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Correlation between pre-dementia emotional control behavior and symptoms of dementia patients

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Abstract

This study is a cross-sectional research study that analyzed the relationship between emotional regulation behavior and knowledge related to dementia among various age groups in order to collect basic data to reveal the relationship between the characteristics of emotional regulation of dementia patients before dementia and the symptoms of rapid emotional change after dementia. Data collection was from March 1 to March 20, 2024, and a total of 223 people were voluntarily participating in the study from their 20s to 70s. The collected data were t-test, ANOVA, Pearson correlation, and regression analysis using sps 18.0. The analysis showed that people who normally act pretentiously were not related to dementia-related knowledge, but those who act honestly had an impact on dementia-related content knowledge ($t=14.808$, $p<0.01$), treatment knowledge of dementia ($t=7.916$, $p<0.01$), and knowledge of nursing dementia ($t=12.453$, $p<0.01$) under a statistical significance level. And it was found that the inner behavior of emotional regulation behavior had an effect on dementia knowledge at 49.8%, the effect on treatment knowledge was 22.1%, and the effect on nursing knowledge was 41.2%. ($p<0.01$). Based on the results of this study, we propose a continuous study on how emotional behavior before dementia is related to rapid emotional change behavior after dementia disease.

Keywords: Dementia knowledge, Eating habits, Emotion regulation, Various age group.

INTRODUCTION

Dementia, which is most feared by the elderly over the age of 65, is a disease in which brain function has deteriorated due to gradual degenerative changes in cerebral cortical cells, resulting in personality changes along with memory disorders, speech disorders, judgment disorders, and spatio-temporal sensory disorders, which eventually make it impossible for the patient to live independently [1]. Therefore, dementia disease is considered to be a social disease that requires absolute care from a guardian and is a great burden not only on the patient himself but also on the guardians. According to data from the Health Insurance Review and Assessment Service, it increased by about 87% from 2009 to 2013, showing an annual average increase of about 17% [2].

One of the main symptoms of dementia is rapid emotional change, which defined collective and

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comprehensive symptoms without considering differences in emotional control behavior of dementia patients in their normal life before developing dementia [3]. Therefore, it is necessary to distinguish whether the emotional control behavior of dementia patients before developing the disease has worsened after dementia or has a new onset. As a result, the researcher became interested in research related to emotional control and dementia disease based on the fact that emotional control is known to be one of the main symptoms of dementia. In order to prepare a study to secure basic data for such a study, this study was attempted to examine the relationship between how dementia is perceived and prepared according to attitudes and ages toward emotional control for various age groups.

Since the elements that make up education are intertwined with the needs of learners as well as the knowledge and motivation of instructors, a learning support system should be provided through continuous analysis of the needs of educational parties [4]. Various studies are being conducted in the field of pedagogy to systematically support the basic learning ability of universities, but there may be another variable in the pedagogy major, so it was necessary to find a way to choose a nursing major as a professor who was currently teaching. In other words, students with differences in basic learning ability had difficulty in achieving the goal of learning through one-sided educational delivery, so it was imperative to prepare systematic and effective measures for interesting learning to overcome it.

With the traditional teaching method, which is a one-sided cramming class for a large number of learners, it is difficult for instructors to teach considering the difference in basic learning ability of each learner, and learners who cannot keep up with the contents of the class are likely to give up halfway. On the other hand, Slavin [5] emphasized that they can learn from their peers, learn interdependence in the process of teaching, and have a high understanding of the class. As a cooperative learning developed by peer groups, Jigsaw cooperative learning is developed. Jigsaw cooperative learning is a learning model developed by Aronson [6] and is known as a learning method in which members of a small group actively participate in learning and solve problems through cooperation with each other in order to achieve a given learning goal by forming a small group of learners. The specific implementation method consists of first, constructing the learning structure in the form of a small group of 5 to 6 people, and second, each member of the group participates in the class responsibly and learns about their content.

