



Working together
www.rcis.ro

Revista de Cercetare si Interventie Sociala

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

STUDY ON THE CORRELATION BETWEEN SOCIAL NORM AND PRO-ENVIRONMENTAL BEHAVIOR OF EMPLOYEES IN HEALTH CARE INDUSTRY – VIEWPOINT OF PERSONALITY TRAIT

Pai-Chin HUANG, Kuo-Sung LIN

Revista de cercetare și intervenție socială, 2020, vol. 71, pp. 187-198

<https://doi.org/10.33788/rcis.71.13>

Published by:
Expert Projects Publishing House



On behalf of:
„Alexandru Ioan Cuza” University,
Department of Sociology and Social Work
and
HoltIS Association

REVISTA DE CERCETARE SI INTERVENTIE SOCIALA
is indexed by Clarivate Analytics (Social Sciences Citation Index),
SCOPUS and CROSSREF

Study on the Correlation between Social Norm and Pro-Environmental Behavior of Employees in Health Care Industry – Viewpoint of Personality Trait

Pai-Chin HUANG¹, Kuo-Sung LIN²

Abstract

Global warming is the serious warning of the earth environment, and environmental problems resulted from greenhouse effect are the weapon of mass destruction. Accordingly, pro-environmental behavior related issues are emphasized. Nevertheless, most past research on environmental protection issues were analyzed from macro organizational perspectives, but few from micro individual perspectives. However, individuals were the basis of any environmental protection executors. Group and organizational environmental policy and behavioral model could be inferred after clearly understanding individual environmental motivation and behavior. As a result, the analysis of the process of individual presenting pro-environmental behavior is worth discussion. Employees in health care industry in Fuzhou Binhai New City, Fujian, as the research samples, are distributed 400 copies of questionnaire. After removing invalid and incomplete copies, 278 valid copies are retrieved, with the retrieval rate 70%. Suggestions are further proposed, according to the results, expecting to help relevant entities make good environmental norm and shape correct social norm and environmental behavior for the public.

Keywords: personality trait, health care industry, social norm, pro-environmental behavior, social learning, social support.

¹ College of Modern Management, Yango University Fuzhou 350015, CHINA. E-mail: bwochin@gmail.com

² Department of Marketing, Fujian Business University, Fujian, CHINA. E-mail: kslin@fjbu.edu.cn (*Corresponding author*)

Introduction

Under the effects of global warming and ozone hole, climate in the world has become strange, warm in winter and early visit of spring. Global warming is the serious warning of the earth environment; extreme climate change, drought, and rising sea level are threatening millions of life and the security of dwelling environment on the earth. Scholars, in the speeches in international conference, emphasized that the environmental problems caused by greenhouse effect were the weapon of mass destruction. Pro-environmental behavior related issues therefore were highlighted. Although several environmental change events successfully aroused global emphasis on environmental protection issues, most past research on environmental protection issues were analyzed from macro organizational perspectives, such as analyses and remarks of environmental policies in various nations or environmental policy making in industries, but few from micro individual perspectives. Nonetheless, any environmental protection executors were based on individuals. Group and organizational environmental policies and behavioral models could be further inferred merely by clearly understanding individual environmental motivation and behavior. For this reason, the process of individual presenting pro-environmental behavior is worth analysis.

Simply explaining individual behavior from the active and positive social learning aspects could not completely explain individual pro-environmental behavior. From the aspect of moral maturity, individuals present behavior conforming to norm in the beginning of moral rules mainly to avoid punishment. In this case, positive social learning and social norm are important factors to completely analyze individual behavioral performance. Accordingly, social norm shows certain effects on individual environmental behavior. Unfortunately, such an important factor does not receive many concerns and is often ignored in past research on environmental issues. It is therefore worth further analyses. Direct factors in environmental behavior contain action intention and situational factor; action intention is affected by several variables, including personality in individual personality traits. However, research seldom discusses personality traits and pro-environmental behavior. Consequently, cutting in from personality in personality traits to discuss the effect on pro-environmental behavior presents special meanings. The degree of personality traits appearing the most effect of social norm on pro-environmental behavior is therefore worth further study. Based on above discussions about environmental ethics, it is realized that environmental protection is an urgent issue; the enhancement of environmental protection effectiveness should be started from individuals; and, various environmental protection policies could be effectively made merely by understanding individual environmental awareness and the motivation to engage in pro-environmental behavior. For this reason, the correlation between social norm and pro-environmental behavior of employees in health care industry is discussed from the viewpoint of personality

