MIND OVER BODY CONNECTION: AGING EXPECTATIONS AND SUBJECTIVE HEALTH AND WELL-BEING AMONG OLDER ADULTS

Johnny J. Yao Jr.

Education Supervisor II, Commission on Higher Education, Philippines

Associate Member, Medical Sciences Division, National Research Council of the Philippines

Correspondence: johnnyyaojr@gmail.com

ABSTRACT

BACKGROUND:

There is credible evidence that a person's beliefs about the aging process are linked to and influence a variety of health outcomes.

PURPOSE:

This study determined whether aging expectations predict health-related quality of life. Furthermore, the study determined whether engagement in healthy lifestyles mediates the relationship between these variables.

METHODS:

This descriptive-correlational study enlisted a total of 95 respondents aged 60 to 85 years old in a large metropolitan area. Data were analyzed using linear regression and mediation analysis.

RESULTS:

Aging expectations and engagement in healthy lifestyles are a significant predictor of health-related quality of life ($p < 0.05$). Moreover, engagement in healthy lifestyles is found to be a significant mediator between the variables.

CONCLUSION:

Older adults who have positive aging expectations and engage in health promotion activities are more likely to report better health. Therefore, programs that promote a positive aging expectation and engagement in health-promoting activities should be implemented.

KEYWORDS

aging expectations, subjective aging, older adults, health behaviors, healthy lifestyles, quality of life

INTRODUCTION

Over the past few years, there has been a considerable increase in life expectancy of people [1]. Old age, currently, is a phase in life that is attainable for most people. The idea of aging expectations, that is, the way by which persons perceive their own aging process, may be more significant than ever before. Although there is an increase in life expectancy, people are likely to live longer but with more chronic illnesses. Aside from physical health, there is also a need to consider the importance of health-related quality of life which is a more holistic outcome for older people. Health-related quality of life may include physical health, psychological health, degree of independence, relationships, and perceived social support [2].

Moreover, there is dependable evidence suggesting that a person's beliefs about the aging process relate with, and determine, several health and illness outcomes [1,3,4]. This development happens both intentionally and unintentionally [5]. Levy [6] showed that disability and disease processes that are related with aging may be partly explained by the effect of psychosocial factors of the aging self. Findings from both observational and experimental research have revealed that age-related preconceptions can become significant determinants of an older adult's well-being [1]. Several studies have shown that having more positive depictions of one's aging process and feeling younger are related with better subjective well-being and physical health [7-9]. Moreover, a longitudinal study by Levy, Slade, and Kasl [10] suggested that people with more positive aging expectations were able to sustain and improve their health over twenty years. Sarkisian and colleagues [11] studied the association between aging expectations and physical activity and found a positive relationship between positive aging expectations and aerobic activity. Therefore, negative aging expectations may be a hindrance to physical activity in older adults [11]. Moreover, positive self-perception of aging can also affect a person's engagement in other health-promoting behaviors such as participating in exercise, eating a healthy balanced diet, using health care resources, having regular physical examinations, and limiting the use of alcohol and/or tobacco [12]. These studies show the role of aging expectations towards engagement in health behaviors and subjective well-being. One correlational study showed that positive aging expectations were also linked to improved self-reported mental and physical health [13].

This association between aging expectations and health was partially mediated by engagement in health-promoting behaviors such as interpersonal relations, stress management, and physical activity [13].

Finally, there is limited evidence that investigates the possible mediating effect of engagement in healthy lifestyles between the aging expectations and quality of life. Determining the relationships between these variables is crucial since these outcomes may be major factors of successful aging and may be used to modify wellness and health programs among older adults.

OBJECTIVES

This study aimed to determine whether aging expectations significantly predicted health-related quality of life. Furthermore, the study determined whether engagement in healthy lifestyles mediated the relationship between aging expectations and health-related quality of life.

