

The effects of health perception on living health belief, living satisfaction and wellbeing-oriented activities according to swimming participation with middle-aged women

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This study aims to examine the effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation with middle-aged women. First, the subvariables of health perception, health interest and health concern, did exert significant effects on the subvariables of health belief, perceived benefit and perceived disability. Health interest and health concern also showed significant effects on the subvariables of life satisfaction and wellbeing-oriented activities, exercise orientation and hobby orientation, as well. Second, the subvariables of health perception, resistance

and sensitivity, indicated significant effects on the subvariable of health belief, perceived disability, and they also showed significant effects on life satisfaction, too. Also, resistance-sensitivity had significant effects on the subvariables of wellbeing-oriented activities, mental health orientation and hobby orientation, too.

Keywords: Swimming, Health perception, Health belief, Life satisfaction, Wellbeing-oriented activities

INTRODUCTION

Necessity of a research

In step with the trend of globalization, modern society has drastically changed, which lead people to heighten the concern for quality of life (Kwon and Kim, 1998). Like this, with a purpose of increasing quality of life, necessity of new breakthrough for that has been gradually increased, it becomes common desire that is to free from daily life which has brought tension and a sense of alienation.

Is changing rapidly as a result of the desire of chronic fatigue and Modern people suffer from stress in the execution of the five-day workweek increased leisure time, more than ever to the health and quality of life with great interest, and in order to improve the quality of life satisfaction as much as the physical and mental satisfaction is important in recent years, this atmosphere by piggy-

backing on “Well-being” modern people to pursue periodic and continuous participation in physical activity due to relieve stress and to strengthen your body and mind sports participation has increased (Lee et al., 2007). Swimming motion showed excellent effect when compared to other sports in participants’ health and reducing stress (Berger and Humphrey, 1986; Judge et al., 1993).

Leisure and sporting activities for middle aged women in relation to participation in sporting activities are meaningful, because it is recognized as means and tools for middle aged women, which satisfy desire to escape briefly from social and economic role as well as realistic and potential desire. And from simple physical activity to organized and competitive sports ranging from a huge verity of types of exercises to practice by participating in them contribute greatly to the purpose of health as well as mental and social satisfaction.

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Meanwhile, there are various kinds of items of sports that middle aged women mainly participate in such as tennis, bowling, badminton, jogging, health club, social dance, golf and etc, and meeting for club has been increasing geometrically. Swimming is the best appropriate exercise to make a healthy body from dabbling in water to long-distance swim. The biggest characteristic of swimming is using buoyant, by swimming slowly at their own pace; it can develop muscle of heart and body effectively without great pressure like ground exercise. And its effects are known for development of cardio-circulatory system and every muscle of body, prevention of obesity, stress prevention and improvement of backache and arthritis.

Psychoactive benefits of swimming participation are known for effectively decreasing depression that caused from stress, increasing vitality and psychological well-being. Previous studies that are related to psychological variable have showed participants, Swimming exercise period of the participants affects the psychological endurance exercise was found to be (Kim, 2012). Research on psychological well in the swim, participants showed a positive effect. In addition, according to degree of participation in swimming, there was a significant difference on the satisfaction of leisure and life (Kim and Shin, 2009).

In this way, study that was correlated between swimming and psychological variable was mainly study for life satisfaction or self-efficacy. Especially, a study of health perception, health belief, well-being oriented activities according to swimming participation was limited.

Accordingly, this study aims to examine the effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation with middle aged women, and the necessity of this study is to suggest a transcendental consequence and theoretical basis for effects of swimming participation to coacher in front-line and physical education teacher.

A subject for inquiry

This study set up a following subject for inquiry to investigate effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation with middle-aged women.

Does health perception according to swimming participation have an effect on health belief, life satisfaction and well-being oriented behavior?

