtained the approval from the interviewees before the survey and then informed the interviewees that the data they collected would be used only for this research and would not be used for any other purpose. All the answers were collected anonymously and interviewees could quit the interview at any time if they did not feel comfortable. During this process, a total of 1525 effective samples were collected, 6 out of which were not willing to be interviewed, 211 were not qualified for survey, and 190 did not have registered local addresses, thus making the effective response rate 78%.

C. Research Tools

The research tool for this study was a self-structured questionnaire, which was administered during face-to-face interviews with a total of 60 elders at the Chao-Tung unit. Data were thus collected regarding volunteering services self-efficacy, self-perceived benefits, and self-perceived barriers, with answers that had a frequency of 70% or more being noted. The questionnaire was then structured based on the research framework of this study and related literatures, with a validity review then conducted by experts, including pre-test and correction to yield a formal questionnaire. The validity of the content of this questionnaire was examined by two community care specialists and one health education specialist. This study used the content validity index, CVI, as an expert validity index, and questions that did not reach a CVI value of 0.8 would either be modified after considering the review opinions of the experts or deleted. The sum of all the CVI values for each question was then divided by the total number of questions in the questionnaire, and the CVI value of each scale reached 0.85 to 0.94. A pre-test and retest for the scale's reliability was conducted in March of 2013, and the prediction and retest sample was a random cluster sampling of Zhao-Lian unit from the population, excluding open-ended elicitation questionnaires and the official population sample. All the elders in the village served as the prediction and retest sample; there were a total of 162 senior citizens, among whom 58 people were registered there, but did not actually live in the village. A total of 56 questionnaires were completed, and the Cronbach's α value was 0.79 to 0.92 for each scale. The retest reliability r value was 0.76 to 0.86 after 2 weeks for each scale, which showed that all scales had a good internal consistency

and stability. A description of the formal questionnaire is as follows:

1. Volunteer Service Behaviour

The research subjects self-assessed the number of volunteering days within six months, and the higher the score, the better the volunteering behaviour.

2. Stage of Change in Regular Volunteer Service

Regular volunteer service stages of change are divided into: (1) the precontemplation stage: have no intent to execute regular weekly volunteer service in the next six months, (2) the contemplation stage: have the intent to execute regular weekly volunteer service in the next six months, (3) preparation: have the intent to execute regular weekly volunteer service in the next month, (4) the action stage: have already started to execute regular weekly volunteer service, but have not yet done so for six months, (5) the maintenance stage: have already started to execute regular weekly volunteer service for more than six months.

3. Decisional Balance

Includes the self-perceived benefits scale and self-perceived barriers scale. The self-perceived benefits scale mainly measures the expectations of the positive results of regular volunteer services behaviours and the scale has a total of 11 questions, options included: 1 point for very unlikely, 2 points for unlikely, 3 points for no opinion, 4 points for likely, and 5 point for very likely. The higher the score is, the more aware one is with the benefits of regular volunteer services. The self-perceived barriers scale mainly assesses the extent of major obstacles one might encounter during regular volunteer services and the scale has a total of 14 questions, options included: 1 point for strongly disagree, 2 points for disagree, 3 point for no opinions, 4 points for agree, 5 points for mostly agree. The higher the score is, the higher the self-perceived barriers.

4. Self-efficacy

The research subjects evaluated their ability to overcome difficulties when executing regular voluntary service behaviours under special circumstances, and the options included: 1 point for no ability, 2 points for some ability, 3 points for moderate ability, 4 points for good ability, and 5 points for great ability. The higher the score, the better the self-efficacy of volunteer services.

D.Data Collection and Data Analysis

This research collected data through one-on-one interview. The data collected from the interview were coded, translated, and established. Next, they were statistically processed and analyzed by software package - IBM SPSS Statistics 20 (Windows version). Used statistical methods such as percentage, mean, standard deviation, ANOVA analysis and multiple regression analysis.

