



Dental Comorbid Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases

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ABSTRACT

Background: Dental and oral health services as an integral part of overall health services have set indicators of optimal community dental and oral health status in 2010, which refer to WHO's Oral Health Global Goal Indicator 2010. WHO considers that dental and oral disease is one of the diseases that commonly develops in people around the world. People with chronic diseases are one of the high risk groups. Chronic disease is a health problem that lasts a long time, usually more than 1 year. Most chronic diseases are caused by an unhealthy lifestyle. This type of disease is often not realized until the condition is already severe, and often leads to death. The purpose of this research is to develop a Dental Comorbid Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases.

Material and Methods: This research method uses research and development methods (Research and Development (RnD)). The steps that must be followed to produce a product include the potential and problem stages, data collection, product design, design validation, product design revisions, product trials, product revisions, usage trials, product revisions, and mass production.

Results: The results of statistical tests using Wilcoxon to determine the significance of changes in the pre-post knowledge variable obtained a sig value of 0.000 and Z -4.284 which can be interpreted as a significant result.

Conclusion: Comorbid dental education design of supporting cognitive dental health in people with chronic diseases is effective in increasing the knowledge of people with chronic diseases.

Keywords: Chronic Diseases, Cognitive Dental Health, Dental Comorbid Education.

Introduction

In general, people (90.7%) brush their teeth every day when they take a shower in the morning and/or evening. The proportion of people who brush their teeth every day after breakfast is only 12.6% and before going to bed at night is only 28.7%. Based on Riskesdas data from the Ministry of Health in 2013, the prevalence of dental-oral health problems was 25.9%, with an active caries prevalence of 53.7%, therefore dental care is one that must be considered and improved both through community-based health efforts

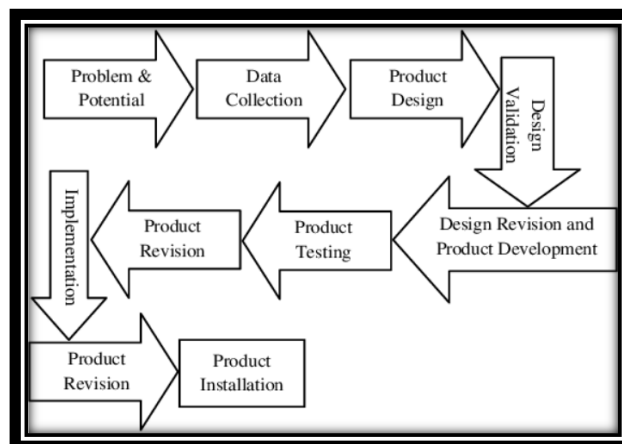
(UKBM) and efforts made by the puskesmas. Based on Government policy through Law Number 36 of 2009 concerning Health, it is stated that dental and oral health services are part that must be implemented.^{1,2,3}

Dental and oral health services as an integral part of overall health services have set indicators of optimal community dental and oral health status in 2010, which refer to WHO's Oral Health Global Goal Indicator 2010. WHO considers dental and oral disease as one of the diseases that commonly develop in communities around the world (Mason, 2005; Petersen, 2003). Although there are many types of dental and oral diseases, cavities or caries and periodontal disease are the main dental and oral problems in many countries (Mason, 2005). It is estimated that as many as 6.5 billion people worldwide have experienced dental caries (WHO, 2004). People with chronic diseases are one of the high-risk groups.^{4,5} Chronic disease is a health problem that lasts a long time, usually more than 1 year. Most chronic diseases are caused by an unhealthy lifestyle. This type of disease is often not realized until the condition is already severe, and often leads to death.^{6,7,8}

In achieving optimal dental and oral health in people with chronic diseases, education must be carried out in a planned and sustainable manner. In addition, innovation is needed to increase knowledge of people with chronic diseases. One of the innovative ways to increase dental health knowledge in people with chronic diseases is by utilizing science and technology (IPTEKS). Based on the description above, the authors feel interested in applying more about "Dental Comorbid Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases".