METHODOLOGY

DESIGN, SAMPLE AND PROCEDURES

A descriptive-correlational study was used to determine the relationship between the variables in the study. Respondents were individuals who are 60 years old and above. The computed sample size was 90 people based on a power analysis using G-power software (power=0.90; a = 0.05; medium effect size = 0.15) and 95 respondents were recruited for the study. F test for linear multiple regression: Fixed model, R^2 deviation from zero was utilized for the sample size computation. Respondents were recruited from a highly urbanized city in the Philippines using consecutive sampling. This was done once a week for one month. Participants provided written informed consent prior to initiating the study. The purpose of the study was explained, and emphasis on voluntary participation, anonymity, and the right to refuse was indicated in the letter and was reinforced verbally if needed. It was also indicated that the return of the questionnaire would indicate implied consent to participate in the study. Recruitment and distribution of the questionnaire were done during the monthly meetings of the various local senior citizen's associations. There were no advertisements done for recruitment. But to enhance representativeness, aside from their meetings, questionnaires were also distributed in the different households with older adults with the assistance of community personnel once a week for

one month. This was either through face-to-face interviews or through direct individual or group administration, depending on their preference or their capabilities. There were no dropouts during the duration of the study.

Prior to gathering the data, the research was approved by the Velez College Ethics Review Committee.

MEASURES

The main research instruments that were used for this study are three (3) standardized tools, namely: Expectations Regarding Aging (ERA-12) Survey, Health-Promoting Lifestyle Profile II (HPLP-II), and RAND 36-Item Health Survey (RAND-36). All the tools were translated using a forward-and-back translation process. This was done independently by two bilingual nursing clinical instructors whose expertise are in community health nursing and gerontology nursing. One of them translated it from English to local dialect then the other one translated it back from vernacular to English. The two versions were then checked for semantic equivalence and cultural applicability. There were no significant changes with the translated version after the process.

The different standardized questionnaires, along with the demographic questions, were combined into one document. The demographic profile of the respondents included were age, sex, marital status, educational attainment, and employment status. The Expectations Regarding Aging (ERA-12) was used in the questionnaire [11]. It is a twelve-item survey that measures expectations regarding aging with three 4 item scales (expectations regarding physical health, expectations regarding mental health, and expectations regarding cognitive function), and one global expectations regarding aging scale combining all 12 items. The ERA-12 scales demonstrated acceptable levels of reliability and construct validity in two very different samples of community-residing older adults (n=429; a = 0.88 and n = 643; a = 0.89). The statements are followed by four responses: ''Definitely True,'' ''Somewhat True,'' ''Somewhat False,'' and ''Definitely False.'' Possible scores range from 0-100, with higher scores indicative of expecting achievement and maintenance of high physical and mental functioning with aging (for self and others), and low scores indicate expecting decline with aging. In addition, there are no cut points for what is optimal.

Additionally, the Health-Promoting Lifestyle Profile II (HPLP-II) was also included which consists of fifty-two questions related to current engagement in health-promoting lifestyle factors [14]. These lifestyle factors are quantified using six subscales (i.e., Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, and Stress Management). The construct validity of these subscales was analyzed using factor analysis, which confirmed the six-dimensional structure of the HPLP-II [14]. The HPLP-II has an alpha coefficient of .94, and the

subscales have alpha coefficients ranging from .79 to .87, suggesting that the measure and its subscales are internally consistent [14]. A total score can also be calculated by scoring responses to all of the items on the survey (i.e., items from every subscale). Each statement on the survey is followed by four responses: "Never," "Sometimes," "Often," and "Routinely". Individual responses are scored on a one to four scale, with the overall score being obtained by averaging all of the responses.

Finally, the RAND 36-Item Health Survey (RAND-36) was also included. It is a measure of health-related quality of life, which refers to how health affects general functioning and perceived physical, mental, and social well-being. The survey consists of eight subscales including physical functioning, role limitations caused by physical health problems, role limitations caused by emotional problems, social functioning, emotional well-being, energy/fatigue, pain, and general health perceptions. The eight subscale scores yield two summary scores that more generally measure physical and mental health. General function is measured by assessing engagement in basic self-care activities (e.g. bathing) as well as engagement in work-related activities (e.g. housework or job). Questions related to physical, mental, and social well-being assess the individual's subjective perception of their well-being in the related domain (e.g. whether the individual feels happy or whether they are in pain [15]. The RAND-36 survey's alpha values ranging from 0.71 to .93, suggesting the measure and its subscales are internally consistent [16]. High score defines a more favorable health state. In addition, each item is scored on a 0 to 100 range so that the lowest and highest possible scores are set at zero and one hundred, respectively. Scores represent the percentage of total possible score achieved.