III. Results

A. Description of Stages of Change in Regular Volunteer Services and Volunteer Service Behavior

From a regular volunteer service stage of change for subjects of this study point of view, the precontemplation stage accounted for 33.4% (n = 510), the preparation stage accounted for 24.2% (n = 369), the contemplation stage accounted for 24.1 % (n = 368), the maintenance stage accounted for 10.7% (n = 163), and the action stage accounted for 7.5% (n = 115). We could see that about 50% of elders had the intent but had not yet executed regular acts of volunteer services (i.e., they were in the preparation stage and the contemplation stage) and that 30% of elders had no intent to execute regular community services. The number of volunteering days in the past six months averaged at 9.92 ± 5.67 days.

B. Distribution of Variable in Each Study

1. Self-Perceived Benefits

Research subjects considered the top three convictions in self-perceived benefits to be "get rid of loneliness" (4.17 ± .82 points), "be able to make new friends" (4.16 ± .59 points) and "can help people and do good things" (4.16 ± .78 points). Overall, the scores for each self-perceived benefits question had a maximum score of 4.18 and a minimum score of 2.46. Self-perceived benefits scores had an average of 3.65 (± .51), ranging from "no opinion" to “likely", and demonstrated that research subjects had positive beliefs regarding self-perceived benefits.

2. Self-Perceived Barriers

Research subjects believed that the biggest obstacle to regular volunteering behavior was "because one needs to care for their family, regular volunteer service would be impossible" (2.33 ± 1.05 points), which was followed by "because the locations are too far" (2.27 ± 1.24 points) and "because others think volunteer service is a waste of time" (2.22 ± 1.06 points). Overall, the scores for the self-perceived barriers questions had a maximum score of 2.36 and a minimum score of 1.84. Self-perceived barrier scores had an average of 2.05 (± 0.64), ranging from "disagree" to "no opinion”, and showed that research subjects had a low to moderate score for self-perceived barriers.

3. Self-efficacy

"When volunteer service location was too far, I could still continue to be a volunteer" (3.90 ± .87 points) scored the highest, while the option of “when I had to take care of my family, I could still continue to be a volunteer” in self-efficacy scored the lowest (3.47 ± 1.01 points). Overall speaking, the self-efficacy score for research subjects had an average of 3.70 (± 0.67) for each question and it demonstrated that research subjects had a moderate ability for executing regular volunteer services.

C. Differences between Seniors in Different Regular Volunteer Service Change Stages

In order to understand if there are any differences between elders in different regular volunteer services stages of change (voluntary service self-efficacy, self-perceived benefits, self-perceived barriers) and conducted the ANOVA test. From Table I, we could see that senior citizens at different stages of change, their volunteer service self-efficacy, self-perceived benefits, self-perceived barriers were significantly different (self-efficacy, $F = 16.54$, $p < .001$; self-perceived benefits, $F = 3.42$, $p < .001$; perceived barriers to volunteering (self-perceived barriers) $F = 12.62$, $p < .001$. With post hoc comparison analysis, it seemed that in the maintenance stage, its self-efficacy were higher than all other stages, but self -perceived barriers was less the preparation stage and the action stage. Self-perceived benefits of the maintenance stage were higher than the preparation stage.

TABLE I
ONE-WAY ANOVA TEST ON DIFFERENT REGULAR VOLUNTEER SERVICE CHANGE STAGES OF VARIABLES (N =1525)

stages of change	*n* (%)	*M*±*SD*	*F*	Scheffe
self-perceived benefits			3.42***	5>3
1.precontemplation stage	510(33.4)	3.53± 0.59		
2.contemplation stage	368(24.1)	3.60±0.67		
3.preparation stage	369(24.2)	3.62±0.57		
4.action stage	115(7.5)	3.64±0.53		
5. maintenance stage	163(10.7)	3.71±0.57		
self-perceived barriers			12.62***	3,4>5
1.precontemplation stage	510(33.4)	3.61± 0.79		
2.contemplation stage	368(24.1)	2.11±0.57		
3.preparation stage	369(24.2)	1.99±0.55		
4. action stage	115(7.5)	1.99±0.46		
5. maintenance stage	163(10.7)	1.95±0.54		
self-efficacy			16.54***	5>1,2,3,4
1.precontemplation stage	510(33.4)	3.61± 0.79		
2.contemplation stage	368(24.1)	3.60±0.59		
3.preparation stage	369(24.2)	3.81±0.56		
4. action stage	115(7.5)	3.87±0.58		
5. maintenance stage	163(10.7)	3.90±0.57		