Materials and Methods

This research method uses research and development methods (Research and Development (RnD)). The steps that must be followed to produce a product include the potential and problem stages, data collection, product design, design validation, product design revisions, product trials, product revisions, usage trials, product revisions, and mass production. Primary data was obtained through product trials using the Dental Comorbid Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases. Secondary data was obtained based on data collected from a review of sourcebooks, journals, and the internet related to the research title. The tools used in this study are as follows: Comorbid Dental Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases. The materials used in this study were as follows: mineral water and tissue. The research variable in this study was the Dental Comorbid Education Design of Supporting Cognitive Dental Health in People with Chronic Diseases. The study was conducted after obtaining approval from the Ethics Committee of the Health Polytechnic of TasikmalayaNo.KP-KEPK/0145/2022.



Result

Potential and Problems; Data/Information Collection

The results of the implementation of the research "Dental Comorbid Education Design of Supporting Cognitive Dental Health in Communities with Chronic Diseases" in this study were generated through the collection of data and information as material for planning a product through qualitative methods. Analysis of needs by identifying and analyzing problems experienced during activities to increase dental health knowledge in people with chronic diseases. Data collection was carried out using secondary data from observation and interview methods that were conducted on community respondents with chronic sufferers/prolanis participants; literature study by collecting data and information from books and journals related to the subject of research to support the data and information obtained; The results of the observations are used as a reference in making comorbid dental education product/model designs as promotional media of supporting cognitive dental health for people with chronic diseases.(Table-1)

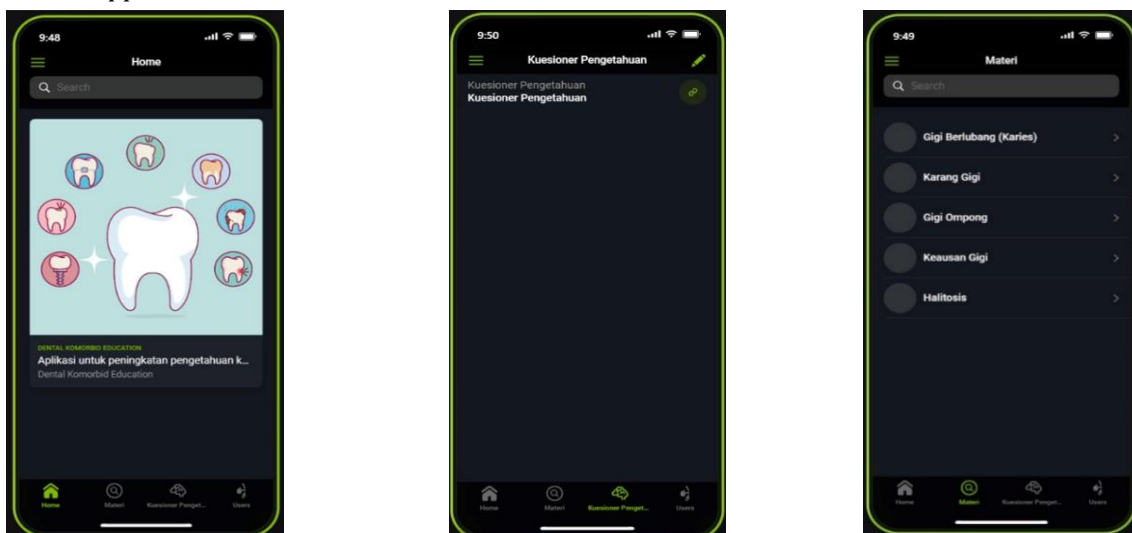
| No | Information Collection Results |
|----|---|
| 1. | do not know of the risk factors for dental and oral health in sufferers of chronic disease. |
| 2. | less attention to oral hygiene. |
| 3. | do not know how to brush your teeth properly and correctly. |
| 4. | do not know the correct time to brush your teeth. |
| 5. | have a habit of brushing your teeth every day at bath time in the morning and or evening. |
| 6. | do not know of dental health problems in patients with chronic diseases. |
| 7. | do not know of dental care in patients with chronic diseases. |
| 8. | do not know how to maintain oral health in patients with chronic diseases. |

Table1: Information Collection Results

Table 1 above shows that there are problems with the results of collecting information through interviews and observations.