MATERIALS AND METHODS

Participants

Participants for this study are 40-60 yr old among middle aged women who are currently participating in swimming activity. The sampling method uses cluster sampling of probability sampling. Cluster sampling is a sampling technique used when "natural" but relatively homogeneous groupings are evident in a statistical population. And a simple random sample of the group is selected. This may be done for every element in these groups or a subsample of elements may be selected within each of these groups.

The total population has been selected from swimming pools in five cities area, Mil-Yang, Yang-san, Kim-he, Sa-chun and Changwon. And then the survey questions were distributed to 200 people and 40 questionnaires were sent out for participants in each five cities. Purposive sampling method has been used for survey answers from 198 individuals after insincere answers from survey have been excluded.

The reason why the number of city has been limited to five cities is that bigger city is proportional to its regional economic, so more people use swimming pool and it is easier to collect survey data. Table 1 indicates general participants' characteristics.

Research tool

The measurement method to investigate effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation is a questionnaire which is a written list of 37 questions that consist of 3 questions for demographic variable (age, level of education, occupation), 3 questions for degree of participation of swim, 1 question for type of participation, 8 questions for health perception (health consciousness · health anxiety, resistibility · susceptibility), 11 questions for health belief (perceived benefit, perceived barrier), 5 questions for life satisfaction and 6 questions for wellbeing oriented activity (orienting hobby, exercise, mental health).

The tool for measuring a health perception in this study used the tool that has been modified and redeemed from Korean measurement tool as a reference tool of Health Perception Questionnaire that was developed by previous study (Ware Jr, 1976). The sub-variables of health perception consist of 2 parts that are health concern · health anxiety and 8 questions. Likert scale which has five level items, the least of 1 point (strongly disagree) to maximum of 5 point (strongly agree) was composed for each questions.

The measurement tool for health belief based on health belief model of Becker (1974) have been used and modified. Comple-

mented questionnaire was used to fit this study. The sub-variable of health belief consists of 2 parts that are perceived benefit and perceived barrier and 11 questions. Likert scale which has five lev-

Table 1. General participants' characteristics

	Division	Frequency (Number)	Distribution ratio (%)
Age	40-50	72	36.4
	46-51	60	30.3
	52-57	48	24.2
	Over 57	18	9.1
Occupation	Housewife	126	63.6
	Employee	24	12.1
	Self Employed	36	18.2
	Specialized Job	12	6.1
Level of education	High School Diploma	108	54.5
	Associated of Arts	48	24.2
	College Graduates	42	21.2
Frequency of swimming participation	Once a week	12	6.1
	2-3 times a week	36	18.2
	4-5 times a week	114	57.6
	Everyday	36	18.2
Swimming participation time	Less than 15 min	12	6.1
	15-30 min	6	3.0
	30 min-1 h	138	69.7
	1-2 h	36	18.2
	More than 2 h	6	3.0
Intensity of swimming participation	weak	12	6.1
	little tired	108	54.5
	tired	60	30.3
	very tired	18	9.1

Table 2. Result of test of normality

Item	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
Skewness	-0.219	-1.226	-0.047	-0.498	0.037	-0.416	0.115	-0.066	1.272	-1.976
Standard error	0.173	0.173	0.173	0.173	0.173	0.173	0.173	0.175	0.175	0.173
Kurtosis	-0.335	3.368	-0.622	-0.464	-0.287	-0.450	1.774	-0.417	5.983	5.534
Standard error	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.344	0.349	0.344
Item	H11	H12	H13	H14	H15	H16	H17	H18	H19	H20
Skewness	-1.632	-1.732	1.704	-1.367	-0.852	-0.355	0.966	0.204	0.068	-0.606
Standard error	0.173	0.173	0.173	0.173	0.173	0.175	0.175	0.173	0.173	0.173
Kurtosis	4.110	5.786	3.190	3.036	-0.121	-1.015	-0.325	-0.623	-0.256	-0.893
Standard error	0.344	0.344	0.344	0.344	0.344	0.349	0.349	0.344	0.344	0.344
Item	H21	H22	H23	H24	H25	H26	H27	H28	H29	H30
Skewness	-0.191	-0.223	-0.252	-0.296	0.018	0.000	-0.560	-0.823	0.137	-0.187
Standard error	0.173	0.173	0.173	0.173	0.173	0.173	0.175	0.175	0.175	0.175
Kurtosis	-0.478	-0.893	-0.610	-0.728	-0.608	-0.801	-0.652	-0.310	-1.104	-0.688
Standard error	0.344	0.344	0.344	0.344	0.344	0.344	0.349	0.349	0.349	0.349

