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Article

Life Quality, Socioeconomics Status, Citizens' Self-Assessed Health: Some Evidence and Implications

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Abstract: Much has been explored in the individual health issue, and most of them adopt the objective data such as laboratory tests or health services utilization to analyze individual health assessment. However, the factors influencing individuals in self-assessed health is still unclean. The study considers that self-assessed health is viewed as catalyst in health management and explores various dimensions associated with self-assessed health. Totally, 800 participants who were randomly sampled from the citizen of Porter County, Indiana completed the Needs Assessment Citizen Survey in 2007.After adjustment for age, gender, education, income, and health coverage, life quality (β=1.5538, sdandard erro of β=0.8404), and Medicaid assistance (β= -0.7715, sdandard erro of β= 0.3958) are the main determinants of individuals' self-assessed health. The results suggest that public health officials should consider improving citizens' self-assessed health by providing good living and socio-economic environment.

Keywords: socioeconomic inequality; public health management; medicaid; citizen survey

1. Introduction

Health is a crucial factor in the general public's life, and self-rated health status is viewed as the main health measure [1]. Owing to how they think about health issue, individuals either facilitate or constrain daily behaviors. In looking at the many healthy cases of individuals, for example, it is clear that some healthy discussions have spread very slowly throughout the population, while others diffused much more rapidly. A great deal of studies about self-assessed health mainly focuses on diet habits, social capital, frequent sleep insufficiency, racial differences [2-3].

How best to know individuals self-rated health has been the concern for scholars and practitioners. Individual's self-rated health is viewed as an intermediate outcome which would cause their own health plans and health psychology when the input of life and environment is in accord with the expectations of the public [4-5]. Facing even-changing and dynamic environments, individual's self-rated health influence the ways to respond the uncertainty that occurred from the complex ecosystem [6-7]. Some studies use Bureau data to examine the association between the association between self-reported health status and the population of a country [8]. These studies help public officials and the public understand the factors influencing individuals' self-health assessment. In addition, some studies pay more attention on the functions of self-health assessment as well as individuals' capacity in building of health status [9].

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Some studies emphasize that the involvement of voluntary sport events is viewed as a critical input to effective individual's heath management because they maintain their body through regular exercise [10]. Some studies discussed the reasons that individuals set up a health plan for potential risks [11]. However, a question has been noticed but remains have challenges: what explain the factors impacting self-assessed health? Given self-assessed health is the vital factor of individual's health plan and behaviors, it seems important to know their functions and efforts in self-assessed health as well as the main factors of self-assessed health. Using citizens' survey data of a county, the study tries to answer "what explains individual's self-rated health?"

2. Theoretical Statement

The main determinants of health are personal habits, environmental potential risk, diet, , the degree of individual's concern on health status[12-13]. Some studies have emphasized on the importance of individual socio-economic status (SES) on self-assessed health [14].

2.1 Quality of life and Self-Rated Health

The quality of life emphasizes on various dimensions of social, psychological, physiological perspectives which are related to the individual's cultural values, life goals, expectations, living environment concerns [15-17]. A study mentioned quality of life include in the objective and subjective perspectives of living environment, and the individuals' difference, such as age, commitment, gender, work status, life stress, may have different degree of impact on individual's concern judgment [18].

Life quality is viewed as a contextual influence on self-rated health. As us evident from the current research, life quality can influence health at several levels of action: at the individual level, at the level of residential communities, and work places. An extensive literature in health psychology and public health asserts that being integrated with a community environment with high degree of life quality brings individuals under the influence of others in the same community, with service to regulate the assessment on their own health and behaviors [19] [20]. Life quality is also the result through which various forms of environmental support (public services, green space, neighborhood with strong social capital, etc) are exchanged within the various factors of health assessment. In turn, the quality of life is believed to promote the individuals' appraisals of their ability to cope with a healthy issue, or by directly supplying the resources around themselves to deal with the stressful perturbation, such as individual's health concerns and disease issues. Hence, this study hypothesizes that:

H_1: The level of life quality is positively associated with the self-rated health.