Product/Model Design

Based on the information above, the researcher designed a product/model design, so that the display in the form of an application was obtained as follows:



Design Validation

The things that the researcher paid attention to in making the material were the material according to the title, the media according to the title, the language for presenting information that was appropriate and easy to understand, the stages of how to brush your teeth properly and correctly, the language for exposure according to the material, pictures, and videos according to the material. evaluation according to the material, the language for the presentation of the questions is appropriate, the education material, and the text used is appropriate.

Things that are considered by researchers in making usability aspects of applications are useful applications, applications that are easy to use by users, applications according to target needs, ease of accessing and obtaining information, suitability of background selection, suitability of using appropriate color and image display and not boring, suitability of display with target characteristics, Application menu according to what is needed, Display design is clear and easy to understand, Display design is attractive.

Aspects of Reliability are the accuracy of menu reactions (navigation buttons), ease of understanding the navigation menu structure, and easy page switching mechanism.

The functional aspect is that the application can perform its function, the data input is guaranteed because each user has a username and password, the information in the application is as needed, the information contained in the application can appear, and the menu can be used properly.

The efficiency aspect is that the application meets the standard of system efficiency, the response to the application is according to what is given for each action, and the application time responds quickly.

The maintainability aspect is that the application can be developed further in terms of material, and features, the application is easy to repair, and errors and deficiencies in information can be changed easily.

The Portability aspect is that the Application can be installed easily. **(Table-2)**

| No | Expert | Model Feasibility Score | Average | Criteria | Material & Media Eligibility Score | Average | Criteria |
|----|--|-------------------------|---------|-----------|------------------------------------|---------|---------------|
| 1. | Informatics Technology Expert (Researcher) | 89 | 90,5 | Very High | - | 92 | Very Feasible |
| 2. | Informatics Technology Expert (Teacher/Researcher) | 92 | - | - | - | - | - |
| 3. | Material & Media Expert (Conceling/Health Worker) | - | - | - | 90 | - | - |
| 4. | Material & Media Expert (Teacher/Researcher) | - | - | - | 94 | - | - |

Table 2: Model Expert Validation Results

Table 2 above shows that the average feasibility score of the model is 90.5 with very high criteria and the average material and media feasibility score is 92 with very feasible criteria.

Product Trials

Product trials were carried out on prolanis participants with a total of 30 respondents. This stage is carried out to determine the effectiveness of the product by providing education/intervention, then giving a questionnaire.(Table-3)

| No | Gender | N | Percentage |
|----|--------|----|------------|
| 1 | Male | 6 | 20% |
| 2 | Female | 24 | 80% |
| | Total | 30 | 100% |

Table 3: Frequency Distribution based on Gender of Prolanis Participants

Table 3 above shows that 24 (80%) of the respondents were female and 6 (20%) of the respondents were male.(Table-4)

| No | Age | N | Presentase |
|----|-------|----|------------|
| 1 | 20-29 | 4 | 13, 33 |
| 2 | 30-39 | 9 | 30 |
| 3 | 40-49 | 17 | 56, 67 |
| | Total | 30 | 100 |

Table 4: Frequency Distribution based on Age

Table 4 above shows that 17 (56.67%) respondents were aged 40-49 years, 9 (30%) respondents were aged 30-39 years and 4 (13.33%) respondents were aged 20-29 years. (Table-5)

| No. | Cognitive | Pretest | % | Posttest | % |
|-----|-----------|---------|--------|----------|--------|
| 1 | Good | 6 | 20% | 21 | 70% |
| 2 | Fair | 8 | 26,67% | 7 | 23,34% |
| 3 | Less | 16 | 53,33% | 2 | 6,66% |
| | Total | 30 | 100% | 30 | 100% |

Table 5: Frequency Distribution of Knowledge before and after being given Interventions about the oral health of Prolanis Participants.