Emotions are a series of processes that are controlled by people's thoughts and actions, trying to control their emotions consciously or unconsciously [4], emotional regulation is known as target activation to change the process by which an emotion occurs [5]. There are five factors that control an individual's emotions: approaching a situation selectively (selecting a situation) that is likely to trigger a particular emotion, or changing the environment to change the emotional response (change the situation). Relocating attention to others, such as focusing or dispersing attention from affecting emotions, or paying attention to other things (deployment of attention), or reevaluating a situation for one's own emotional change (cognitive change). In addition, emotional control is achieved through a process such as trying to change emotional responses, such as behavioral, empirical, and physiological elements [6]. Grandey classified emotional regulation behavior into superficial behavior and inner behavior [7]. Deep acting means changing the internal emotional state so that you can actually feel the emotion consistent with the organization's emotional expression norms. When people perceive dissonance with stable emotions in their daily lives, they shift their focus to situations of interest to adjust their emotional responses or make distractions or cognitive changes that modify their perception of the situation [6]. Distraction is the association of other positive events that can replace emotions in the current situation [6-7]. And cognitive change can overcome negative consequences by changing the perception of the situation itself and re-recognizing the situation of emotional dissonance that requires controlling one's emotions as a challenging situation in order to reduce the emotional impact of the negative

situation in the behavioral response process [8]. Surface acting is an emotional response called suppression as a reaction-centered emotional regulation. Suppression is considered a form of superficial behavior because it explains suppression for external expression, not the emotion itself, as it is used to change the behavioral response after an event occurs [9]. In other words, superficial behavior refers to expressing desirable emotions that meet the needs of society as if acting while hiding the emotions one is actually feeling in order to express the emotions they face in reality [7]. As described above, surface behavior is not a true emotion, unlike inner behavior, but an act of disguised false expression, showing a distinctly different mechanism in the situation of emotional dissonance. Inner behavior increases an individual's psychological well-being, or causes satisfaction, efficacy, and consequences for the responsibilities they are facing, whereas superficial behavior affects outcomes such as stress and burnout, or intention to deviate from or avoid responsibilities [10-11].

Previous studies on emotional regulation have shown that emotional regulation may vary depending on gender or individual orientation, and the emotional regulation strategies used may also differ depending on the type of negative emotions experienced, and there are studies that show that it is essential not only to smooth social interaction but also to become socially and emotionally competent [12]. Based on the results of these studies, emotional regulation behavior is the ability to effectively manage one's emotions and support the ability to respond appropriately in interactions with others, and is considered an essential role in maintaining mental health and smooth social relationships [13].

Dementia knowledge refers to the degree of information retention and awareness of dementia, and it is knowledge of dementia perceived as recognizing, discriminating, and judging the overall cause, disease, symptoms, and preventability of dementia [14]. Studies in 2016 and 2017 show that the higher the knowledge of dementia, the more positive the attitude toward dementia is, indicating that the degree of knowledge of dementia by nursing providers caring for dementia patients is important in nursing dementia patients [15-16]. Looking at the recent domestic research on dementia knowledge, the details of the study on the burden of nursing for dementia patients are as follows, mainly on the attitudes of the elderly in charge of dementia knowledge and nurses in charge of nursing for the elderly. That is, dementia, attitudes and preventive behaviors of the elderly in preparation for dementia [17], research on the degree of knowledge and health promotion behavior of middle-aged and elderly people [18], the relationship between knowledge attitude toward dementia and psychological symptom nursing burden studied for general hospital nurses [16], the relationship between dementia nursing knowledge attitude and human-centered care studied for nursing hospital nurses [19], and the effect of dementia nursing knowledge attitudes and nursing professions on nursing care performance for dementia patients [20], and the effect of dementia nursing knowledge of hospital nurses on dementia problem behavioral burden [21]. Looking at these studies, dementia is a disease in which symptoms of rapid change in emotional control are remarkable, but there are few studies linked to emotional control behavior in Korea.

