

The Motivation and Satisfaction of Regular Participants in Incremental Dental Care Program within Dental Hospital

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Abstract

This study aims to grasp the degree of motivation among participants in an incremental dental care program and to be the baseline data of regular incremental dental programs that can be applied by dental medical institutions. A questionnaire survey was conducted with 160 participants in an incremental dental care program at the incremental dental care center of Y dental hospital located in Y city, Gyeongnam region. For statistical analysis, SPSS 25.0 for Windows, SPSS Inc, Chicago, IL., USA was used. As a result of analyzing the degree of motivation according to the period of visiting the hospital during which 'ARCS motivation strategy' was applied, as for the item of satisfaction (S), the shorter visiting periods tended to show high averages of motivation, which was statistically significant ($p < 0.05$). From this result, it is deemed that the more satisfied with the incremental dental program the participants were, the better they were motivated, and that participants whose visiting periods were short were better motivated than those whose visiting periods were long because the former's visit intervals were shorter.

It was found that the shorter the interval of visit to the incremental dental program, the better the motivation. Thus, it is deemed that if the visit interval is lengthened, it is necessary to keep the participants motivated consistently.

Keywords: Incremental dental care; Motivation; Oral health education; Dental hygienist; ARCS motivational model

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Introduction

As medical advanced countries are transitioning from treatment-oriented systems to prevention-based medical systems, they emphasized the need for comprehensive and

continuous treatment systems aimed at strengthening primary care and preventing diseases and health(World Health Organization: The world health report 2008-primary health care: now more than ever; 2008). In order to implement primary dental treatment, it is necessary to provide sufficient oral health management at a dental institution, and early treatment and preventive measures appropriate to the oral health condition of the subject must be implemented. You should aim to improve(Bae SM *et al.*, 2020).According as insurance coverage for scaling once a year has been implemented for adults aged 19 and above since July 2013 and dental scaling clients are increasing at dental medical institutions, the importance of oral care for the prevention of stomatosis is being emphasized. In addition, the insurance coverage for scaling has been implemented for the purpose of detecting and treating oral disease early through regular visit to a dental clinic, and saving financial cost and time incurred for treatment by preventing periodontal disease(Ju OJ *et al.*, 2014). Scaling conducted at dental medical institutions, however, is mostly expert treatment to remove supragingival plaque, and the patient's own ability of care is needed to remove dental plaque that causes periodontal disease. Thus, if the ability of oral care is not cultivated, the risk of developing periodontal disease increases(Cho MJ., 2017). In general, if individuals intend to acquire knowledge about oral hygiene or obtain the results of changes in attitude and behavior from oral hygiene education, they have to visit in person dental medical institutions, and thus dental medical institutions should recognize responsibility for the maintenance and promotion of patients' healthy oral conditions and make efforts to develop incremental dental care programs so that regular oral care and oral hygiene education can be achieved (Jang MJ *et al.*, 2015). Most of all, in the society as well, systematic efforts should be made together to activate oral hygiene education that can improve citizens' consciousness of oral hygiene(Won JY *et al.*, 2003), and it is necessary to motivate patients in consideration of their learning periods so that they may take interest in oral care for improving their oral hygiene care ability and perceive the importance of oral health. As a strategy for motivation in the incremental dental care program, Keller suggested 'ARCS motivational model' comprising attention, relevance, confidence and satisfaction. This ARCS motivational strategy, a method for improving participants' learning motives, can enhance participants' interest in the incremental dental care program by motivating them to learn(Park SM *et al.*, 2018). And it was reported that ARCS-applied education attracted positive responses from participants in terms of satisfaction and interest(Kang JM *et al.*, 2018). A survey showed that if participants' satisfaction and interest were enhanced by motivation for the incremental dental care program, their

perception about oral health increased, and if the perception about oral health increased, the participants carried out oral health better (Baek JY *et al.*, 2009). Therefore, it is important for dental medical institutions to enhance participants' perception about oral health through a systematic incremental dental care program and eventually induce changes in their oral health behavior so that they can settle oral problems. In this context, this study aims to grasp the degree of motivation and satisfaction among patients undergoing the incremental dental care program at a dental medical institution, by using Keller's ARCS motivational strategy, and to be baseline data for regular incremental dental care programs that can provide motivation consistently.

Materials and Methods

Subjects of research

This study obtained approval from Dong-eui University IRB (IRB approval No.: DIRB-201905-HR-E-32). Research was conducted from January 2019 to January 2020 with 160 participants in an incremental dental care program at the Incremental Dental Care Center, which was operated independently by dental hygienists at Y dental hospital in the Gyeongnam region. Participants who attended the incremental dental care program for the first time had the period of visit no longer than one year, and their visit interval was 2 - 3 weeks. Also, participants who attended the incremental dental program regularly had the visiting period of one year or more, and their visit intervals were 2 - 3 months. The subjects of this study were classified according to the periods of visit up to 7 years or longer at intervals of one year. Y Dental Hospital continuous dental care center has been in regular operation for the eighth year this year, so subjects have various visit periods and visit intervals as shown in Table 1.