2.2 Education and Self-Rated Health

Individuals' health behavior would by shaped through their own health knowledge which is related with their education or their educational background. Individuals with a high degree of education may have more sufficient knowledge of education and more access to health knowledge. In turn, individuals would like to know how to prepare for their health plan as well as move out the potential risks influencing their health [21-22]. In addition, when having more chances to access to health knowledge and information, individuals would more likely to review their diet, to find ways to decrease environmental hazards, enhance the awareness to their body maintenance, and create a health plan to change their health behaviors.

In addition, education plays a vital role in individuals' health due to the fact that people would be aware of health issues and have more motivation to receive health knowledge and then change their health behavior when gaining the low degree of self-assessed health [23]. For example, school education increases more opportunities for individuals to gain more health knowledge and to increase their awareness to health issues, especially those the school health courses which are core ones to college freshmen and high school students [7]. Furthermore, a Swiss study has evidence to support that there is positive relationship between education and population self-rated health via the

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time series data result and find mainly that people with high degree of education has higher degree of self-rated health than those with lower degree of education. People with low degree of education may have the obstacles in obtaining appropriate medical and health information, and most of them suffer in the working environment with unprintable risks and has less attention on their health quality and safety [24]. Therefore, self-health awareness could be enriched through education: either school education or individual's capacity to access to health knowledge as well as information. Education seems like a catalyst in conducting health care prevention and health preparedness. Given this, we hypothesize that:

H_2: Education is positively associated with individual's self-rated health.

2.3 Income and Self-Rated Health

Improvement of the socio-economic environment is the vital factor of individual's health. Most of the public have suffered the health issue because they have limited financial capacity to prepare for the uncertainty of health issues [25]. Overcoming the income disparity and health inequalities issues has been one of the city problems that public officials and citizens are concerned about. Because of limited capacity that individuals have, those may have problems in access to health care resources and medical information. Income gap exists among the selected groups of the public in the United States, and it in turn limit in those people with low level of income [26]. Socio-economic (SES) inequality would intensify the concerns about individuals' health.

SES also implies that one's ability to maintain the living conditions [27]. Income inequality is a more important determinant of health status. There is a strong relationship between income and health, and asserted that income disparities and social environment effects on health and inequalities [28]. The government hopes that through this system safeguard the medical rights of economically vulnerable groups need more medical needs, but they are the groups who are not affordable to the medical spending. Accompanying with the findings of López, Loehrer, & Chang (2016), income inequality associated with the increase in health care spending, and lower-income individuals would need more medical resources. In some cases, economical disadvantaged groups would want to enhance the individual's health status through the assistance of public programs [29]. Individual economic situation is related to the capacity to affordable to disease prevention plan and medical expenses. In addition, an individual with high level of income would be more likely to pay more attention on their diet habit and buy healthy food and live in the place with less environmental risks, such as pollution, trash issue, and crime [30]. Hence, this study hypothesizes that:

H_3: The level of individual's income is positively associated with the self-rated health.

2.4 Income along with Medical Assistance and Self-Rated Health

It is widely discussed and extensively analyzed that health status is closely associated with income, education, working status, living environments, personal habits, diets, and health coverage, etc.. however, these factors do not take effect onto personal health status independently but place comprehensive influences on health status in general. Therefore, there is emerging trend to take further look at some comprehensive impacts as a whole on health status. One of the main effects are related to income and health coverage (medical assistance). As we usually know health coverage is the main approach of maintaining our health status but also one of the major expenses in our daily life, the type of health coverage people receive is also connected with their income sources. Based on this consensus, some explorative examinations have been issued to verify the variation of health status or self-satisfaction within the same income level, especially in relative lower-income groups. The differences of health status among individuals within the same less income stratus can be significantly affected since people would lead to much higher anxieties because of the loss of medical assistance. As a result, the households, who are eligible to apply health or medical assistance, would conform a lot if they are ultimately able to get the medical coverage they want from public sectors.

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According to the argument mentioned above, the hypothesis is:

H_4: Even though at the same income level, medical assistance is positively associated with the self-rated health.