On the other hand, when looking at overseas studies, studies on emotional agitation and dementia [22], emotional control and dementia before dementia [23], emotional homeostasis and dementia [24], and emotional regulation and dementia are being actively conducted. In particular, Donné Minné et al. attempted to understand dementia through stress, mood, attention, and sleep, and it can be inferred that emotional regulation and dementia are strongly linked. Therefore, in this study, this study was planned to investigate emotional regulation behavior and the degree of knowledge of dementia as an attempt to collect basic data to study the relationship between emotional regulation and dementia. The specific purpose of this study is as follows; First, what are the general characteristics of the research participants? Second, what is the relationship between emotional regulation behavior and the degree of knowledge of dementia? Third, what is the effect of emotional regulation behavior on the degree of knowledge related to dementia.

METHODS

1. Research Design

This study is a cross-sectional study of 223 people who voluntarily agreed to the survey from their 20s to 70s using emotional control behavior research tools [25] and dementia knowledge research tools [26].

2. Research tools

Emotional control behavior

Emotional control behaviors include inner behaviors that try to feel true, and surface behaviors that camouflage the emotions that need to be expressed. Emotional control behaviors were measured by using the emotional labor scale of Krumi and Geddes (2000) as surface behaviors when expressing emotions that were not actually felt, and inner behaviors when trying to actually feel the emotions required by the organization [25]. Reliability in this study Cronbach's alpha was 0.882.

Knowledge of dementia

As for the knowledge of dementia, the tool used by Jeong Seon-mi [26] to measure the degree of knowledge of dementia in living assistants in specialized care facilities for the elderly was used. This tool consists of a total of 20 questions, consisting of knowledge of dementia disease, knowledge of treatment of dementia, and knowledge of nursing of dementia, and the higher the score, the higher the knowledge. Reliability in this study Cronbach's alpha was 0.845.

RESULTS

1. General Characteristics

A frequency analysis was conducted to confirm the general characteristics of this study (Table 1). As a result of the analysis, 139 men (62.3%) and 84 women (37.7%) were male, 95 men (68.3%) were meat eaters, and 40 women (47.6%) were vegetarian, indicating that men eat more meat and women eat more vegetarian food. 76 (34.1%) were in their 20s, 36 (16.1%) were in their 30s, 24 (10.8%) were in their 40s, 23 (10.3%) were in their 50s, 40 (17.9%) were in their 60s, 24 (10.8%) were in their 70s, 52 (68.4%) were in their 20s, 20 (55.6%) were vegetarians in their 30s, 12 (50.0%) were in their 40s, 16 (82.6%) were in their 50s were in their 50s were in meat consumption, and 16 (40.0%) were in their 60s were in their 70s, mainly in meat consumption, with 12 (50.0%). Exercise found that 28 people (12.6 %) exercised daily, 183 people (73.1%) did irregular, and 32 people (14.3 %) did not exercise at all. 16 people (57.1%) ate meat daily, 75 people (46.0%) ate meat, and 28 people (87.5%) did not exercise at all.

2. Correlation between Emotional Control Behavior and Dementia Knowledge

Pearson's bivariate correlation coefficient analysis was performed to analyze the relationship between emotional regulation behavior and knowledge of dementia (Table 2). As a result of the analysis, knowledge of the content of dementia disease was found to be correlated with treatment knowledge ($r=.455$, $p<0.01$) and nursing knowledge ($r=.796$, $p<0.01$) under a statistical significance level, and treatment knowledge for dementia disease was found to be correlated with nursing knowledge ($r=.469$, $p<0.01$) and inner behavior of emotional control ($r=.470$, $p<0.01$) under a statistical significance level, and nursing knowledge was found to be correlated with inner behavior of emotional control behavior under a statistical significance level ($r=.642$, $p<0.01$).