Table 1: Classification of visiting periods of participants in incremental dental care program

Period of visit	N(%)
Less than 1 year	80 (50.0)
1 year to less than 2 years	4 (2.5)
2 years to less than 3 years	12 (7.5)
3 years to less than 4 years	26 (16.3)
4 years to less than 5 years	21 (13.1)
5 years to less than 6 years	14 (8.8)
7 years or longer	3 (1.9)

Research Methods

A survey was conducted, and the survey was composed of a questionnaire about general characteristics and the degree of motivation after the application of the incremental dental care program and question items about satisfaction. As for the motivation of the incremental dental care program, Keller's 'ARCmotivational strategy' in Yu (Yu MSet *al.*, 2005) was extracted and used after appropriate modification and supplementation for this study. A 5-point scale was used for each question item, and the total of questions was 28. The Cronbach's α of the instrument for evaluation was .853. As for satisfaction, questions were given to evaluate the satisfaction of the participants in the incremental dental care program. This study extracted a questionnaire from Kim (Jung YS *et al.*, 2018), and used it after modification and supplementation. A 5-point scale was used for each question item, and the total of the questions was 10. The Cronbach's α of the instrument for evaluation was .826.

Statistical analysis

For the analysis of data in this study, SPSS 25.0 for Windows, SPSS Inc., Chicago, IL., USA was used, and statistical tests were conducted at the significance level of 0.05. Statistical methods used in the analysis are as follows: For the subjects' general characteristics, motivation for the dental care program, and satisfaction, frequency analysis was carried out; for the analysis of the degree of motivation and satisfaction according to the periods of visit, ANOVA was conducted; and for the analysis of factors affecting participants' motivation and factors affecting satisfaction, regression analysis was conducted.

Results and Discussion

General characteristics

The results of analyzing the participants' general characteristics are as shown in Table 2. As for gender, 'female' was 44.4%, and 'male' was 55.6%. And as for age, '50 - 59' showed the highest distribution of 40.6%, Lee (Lee YS *et al.*, 2001) study, the age group of 40 to 50 years old, who had a high incidence of periodontal disease, showed a high visit rate. Also, as for educational background, 'Graduate from high school or below' was found to be highest 38.1%, there were many subjects with low educational background and as for average income, '4 million won or more' showed a high visit rate for high-income people as shown in

Table 2.

Table 2: Research subjects' general characteristics

Category		N(%)
Gender	Male	89 (55.6)
	Female	71 (44.4)
Age	39 and below	20 (12.5)
	40 - 49	45 (28.1)
	50 - 59	65 (40.6)
	60 and over	30 (18.8)
Educational background	Graduate from high school and below	61 (38.1)
	Graduate from junior college	36 (22.5)
	Graduate from university	48 (30.0)
	Graduate from graduate school and over	15 (9.4)
Average income	Less than KRW 3 million	39 (24.4)
	KRW 3 - 4 million	40 (25.0)
	KRW 4 million and over	81 (50.6)
Total		160 (100.0)

Degree of motivation according to periods of visit

As a result of analyzing the degree of motivation inducement according to the periods of visit by applying 'ARCS motivational strategy,' the items of attention (A), relevance (R), and confidence (C) showed the tendency that the shorter the periods of visit, the higher the averages, which, however, showed no statistical significant difference, and the item of satisfaction (S) showed the tendency that the shorter the periods of visit, the higher the average of motivation, which was statistically significant ($p < 0.05$). Park(Park SM *et al.*, 2020) results show that consistent motivation is needed because if the participants' visit intervals are lengthened, their oral conditions may be deteriorated again. And the present study also shows that participants whose visit intervals were short visited dental medical institutions frequently and were motivated better than those whose visit intervals were long, because the former's visit intervals were shorter. And It is believed that thorough and systematic oral health education is necessary to maintain continuous oral health even if the patient's visit period is prolonged as shown in Table 3.