3. Research Design

To examine the above hypotheses and respond the research questions, this study adopted the 2007 Needs Assessment Citizen Survey developed by the United Way of Porter County and the Porter County Community Foundation. The survey data represent respondents' perceptions about community service issues, citizens' concerns about city services, as well as their social-demographic and socioeconomic background. The unit of analysis of this research is individual citizen whose aged 18 or older in Porter County, Indiana. Participants were randomly selected from the county in the survey, and total survey respondents of the survey was 800. Because this study aimed to predict the relationship between SES, life quality, and self-rated health, general linear regression model was used to the above hypotheses.

3.1 Measurement of Variables

3.1.1 Dependent Variable

Self-rated health is the dependent variable in the model of this study exploring the determinants of individuals' health assessment. Self-rated health is operationalized as to what extent do individuals rate their health. The variable of self-rated health is measured by the degree that individuals evaluate their own health, and the survey respondents are asked this survey question: "How would you rate your health compared to others your age?" This survey question is graded by five point Likert scale format: excellent is coded as 5, very good is coded as 4, good is coded as 3, fair is coded as 2, and poor is coded as 1.

3.1.2 Main Independent Variables

Quality of life is to indicate how citizen assess their level of life quality. Based on survey question" How would you rate the quality of life in Porter County?" This variable is measured by five point Likert scale format from 1 to 5 in this survey question: strongly poor, fair, good, very good, and excellent. The highest-values service question scores represent highest level of quality of life.

Socioeconomic status of citizen is measured by the citizens' response of rating their socioeconomic status, including the variables of education and income. Education is measured by the citizens' response of their highest level of formal education. The citizens were asked the questions, "What is the highest level of formal education you have completed?" The degree of education is graded by four levels: less than high school (1), high school graduate of GED, Business, technical or vocational school (2), some college (no 4-year degree) (3), College graduate (BS, BA or other 4-year degree), and post-graduate training (4). Income is measured by the citizens' response of their household's total income before taxes. The citizens were asked the questions, "Which range best represents your total household income before taxes?" The degree of income is graded by six items: Below $25,000, $25,000- $34,999, $35,000-$49,999, $50,000-$74,999, $75,000 to $99,999, and $100,000 or More.

3.1.3 Control Variable

Control variables are Gender, Age, Health Coverage, and Medical Assistance.

Gender is measured by the citizens' response to their gender. Male is coded by 1, and female is coded by 0. Age is measured by the citizens' response of their age. The citizens were asked the questions, "What is your age?" The degree of age is graded by six items: 18-24, 25-34, 35-44, 45-54, 55-64, and 65 and over. The variables of Medicaid assistance and health coverage are dummy variables. The survey respondents are asked respectively these questions: (1) does anyone in your

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household receive any of the following forms of public assistance? ; (2) do you have any kind of health coverage, including health insurance, prepaid plans such as HMOs or government plans such as Medicare?

4. Results

Table 1 and 2 present the descriptive statistics and results of Chi-square tests. For the major independent variable of this study, the mean of life quality, income, and education are 3.50, 3.36, and 3.75, respectively. As indicated in Chi-square test, Gender usually makes no difference among features except life quality and education level; and age makes no difference in life quality, neither is health coverage; all others are statistically different from one to others.

4.1. Table 1. Descriptive Statistics for measurements

	N	Min.	Max.	Mean	S.D.
Self-Assessed Health	796	1	5	3.50	1.01
Life Quality	787	1	5	3.36	0.97
Income	748	1	6	3.25	1.69
Education	792	1	6	3.75	1.45
Gender	800	0	1	.49	0.50
Age	798	1	6	3.48	1.58
Medicaid Assistance	800	0	1	.15	0.35
Health Coverage	794	0	1	.75	0.43
N (Total)	721				

4.2. Table 2. Chi-square Tests

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
1.Life Quality							
2.Income	68.122**						
3.Education	92.202**	278.23**					
4.Gender	10.943*	2.3955	12.225*				
5.Age	24.99	233.94**	109.88**	1.6801			
6.Medicaid Assistance	79.362**	164.35**	121.86**	7.0808	136.95**		
7. Health Coverage	19.749**	18.917**	12.386*	0.0101	6.9027	13.976*	

