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Original Research

Do anxiety or determination of life differ based on the perceived financial status to cope with severe diseases?

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ARTICLE INFO

Article history:

Received 21 September 2018

Received in revised form

16 December 2018

Accepted 15 January 2019

Available online 20 March 2019

Keywords:

Perceived financial status

Severe disease

Anxiety

Determination of life

Household income

ABSTRACT

Objective: The objective of this study was to identify the relationships among people's perceived financial status to cope with severe disease, levels of anxiety and determinations of life.

Study design: This is a secondary analysis of population-based cross-sectional surveys.

Methods: The 2016 Social Integration Survey of 8000 Korean participants aged 19 years or older was used. Data were analysed using correlation, correspondence and covariate analyses.

Results: Of all the participants, 84.6% responded that they had insufficient perceptions of financial status; decision-making power was found to have a stronger correlation with perceived financial stability than with real income. In addition, the perceived ability, based on financial status, to cope with severe disease was correlated with anxiety.

Conclusions: The study proposes that when developing health and medical treatment policy and intervention programmes, perceptions of personal financial status and stability should be considered concurrently.

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Introduction

With the increased average lifespan and ratio of senescence in the life cycle, improved quality of life is becoming increasingly important. The burden of health expenditures may result in lower quality of life and poverty.^{1,2} Particularly, the sudden increase in health expenditure associated with severe diseases not only affects household finances but also decreases the quality of life.³

Approximately 1.6 million Korean people suffer from severe diseases, and 8.6 trillion of the total 54 trillion KRW health expenditure is used for the four major severe diseases, namely, cancer, cardiovascular disease, cerebrovascular disease and rare diseases. Furthermore, the average health expenditure of 4–10 million KRW⁴ per patient is indicative of the significant health expenditure burden of severe diseases. In a study by Lee,⁵ 72.2% and 47.2% of patients with severe diseases felt burdened by and

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<https://doi.org/10.1016/j.puhe.2019.01.010>

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experienced excessive pressure from health expenditure, respectively; only 27.8% of patients could cover their own health expenditure. Previous studies on catastrophic health expenditure claimed that an excessive out-of-pocket payment in the use of medical services may decrease normal consumption or lead to poverty,^{6,7} which generates the need for a policy alternative for financial protection of households, especially for the economic burden of severe diseases.⁸

Financial status is usually measured by variables such as income and socio-economic status; however, income is not an appropriate measure of financial well-being because it cannot sufficiently explain perceived financial status.⁹ People tend to base their attitudes and behaviours on subjective perception.¹⁰ According to Jackman and Jackman,¹¹ the meaning or substance of the stratum cannot be evaluated without paying attention to subjective perception. Perceived financial status is a notion distinct from income in that it takes into account expenditure relative to income. Perceived financial status refers to an individual's perception of his or her ability to meet expenses and a tendency to worry about debt, among other factors.¹² Han et al.¹³ emphasised that the subjective perception of financial status is a major factor that affects the planning of economic life in later years. In view of this, there is a need to determine the extent of an individual's perception of his or her financial ability to meet expenses in case of severe disease, and people's perception of their own financial status should be reflected in policy making regarding severe disease.

Various studies indicate that most households have already faced catastrophic health expenditure due to severe diseases^{5,7,14} or have discussed the equity of health expenditure based on categorisation of income brackets.¹⁵ In situations of decreasing productivity and increasing health expenditure due to severe disease, it is necessary to examine the extent of people's perception of their financial ability to meet expenses in case of severe disease and the relationship between the objective 'household income' and the subjective 'perceived financial status'. On a similar note, perceived financial status is reported to be associated with emotional well-being and quality of life. In this regard, there is a need to study how the variables of income, financial stability and perceived financial status are associated with subjective well-being and life-determining power.

Against this background, this study pursues the following objectives based on data from the 2016 Korea Social Integration Survey: 1) to determine the association between not only household income as an objective indicator but also perceived financial status to meet expenses in case of serious disease as a subjective indicator and decision-making over life; 2) to check whether pecuniary anxiety and decision-making over life are influenced by the degree of perceived financial status to meet expenses in case of severe disease. This analysis will enable determination of whether the perceived financial status affects coping, which is difficult to assess from absolute figures of household income or health expenditure alone. Furthermore, it will establish baseline data for policy development to promote determination of, and positive feedback in, life.

