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Users' Satisfaction Level of Prediaducate Website as An Educational Media for Prediabetes Prevention

Jasmine Rana Sahirah[1], Ardesy Melizah Kurniati[2]*, Iche Andriyani Liberty[3]
Syarif Husin[2], Yudhie Tanta[4]

[1]Medical Education Program, Faculty of Medicine Universitas Sriwijaya, Indonesia
[2]Department of Nutrition, Faculty of Medicine Universitas Sriwijaya, Indonesia
[3]Department of Public Health, Faculty of Medicine Universitas Sriwijaya, Indonesia
[4]Department of Internal Medicine, Faculty of Medicine Universitas Sriwijaya, Indonesia
Email :Ardesy.gizi@fk.unsri.ac.id
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Abstrak

Pradiabetes adalah suatu kondisi di mana glukosa darah lebih tinggi dari normal belum didiagnosis sebagai diabetes. Kondisi ini sebagian besar tidak disadari oleh individu, sehingga selanjutnya berlanjut menjadi diabetes. Edukasi mengenai prediabetes dan deteksi dini menjadi penting untuk mencegah memburuknya kondisi. Sebagai salah satu media edukasi, Prediaducate diharapkan tidak hanya memberikan informasi tetapi juga tes skrining risiko, sehingga angka pradiabetes dan diabetes dapat ditekan. Penelitian ini merupakan penelitian deskriptif observasional dengan desain potong lintang, yang bertujuan untuk mengetahui tingkat kepuasan terhadap edukasi dan skrining risiko pradiabetes pada situs web Prediaducate. Sampel yang digunakan dalam penelitian ini adalah pengguna Prediaducate dari bulan Agustus-Oktober 2021 yang memenuhi kriteria inklusi. Data diambil dari kuesioner dalam bentuk Google Forms yang disebarkan di media sosial. Data selanjutnya diolah dengan STATA 15. Studi ini menyimpulkan bahwa sebagian besar pengguna Prediaducate merasa sangat puas dengan kualitas sistem, kualitas informasi, dan kualitas interaksi.

Kata kunci: Prediabetes, Halaman, Situs Web

Abstract

Users' Satisfaction Level of Prediaducate Website as An Educational Media for Prediabetes Prevention. Prediabetes is a condition where blood glucose is higher than normal yet to be diagnosed as diabetes. This condition is mostly not recognized by person, which worsen the condition into diabetes. Therefore, in order to prevent the worsening condition into diabetes, early detection and education about prediabetes are important. As one of the educational media, Prediaducate is expected to provide not only information but also a risks screening test, hence the prediabetes and diabetes rate can be reduced. This study is a descriptive observational study with a cross-sectional design, which aims to determine the level of satisfaction with education and prediabetes screening on the Prediaducate website. The sample used in this study is Prediaducate's users from August-October 2021 who met the inclusion criteria. The data was taken from a questionnaire online by using Google Forms. Later processed with STATA 15. This study concludes that most of the users' of Prediaducate felt highly satisfied with the system quality, information quality, and interaction quality.

Keywords: *Prediabetes, Website, Satisfaction*

1. Introduction

Prediabetes is a condition when the blood glucose level is above normal but not close enough to be diagnosed as diabetes,[1] therefore this condition is mostly unaware. The term prediabetes was introduced in 2002 by the Department of Health and Human Service (DHHS) and the American Diabetes Association (ADA). ADA stated that patients who had fasting blood glucose levels between 100 to 125 mg/dL, or plasma glucose level after an oral glucose tolerance test between 140 to 199 mg/dL, or the result of HbA1c is 5.6 to 6.4%, could be classified as prediabetes.[2] Based on Global Report on Diabetes published by WHO, almost 1,5 million mortality cases in the world are caused by diabetes.[3] In 2018, Riset Kesehatan Dasar (RISKESDAS) Indonesia reported the prevalence of 2% of diabetes patients is above 15 years old. This number is higher compared to 2013 which is 1.5%.[4] It is reported that in 5 years, 15-30% of prediabetes patients turned into diabetes as no prevention has occurred.