** P< 0.01; *P <0.05

Table 3 represents the results of linear model to assess the determinants of self-rated health with and without interaction respectively. After comparing several models including multiple linear regression models, multinomial regression models, and ordinal logistic models, we found the general linear regression model (GLM, as shown in model 2) has higher performance than others with the lowest AIC value (76.898). Also, both of the Pseudo R2 are the highest (almost 0.33 of McFadden and more than 0.34 of CU), which means the predictors in this model are able to explain the dependent variable much better than other models. Furthermore, the residual deviance is as well lower than the models without interaction (58.898 compared to 67.453).

4.3. Table 3. Regression Results Exploring Self-Assessed Health

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	Model 1			Model 2		
Variables	Coef.	Std. Err.		Coef.	Std. Err.	
Life Quality	0.5963	0.4455		1.5538	0.8404	*
Income	0.2731	0.3448		-1.9882	1.4438	
Education	0.3013	0.3587		0.2865	0.3817	
Gender	0.7651	07744		0.6695	0.7912	
Age	-0.1904	0.2374		-0.1707	0. 2170	
Medicaid Assistance	0.2696	0.1711		-0.7715	0.3958	*
Health Coverage	-1.3511	0.7880	*			
Income * Medicaid Assistance				0.6407	0.2729	**
Life Quality * Income				-0.4208	0.3827	
Constant	0.9059	2.2109		2.1790	3.0700	
Pseudo R^2 (McFadden)	0.2315			0.3290		
Pseudo R^2 (CU)	0.2426			0.3426		
AIC	83.453			76.898		
Null Deviance	87.773			87.773		
Degree of Freedom	713			713		
Residual Deviance	67.453			58.898		
Degree of Freedom	706			705		

***Significant at p<.01

**Significant at p<.05

* Significant at p<.1

In order to test the hypothesis, this research finally performs general linear regression analysis including three independent variables, three control variables, and two interactions. Table 3 shows model estimates in terms of the determinants of self-rated health. In the model, we can conclude that the quality of life is the strongest and positive single independent variable to predict health status as it has higher value of coefficient with statistically significance ($\beta = 1.5538$; $P < .1$). In addition, the status of whether receiving medical assistance is also statistically significant but it exerts negative impact on self-rated health assessment. Based on illustration of these two features, it is argued that the higher quality of life in the citizens would lead to the higher possibility of better feeling of their own health status, while the people who have to get medical assistance from public sectors would easily give rise to lower satisfaction of their health status. Even though we can't find statistically significant evidence of the impact from income, we can expect that there is a significant difference on the interaction between income level and medical assistance. This is also saying that people who are at the same income level, would be significant different due to whether he/she gets medical assistance or not. Overall, this model estimation supports the hypothesis 1 of this research, which states that individuals with high level of life quality are able to have more positive toward their own health assessment. And there must be a condition of medical assistance so the income level would play a role in individual's health status assessment.

Generally, the result indicates that life quality exerts positive impacts on the involvement of voluntary organization in emergency response process. These findings are consistent with theoretical argument and hypotheses of this research.

5. Discussion

This study points out that the socio-economic status (SES) of individual difference is also related to self-assessed health. Low level of SES implies, especially lower income individual with healthcare

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assistance, that individuals may has less financial capacity to support their preferred health plan or has less probability to have diet plans. Because of experiencing less daily health-oriented plans, those individuals may in turn have less confidence in their health. Hence, when assessing their health status, they would not be significant positive to their self-assessed health.

Quality of life, rather than education background and economic situations (independently) would affect the self-assessed health of individuals. Different from traditional research, in this paper the quality of life used as a cause, and health status is the result. a lot of existing research has discussed some types of disease impacts on individual's health, while indeed the health inequality occurs because of the gap of socio-economic status in some selected groups of the public. For those groups with low degree of individual's socio-economic status needs to pay more attention on the change of their own body status if possible.