Table 1. General Characteristics

Classification		N(%)	Diet habits			χ^2
			Vege.(%))	Meat(%)	Mix(%)	
Gender	Male	139(62.3)	32(23.0)	95(68.3)	12(8.6)	.000
	Female	84(37.7)	40(47.6)	24(28.6)	20(23.8)	
Age	20s	76(34.1)	16(21.1)	52(68.4)	8(10.5)	.000
	30s	36(16.1)	20(55.6)	16(44.4)	0(0)	
	40s	24(10.8)	8(33.3)	12(50.0)	4(16.7)	
	50s	23(10.3)	4(17.4)	19(82.6)	0(0)	
	60s	40(17.9)	16(40.0)	8(20.0)	16(40.0)	
	70s	24(10.8)	8(33.3)	12(50.0)	4(16.7)	
Exercise	Daily	28(12.6)	12(42.9)	16(57.1)	0(0)	.000
	Irregular	183(73.1)	56(34.4)	75(46.0)	0(0)	
	None	32(14.3)	4(12.5)	28(87.5)	0(0)	

Table 2. Correlation between Emotional Control Behavior and Dementia Knowledge

Type	1	2	3	4	5
1.Content knowledge	1	.455**	.796**	-.033	.706**
2.Treatment knowledge		1	.496**	-.034	.470**
3.Nursing knowledge			1	.039	.642**
4.Superficial behavior				1	-.101
5.Inner behavior					1

**, Correlation coefficients are significant at the 0.01 level (both sides)

3. Effects of emotional control behavior on dementia-related knowledge

As a result of correlation analysis, surface behavior, a sub-variable of emotional regulation behavior, was found to have no correlation, while inner behavior was found to be significant under the level of knowledge

related to dementia and statistical significance (Table 3). According to this result, a regression analysis was conducted to analyze the effect of inner behavior, a sub-variable of emotional regulation behavior, on the level of knowledge related to dementia. As a result of the analysis, it was found that inner behavior affects dementia-related content knowledge ($t=14.808$, $p<0.01$), treatment knowledge ($t=7.916$, $p<0.01$), and nursing knowledge ($t=12.453$, $p<0.01$) under a statistical significance level. The effect of emotional control behavior on dementia knowledge was found to be 49.8%, the effect on treatment knowledge was 22.1%, and the effect on nursing knowledge was found to be 41.2%. (Table 3).

Table 3. Effects of Emotional Control Behavior on Dementia-Related Knowledge

Depend. vari.	Non-standardized		β	t	Statistics
	B	SD			
(a constant)	2.456	.489		5.022	$R^2=.498$, Modified $R^2=.496$, F=219.289, Durbin Watson=1.178
Content knowledge	1.845	.125	.706	14.808**	
(a constant)	1.779	.148		12.004	$R^2=.221$, Modified $R^2=.217$, F=62.662, Durbin Watson=2.062
treatment knowledge	.299	.038	.470	7.916**	
(a constant)	2.568	.341		7.525	$R^2=.412$, Modified $R^2=.410$, F=155.088, Durbin Watson=1.233
Nursing knowledge	1.083	.087	.642	12.453**	