Table 3: The degree of motivation according to the periods of visit

Mean±s.d

Category	Attention (A)	Relevance (R)	Confidence (C)	Satisfaction (S)
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Less than 1 year	16.74±1.51	18.64±1.65	19.46±1.81	19.85±1.48
1 year - less than 2 years	17.00±1.15	18.75±1.71	19.50±1.91	18.50±2.89
2 years - less than 3 years	16.50±1.51	18.50±2.39	19.17±2.62	19.17±2.12
3 years - less than 4 years	16.27±1.73	17.69±2.00	19.15±2.23	18.42±2.34
4 years - less than 5 years	16.27±1.95	18.00±2.21	19.00±2.26	19.05±2.50
5 years - less than 6 years	16.71±1.07	18.71±2.55	19.07±2.50	19.14±2.18
7 years and over	15.67±1.53	17.67±1.53	18.33±1.15	17.67±0.58
F(p)	.661(.681)	1.087(.373)	.324(.923)	2.519(.024)

Satisfaction with incremental dental care program according to the periods of visit

As a result of analyzing the averages of satisfaction according to the periods of visit, the average of '1 year - less than 2 years' was found to be highest with 30.00 points, and the average of '3 years - less than 4 years' was found to be lowest with 29.08 points. Regardless of visit periods, averages of satisfaction among participants in the incremental dental care program was high overall, which was statistically significant ($p < 0.05$) as shown in Table 4. Park (Park SM *et al.*, 2020) and Seong (Seong MK *et al.*, 2017) reported that satisfaction with the incremental dental care program and dental hygienists that explained participants' oral conditions more systematically and comprehensively was higher than dental medical institution facilities, and in the present study as well, satisfaction with dental hygienists was found to be high. Given that the satisfaction level of dental hygienists in charge of oral care has been high, the role and responsibility of dental hygienists in charge of the continuous oral care program are important in order to increase the growth of long-term continuous oral care offices implemented by dental institutions and the revisit rate of subjects.

Table 4: Satisfaction with program according to the periods of visit

Category	N	Satisfaction	t	p
Less than 1 year	80	29.61±0.95	-269.975	.001
1 year - less than 2 years	4	30.00±0.00	-	-
2 years - less than 3 years	12	29.58±1.00	-92.438	.001
3 years - less than 4 years	26	29.08±2.12	-60.453	.001
4 years - less than 5 years	21	29.62±1.75	-64.625	.001
5 years - less than 6 years	14	29.71±0.83	-107.498	.001
7 years and over	3	29.33±1.15	-33.500	.001

Factors affecting motivation and satisfaction

Im (Im Y *et al.*, 2018) study found that the higher the oral health awareness, the better the motivation. However, there was no clear change in behavior depending on the degree of

motivation, and it was said that a steady personalized oral care and toothbrush education program was needed. Also, previous study in Jung (Jung JY *et al.*, 2015) reported that a dental medical institution carried out oral hygiene education for relevant patients after therapy so that they might acquire correct knowledge and realize perception about oral hygiene, and consequently the participants' satisfaction improved. Thus, it concluded that oral hygiene education conducted after therapy could enhance participants' satisfaction and have positive effects on their re-visit to dental clinic. Similarly, as a result of analyzing influences on satisfaction with the incremental dental care program, the present study also found that they were perception about oral health ($p < 0.05$) and motivation ($p < 0.05$) and that the higher the scores of the domains, the higher, the satisfaction. In addition, as a result of analyzing influences on participants' motivation, they were satisfaction ($p < 0.05$) and the period of visit ($p < 0.05$), and it was found that the higher the scores of satisfaction, the higher the motivation, and that the shorter the period of visit, the higher the motivation. As a result, the better the subject's motivation was, the higher the satisfaction with the continuous oral care program was, and the higher the satisfaction, the better the motivation was. These findings confirm again the importance of oral hygiene education conducted in the clinical field as shown in Table 5 and Table 6.

Table 5: Factors affecting participants' motivation

Category	Regression coefficient (B)	β	t	p
Satisfaction	1.916	.408	5.474	.001
Perception on oral health	.227	.106	1.394	.165
Oral health behavior	.056	.024	.310	.757
Period of visit	-.558	-.175	-2.404	.017
Difference in dental plaque	.018	.038	.529	.598
F=8.905***R ² =.230				

Table 6: actors affecting participants' motivation

Category	Regression coefficient (B)	β	t	p
Perception on oral health	.072	.158	2.108	.037
Oral health behavior	.064	.129	1.695	.092
Period of visit	.000	.001	.008	.993
Motivation	.085	.402	5.474	.001
Difference in dental plaque	.010	.097	1.378	.170

$$F=9.451^{***} R^2=.242$$

Conclusion

This study conducted a questionnaire survey from January 2019 to January 2020 with 160 participants in an incremental dental care program at the Incremental Dental Care Center operated independently by dental hygienists at Y dental hospital located in the Gyeongnam region, and obtained the following conclusion.

In the satisfaction (S) item of the incremental dental care program, it was found that participants whose periods of visit were short were motivated better than those whose periods of visit were long, which was statistically significant ($p < 0.05$). Also, as a result of analyzing influences on the participants' motivation, it was found that they were satisfaction ($p < 0.05$) and visit periods ($p < 0.05$), and that the higher the scores of satisfaction, the higher the motivation, and the shorter the periods of visit, the higher the motivation. Further, it was found that the satisfaction of participants in the incremental dental care program was overall high. The results of this study may be baseline data for regular incremental dental care programs carried out by dental hygienists at the clinical field. We intend to awaken the importance of motivation to change the effect of oral health education on oral health care of subjects and the importance of oral health, and to help plan systematic and efficient programs available in dental health institutions.