DATA ANALYSES

The data collected was analyzed using IBM SPSS statistical software version 23. Descriptive statistics including means, standard deviations, were calculated for the continuous

variables and percentages and frequencies for categorical variables. Linear regression and mediation analyses using PROCESS version 3 were applied to analyze the data for the main variables. Mediation analysis is done to understand a known relationship by studying the underlying process by which one variable influences another variable through a mediator variable [17]. Finally, post hoc power analysis was done to examine the observed effect size based on the sample size of the study.

RESULTS

There was a total of ninety-five respondents aged 60 to 85 years old in this study. Table 1 shows that majority of the participants were categorized as: young old, females, widow/ widower, unemployed, and college level or college graduates aged 60 to 85 years old. Furthermore, the mean age of the participants is 68 years old (SD=6.6). To compute post-hoc achieved power, a probability error was set to 0.05, and with two predictors in the model, the effect size was computed based on the results using an effect size (f^2) of .64. The results show a post-hoc power estimation of 0.99 suggesting that the sample has substantial power that strengthens statistical conclusion validity.

TABLE 1. PROFILE OF RESPONDENTS (N=95)

Profile	f	%
Age		
Young Old (60-69)	59	62
Middle Old (70-79)	30	32
Oldest Old (80 & up)	6	6
Gender		
Male	18	19
Female	76	81
Marital Status		
Single	5	5
Married	41	43
Widow/Widower	43	46
Separated	6	6
Employment Status		
Employed	10	10
Unemployed	85	90
Educational Attainment		
No formal education	1	1
Elementary Level	10	10
Elementary Graduate	11	12
High school Level	12	13
High school Graduate	15	16
College Level	21	22
College Graduate	21	22
Post Graduate	4	4

To test if expectations regarding aging and health promoting lifestyle significantly predicts health-related quality of life, a regression analysis was done. Table 2 shows the prediction model that shows path b and c' was statistically significant, $F_{(2, 92)} = 21.49$, $p < .001$ and shows that the regression model has an R^2 of .39. This means that about 39% of the variability of the dependent variable, which is health related quality of life, is predicted by the independent variables included in the study. The remaining 61% of the variability in the dependent variable is still unaccounted for and may be caused by other variables or external factors that were not included in the study.

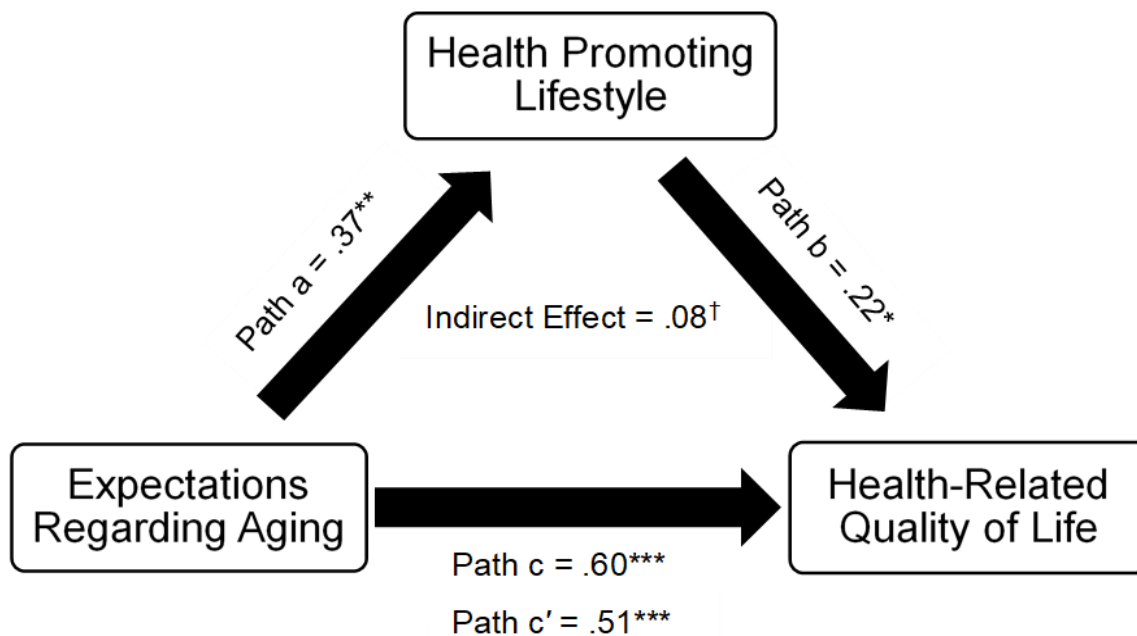Expectations regarding aging, and health promoting lifestyles were used in the regression analysis to predict