Table 5 above shows that the knowledge before the intervention was carried out on the respondents obtained 6 (20%) respondents with good criteria and 21 (70%) respondents with good criteria after the intervention was carried out. Knowledge before the intervention was carried out on respondents obtained from 8 (26.67%) respondents with moderate criteria and 7 (23.34%) respondents with moderate criteria after the intervention was carried out. Knowledge before the intervention was carried out on the respondents was obtained from 16 (53.33%) respondents with fewer criteria and 2 (6.66%) respondents with fewer criteria after the intervention was carried out.(Table-6)

| Variable | Asymp Sig (2-tailed) | Z |
|------------------|----------------------|--------|
| Posttest-Pretest | 0,000 | -4,284 |

Table 6: Wilcoxon Statistical Test Results

Table 6 above shows that the results of statistical tests using Wilcoxon to determine the significance of changes in the pre-post knowledge variable obtained a sig value of 0.000 and Z -4.284 which can be interpreted as a significant result.

Discussion

The observations are used as a reference in making comorbid dental education product/model designs as promotional media for supporting cognitive dental health for people with chronic diseases. The results of observations are do not know of the risk factors for dental and oral health in sufferers of chronic disease, less attention to oral hygiene, do not know how to brush your teeth properly and correctly, do not know the correct time to brush your teeth, have a habit of brushing your teeth every day at bath time in the morning and or evening, do not know of dental health problems in patients with chronic diseases, do not know of dental care in patients with chronic diseases, do not know how to maintain oral health in patients with chronic diseases.

The average feasibility score of the model is 90.5 with very high criteria and the average material and media feasibility score is 92 with very feasible criteria. Product trials were carried out on prolans participants with a total of 30 respondents. This stage is carried out to determine the effectiveness of the product by providing education/intervention, then giving a questionnaire. Frequency distribution based on the gender of prolans participants shows that 24 (80%) of the respondents were female and 6 (20%) of the respondents were male. Frequency distribution based on age shows 17 (56.67%) respondents aged 40-49 years, 9 (30%) respondents aged 30-39 years, and 4 (13.33%) respondents aged 20-29 years.

The knowledge before the intervention was carried out on the respondents obtained 6 (20%) respondents with good criteria and 21 (70%) respondents with good criteria after the intervention was carried out. Knowledge before the intervention was carried out on respondents obtained from 8 (26.67%) respondents with moderate criteria and 7 (23.34%) respondents with moderate criteria after the intervention was carried out. Knowledge before the intervention was carried out on the respondents was obtained from 16 (53.33%) respondents with fewer criteria and 2 (6.66%) respondents with fewer criteria after the intervention was carried out.

The results of statistical tests using Wilcoxon to determine the significance of changes in the pre-post knowledge variable obtained a sig value of 0.000 and Z -4.284 which can be interpreted as a significant result.

Dental and oral health knowledge is everything that is known related to the maintenance of dental and oral health.^{9,10,11} Dental and oral health knowledge can be in the form of knowledge about eating patterns that are good for teeth, brushing teeth, and regular dental and oral examination visits.^{11,12} Efforts that can be made to improve dental and oral health are to carry out health promotion.¹³ Health promotion can be done



with various kinds of media. Implementation of teaching how to brush teeth using media can support the maintenance of dental health and increase knowledge of dental health.14,15,16

Comorbid Dental Education Design to Supporting Cognitive Dental Health in People with Chronic Diseases is a program in the form of an android or its manual version to improve Cognitive Dental Health in People with Chronic Diseases. Dental Comorbid Education informs dental health problems in people with chronic diseases including cavities/dental caries especially on the roots of teeth, tartar/calculus, tooth loss/tooth loss, tooth wear, and halitosis. Dental Comorbid Education will also provide a solution in the form of proper treatment carried out by people with chronic diseases to be able to overcome dental and oral health problems or minimize the risks that will occur, the factors that cause these dental health problems, and the consequences that arise if these dental health problems are ignored as well as suggestions for what to do.

Conclusion

Based on the results of the research that has been done, it can be concluded that comorbid dental education design of supporting cognitive dental health in people with chronic diseases is effective in increasing the knowledge of people with chronic diseases.