Surprisingly, education background has no impact of statistically significance on the self-health assessment. As pointed in previous research, the higher degree of education would usually enable individuals to obtain better material conditions, living environment, and to develop healthy living habits. Also, people have a sufficient knowledge of education and more access to health information which would trigger their awareness and concerns with the health behaviors in their own life. However, in our research, we find out there is no different in health status among groups with different education-level. This is mainly because the individuals with higher education often set up higher standards of their health status; moreover, they would like to invest more resources on their health care, such as diet hobby or medical insurance. Therefore, when they are asked for a self-evaluation, there would not be higher scores due to their higher requirements that needed to be fulfilled. The gender and age of survey participants do not make significant influence on health status self-assessment. Based on the argument and discussion associated with these issues, we concluded that individuals at different age would change the expectation of their own health status. Thus, the older population would not trade-off their self-assess score even though they may feel they are weaker in their health status. Not well-allocated medical resource is a common phenomenon in society and cause those citizens with low income suffer limited medical support and burden the potential risk in their health. On the other hand, economic disability would lead to positive medical behaviors as they are able to receive medical assistance from public sectors. The public with the high enough degree of income, embrace sufficient financial resources and capacities to choose the preventive medical behaviors, such as self-financed regular health check, or purchase healthy food, etc. income inequality leads to individual’s health assessment.

6. Conclusions

The main finding of this research is to illuminate the factors influencing the self-assessed health. Much has asserted that individual difference impacting their evaluation in health. This study is of tremendous importance because public health officials know the factors of self-rated health. In general, the satisfaction with self-assessed health would increases when people have a positive quality of life. Quality of life became one of the pointers examine health status. In general, the satisfaction with self-assessed health would increases when people have a positive quality of life. When people lack a better quality of life, the aspect of that can affect psychology, socializing, emotion, and health would be affected. However, people are comfortable with quality of life, then also to pay close attention to individual's health status. People, in order to avoid the increase of health cost will prevent from the incidence of the disease. Citizens with high socioeconomic status (SES) would have the advantage of capacity and relative knowledge to know how to prepare for their health plan. When citizens live in the environment with good life quality, they would more likely to translate their positive perspectives to their own health assessment.

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Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "X.X. and Y.Y. conceived and designed the experiments; X.X. performed the experiments; X.X. and Y.Y. analyzed the data; W.W. contributed reagents/materials/analysis tools; Y.Y. wrote the paper." Authorship must be limited to those who have contributed substantially to the work reported.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Miilunpalo, S., Vuori, I., Oja, P., Pasanen, M., & Urponen, H. (1997). Self-rated health status as a health measure: the predictive value of self-reported health status on the use of physician services and on mortality in the working-age population. *Journal of clinical epidemiology*, *50*(5), 517-528.
2. Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of health psychology*, *2*(3), 335-351.
3. Hoebel, J., Rommel, A., Schröder, S. L., Fuchs, J., Nowossadeck, E., & Lampert, T. (2017). Socioeconomic Inequalities in Health and Perceived Unmet Needs for Healthcare among the Elderly in Germany. *International Journal of Environmental Research and Public Health*, *14*(10), 1127. ; doi:10.3390/ijerph14101127.
4. Kraus, M. W., Adler, N., & Chen, T.-W. D. (2013). Is the association of subjective SES and self-rated health confounded by negative mood? An experimental approach. Health Psychology, 32(2), 138-145.
5. Hagger, M. S., & Luszczynska, A. (2014). Implementation intention and action planning interventions in health contexts: State of the research and proposals for the way forward. *Applied Psychology: Health and Well-Being*, *6*(1), 1-47.
6. Undén, A. L., Elofsson, S., Andréasson, A., Hillered, E., Eriksson, I., & Brismar, K. (2008). Gender differences in self-rated health, quality of life, quality of care, and metabolic control in patients with diabetes. Gender medicine, 5(2), 162-180.
7. Kok, G. (2015). Health Education and Health Promotion. International Encyclopedia of the Social & Behavioral Sciences (Second Edition), 620-627.
8. Luo, N., Johnson, J. A., Shaw, J. W., Feeny, D., & Coons, S. J. (2005). Self-reported health status of the general adult US population as assessed by the EQ-5D and Health Utilities Index. *Medical care*, *43*(11), 1078-1086.
9. Miguel, E., & Kremer, M. (2004). Worms: identifying impacts on education and health in the presence of treatment externalities. *Econometrica*, *72*(1), 159-217.
10. Baker, D. P., Leon, J., Smith Greenaway, E. G., Collins, J., & Movit, M. (2011). The education effect on population health: a reassessment. *Population and development review*, *37*(2), 307-332.
11. Pronk, N. P., Goodman, M. J., O'connor, P. J., & Martinson, B. C. (1999). Relationship between modifiable health risks and short-term health care charges. *Jama*, *282*(23), 2235-2239.
12. Mossey, J. M., & Shapiro, E. (1982). Self-rated health: a predictor of mortality among the elderly. American journal of public health, 72(8), 800-808.
13. Brener, N. D., Billy, J. O., & Grady, W. R. (2003). Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature. *Journal of adolescent health*, *33*(6), 436-457.
14. Ross, C. E., & Wu, C. L. (1996). Education, age, and the cumulative advantage in health. Journal of health and social behavior, 104-120.
15. Koller, M., & Lorenz, W. (2002). Quality of life: a deconstruction for clinicians. *Journal of the Royal Society of Medicine*, *95*(10), 481-488.
16. Pacione, M. (2003). Urban environmental quality and human wellbeing—a social geographical perspective. *Landscape and urban planning*, *65*(1), 19-30.
17. Bor, J., Cohen, G. H., & Galea, S. (2017). Population health in an era of rising income inequality: USA, 1980–2015. *The Lancet*, *389*(10077), 1475-1490.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 30 August 2018 doi:10.20944/preprints201808.0525.v1