health-related quality of life. The unstandardized and standardized regression coefficients of the predictors are also shown in Table 2.

Figure 1 and Table 2 indicate that the independent variables – expectations regarding aging (β = .51, p < .001), and health promoting lifestyles (β = .22, p = .039) are significant predictors to the dependent variable, health-related quality of life. Both expectations regarding aging and health promoting lifestyles have positive coefficients which means that an increase or decrease of its value will subsequently increase or decrease the level of health-related quality of life, respectively. Further, it means that for every one-point increase in the independent variables there will be a corresponding increase equivalent to the value of its beta coefficient in the level of health-related quality of life. Finally, expectations regarding aging received the strongest weight in the model followed by health promoting lifestyle.

To determine if health promoting lifestyle mediated the relationship between expectations regarding aging and health-related quality of life a mediation analysis was done. The mediation analysis is summarized in Table 2 and illustrated in Figure 1 to show the paths of the relationships between the variables.

The total effect of the independent variable, expectations regarding aging, to the dependent variable, health-related quality of life, is shown as path c. This is the effect without the mediator included. As shown in Table 2 expectations regarding aging's total effect is significant (β = .60, p < .001). In comparison, path c' shows the direct effect of the independent towards dependent variable with the inclusion of the mediator variable. Table 2 and Figure 1 shows that it is significant (β = .51, p < .001), but the direct effect is less than the total effect (c': β = .51 < c: β = .60). This reduction in the beta coefficient means that including path b as a mediator may have influenced the effects of the independent variable.

FIGURE 1. MEDIATION MODEL OF EXPECTATIONS REGARDING AGING, HEALTH PROMOTING LIFESTYLE, AND HEALTH-RELATED QUALITY OF LIFE. STANDARDIZED BETA COEFFICIENTS ARE SHOWN.

*p < .05. **p < .01. ***p < .001. † significant indirect effect.

TABLE 2. REGRESSION AND MEDIATION ANALYSIS OF EXPECTATION REGARDING AGING, HEALTH PROMOTING LIFESTYLE, AND HEALTH-RELATED QUALITY OF LIFE

Path Model	R^2	F	B	SE (B)	95% CI	β
Path b and c': DV = health-related quality of life	.39	21.49***				
Path b: IV = health promoting lifestyle			7.44*	3.52	[0.40, 14.48]	.22*
Path c': IV = expectations regarding aging			16.20***	3.26	[9.70, 22.70]	.51***
Path c: DV = health-related quality of life	.35	36.63***				
IV = expectations regarding aging			18.76***	3.10	[12.57, 24.95]	.60***
Path a: DV = health promoting lifestyle	.14	10.80**				
IV = expectations regarding aging			0.34**	0.11	[0.14, 0.55]	.37**
Indirect effect: DV = health-related quality of life						
IV = expectations regarding aging Mediator = health promoting lifestyle			2.56†	1.33	[0.01, 5.31]	.08†

Note. n = 95. B = unstandardized beta. SE = standard error. CI = confidence interval. β = standardized beta. DV = dependent variable. IV = independent variable.

*p < .05. **p < .01. ***p < .001. † significant indirect effect.

Furthermore, path a illustrates that the independent variable, expectations regarding aging, is a significant predictor of the mediator variable, health promoting lifestyle (β = .37, p = .002). This indicates that mediation is present in the model. This would indicate that the independent variable can affect the dependent variable through its effect on the mediator.