traits. It is expected to help relevant entities make good environmental norm and shape correct social norm and environmental behavior for the public.

Literature review

Han, Meng, & Kim (2017) regarded personality traits as an individual presenting consistent thinking, emotion, and behavior. Sarkis (2017) considered personality traits as to discriminate individual psychological traits. Chang (2017) defined personality as individual unique characters presented on people, affairs, and themselves in the life process as well as the overall environmental adjustment. Such unique characters were composed of characters performed on needs, motivation, interest, ability, appetite, attitude, temperament, value, living habit, and action under the interaction among individual hereditary, environment, maturity, and learning. Wang *et al.* (2017) stated that personality traits covered individual behavior, persistence, and various characters. Under distinct situations, an individual behavior appearing continuous and consistent feature reaction was called personality traits. Rosli *et al.* (2014) found out certain effects of attitude, personality traits, responsibility, social norm, gender role, environmental sensitivity, and behavioral intention on pro-environmental behavior. Karatepe & Avci (2017) mentioned that individuals with external control personality traits would not actively participate in activities and were not good at solving environmental problems as internal control ones, but would present better behavioral performance due to rules and regulations. In other words, Liu *et al.* (2017) explained that external control people with dependent and negative attitudes and behaviors, under passive supervision and management of social norm, would present pro-environmental behavior because of fear of punishment and public opinions. On the contrary, individuals with internal control personality traits were used to actively absorbing environmental new knowledge and presenting pro-environmental behavior that negative rules and regulations of social norm revealed limited effects on those with internal control personality. According to above literature review, the following hypothesis is inferred in this study.

H1: Personality trait reveals significantly positive effects on social norm.

Lu *et al.* (2017) defined personal norm as self-expectation of specific behavior under special situations and a kind of moral responsibility. Accordingly, personal norm, accordingly to intrinsic factors, showed consistent ideas with internalization value and norm or moral theory. Nguyen *et al.* (2018) pointed out social norm as the common belief and accepted behavior standards of the public which were enforced by expected results or external reward & punishment rules. Social norm therefore was external codes of conduct. Hammerton (2017) considered that “society” in social norm was used for expressing truth and was established based on group expectation, external reward & punishment, and enforcement. Kiatkawsin

& Han (2017) stated that social norm could be explained as written or unwritten rules, but the requirement standards should be acceptable and obeyed by the public. General people's cognition of norm focused on law, e.g. regulations and clauses; however, social norm should cover social culture, such as customs, public opinions, and social support. In other words, social norm would affect individual behavior through social pressure. Echegaray & Hansstein (2017) developed altruistic behavioral model and indicated that altruistic behavior was originated from social norm, based on which individuals would appear personal norm to further affect personal behavior. According to the model, Zhang, Geng, & Sun (2017) also proposed altruistic behavioral model for recycle and discovered that, without personal norm, social norm could not affect individual recycle behavior; moreover, environmental responsible behavior showed significant correlations with social norm and personal norm. Shi *et al.* (2017) revealed the effect of social norm on environmental behavior through behavioral intention. Besides, social influence could stimulate people participating in recycle plans, where the effect was remarkable in the beginning of the plan. Research also indicated that people would search for social support for individual behavior, even though individual attitude conflicted with the norm generally agreed in the society. As a result, general social norm would change individual behavior. Especially on certain environmental behavior, people would need social support when being uncertain about the consequence of the behavior. In this case, generally accepted social norm would affect individual behavior orientation. Based on above literature review, the following research hypothesis is deduced in this study.