el items, the least of 1 point (strongly disagree) to maximum of 5 point (strongly agree) was composed for each question.

The measurement tool for life satisfaction is developed by Emmons and Diener (1986). The sub-variable of life satisfaction consists of 1 part, life satisfaction and 5 questions. Likert scale which has five level items, the least of 1 point (strongly disagree) to maximum of 5 point (strongly agree) was composed for each questions.

The measurement tool for well-being oriented activities has been used and modified. Yoo (2006) have used questionnaires to Fixes complement reconstructed.

The sub-variables of well-being oriented are 3 parts, hobby oriented, exercise oriented, mental health oriented and total 6 questions. Likert scale which has five level items, the least of 1 point (strongly disagree) to maximum of 5 point (strongly agree) was composed for each questions.

Data processing

SPSS ver. 18.0 (IBM CO., Armonk, NY, USA) for windows for data analysis was used to analyze normality test, descriptive, correlation analysis, reliability analysis and exploratory factor analysis. And AMOS 18.0 was used to analyze path analysis.

RESULTS

Result of normality test

Prior to verification of validity, reliability and hypothesis, test of normality was verified. By verify test of normality, skewness and kurtosis were analyzed, for critical value, skewness ± 2 , kurtosis ± 7 were applied according to previous report (West et al., 1995). Like

Table 3. Exploratory factor analysis and reliability analysis

Variable	Item	Item code	Factor loading		
			Health concern - health anxiety	Resistibility - susceptibility	
Health Perception	I am more susceptible to disease than other people.	H1	0.757	-0.137	
	I may be sick in a future.	H2	0.795	-0.020	
	I am currently a little sick.	H3	0.742	-0.058	
	I am more liable to illness than others.*	H4	-	-	
	I may become weaker in a future.*	H5	-	-	
	I less worry about my health.	H6	-0.082	0.417	
	I think I am very healthy.	H7	0.014	0.671	
	I am weak according to doctor's diagnosis.	H8	0.001	0.781	
	Cronbach's α .		0.806	0.778	
	Eigen value.		2.117	1.328	
Variance explanation (%).		43.544	26.565		
Variable	Item	Item code	Factor loading		
			Perceived benefit	Perceived barrier	
Health perception	Exercise prevents from disease or deterioration in health.*	H9	-	-	
	Dietary regulation prevents from disease or deterioration in health.	H10	0.822	-0.023	
	Stress regulation prevents from disease or deterioration in health.	H11	0.959	0.045	
	Weight control prevents from disease.	H12	0.857	-0.091	
	Non-smoking prevents from disease.*	H13	-	-	
	Moderation in drink prevents from disease.	H14	0.889	-0.017	
	Dietary control is hard due to get-together.	H15	-0.357	0.632	
	Non-smoking and Moderation in drink are hard.	H16	0.222	0.646	
	Non-smoking is tough job for me.	H17	0.089	0.787	
	I don't have enough time for exercise.	H18	0.022	0.575	
	I don't have time to relieve my stress.*	H19	-	-	
	Cronbach's α .		0.937	0.764	
	Eigen value.		4.214	1.746	
	Variance explanation (%).		46.825	19.400	
Variable	Item	Item code	Factor loading		
			Life satisfaction		
Life satisfaction	I am living a life that is close to my ideal.	H20	0.644		
	I have very nice conditions for my life.	H21	0.923		
	I satisfied with my life.	H22	0.778		
	I accomplished important thing that I want.	H23	0.621		
	I'll live a life that I've been through.	H24	0.558		
	Cronbach's α .		0.755		
	Eigen value.		2.998		
	Variance explanation (%).		59.955		
Variable	Item	Item code	Factor loading		
			Mental health oriented	Exercise oriented	Hobby oriented
Well-being oriented activities	I think positive on everything.	H25	0.720	-0.199	0.033
	I live a comfortable and peaceful life with my family.	H26	0.854	0.067	0.043
	I do dance, yoga or tai chi.	H27	-0.084	-0.940	0.213
	I do walking or hiking.	H28	0.107	-0.726	-0.113
	I enjoy cultural life such as play or movie.	H29	-0.020	0.014	0.647
	I sing a song with a happy feeling.	H30	0.172	-0.080	0.567
	Cronbach's α .		0.724	0.788	0.873
	Eigen value.		3.208	1.015	0.742
	Variance Explanation (%).		53.467	16.916	12.326