18. Li, Z., Ma, Z., van der Kuijp, T. J., Yuan, Z., & Huang, L. (2014). A review of soil heavy metal pollution from mines in China: pollution and health risk assessment. *Science of the Total Environment*, *468*, 843-853.
19. Baranowski, T., Perry, C. L., & Parcel, G. S. (2002). How individuals, environments, and health behavior interact. *Health behavior and health education: Theory, research, and practice*, *3*, 165-184.
20. Böckerman, P., & Ilmakunnas, P. (2009). Unemployment and self-assessed health: evidence from panel data. *Health economics*, *18*(2), 161-179.
21. Mossey, J. M., & Shapiro, E. (1982). Self-rated health: a predictor of mortality among the elderly. *American journal of public health*, *72*(8), 800-808.
22. Brener, N. D., Billy, J. O., & Grady, W. R. (2003). Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature. Journal of adolescent health, 33(6), 436-457.
23. Cutler, D. M., Huang, W., & Lleras-Muney, A. (2015). When does education matter? The protective effect of education for cohorts graduating in bad times. *Social Science & Medicine*, *127*, 63-73.
24. Volken, T., Wieber, F., Rüesch, P., Huber, M., & Crawford, R. J. (2017). Temporal change to self-rated health in the Swiss population from 1997 to 2012: the roles of age, gender, and education. Public Health, 150, 152-165.
25. Adler, N. E., & Ostrove, J. M. (1999). Socioeconomic status and health: what we know and what we don't. *Annals of the New York academy of Sciences*, *896*(1), 3-15.
26. Bor, J., Cohen, G. H., & Galea, S. (2017). Population health in an era of rising income inequality: USA, 1980–2015. The Lancet, 389(10077), 1475-1490.
27. Kennedy, B. P., Kawachi, I., Glass, R., & Prothrow-Stith, D. (1998). Income distribution, socioeconomic status, and self rated health in the United States: multilevel analysis. *Bmj*, *317*(7163), 917-921.
28. Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: a causal review. Social Science & Medicine, 128, 316-326.
29. López, D. B., Loehrer, A. P., & Chang, D. C. (2016). Impact of Income Inequality on the Nation's Health. Journal of the American College of Surgeons, 223(4), 587-594.
30. Volken, T., Wieber, F., Rüesch, P., Huber, M., & Crawford, R. J. (2017). Temporal change to self-rated health in the Swiss population from 1997 to 2012: the roles of age, gender, and education. *Public Health*, *150*, 152-165