H2: Social norm presents remarkably positive effects on pro-environmental behavior.

Fu *et al.* (2017) pointed out pro-environmental behavior as an economical behavior. Under the normative behavioral model, Wang *et al.* (2018) stated that code of ethics could be used for explaining pro-environmental behavior, e.g. energy saving, recycle & reuse, travel mode selection, and pro-environmental consumption. Pro-environmental behavior therefore contained individual purchase behavior, travel behavior, recycle and use behavior, and positive participation in pro-environmental organizations. Li & Monroe (2017) mentioned that an individual, based on personal cognition, value, attitude, and issues of environment, would make choices beneficial to environment, maintain environment with action, and present friendly and responsible behavior; it was called pro-environmental behavior. Youn & Kim (2018) indicated that pro-environmental behavior could be responsible environmental behavior or environmental action; or, pro-environmental behavior was pro-social behavior. Malik & Singhal (2017) indicated in the environmental behavioral model that attitude, awareness, personality traits, personal responsibility, environmental knowledge, and environmental action skills were the key factors in pro-environmental behavior. In the survey of citizens' environmental behavior, Lizin, Van Dael, & Van Passel (2017) pointed out environmental sensitivity,

knowledge, individual investigation of environment, and knowledge and skills, control, and behavioral intention to apply environmental action strategies as the key factors in pro-environmental behavior. Darshana, Islam, & Managi (2018) also regarded personal control, age, perceived personal effectiveness, and knowledge about environmental events as key factors in humans' environmental behavior. Shin *et al.* (2018) indicated that internal and external control personality traits might affect individual response to crises; when an individual considering the ability of controlling danger could more effectively grasp dangerous conditions (internal control), compared to those being dominated the situations (external control). Internal control personality traits were inner motivation, believing that a person could make changes through efforts and would more possibly participate in some specific activities, e.g. pro-environmental behavior. On the contrary, individual with external control characters would not actively participate in activities. According the literature review, the following research hypothesis is further inferred in this study.

H3: Personality trait shows notably positive effects on pro-environmental behavior.

Methodology

Conceptual structure of this study

By summing up above literatures, the conceptual structure of this study is drafted to discuss the relations among personality traits, social norm, and pro-environmental behavior.

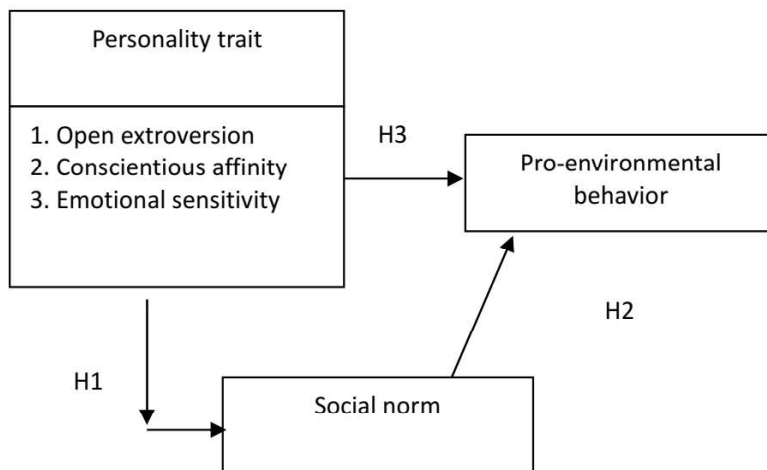


Figure 1. Conceptual structure

Operational definition

Personality trait. Referring to Cheng *et al.* (2019), personality traits contain following dimensions: (1) *Open extroversion*: presenting creative thinking, independence, action power, insight of affairs, and confidence, being active, pursuing performance, in favor of making friends, and being extrovert; (2) *Conscientious affinity*: concentrating on goals and work, being responsible and dutiful, paying attention to details, polite, reliable, friendly to people, and easy to get along with; (3) *Emotional sensitivity*: easily getting anxious, depressed, and worried, lack of security, not being able to control temper.