References

1. Riskesdas. *Riset Kesehatan Dasar (Riskesdas) 2007*, Balitbangkes: Jakarta. 2007. <https://labmandat.litbang.kemkes.go.id/riset-badan-litbangkes/menu-risikesnas/menu-risikesdas/147-rkd-2007>
2. Riskesdas. *Riset Kesehatan Dasar (Riskesdas) 2013*, Balitbangkes: Jakarta. 2013. <https://labmandat.litbang.kemkes.go.id/riset-badan-litbangkes/menu-risikesnas/menu-risikesdas/374-rkd-2013>
3. Permenkes. *Upaya Kesehatan Gigi dan Mulut*, Direktorat Jenderal Peraturan Perundang-Undangan Kemenhumham RI. 2015.
4. Depkes. *Pedoman Upaya Kesehatan Gigi Masyarakat (UKGM)*, Departemen Kesehatan RI. Jakarta. 2004.
5. Kemenkes. *Pedoman Pemeliharaan Kesehatan Gigi dan Mulut Ibu Hamil dan Anak Usia Balita bagi Tenaga Kesehatan di Fasilitas Pelayanan Kesehatan*, Kementerian Kesehatan RI. Jakarta. 2012.
6. Kemenkes. *Pemetaan Status Kesehatan Gigi dan Mulut di Indonesia*, Kementerian Kesehatan RI. Jakarta. 2012.
7. Fatmasari, D. and Sabilillah, M.F. Asuhan Keperawatan Gigi dan Mulut pada Pasien Diabetes Melitus (Laporan Kasus). *Jurnal Kesehatan Gigi*, 2015. 2(2), pp.72-78.
8. Kemenkes. *Pelayanan Kesehatan Gigi dan Mulut Lanjut Usia*, Kementerian Kesehatan RI. Jakarta. 2012.
9. Sabilillah, M.F. Perbedaan antara Audio video dengan Demonstrasi Pantum terhadap Perilaku, Status Kebersihan Gigi & Mulut Anak Slow Learner: Kajian terhadap Perilaku Pemeliharaan Kesehatan Gigi dan Mulut (*Doctoral dissertation*, Program Pascasarjana Undip), 2015. pp.1-6.
10. Kemenkes. *Rencana Program Pelayanan Kesehatan Gigi dan Mulut*, Kementerian Kesehatan RI. Jakarta. 2012.
11. Kemenkes. *Standar Pencegahan dan Pengendalian Infeksi Pelayanan Kesehatan Gigi dan Mulut di Fasilitas Pelayanan Kesehatan*, Kementerian Kesehatan RI. Jakarta. 2012.
12. Kemenkes. *Pedoman Paket Dasar Pelayanan Kesehatan Gigi dan Mulut di Puskesmas*, Kementerian Kesehatan RI. Jakarta. 2012.



13. Kemenkes. *Buku Panduan Pelatihan Kader Kesehatan Gigi dan Mulut di Masyarakat*, Kementerian Kesehatan RI. Jakarta. 2012.
14. Kusmana, A. and Sabilillah, M.F. Implementasi Pengajaran Cara Menyikat Gigi Menggunakan Metode Drill dalam Menunjang Pelatihan Kader Kesehatan Gigi dan Mulut di Masyarakat. *Edukasi Masyarakat Sehat Sejahtera (EMaSS): Jurnal Pengabdian kepada Masyarakat*, 2019. 1(1), pp.6-10.
15. Hertanto MT, Sari AK, Furqoni AR. Implementation of community dental and oral health care before COVID-19 pandemic to new normal period at Public Health Care. *Padjadjaran Journal of Dentistry*. 2022 Nov 30; 34(3):210-22.
16. Pieren JA, Bowen DM. *Darby and Walsh Dental Hygiene E-Book: Theory and Practice*. Elsevier Health Sciences; 2019 Mar 4. <https://shop.elsevier.com/books/darby-and-walsh-dental-hygiene/pieren/978-0-323-47719-2#full-description>

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