Factors that affected prediabetes are divided into modified factors and unmodified factors. Unmodified factors are age, sex, and family history of diabetes. Modified factors could be obesity, bad eating habits, low physical activity, hypertension, and smoking habit.[5]

Health education has an important role in preventing prediabetes and diabetes.[6] The education could be in terms of prediabetes information, dietary management, regular physical activity, and observed body mass index. Indonesia has applied programs that consist of basic health education, medical nutrition therapy, physical activity, and pharmacology therapy.[5]

Workplace health promotion and disease prevention initiatives that use computers, especially Web-based delivery methods, are becoming increasingly common. Health education services using web-based media are even effective enough to provide education to the elderly.[7] In this study, we have developed web-based education called Prediaducate. Prediaducate consists of features about prediabetes information, prediabetes risks screening test, and meal planner which is expected to raise knowledge and change users' lifestyles so the number of prediabetes and diabetes in Indonesia could be reduced. Hence, the study is done on users' satisfaction levels of the Prediaducate website as an educational media for prediabetes prevention.

2. Method

This study was a descriptive observational with a cross-sectional design. It was carried out in August-October 2021. Information about this research is disseminated through social media Facebook® and Instagram®. The aim of this study was to determine the level of satisfaction with education and prediabetes screening on the Prediaducate website. The sample used in this study are users' of the Prediaducate website (https://prediaducate.netlify.app/) from August-October 2021 who met the inclusion criteria (Indonesian citizens $\geq$18 years old). The minimal number of samples used is 190. After giving their consent, subjects filled out the questionnaires through Google Form. The questionnaire has been tested for validity and reliability by using Pearson product-moment and alpha Cronbach. The data from the questionnaire are collected and processed by STATA 15 using univariate analysis.

The questionnaire used in this research is using the Likert scale which measured peoples' perception of a phenomenon. The ideal measurement used to measure satisfaction level is User Satisfaction Index (USI)[8] with equation:
USI= ((F1×S1)+(F2×S2)+(F3×S3)+(F4×S4)+(F5×S5))/(ΣF×5)

Description:
USI = User Satisfaction Index
F1 = Total of highly unsatisfied responses
F2 = Total of unsatisfied responses
F3 = Total of neutral responses
F4 = Total of satisfied responses
F5 = Total of highly satisfied responses
∑F = Total responses

S1-S5 = 1 (highly dissatisfied), 2 (dissatisfied), 3 (neutral), 4 (satisfied), and 5 (highly satisfied). Then, satisfactory levels are categorized into five categories based on the following table.[8]

Table 1. Users' satisfaction level

Index score	Category
<0.20	Highly dissatisfied
0.21-0.40	Dissatisfied
0.41-0.60	Neutral
0.61-0.80	Satisfied
>0.81	Highly satisfied

3. Result

The total number of respondents who filled out the questionnaire was 258 people. A total of 20 respondents had diabetes, three respondents were 17 years old, then four respondents were invalid because they were considered incomplete in filling out the questionnaire. Therefore, there were 27 respondents who were excluded from the study so the total final sample was 231 respondents.

In this study, the sociodemographic data of the respondents were seen from six categories, age, sex, regional origin, residential area, education, and profession. The sociodemography distribution of Prediaducate website's users can be seen in Table 2.

Based on sociodemography, the majority of the users are from the age 18-25 years old as many as 133 respondents (57.58%), followed by respondents from age 56-65 years old as many as 39 (16.88%). The majority of the respondents are females as many as 147 respondents (63.64%) whereas males as many as 84 respondents (36.36%). This study found that mostly the users are from Sumatra as many as 170 respondents (73.59%) followed by Java as many as 51 respondents (22.08%). The majority of respondents lived in rural areas as many as 208 respondents (90.04%). Based on table 2, the majority of respondents have higher education as many as 188 (51.08%). The majority of respondents are unemployed as many as 120 (51.95%).