Social norm. Referring to the social norm questionnaire items proposed by Kim, Woo, & Nam (2018), a single dimension is used for measuring social norm.

Pro-environmental behavior. Referring to the pro-environmental behavior questionnaire items proposed by He & Zhan (2018), a single dimension is applied to measure pro-environmental behavior.

Research object

Fujian Health Care Industry, located in Fuzhou Binhai New City, is one of five medical big data regions in China. The ecological systems of industry, academia, research, and information are built in the industrial park through cloud computing, gene sequencing, genome editing, and artificial intelligence to create the complete health care cluster and become the leading medical big data cluster in the world. More than a hundred of health care enterprises have stationed Fuzhou Binhai New City to form the sound health care industry cluster development of medical data storage, data R&D application, data transaction, and industrial fund; the industrial chain is getting complete. Employees in health care industry in Fuzhou Binhai New City, Fujian, as the research samples, are distributed 400 copies of questionnaire in this study. After removing invalid and incomplete copies, total 278 copies are valid, with the retrieval rate 70%.

Method and model

SEM goodness-of-fit test is used for measuring overall model fit (i.e. external quality of model) and internal quality of model. In terms of overall model fit test, the commonly used fit indices contain (1)“ χ^2 ratio” (Chi-Square ratio), standing for the gap between actual theoretical model and expected value, which is better smaller than 3, (2)goodness of fit index (GFI) and adjusted goodness of fit index (AGFI), which presents better fit when close to 1, (3)root mean square residual (RMR), reflecting “fit residual variance/covariance mean”, which is better smaller than 0.05, and (4)incremental fit index (IFI), showing good model fit when higher than 0.9.

The indices in SEM frequently used for evaluating internal quality of model include (1) square multiple correlation (SMC) of individual manifest variable, as R² of manifest variable and latent variable, which should be higher than 0.5, (2) composite reliability (ρ) of latent variable, as Cronbach's α of observation indices of latent variable, which should be higher than 0.6, (3) average variance extracted of latent variable, calculated by dividing the R² sum of manifest variables in a latent variable by the number of manifest variables to reveal the percentage of latent variable being measured by manifest variables, which is better higher than 0.5.

Results and discussion

Factor analysis

The factor analysis results of this study are shown in Table 1. Personality trait scale, with factor analysis, is extracted three factors of "open extroversion" (eigenvalue=2.166, α =0.88), "conscientious affinity" (eigenvalue=1.875, α =0.84), and "emotional sensitivity" (eigenvalue=1.533, α =0.80). The cumulative covariance explained reaches 77.186%. Social norm scale, with factor analysis, is extracted the factor "social norm" (eigenvalue=4.624, α =0.91), with the cumulative covariance explained 85.622%. Pro-environmental behavior scale, with factor analysis, is extracted the factor "pro-environmental behavior" (eigenvalue=5.637, α =0.94), with the cumulative covariance explained 87.438%.

Table 1. Factor analysis

variable	factor	eigenvalue	α	cumulative variance explained
personality trait	open extroversion	2.166	0.88	77.186
	conscientious affinity	1.875	0.84	
	emotional sensitivity	1.533	0.80	
social norm		4.624	0.91	85.622
pro-environmental behavior		5.637	0.94	87.438

Correlation analysis

From Table 2, personality trait, social norm, and pro-environmental behavior appear remarkable correlations. Such a result reveals the possibility of multicollinearity among research dimensions; and, the notable correlation among dimensions also reveals the correspondence with research hypotheses.

Table 2. Pearson’s correlation analysis

research dimension	α	personality trait	social norm	pro-environmental behavior
personality trait	0.82			
social norm	0.91	0.35**		
pro-environmental behavior	0.94	0.24**	0.41**	

Model fit test

“Maximum likelihood method” is used for the estimation in this study. The analysis results achieve the convergence. Overall speaking, the overall model fit indices in Table 3 pass the test, fully reflecting good external quality of the model.