The indirect effect of the independent variable towards the dependent variable with the mediator variable was tested using bootstrapping (N = 5,000 samples). These results indicated that the indirect effect coefficient was significant, β = .08, 95% CI [0.10, 5.31]. This mediation analysis is significant because the confidence interval does not include 0.0. Therefore, people can say that they are 95% confident that the true indirect effect is positive.

DISCUSSION

The results show that aging expectations significantly predicted health promoting lifestyle and health-related quality of life. This means that the older adults who have more positive expectations are more likely to engage in health promoting activities and are more likely to report better health. Moreover, the relationship between aging expectations and health-related quality of life was significantly mediated by health promoting lifestyle. Expectations regarding aging can directly affect health-related quality of life but it can also have an indirect effect through health promoting lifestyle. This suggests that older adults who have positive expectations about their aging are more likely to report of having better health when it is complemented with engagement in health promoting activities.

The results are supported by existing literature that shows that an aging individual's beliefs about the aging process predict health, illness, and health behavior outcomes [6]. Studies have found that aging expectations can become essential determinants of the well-being of an older adult [5]. Numerous studies have shown that having more positive images of one's own aging process and feeling younger are related with better subjective well-being and physical health [7-9].

Expectations of aging can also affect a person's engagement in other health-promoting behaviors such as participating in exercise, eating a healthy balanced diet, use of health care resources, having regular physical examinations, and limiting the use of alcohol and/or

tobacco [12,18]. Empirical evidence further supports the findings which indicates that participation in healthy aging behaviors (i.e., physical activity and a proper diet) offers older adults the greatest opportunity for avoiding or postponing the onset of chronic diseases, and increasing the likelihood of living an active, long life [19]. Warburton and colleagues [20] mentioned the immense literature indicating the health benefits of consistent physical activities including the prevention of several chronic diseases such as osteoporosis, depression, obesity, hypertension, cancer, diabetes, and cardiovascular disease. They also conveyed a dose dependent association with the variables. This means that increase amounts of physical activities lead to better improvements in health. Wen and colleagues [21] showed a reduction in mortality in older persons with and without disabilities who engaged in minimal physical activities only. Positive aging expectations were also linked to an improved self-reported physical and mental health and this association between aging expectations and health were partially mediated by engagement in health-promoting behaviors such as interpersonal relations, stress management, and physical activities [13].

LIMITATIONS

The current study was limited in using a descriptive correlational design. These potential limitations should be considered in the generalizability of the findings to other settings and populations. Specifically, due to the sampling design, the results may not be applicable to other populations or settings outside the study and may not represent the older adult population. Furthermore, since the design is cross-sectional and non-experimental, causality cannot be inferred between the variables. These limitations can guide the future direction of research in this area of interest.

CONCLUSION

The findings suggest that older adults in the study who have positive aging expectations and engage in health promotion activities are more likely to report better health. Based on the findings, it is recommended to promote activities that develop or enhance positive and realistic expectations towards aging. There should also be activities that would promote engagement in health-promoting activities that will positively affect the health status of older adults. Moreover, interventions should be designed in a

way that will promote synergy of the of having positive aging expectations and doing health-promoting activities that can favorably impact the older adults' health and well-being. Further, studying the effects of older adults' expectations and engagement in healthy behaviors towards health and well-being can provide crucial information on how to design appropriate health and wellness programs. These programs could be organized by non-government organizations, local government units, and health care practitioners especially nurse gerontologists.

Furthermore, future researchers may explore the possible factors that may influence aging expectations and engagement in health promoting behaviors. Researchers could conduct a longitudinal study to establish the clear temporal and causal link between aging expectations, engagement in health-promoting behaviors, and health and well-being. Researchers may investigate other objective measures that would assess health and well-being such as physical examinations or diagnostic tests. Lastly, future researchers could look into effective interventions to enhance aging expectations and engagement in health promoting behaviors.

CONFLICT OF INTERESTS
The author declares no potential conflicts of interest concerning this research.

ACKNOWLEDGEMENT

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