Table 2. Sociodemography distribution of Prediaducate website's users

Sociodemography		Freq. (n)	Percent (%)
Age	18-25 yrs.	133	57.58
	26-35 yrs.	35	15.15
	36-45 yrs.	20	8.66
	46-55 yrs.	39	16.88
	56-65 yrs.	4	1.73
Sex	Male	84	36.36
	Female	147	63.64
Regional Origin	Sumatra	170	73.59
	Java	51	22.08
	Borneo	1	0.43
	Sulawesi	9	3.90
Residential Area	Urban area	208	90.04
	Rural area	23	9.96
Education	Basic education	1	0.43
	Middle education	112	48.48
	Higher education	118	51.08
Profession	Unemployed	120	51.95
	Formal workers	86	37.23
	Informal workers	25	10.82

In this study, the majority of samples have normal body mass index as many as 153 respondents (66.23%). This study also has shown that the majority don't have a history of hypertension as many as 214 respondents (92,64%) and don't have a family history of diabetes as many as 154 respondents (66.67%). The authors find that majority of the

samples are not smokers as many as 186 (80,52%).

Table 3 Prediabetes risk factors distribution of Prediaducate website's users

Risk Factors of Prediabetes		Freq. (n)	Percent (%)
Body Mass Index	Underweight	17	7.36
	Normal	153	66.23
	Overweight	45	19.48
	Obese	16	6.93
Hypertension	Don't have	17	7.36
	Have	214	92.64
Family History of Diabetes	Don't have	77	33.33
	Have	154	66.67
Smoking	Not smoker	45	19.48
	Smoker	186	80.52

In this study found that most of the respondents have sufficient portions of staple foods as many as 149 (64.50%), sufficient portions of side dishes as many as 171 respondents (74.03%), sufficient portions of vegetables as many as 115 respondents (49.78%), and sufficient portions of fruits as many as 114 respondents (49.35%).

Table 4 Meal portions distribution of Prediaducate website's users

Meal Portions		Freq. (n)	Percent (%)
Staple foods	Less	43	18.61
	Sufficient	149	64.50
	Over	39	16.88
Side dishes	Less	19	8.23
	Sufficient	171	74.03
	Over	41	17.75
Vegetables	Less	91	39.39
	Sufficient	115	49.78
	Over	25	10.82
Fruits	Less	99	42.86
	Sufficient	114	49.35
	Over	18	7.79

In this study, as stated in Table 5, the user satisfaction index is 0,88 which means highly satisfied (>0.81). The majority of respondents are highly satisfied with the Prediaducate in general. The majority of respondents are highly satisfied with the Prediaducate's system and information quality (0.90), and also interaction quality (0.88).

Table 5. User satisfaction index of Prediaducate

Questions	USI	Criteria
GENERAL	**0.88**	Highly satisfied
You felt satisfy with Prediaducate in general.	0.89	
Prediaducate makes it easier to get information about prediabetes.	0.91	
You will use Prediaducate in the future.	0.85	
You will recomend Prediaducate to others.	0.87	
SYSTEM QUALITY	**0.90**	Highly satisfied
Prediaducate is easy to learn.	0.90	
The language used by Prediaducate is easy to understand.	0.92	
The symbols used by Prediaducate are easy to understand.	0.91	
Prediaducate is easy to operate.	0.90	
Prediaducate can be operated concisely.	0.90	
Prediaducate's display is appealing.	0.88	
Pictures used by Prediaducate are appealing.	0.89	
Pictures used by Prediaducate are in accordance with the content of the discussion.	0.90	
INFORMATION QUALITY	**0.90**	Highly satisfied
The information provided by the Prediaducate is accurate.	0.89	
The information provided by the Prediaducate is relevant.	0.90	
The information provided by the Prediaducate is easy to understand.	0.91	
INTERACTION QUALITY	**0.88**	Highly satisfied
Prediaducate is easy to access.	0.90	
You feel confident that your personal data is not hacked when using Prediaducate	0.87	

4. Discussion

This study concludes that from 258 respondents, there are 20 respondents who have diabetes, 3 respondents are 17 years old, and 4 respondents are invalid because their responses weren't complete. In sum, there are 27 respondents excluded from this study so this study is left with 231 respondents.