Table 3. Model analysis result

	index	standard	result
overall fit	p -value	p -value > 0.05	0.000
	$\chi^2/d.f.$	< 3	1.275
	GFI	> 0.9	0.976
	AGFI	> 0.9	0.911
	CFI	> 0.9	0.952
	RMR	< 0.05, < 0.025 excellent	0.017
	RMSEA	0.05~0.08 good < 0.05 excellent	0.028
	NFI	> 0.9	0.946
	IFI	> 0.9	0.932

Path relationship test

From Table 4 and Figure 2, personality traits show positive and notable correlations with social norm (0.326, $p < 0.01$), social norm appears positive and significant correlations with pro-environmental behavior (0.407, $p < 0.01$), and personality traits present positive and remarkable correlations with pro-environmental behavior (0.287, $p < 0.01$) that H1, H2, and H3 are supported. The research hypothesis test results are shown in Table 5.

Table 4. Overall linear structural model analysis result

evaluation item	parameter/evaluation standard	result
internal fit	personality trait→social norm	0.326**
	social norm→pro-environmental behavior	0.407**
	personality trait→pro-environmental behavior	0.287**

Note: * stands for $p < 0.05$, ** for $p < 0.01$, and *** for $p < 0.001$.

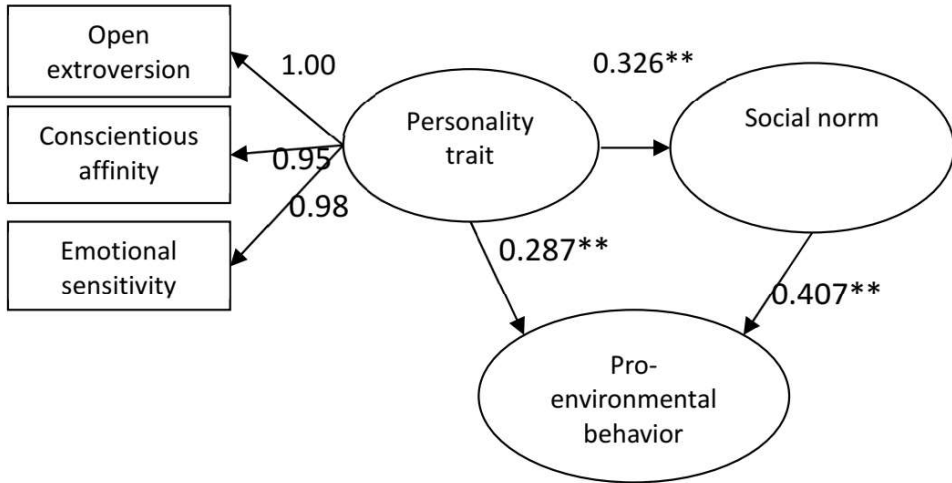


Figure 2. Relationship path diagram

Table 5. Hypothesis test

research hypothesis	correlation	empirical result	P	result
H1	+	0.326	0.00	supported
H2	+	0.407	0.00	supported
H3	+	0.287	0.00	supported

Conclusion

The research results prove that employees with extrovert personality traits in health care industry could more easily accept supervision and guidance as well as tend to comply to the requirement of group social norm, and negative and improper behaviors among group members could be easily advised and corrected that individuals would intangibly present pro-environmental behavior. On the other hand, those with introvert personality traits present stronger belief in self-improvement of environment that social norm appears limited effects on pro-environmental behavior of people with internal control personality traits. Social norm also presents significant and positive effects on pro-environmental behavior. Such a result reveals the pressure of negative and passive fear of punishment and public opinions to enhance the pro-environmental behavior of employees in health care industry. In this case, individual behavior is restricted to group social norm. That is, employees in health care industry perceiving higher social norm would present more remarkable pro-environmental behavior.

Recommendations

From the research results and findings, following practical suggestions are proposed in this study.