Methods

Sampling and data collection

Data of the 2016 Social Integration Survey of the Korea Institute of Public Administration were used. This survey aimed to provide baseline data for national policy that minimises social conflict and contributes to national integration; it did so by determining trends in perceptions and attitudes among citizens regarding unity levels and by determining the perceptions of social unity experienced by citizens in each social domain. The survey, conducted from September 1 to October 31, 2016, comprised a sample of 8000 participants from the entire Korean population aged 19 years and above. The sampling units were first classified by city/province, second by the households in the study area and third by individuals. The sample's composition was controlled by comparing the sample size with the population by city/province, gender and age group.

Measurements

The following question was used to evaluate perceived financial status to cope with severe disease: 'How much financial ability do you think you have to cope with severe disease?' Responses were rated on a 4-point scale (highly insufficient, somewhat insufficient, somewhat sufficient and highly sufficient). The level of anxiety was determined using the following question: 'How anxious were you yesterday?', and the determination of life was assessed using the following question: 'How free do you think you are in determining your life?' The perception of financial stability was determined using the following question: 'How stable do you think your current financial situation is?' The subjective level was rated on an 11-point scale ranging from 'not at all' (0 points) to 'very much' (10 points). Income was measured in 12 sections at an interval of 1 million KRW, from 0 KRW to 10 million KRW and higher; it was recorded as quantitative variables, represented by the median value of each section, and as qualitative variables in seven classes ranging from below 1 million KRW to 6 million KRW and higher.

Statistical analysis

A frequency analysis, independent sample t-test and analysis of variance were used to determine the difference in the level of anxiety and determination of life according to general characteristics. Correlation and correspondence analyses were conducted to examine the correlation among household income, perceived financial stability and perceived financial status to cope with severe disease. Simple regression analysis was conducted to examine whether there was a difference in the level of anxiety and determination of life according to perceived financial stability and household income. Gender, age, marital status and education level were used as control variables to identify the relationships among perceived financial status to cope with severe diseases and the level of anxiety and determination of life, and covariate analysis (linear model) was conducted using perception of financial stability as a covariate.

Results

Differences between variables based on general characteristics

Differences in the level of anxiety according to age, marital status, education level, household income and perception of financial stability, as well as differences in determination of life according to age, marital status, and perception of financial stability, were statistically significant (Table 1).

The level of anxiety was higher when age, education level, household income and perception of financial stability were lower; it was highest among married participants without spouses, followed by single and married participants with spouses. Older participants were freer in determination of life, and participants in their 20s were relatively freer than those in their 30s and 40s. Married people without spouses were freer than singles, and a higher perception of financial stability led to greater determination of life.

Household income and perceptions of financial stability and financial status

Perceived financial status was considered to be insufficient by 84.6% of participants. The differences in perceived financial status to cope with severe disease were statistically significant according to age, marital status, education level and perception of financial stability (Table 2). In most cases, participants

in their 20s, singles, married people without spouses and those with low education level considered their financial status as highly insufficient or somewhat insufficient; the latter response did not differ according to household income. Even for participants with at least 6 million KRW in household income, 15.5% perceived their financial status to be highly insufficient.

A correlation analysis of perceived financial status to cope with severe disease yielded correlation coefficients for household income and perception of financial stability of 0.189 and 0.505, respectively, indicating a closer relationship to subjective perception of financial stability than actual income.

A correspondence analysis to determine the correlation between the class interval of income and perceived financial status to cope with severe disease (Fig. 1) yielded the following high correlations: between below 2 million KRW and 'highly insufficient'; 2–6 million KRW and 'somewhat insufficient'; and 6 million KRW or higher and 'somewhat sufficient'. No income class interval was correlated with 'highly sufficient'.

Perceived financial status and the level of anxiety and determination of life

A higher perception of financial stability was found to lead to a lower level of anxiety and a higher determination of life. There was no statistically significant difference in the level of anxiety and determination of life according to income (Table 3). Therefore, the perception of financial stability was selected as a covariate.

Table 1 – General characteristics of participants and the differences in anxiety and determination of life according to general characteristics (N = 8000).