Note 1) *Removed item from exploratory factor analysis, Note 2) Negatively worded items are treated by inverse coding.

Table 2, both skewness and kurtosis don't exceed critical value, therefore data that is analyzed for this study meet the test of normality.

Result of exploratory factor analysis and reliability analysis

For verification of validity, exploratory factor analysis has been done. Every measuring variable was used principal axis factoring to extract organization factor, and direct oblimin of oblique rotation was adopted to simplify factor loading.

Factor loading shows degree of correlation between each of variables and factor, so each of variables belongs to the factor that is highest factor loading. In a field of social science, factor loading that is above 0.40 is commonly regarded it as attentive variable, above 0.5 is considered 'very important variable'. Therefore, in this study, factor loading is based on above 0.4/according to the criteria of social science. And to measure internal consistency of reliability for measuring tool, Cronbach's α was suggested, the criteria for reliability is above 0.7.

On analyzed result, some parts that is low value of factor loading are deleted, and both factor loading and reliability has met the criteria value. Table 3 shows specific outcome.

Correlation analysis

Correlation analysis is used to understand relation of every variable that is included in hypothesis testing; it generally suggests the outcome before hypothesis testing. Pearson's correlation coefficient was used, and Table 4 shows outcome of correlation analysis.

Result of path analysis and suitability analysis

Model for path of health perception, health belief, life satisfaction and well-being oriented activities according to swimming participation was showed on Fig. 1. Health concern · health anxiety-

ety and resistibility · susceptibility is the direct path model that affects perceived benefit, perceived barrier, life satisfaction, mental health oriented, exercise oriented and hobby oriented.

A criterion for model suitability, verification of χ^2 had been preferentially used, however to verify construct validity, by the problems that are it tends to dismiss null hypothesis very easily that can perfectly explain data from model and the value of χ^2 is sensitive for size of sample data, goodness of fit index was suggested as an evaluation index.

Goodness of fit index to evaluate model properly shouldn't sensitively affect on size of sample data (Hu and Bentler, 1995). And to consider simplicity of model, CFI (Comparative Fit Index), TLI (Turker-Lewis Index), RMSEA (Root Mean Square Error of Ap-