- When making any management norm and policies in health care industry, employees' personality traits should be taking into account. A sound social norm system, particularly personality traits concerned in this study, is necessary, as it is a critical factor in external management policies developing the effect.
- Environmental norm must be properly adjusted and rebuilt. Public accustomed living habits are similar to being used to imported brand goods, festival decorations, and driving. When maintaining environmental ecology, some convenience would be sacrificed; the environmental quality could be improved by accepting more environmental new ideas. Changes in habits rely on efficient norm. Relevant entities should combine experts and scholars' suggestions and stress on environmental education to make good environmental norm so as to shape correct social norm and environmental behaviors for the public.
- Under social diversity, environment related information and knowledge could be acquired through multiple channels. Environmental knowledge, cognition, and behavior could be acquired from learning-by-doing. As a consequence, health care industry should promote and provide positive evaluation to respond to environmental activity and encourage the employees' participation in the free time. It would help employees in health care industry cultivate the pro-environmental behavior.

References

- Chang, H.H. (2017). Gender differences in leisure involvement and flow experience in professional extreme sport activities. *World Leisure Journal*, 59(2), 124-139, DOI: 10.1080/16078055.2016.1166152.
- Cheng, T.M., Wu, H.C., Wang, J.T. & Wu, M.R. (2019). Community participation as a mediating factor on residents' attitudes towards sustainable tourism development and their personal environmentally responsible behavior. *Current Issues in Tourism*, 22(14), 1764-1782, DOI: 10.1080/13683500.2017.1405383.
- Darshana, R., Islam, M., & Managi, S. (2018). Pro-Environmental Behavior: The Role of Public Perception in Infrastructure and the Social Factors for Sustainable Development. *Sustainability*, 10(4), 937, DOI: 10.3390/su10040937.
- Echegaray, F., & Hansstein, F. V. (2017). Assessing the intention-behavior gap in electronic waste recycling: the case of Brazil. *Journal of Cleaner Production*, 142, 180-190, DOI: 10.1016/j.jclepro.2016.05.064.
- Fu, L., Zhang, Y., Xiong, X., & Bai, Y. (2017). Pro-Environmental Awareness and Behaviors on Campus: Evidence from Tianjin, China. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(1), 427-445, DOI: 10.12973/ejmste/77953.
- Hammerton, Z. (2017). Determining the variables that influence SCUBA diving impacts in eastern Australian marine parks. *Ocean & Coastal Management*, 142, 209-217, DOI: 10.1016/j.ocecoaman.2017.03.030.
- Han, H., Meng, B., & Kim, W. (2017). Emerging bicycle tourism and the theory of planned behavior. *Journal of Sustainable Tourism*, 25(2), 292-309, DOI: 10.1080/09669582.2016.1202955.
- He, X., & Zhan, W. (2018). How to activate moral norm to adopt electric vehicles in China? An empirical study based on extended norm activation theory. *Journal of Cleaner Production*, 172, 3546-3556, DOI: 10.1016/j.jclepro.2017.05.088.
- Karatepe, O.M., & Avci, T. (2017). The effects of psychological capital and work engagement on nurses' lateness attitude and turnover intentions. *Journal of Management Development*, 36(8), 1029-1039, DOI: 10.1108/JMD-07-2016-0141.
- Kiatkawsin, K. & Han, H. (2017). Young travelers' intention to behave pro-environmentally: merging the value-belief-norm theory and the expectancy theory. *Tourism Management*, 59, 76-88, DOI: 10.1016/j.tourman.2016.06.018.
- Kim, Y.G., Woo, E., & Nam, J. (2018). Sharing economy perspective on an integrative framework of the NAM and TPB. *International Journal of Hospitality Management*, 72, 109-117, DOI: 10.1016/j.ijhm.2018.01.008.
- Li, C., & Monroe, M. C. (2017). Development and Validation of the Climate Change Hope Scale for High School Students. *Environment and Behavior*, 50(4), 454-479, DOI: 10.1177/0013916517708325.
- Liu, Y., Sheng, H., Mundorf, N., Redding, C. and Ye, Y. (2017) Integrating Norm Activation Model and Theory of Planned Behavior to Understand Sustainable Transport Behavior: Evidence from China. *International Journal of Environmental Research and Public Health*, 14, 1593, DOI: 10.3390/ijerph14121593.
- Lizin, S., Van Dael, M., & Van Passel, S. (2017). Battery pack recycling: Behaviour change interventions derived from an integrative theory of planned behaviour study. *Resources, Conservation and Recycling*, 122, 66-82, DOI: 10.1016/j.resconrec.2017.02.003.