Characteristics	Categories	n	%	Anxiety			Determination of life		
				Mean	SD	t or F (p)	Mean	SD	t or F (p)
Gender	Male	4067	50.8	4.06	2.27	-0.302 (0.762)	6.27	1.91	1.103 (0.270)
	Female	3933	49.2	4.07	2.32		6.23	1.90	
Age in years	20s (including 19)	1582	19.8	4.11	2.31	4.591 (0.001)	6.22	1.95	15.459 (<0.001)
	30s	1610	20.1	4.18	2.33		6.09	1.93	
	40s	1875	23.4	4.13	2.24		6.09	1.89	
	50s	1792	22.4	4.01	2.27		6.41	1.87	
	60s or older	1141	14.3	3.83	2.35		6.52	1.81	
Marital status	Single	2204	27.5	4.15	2.29	7.030 (0.001)	6.26	1.95	2.929 (0.054)
	Have a spouse (married)	5219	65.2	4.00	2.27		6.23	1.87	
Education level	Do not have a spouse (married)	577	7.2	4.33	2.50	9.578 (<0.001)	6.43	1.99	1.230 (0.297)
	Elementary-school graduate or lower	329	4.1	4.25	2.61		6.41	1.95	
	Middle-school graduate	570	7.1	4.27	2.39		6.30	1.72	
	High-school graduate	3806	47.6	3.93	2.28		6.22	1.95	
Household income	College graduate or higher	3295	41.2	4.18	2.25	6.354 (<0.001)	6.26	1.87	0.657 (0.684)
	Below 1 million KRW	5302	66.3	4.45	2.49		6.20	2.06	
	1–2 million KRW	2698	33.7	4.27	2.38		6.33	2.01	
	2–3 million KRW	388	4.9	4.10	2.38		6.23	1.97	
	3–4 million KRW	774	9.7	3.92	2.36		6.24	1.93	
	4–5 million KRW	1347	16.8	4.19	2.15		6.20	1.80	
	5–6 million KRW	1781	22.3	3.85	2.13		6.30	1.77	
6 million KRW or higher	1404	17.6	4.04	2.26	6.27	1.91			
Perception of financial stability ^a	8–10	1101	13.8	3.22	2.38	104.99 (<0.001)	7.20	1.82	177.72 (<0.001)
	4–7	1205	15.1	3.86	2.17		6.38	1.74	
	0–3	386	4.8	4.97	2.44		5.58	2.23	

SD = standard deviation.

^a 11-point scale ranging from 'not at all' (0 points) to 'very much' (10 points).

Table 2 – Perceived financial status to cope with severe disease according to general characteristics (N = 8000).

Characteristics	Categories	Highly insufficient	Somewhat insufficient	Somewhat sufficient	Very sufficient	X ² or r	p
		n (%) or mean (SD)					
Gender	Male	948 (23.3)	2502 (61.5)	568 (14.0)	49 (1.2)	2.431	0.488
	Female	908 (23.1)	2411 (61.3)	579 (14.7)	36 (0.9)		
Age in years	20s (including 19)	651 (41.2)	811 (51.3)	107 (6.8)	12 (0.8)	403.124	<0.001
	30s	303 (18.8)	1061 (65.9)	228 (14.2)	18 (1.1)		
	40s	340 (17.9)	1241 (65.3)	296 (15.6)	24 (1.3)		
	50s	358 (20.0)	1116 (62.2)	301 (16.8)	18 (1.0)		
	60s or older	203 (17.8)	711 (62.4)	213 (18.7)	13 (1.1)		
Marital status	Single	795 (36.1)	1218 (55.3)	172 (7.8)	19 (0.9)	396.704	<0.001
	Have a spouse (married)	878 (16.8)	3375 (64.7)	908 (17.4)	59 (1.1)		
	Do not have a spouse (married)	183 (31.7)	320 (55.5)	67 (11.6)	7 (1.2)		
Education level	Elementary-school graduate or lower	106 (32.2)	193 (58.7)	28 (8.5)	2 (0.6)	81.892	<0.001
	Middle-school graduate	165 (28.9)	340 (59.6)	60 (10.5)	5 (0.9)		
	High-school graduate	947 (24.9)	2321 (61.0)	501 (13.2)	37 (1.0)		
	College graduate or higher	637 (19.3)	2060 (62.5)	558 (16.9)	41 (1.2)		
Household income		355.82 (207.57)	409.69 (200.69)	486.21 (244.21)	529.97 (287.62)	0.189	<0.001
Perception of financial stability		3.40 (1.83)	4.98 (1.42)	6.21 (1.34)	7.10 (2.38)	0.505	<0.001

SD = standard deviation.