References

1. Bae SM, Lee HJ, Sin BM., 2020. Clinical Dental Hygienists' Experience of the Prevention Based Incremental Oral Health Care: Applying Focus Group Interviews. *Journal of Dental Hygiene Science*. 13 June, 20(2), pp.107-117. DOI:10.17135/jdhs.2020.20.2.107.
2. Baek JY, No EM., 2009. A Study of Hospitalized Patients' Recognition and Practice of Dental Health. *Korean Journal of Clinical Social Work*. May, 6(2), pp.49-65.
3. Cho MJ., 2017. Effective management interval focused on professional mechanical tooth cleaning. *Journal of Dental Hygiene Science*. 19 Sep, 17(6), pp.508-515.
4. DOI:10.17135/jdhs.2017.17.6.508
5. Im Y, Bae SM, Kim HJ., 2018. The motivation inducement according to behavior change after operating the oral care program. *Asia-pacific Journal of Multimedia Services Convergent with Art, Humanities, and Sociology*. January, 8(1), pp.701-708.
6. DOI:10.35873/ajmahs.2018.8.1.069

7. Jang MJ, Kim SY, Lee JH, Yang YL, Lee JY, Jo AN, *et al.*, 2015. A Study on the necessity of the establishment of more incremental oral health care centers and relevant needs. *Journal of Korean Academy of Dental Administration*. 2 May, 3(1), pp.31-41.
8. Ju OJ, Kang EJ, Woo SH, Lee AJ, Lee HJ, Park MY., 2014. Recognition between laypersons and dental hygienists on expansion of health insurance of scaling. *Journal of Korean society of Dental Hygiene*. 23 April, 14(3), pp.431-438.
9. DOI:10.13065/jksdh.2014.14.03.431
10. Jung JY, Lim MH., 2015. Awareness and satisfaction toward health insurance coverage of scaling. *Journal of Korean Society of Dental Hygiene*. 30 December, 15(6), pp.1107-1116.
11. DOI:10.13065/jksdh.2015.15.06.1107
12. Jung YS, Yang HY, Choi HY, Kim EK, Jeong SH, Cho MJ, *et al.*, 2018. Factors affecting use of word-of-mouth by dental patients. *International dental journal*. October, 68(5), pp.314-319. DOI:10.1111/idj.12387
13. Kang JM, Yu NS., 2018. Development of technology home economics teaching-learning plans using ARCS strategies to improve character for middle school students : Focusing on the unit of understanding families. *Korean Home Economics Education Association*. 31 March, 30(1), pp.29-42.
14. DOI:10.19031/jkheea.2018.03.30.1.29
15. Lee YS, Yun CY, Kim SM, Kim BO, Han KY., 2001. Investigation of Age and Treatment Modalities in the Periodontally Treated(1981-1995) Patients. *The Journal of the Korean Academy of Periodontology*. March, 31(1), pp.225-232. DOI:10.5051/jkape.2001.31.1.225
16. Park SM, Moon SE, Kim YJ, Cho HE, Kang HJ., 2020. Qualitative study on the scaling experience through the application of comprehensive dental hygiene care : A grounded theory approach. *Journal of Korean Society of Dental Hygiene*. 9 July, 20(4), pp.395-408.
17. DOI: 10.13065/jksdh.20200037
18. Park SM, Chung DS., 2018. A Study on Fashion Design Education Program Using Keller's ARCS Motivation theory: Focusing on NCS Curriculum of Specialized High School. *Korea Institute of Design Research Society*. 31 December, 3(3), pp.68-81.
19. Seong MK, Jo MM, Kim YR., 2017. A Study on oral health knowledge, recognition,

practice and satisfaction of patients by applying a targeted program within a dental hygiene process. *Journal of Dental Hygiene Science*. April, 17(2), pp.183-91.

20. DOI:10.17135/jdhs.2017.17.2.183

21. Won JY, Sin SC, Seo HS, Lyu H., 2003. A Study on the incremental dental cares of giving the first consideration to prevention in dental clinic. *Journal of Korean Academy of Dental Health*. September, 27(3), pp.329-346.

22. World Health Organization, 2008. The world health report 2008-primary health care: now more than ever. pp. 41-60.<https://www.who.int/whr/2008/en/>

23. Yu MS, Chae JH., 2005. The Effects of Home Economics Instruction Using Motivation(ARCS) Strategy on the Learning Motivation and Academic Attitude toward the Subject. *Journal of Korean Home Economics Education*. December, 17(4), pp.157-173.