Independent : Inner behavior, **, $p<0.01$

CONCLUSION

This study conducted a survey of various age groups to collect basic data for the study of the relationship between emotional control behavior and dementia disease, which is the main symptom of dementia disease. As a result of the study, there were 40 people (47.6%) who mainly ate meat for men and 40 people (47.6%) who mainly ate vegetarian food, indicating that men ate more meat and women ate more vegetarian food. As for age, 34.1% of people in their 20s, 16.1% of people in their 30s, 10.8% of people in their 40s, 10.3% of people in their 50s, 17.9% of people in their 60s, and 10.8% of people in their 70s participated in the study, and the age distribution of people in their 20s to 70s can be evaluated to have contributed to objectifying the research results to some extent. By age, 68.4% of meat eaters in their 20s, 55.6% of vegetarians in their 30s, 50.0% of vegetarians in their 40s, 82.6% of meat eaters in their 50s, and 40.0% of people in their 60s eat vegetarian and mixed vegetarian meals, while 50.0% of people in their 70s mainly eat meat. According to Exercise, 57.1% of people who exercise every day eat meat, 46.0% of people who exercise irregularly, and 87.5% of people who do not exercise at all eat meat, while people who exercise irregularly seem to eat a combination of meat and vegetarianism. This can be compared with the content of regular exercise and dietary habits studied in Japan, which Yuya Kakutani et al. reported in a 2013 study that people who exercise regularly ate a lot of vegetarian food [27]. It was already widely known that regular exercise has a buffer effect on emotional regulation [28]. However, in this study, it was found that exercise and eating habits did not have a significant relationship. Rather, it was found that people who exercise every day contributed to emotional

control by eating a lot of meat. However, even those who do not exercise at all appear to eat a lot of meat, and this result is considered a task to be studied with more people.

Various analyzes such as t-test, ANOVA, and X-square were attempted to confirm the difference in knowledge level and emotional control behavior of dementia disease by age, but no significant results were found. Therefore, the researcher analyzed Pearson's correlation analysis to see the correlation between emotional regulation behavior and the degree of knowledge related to dementia. As a result of the analysis, the difference in the degree of knowledge related to dementia in the inner behavior of the sub-factors of emotional control behavior was shown to be meaningful. Accordingly, as a result of regression analysis of the two variables, it was found that inner behavior affects dementia-related content knowledge ($t=14.808$, $p<0.01$) and treatment knowledge ($t=7.916$, $p<0.01$), and nursing knowledge ($t=12.453$, $p<0.01$) under a statistical significance level. The inner behavior of emotional regulation is to try to actually experience the emotions required by the environmental organization when it is necessary to express them, and specifically to induce related emotions [29], meaning that people accept the situation positively and try to be true to themselves. In other words, it can be defined as trying to focus on reality based on one's own experience in the situation.

Shizhe Zhu et al., looking at the systemic review and meta-analysis, there is a result that Virtual Reality Intervention had a positive effect on negative and motor function in dementia patients over the age of 60. This can be seen as the same result as the results of this study. Because in the treatment of dementia, it can be said that looking at the current situation honestly and determining that it is not estranged is an important and influential factor in the treatment of dementia [30]. In particular, it can be seen that Kim's research is consistent with the findings that knowledge related to dementia affects attitudes toward knowledge [31]. In other words, dementia can be inferred that controlling one's emotions, truly looking at the actual situation, and having a positive image in light of one's own experience, will affect many symptoms of dementia disease [30], especially in Kim's study, she emphasized that emotionally honest expression has a positive effect on subjective happiness levels [31]. In other words, it is said that an emotional expression that is sincere to oneself is the most important part of life for happiness. Emotionally honest people's expressions not only add to the happiness of life in the present, but also, even if a sudden change in emotions occurs after a dementia disease, it is easier for patients themselves and their families to understand and accept people with dementia than those who hid their feelings and acted before the disease [32].

As described above, through the results of this study, the meaning of the influence of the inner behavior of emotional control on the degree of knowledge related to dementia, the knowledge of treatment for dementia, and the nursing knowledge of dementia patients is that the thinking system before dementia, that is, the attitude of living honestly in one's own reality, is expected to induce a more positive response when one has an inevitable dementia disease or when dementia occurs in one's own family. As the number of participants is limited, it is considered that it is difficult to generalize this study. In the future, in-depth research is considered necessary in relation to emotional control behavior and dementia-related diseases.