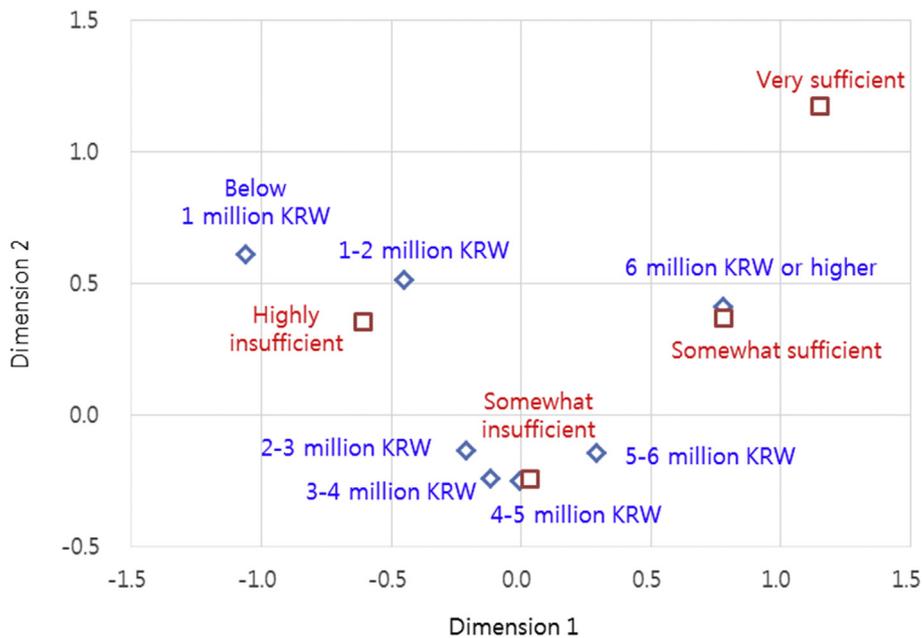


Fig. 1 – Correspondence analysis between perceived financial status to cope with severe disease and household income.

Table 3 – Relationships among perception of financial stability, household income, the level of anxiety and determination of life (N = 8000).

Variables	Level of anxiety		Determination of life	
	Beta	t (p)	Beta	t (p)
Perception of financial stability	-0.239	-22.021 (<0.001)	0.249	22.984 (<0.001)
Household income	-0.017	-1.537 (0.124)	0.006	0.535 (0.593)

To identify the relationships among perceived financial status to cope with severe disease, the level of anxiety and determination of life, models using the perception of financial stability as covariate (model 1) and covariate and control variables (model 2) (Table 4) were used. Results indicate that the level of anxiety had a significant relationship, whereas determination of life did not. Furthermore, the level of anxiety was higher for participants who considered their power to cope as somewhat sufficient than for participants who considered it as somewhat or highly insufficient.

Table 4 – Relationships among perceived financial status to cope with severe disease, the level of anxiety and determination of life (N = 8000).

Variables	Level of anxiety	Determination of life
	F (p)	F (p)
Model 1 ^a	12.059 (<0.001) Somewhat sufficient>somewhat insufficient and highly insufficient	2.261 (0.079)
Model 2 ^b	12.462 (<0.001) Somewhat sufficient>somewhat insufficient and highly insufficient	2.112 (0.096)

^a Linear model using perception of financial stability as covariate (covariate analysis).
^b Gender, age, marital status and education level as control variables.

Discussion

Perceived financial status to cope with severe disease does not have a significant relationship with determination of life but has a significant relationship with anxiety. Because severe disease increases health expenditure and worsens household finances, more substantial policies are required to reduce anxiety. Furthermore, as perception of power to cope is more closely related to the subjective perception of financial stability than to actual income, interventions are required that focus on subjective perception of economic feasibility, rather than on actual income, to promote quality of life.

The level of anxiety was lower when the income and perception of financial stability were higher; this may support the result that financial strain was associated with having an anxiety disorder.¹⁶ Anxiety may increase because lower income leads to less opportunity to meet needs.¹⁷ Previous studies on the relationship between income and anxiety have indicated that income may lower the level of sadness;¹⁸ although higher income does not affect the positive emotion of happiness, it may reduce the negative emotion of anxiety or worry.¹⁹ Low-income earners perceive a lack of efficacy to control their environment more than high-income earners;²⁰ furthermore, the absence of efficacy to change one's situation may cause negative emotions such as helplessness, sorrow and anxiety.²¹ Income, or perception thereof, therefore has a correlation with negative than with positive emotions. Negative emotions can further decrease satisfaction with life compared with positive emotions.²² It is thus necessary to focus on the results that indicate a significant relationship between financial perception and negative emotions.