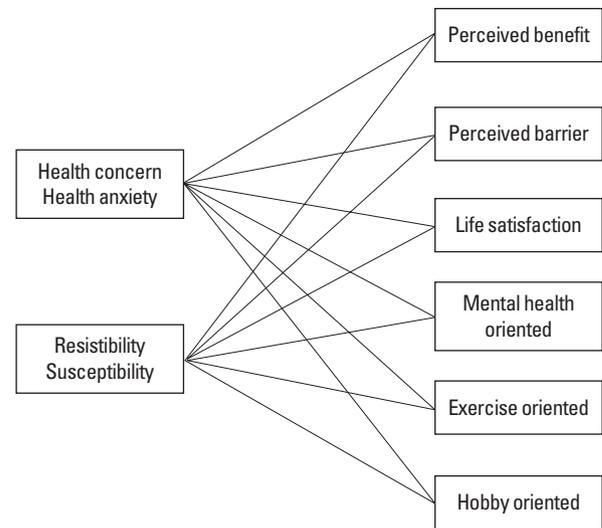


Fig. 1. Model for path of health perception, health belief, life satisfaction and well-being oriented activities according to swimming participation was showed on Health concern · health anxiety and resistibility · susceptibility is the direct path model that affects perceived benefit, perceived barrier, life satisfaction, mental health oriented, exercise oriented and hobby oriented.

Table 4. Correlation analysis

Variable	Inter-Construct correlation							
	1	2	3	4	5	6	7	8
Health conern anxiety	1							
Resistibility susceptibility	0.077	1						
Perceived benefit	0.220**	0.43	1					
Perceived barrier	0.014	0.362**	0.411**	1				
Life satisfaction	0.081	0.115	0.518**	0.382**	1			
Mental health oriented	0.007	0.179*	0.596**	0.387**	0.652**	1		
Exercise oriented	0.109	0.192**	0.213**	0.380**	0.306**	0.457**	1	
Hobby oriented	0.087	0.084	0.385**	0.441**	0.322**	0.576**	0.393**	1

* $P < 0.05$, ** $P < 0.01$.

Table 5. Goodness of fit index for model

	χ^2	df	CFI	TLI	RMSEA
Model	146.046	41	0.928	0.903	0.080

Table 6. Result of path analysis

Path	Standardized regression weight	se	t
Health concern · health anxiety ▶ perceived benefit	0.229	0.072	3.186***
Health concern · health anxiety ▶ perceived barrier	0.140	0.054	2.611**
Resistibility · susceptibility ▶ perceived benefit	0.018	0.095	0.192
Resistibility · susceptibility ▶ perceived barrier	0.24	0.071	3.500***
Health concern · health anxiety ▶ Life satisfaction	0.157	0.056	2.807**
Resistibility · susceptibility ▶ Life satisfaction	0.121	0.059	2.067*
Health concern · health anxiety ▶ mental health oriented	0.279	0.074	3.777**
Health concern · health anxiety ▶ exercise oriented	0.555	0.075	7.407***
Health concern · health anxiety ▶ hobby oriented	0.395	0.075	5.267***
Resistibility · susceptibility ▶ mental health oriented	0.343	0.078	4.403***
Resistibility · susceptibility ▶ exercise oriented	0.130	0.099	1.317
Resistibility · susceptibility ▶ hobby oriented	0.251	0.059	4.261***

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

proximation) of various goodness of fit index were used as standard value (Hong, 2000). The general criteria for goodness of fit index to adopt model is CFI (Comparative Fit Index) and TLI (Turker-Lewis Index) values that are all over 0.9. RMSEA (Root Mean Square Error of Approximation) is less than 0.08. Index of CFI, TLI for this study corresponds to baseline condition of over 0.09, and the value of RMSEA is 0.08 that corresponds to baseline condition as well. Table 5 showed the details.

Estimated path coefficient for this model showed on Table 6. According to path coefficient analysis, the value is as follows. Health concern and health anxiety has a positive correlation with perceived benefit ($t = 3.186^{***}$), perceived barrier ($t = 2.611^{**}$), life satisfaction ($t = 2.807^{**}$), mental health oriented ($t = 2.067^*$), exercise oriented ($t = 7.407^{***}$) and hobby oriented ($t = 5.267^{***}$).