D. Predicting Volunteer Service Behavior during Different Stages of Change

From Table II, the overall precontemplation stage regression model was statistically significant ($F = 29.05$, $p < .001$), with independent variables that could explain 14.2% of variances in the behaviors of the regular volunteer services of elders and the most important predictor variable was self-perceived benefits ($\beta = .39$, $p < .001$). The overall contemplation stage regression model was statistically significant ($F = 44.15$, $p < .001$), with independent variables that could explain 26.1% of variances in the behaviors of the regular volunteer services of elders and the most important predictors was self-perceived benefits ($\beta = .48$, $p < .001$), followed by self-efficacy ($\beta = .13$, $p < .001$). The overall preparation stage regression model was statistically significant ($F = 13.78$, $p < .001$), with independent variables that could explain 11.4% of variances in the behaviors of the regular volunteer services of elders and the most important predictors was self-perceived benefits ($\beta = .26$, $p < .001$), followed by self-efficacy ($\beta = .23$, $p < .001$) and self-perceived barriers ($\beta = .18$, $p < .001$). The overall action stage regression model was statistically significant ($F = 4.93$, $p < .01$), with independent variables that could explain 9.4% of variances in the behaviors of the regular volunteer services of elders and the most important predictors was self-efficacy ($\beta = .40$, $p < .001$). The overall maintenance stage regression model was statistically significant ($F = 3.96$, $p < .01$), with independent variables that could explain 5.2% of variances in the behaviors of the regular volunteer services of elders and the most important predictors was self-efficacy ($\beta = .19$, $p < .05$).

IV. CONCLUSION

The results of the study indicated that for regular volunteer service stages of change among the research subjects, the precontemplation stage accounted for 33.4% (n = 510), the preparation stage accounted for 24.2% (n = 369), the contemplation stage accounted for 24.1% (n = 368), the maintenance stage accounted for 10.7% (n = 163), and the action stage accounted for 7.5% (n = 115). For the last six months, the average number of volunteering days was 9.92 ± 5.67. Overall, we discovered that in the maintenance stage, the perception of volunteer service self-efficacy was higher than during all other stages, but the self-perceived barriers were less during the preparation stage and the action stage. "Self-perceived benefits" was an important predictive index for the behaviors in regular volunteer service stages of change, and "self-efficacy" was an important predictive index for the behaviors in regular volunteer service stages of change.

TABLE II
REGRESSION ANALYSIS OF THE CORRELATION BETWEEN SELF-PERCEIVED BENEFITS, SELF-PERCEIVED BARRIERS AND SELF-EFFICACY AND VOLUNTEER SERVICE BEHAVIOR DURING DIFFERENT STAGES OF CHANGE (N =1525)

Stage / Variable	**precontemplation**			**contemplation**			**preparation**			**action**			**maintenance**		
	B	β	*t*	*B*	β	*t*	*B*	β	*t*	*B*	β	*t*	*B*	β	*t*
self-perceived benefits	3.33	.39	9.26***	3.49	.48	10.42***	2.33	.26	5.02***	.65	-.07	-.72	1.27	.15	1.77
self-perceived barriers	.50	.80	1.74	.79	.09	1.87	1.68	.18	3.31***	2.07	.19	1.85	1.20	.13	1.62
self-efficacy	.12	.02	.44	1.04	.13	2.47***	2.10	.23	4.26***	3.34	.40	3.83***	1.61	.19	2.17*
R	.383			.517			.348			.343			.264		
R^2	.147			.267			.121			.118			.070		
Adjusted R^2	.142			.261			.114			.094			.052		
*F*value	29.05***			44.15 ***			13.78***			4.93**			3.96**		

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