Determination of life was related more to perception of financial stability than to actual income, which is aligned with the result that perceived financial status had a positive effect on evaluation of life, whereas income did not.¹⁹ Previous studies found that psychological or cognitive factors play a crucial role in the relationship between income and well-being.^{23,24} The theory of desire states that happiness depends on the gap between desired and actual income, and not on the actual income itself.²⁴ Therefore, if people want more income but do not consider themselves to be economically stable,

their determination of life may still be low, even if their income increases.

Study participants perceived their financial status to cope with severe disease as somewhat or highly insufficient, depending on their current earnings. Only 8.6% of paid Korean workers have a monthly income of 6.5 million KRW or higher; the monthly average income is 3.29 million KRW.²⁵ Accordingly, many people (except those with a monthly income of 6.5 million KRW or higher) feel a sense of crisis in life when faced with severe disease. Thus, it is difficult to reduce social stratification and conflicts due to severe diseases and health expenditure without increasing health insurance coverage for severe diseases, even though there is national health insurance.

After controlling for the perception of financial stability, the perceived financial status to cope had a significant relationship with anxiety, but not with the determination of life. People who perceive themselves as economically stable can afford medical expenses, even when a significant expenditure such as a severe disease arises. However, people who perceive themselves as not economically stable despite high income refrain from spending money for necessary treatment or sacrifice other parts of life. According to Li et al.,¹⁹ higher income did not affect positive well-being but reduced negative well-being. Furthermore, perceived financial status plays a mediating role in the relationship between actual income and subjective well-being,¹⁹ thereby supporting the study's results of a significant relationship between perceived financial status to cope with severe disease and anxiety. The perceived financial status to cope appears to have a significant relationship with negative emotions, due to the reality that suffering from a severe disease leads to loss of the ability to work and rapidly deteriorates the household economy. Therefore, it is necessary to increase health insurance coverage by considering not only income brackets but also subjective stratum consciousness and to develop systems for health and medical services, such as medical security policies and delivery systems.

Health was identified as the biggest concern of middle- and prime-aged Korean people regarding their later years.²⁶ This indicates that anxiety about health comprises a particularly significant part of anxiety about life, supporting this study's results that the perceived financial status to cope with severe disease has a relationship with anxiety. Korea has implemented the nationwide National Health Insurance System and is constantly reducing the health expenditure burden of the four major severe diseases through the copayment decreasing policy. However, people with severe disease face a rapid income decline and are forced to stop working within a short period of time.⁵ Moreover, a Korean study found that 82.3% of people applying for commercial health insurance prepare for severe diseases.²⁷ This indicates a high risk of income loss due to severe diseases, which increases people's anxiety. Higher income indicates a higher ratio of application for commercial health insurance,²⁷ and preparation for diseases in old age is also concentrated on those with a 'high' socio-economic status.²⁷ Thus, a higher risk of income loss due to severe diseases among the low-income group exists in reality. Because financial response to health expenditure varies according to the economic level and perception of

households, it is necessary to define groups that require preferential protection from health expenditure, such as the low-income group, households that lack assets or social capital and people with severe or chronic diseases, and to implement policies to reinforce their medical safety net.

The study results should be interpreted with caution due to some methodological limitations. First, the survey's cross-sectional design implies that causality between anxiety or determination of life and other variables could not be identified. Second, although the inclusion of many nationwide samples renders this secondary analysis of data collected by the Korea Health Panel generalisable, the content and scope of data analysis were limited and failed to include different variables that may affect anxiety or determination of life.

Conclusion and recommendation

The present study found that perceived financial status to cope with serious illness has a relationship with anxiety; however, it did not have a relationship with decision-making power in life, which in turn had a stronger correlation with perceived financial stability than it did with real income. When establishing a health and medical treatment index selection or payment standards for catastrophic health expenditures, decision-making is primarily done based on real income brackets; however, this study suggests that the anxiety level experienced by participants has a stronger foundation in financial stability or the perceived financial status to cope than in real income. Accordingly, when developing health and medical treatment policy and intervention programmes related to serious illnesses among the subjects, one's perceived financial status or stability should be considered concurrently.

Author statements

Ethical approval

This article is based on secondary analysis of extant data. The study was exempt from ethics review and was confirmed by the university's institutional review board (No. 2018-02-009).

Funding

None declared.

Competing interests

None declared.

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