Resistibility and susceptibility has positive correlation with

perceived barrier ($t = 3.500^{***}$), life satisfaction ($t = 3.777^{**}$), mental health oriented ($t = 4.403^{***}$) and hobby oriented ($t = 4.261^{***}$), however it doesn't significantly affect on perceived benefit ($t = 0.192$) and exercise oriented ($t = 1.317$).

DISCUSSION

The purpose of this study is to investigate effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation with middle-aged women. In this part, the implication of consequence and relationship of these variables will be discussed based on the consequence from this study.

First, health-conscious · health anxiety that are sub-variables of health perception had a big impact on perceived benefit and perceived barrier that are sub-variable of health belief, and resistibility · susceptibility that are sub-variable of health perception had significantly affect only on perceived barrier.

According to Rosenstock (1990), the more susceptibility or seriousness is perceived, the more health belief model is active in practice of health behavior, the other way, practice of health behavior has been decreased, when a barrier to this kind of behavior is perceived. Therefore, based on this assumption, the more swimming participation of middle aged women has considered on concern and anxiety toward health, the higher benefit toward health is produced, and the higher susceptibility, resistibility or concern and anxiety for health is perceived, the less barrier to health is perceived. This result was reconfirmed by Rosenstock's assumption of health belief model (1990), it is showed the relationship between health perception and health belief according to swimming participants. Study by Son et al. (2009) also reported the more susceptibility and seriousness for disease that is caused from lack of exercise was perceived, more positive perception toward exercise was produced, so it is very similar to the assumption of health belief model and result of this study.

Second, health concern · health anxiety and resistibility · susceptibility that are sub-variables of health perception have significantly affected life-satisfaction.

Health means an opportunity to satisfy and choose from life as a base element for quality of life. Palmore and Luikart (1972) have reported from study of health and life satisfaction which is measured subjectively or objectively, individuals who believe they are healthy showed higher life satisfaction, even if they are not that healthy really, individuals who believe they are not healthy showed lower life satisfaction, even if they are healthy enough. And other

study also showed perceptive health is the most important cause among predictive factors of life satisfaction (Larson, 1978; Palmore and Kivett, 1977). And Palank (1991) reported positive perception toward health is closely related to promotion of health and life satisfaction indicator. Pender et al. (1990) reported positive perception on health status affects frequency and degree of life style for promotion of health.

Like this, many previous studies supported the result of this study, and it is considered improvement of health perception from swimming keeps a good feeling in overall daily life and induces enthusiastic activity and thought.

Third, health concern · health anxiety that is sub-variable of health perception affects mental health oriented, exercise oriented, hobby oriented that are sub-variables of health perception.

This result of study has been supported from previous study (Kim and Cha, 2009; Paek, 2003; Yang et al., 2008) which reported that middle aged women who perceived importance of health tend to consider physical health status as well as psychological well-being oriented.

The purpose of this study is to investigate effects of health perception on health belief, life satisfaction, and wellbeing-oriented activities according to swimming participation with middle-aged women.

For this purpose, middle aged women who were participating in swimming were set up as a population. Cluster sampling was used for sampling method, except faithless participants collected data from 198 individuals had been used for analysis. Results of analysis were as follows.

First, health concern and health anxiety that is sub-variable of health perception affected perceived benefit and perceived barrier that are sub-variable of health belief. And health concern and health anxiety had significantly affected exercise oriented, hobby oriented that are sub-variable of life satisfaction and well-being oriented activities.

Second, resistibility and susceptibility that is sub-variable of health perception had significantly affected perceived barrier that is sub-variable of health belief, as well as life satisfaction. And resistibility and susceptibility had significantly affected mental health oriented and hobby oriented that are sub-variable of well-being oriented.

This study is hard to be concluded whether the result applied to every individual on a national scale, because middle aged women that are selected for this study are only in kyoung-Nam province. Furthermore part of measuring tools for this study is composed limited questions to measure intrinsic value, so if the sub-

variable for life satisfaction and well-being oriented activities is added by considering the change in current society, it would be considered as more desirable study.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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