REFERENCES

- [1] MG Jeong, HG Jeong, CS Han, Diagnostic and Treatment of Dementia in Primary Care Sites, *The Journal of the Korean Medical Association*, Vol. 56, No. 12, pp. 1104-1112, 2013.
- [2] <https://kiss.kstudy.com/Detail/Ar?key=3976783>.
- [3] Deniel C Mograbi DC, et al. , Self-awaewness in Dementia: a Taxonomy processes, overview of findings, and intergrative freamwoek, *Curr Neurol Newrosci Rep*. Vol. 21, No. 12, pp. 69, 2021. doi: 10.1007/s11910021-01156-6.
- [4] Ashforth, B. E., & Humphrey, R. H., Emotional labor in service roles: The influence of identity, *Academy of Management Review*, Vol. 18, No. 1, pp. 88-115, 1993
- [5] James J Gross, "The Emerging Field of Emotion Regulation: An Integrative Review," *Review of General Psychology*, Vol. 2, No. 3, pp. 271-299. 1998.
- [6] James J Gross , Emotion regulation: affective, cognitive, and social consequences, *Psychophysiology*, vol. 39, No. 3, pp. 281-91, 2002, doi: 10.1017/s0048577201393198.
- [7] Grandey, A. A., Emotion regulation in the workplace: A new way to conceptualize emotional labor,

- Journal of Occupational Health Psychology, Vol. 5, No. 1, pp. 95-110, 2000.
- [8] Lazarus, R.S., *Emotion and Adaptation*, Oxford University Press, 1991.
- [9] ARLIE RUSSELL HOCHSCHILD, *The Managed Heart: Commercialization of Human Feeling*, Twentieth Anniversary Edition, With a New Afterword, University of California Press, 2003.
- [10] Diefendorff, J. M., Richard, E. M., & Croyle, M. H., Are emotional display rules formal job requirements? Examination of employee and supervisor perceptions. *Journal of Occupational and Organizational Psychology*, Vol. 79, No. 2, pp. 273-298, 2003.
- [11] Goldberg, L. S., & Grandey, A. A., Display rules versus display autonomy: emotion regulation, emotional exhaustion, and task performance in a call center simulation, *Journal of Occupational Health Psychology*, Vol. 12, No. 3, pp. 301, 2007.
- [12] MS Seo, SH Kim, Effects of emotional dissonance and emotional exhaustion of salespeople on customer orientation and customer service quality evaluation. *Marketing Research*, Vol. 17(, No. 4, pp. 47-75, 2004.
- [13] Michael Ungar Theron L., *Resilience and mental health: how multisystemic processes contribute*, Vol. 7, No. 5, pp. 441-448, 2020. doi: 10.106/S2215-0366(19)30434-1.
- [14] HR Bang, *A Study on Factors Influencing Home Volunteers' Perception and Attitudes toward Dementia*, Master's Degree Papers, Catholic University, 2006.
- [15] MR Lee, *Nurses' Dementia Care-related Knowledge Relationship with Attitudes toward Dementia and Approaches to Dementia Nursing*. *Journal of the Korean Digital Policy Association*, Vol. 14, No. 12, pp. 357-367, 2016
- [16] SJ Lee, *Relationship between general hospital nurses' knowledge attitude toward dementia, behavioral psychological symptoms of dementia, and nursing burden*. Master's thesis, Hanyang University, 2017.
- [17] YH Lee, *Knowledge, attitudes and preventive actions of the elderly in a region*, and master's thesis, Chonbuk National University, 2012.
- [18] YH Lee, *A Study on the Knowledge of Dementia and Health Promotion Behavior of Middle-Aged People*, Master's thesis, Hanyang University, 2011.
- [19] MG Lee, HM Jeong, *Relationship between Dementia Nursing Knowledge Dementia Attitude and Human-centered Care of Nursing Hospital Nurses*. *East-West Nursing Research Journal*, Vol. 25, No. pp. 128-137, 2019.
- [20] MJ Kim, *Dementia nursing knowledge attitude of nursing hospital nurses and the effect of nursing professions on nursing care performance for dementia patients*. Master's thesis, Kyungpook National University, 2018.
- [21] EG Jeon, *The Effect of Nurses' Knowledge of Dementia on the Burden of Dementia Problem Behavior*. Master's thesis, Daegu Oriental Medical University, 2016.
- [22] Claudia Carrarini, Mirella Russo, Fedele Dono, Filomena Barbone, Marianna G Rispoli, Laura Ferri, Martina Di Pietro, Anna Digiovanni, Paola Ajdinaj, Rino Speranza, Alberto Granzotto, Valerio Frazzini, Astrid Thomas, Andrea Pilotto, Alessandro Padovani, Marco Onofri, Stefano L Sensi, Laura Bonanni, *Agitation and Dementia: Prevention and Treatment Strategies in Acute and Chronic Conditions*, *Front Neurol*, 2021 Apr 16;12:644317. doi: 10.3389/fneur.2021.644317. eCollection 2021.
- [23] Mohamad El Haj, Dimitrios Kapogiannis, Claire Boutoleau-Bretonnière, *The neutral past: emotional (dys)regulation of autobiographical memory in behavioural variant frontotemporal dementia*, *Cogn*