- Lu, H., Liu, X., Chen, H., Long, R., & Yue, T. (2017). Who contributed to “corporation green” in China? A view of public-and private-sphere pro-environmental behavior among employees. *Resources, Conservation and Recycling*, *120*, 166-175, DOI: 10.1016/j.resconrec.2016.12.008.
- Malik, C., & Singhal, N. (2017). Consumer environmental attitude and willingness to purchase environmentally. *Vision: The Journal of Business Perspective*, *21*(2), 152-161, DOI: 10.1177/0972262917700991.
- Nguyen, Q., Nisar, T. M., Knox, D., & Prabhakar, G. P. (2018). Understanding customer satisfaction in the UK quick service restaurant industry: The influence of the tangible attributes of perceived service quality. *British Food Journal*, *120*(6), 1207-1222, DOI: 10.1108/BFJ-08-2017-0449.
- Rosli, N.E..H.M., Noor, S.M., Jaafar, M., & Mohamed, R. (2014). Creating mindful tourists at heritage sites through tour guide’s interpretation: A case of Georgetown World Heritage sites. *GSTF Journal on Media and Communications*, *1*(2), 1-18, DOI: 10.5176/2335-6618_1.2.14.
- Sarkis, A.M. (2017). A comparative study of theoretical behaviour change models predicting empirical evidence for residential energy conservation behaviours. *Journal of Cleaner Production*, *141*, 526-537, DOI: 10.1016/j.jclepro.2016.09.067.
- Shi, H., Fan, J., & Zhao, D. (2017). Predicting household PM2.5-reduction behavior in Chinese urban areas: An integrative model of Theory of Planned Behavior and Norm Activation Theory. *Journal of Cleaner Production*, *145*, 64-73, DOI: 10.1016/j.jclepro.2016.12.169.
- Shin, Y.H., Im, J., Jung, S.E. and Severt, K. (2018). Consumers’ willingness to patronize locally sourced restaurants: the impact of environmental concern, environmental knowledge, and ecological behavior. *Journal of Hospital Marketing & Management*, *26*(6), 644-658, DOI: 10.1080/19368623.2017.1263821.
- Wang, B., Wang, X., Guo, D., Zhang, B., & Wang, Z. (2018). Analysis of factors influencing residents’ habitual energy-saving behaviour based on NAM and TPB models: Egoism or altruism? *Energy Policy*, *116*, 68-77, DOI: 10.1016/j.enpol.2018.01.055.
- Wang, J., Bao, J., Wang, C., & Wu, L. (2017). The impact of different emotional appeals on the purchase intention for green products: The moderating effects of green involvement and Confucian cultures. *Sustainable Cities and Society*, *34*, 32-42, DOI: 10.1016/j.scs.2017.06.001.
- Youn, S., & Kim, H. (2018). Temporal duration and attribution process of cause-related marketing: moderating roles of self-construal and product involvement. *International Journal of Advertising*, *37*(2), 217-235, DOI: 10.1080/02650487.2016.1225332.
- Zhang, X., Geng, G., & Sun, P. (2017). Determinants and implications of citizens’ environmental complaint in China: Integrating theory of planned behavior and norm activation model. *Journal of Cleaner Production*, *166*, 148-156, DOI: 10.1016/j.jclepro.2017.08.020.