- Neuropsychiatry, Vol. 28, No. 6, pp. 437-449, 2023, doi: 10.1080/13546805.2023.2275337.
- [24] Donné Minné, Juliet Stromin, Taskeen Docrat, Penelope Engel-Hills, Jeanine L Marnewick, The effects of tea polyphenols on emotional homeostasis: Understanding dementia risk through stress, mood, attention & sleep, *Clin Nutr ESPEN*, Vol . Oct, No. 57, pp.77-88, 2023, doi: 10.1016/j.clnesp.2023.06.008.
- [25] Susan M. Kruml and Deanna Geddes View all authors and affiliations, Exploring the Dimensions of Emotional Labor: The Heart of Hochschild's Work, *Management Communication Quarterly*, Volume 14, Issue 1. 2000, <https://journals.sagepub.com/doi/10.1177/0893318900141002>.
- [26] SM Jang, Knowledge, burden and job satisfaction of living assistants in specialized nursing homes for the elderly, and master's thesis, Catholic University, 2004.
- [27] Yuya Kakutani ¹, Saori Kamiya, Naomi Omi, Association between Regular Exercise and Dietary Intake among Japanese Young Adults Aged 18-24 Years: A Cross-Sectional Study, *J Nutr Sci Vitaminol (Tokyo)*, Vol. 61, No. 3, pp. 255-62, 2015, doi: 10.3177/jnsv.61.255.
- [28] Emily E Bernstein, Richard J McNally, Exercise as a buffer against difficulties with emotion regulation: A pathway to emotional wellbeing, *Behav Res Ther*, Vol. 109, No. pp. 29-36. doi: 10.1016/j.brat.2018.07.010.
- [29] Brotheridge, C. M. & Lee, R. T.. Development and validation of the emotional labour scale. *Journal of Occupational and Organizational Psychology*, Vol. 76, No. 3, pp. 365-379, 2003.
- [30] Shizhe Zhu, Youxin Sui, Ying Shen, Yi Zhu, Nawab Ali, Chuan Guo, Tong Wang, Effects of Virtual Reality Intervention on Cognition and Motor Function in Older Adults With Mild Cognitive Impairment or Dementia: A Systematic Review and Meta-Analysis, *Front Aging Neurosci*, Vol. 5, No. 13, 2021, doi: 10.3389/fnagi.2021.586999.
- [31] JA Kim, The relationship between dementia related to knowledge and attitude in people in their 20s and 60s, *IJACT*, Vol. 10, No. 2, pp. 34-42, 2022.
- [32] JA Kim, Effects of emotional expression method type on subjective happiness, *IJACT*, Vol. 9, No. 4, pp. 126-134, 2021.