The majority of the respondents are 18 to 25 years old which is in line with the survey of Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) in 2019-2020. The survey stated that the majority of internet users are 15-24 years old.[9] APJII also stated that the majority of internet users are men, but another study said that women tend to be more proactive in searching for health information.[10]

The majority of respondents are from Sumatra and also lived in urban areas which are in line with the APJII survey and Statistik Telekomunikasi Indonesia. The reason is because of the lack of internet facilities in the rural area.[9] Most of the respondents have higher-level education which, according to a study, is because people with education tend to be more aware of health issues and use the internet as one of the sources of health information.[11]

Risk factors of prediabetes that were discussed in this study are body mass index, history of hypertension, family with diabetes, and smoking. Obesity was discovered in 14.29 percent of the participants, which is in line with the national obesity rate of 13.5%.[12] The percentage of respondents' history of hypertension is lower than the data of people with hypertension in Indonesia according to Riskesdas (7.36% versus 13.4%).[4] The percentage of respondents who have a family history of diabetes is more than a quarter of the respondents, and the percentage of smokers reached one-fifth of the respondents. According to this study, the majority of the respondents have sufficient portions of staple food, side dishes, fruits, and vegetables. This study is not in line with Riskesdas, which stated that over 95.5% don't consume enough fruits and vegetables.[4]

According to the results of the respondents, Prediaducate has a fairly attractive appearance and the use of symbols and images that are quite easy to understand. In addition, the information submitted has a discussion that is quite easy to understand and displays the source of information. As discussed by Tjiptono in 2017, the quality provided by a website service can affect users of that service.[13]

The better the quality provided by the website, the more users access it. In this study, the satisfaction of Prediaducate users was assessed from general satisfaction, system quality, information quality, and interaction quality. The quality of this system shows the quality in the ease of use, appearance, and website navigation. The results obtained in this study are the majority of respondents are satisfied with the quality of the system provided. Respondents also added that the display is quite attractive even though there are still shortcomings in website navigation. The quality of information is one measure of the quality of the information provided.

According to Khai[14], the quality of information does not only affect user satisfaction but also affects user loyalty to the websites accessed. The quality of interaction is a quality that assesses the relationship between the provider and the user, one of which is the security of access.

According to Roz[15], the quality of service interactions has a positive influence on user satisfaction. that one of the factors that influence user satisfaction is the interaction provided by the website server to its users.

5. Conclusion

The majority of Prediaducate users based on sociodemography are the age group of 18-25 years, the female gender group, the group from Sumatra, the urban area group, the higher education group, and the unemployed group. The majority of Prediaducate users based on prediabetes risk factors are the normal BMI group, the group with no history of hypertension, the group with no family history of diabetes, and the non-smoking group. The majority of Prediaducate users based on meal portions are groups of sufficient portions of staple foods, groups of sufficient portions of side dishes, groups of sufficient portions of vegetables, and groups of meal portions enough fruit. Overall, Prediaducate users were very satisfied with the system quality, information quality, and interaction quality of the prediabetes website. Because of this user appreciation, Prediaducate has been adopted as a medium of education about prediabetes by new users. This research is predicted to improve the effectiveness of lifestyle adjustments and follow-up tests for risk owners by increasing user information about prediabetes.

Reference

1. Bansal N. Prediabetes diagnosis and treatment: A review. World Journal of Diabetes [Internet]. 2015 [cited 2021 Apr 10];6(2):296. Available from: /pmc/articles/PMC4360422/
2. American Diabetes Association. Prediabetes [Internet]. [cited 2021 Mar 2]. Available from: https://www.diabetes.org/diabetes/prediabetes
3. WHO Global Report. Global Report on Diabetes. Isbn [Internet]. 2016 [cited 2021 Jan 20];978:11. Available from: http://www.who.int/about/licensing/copyright_form/index.html%0Ahttp://www.who.int/about/licensing/copyright_form/index.html%0Ahttp://www.who.int/about/licensing/copyright_form/index.html%0Ahttps://apps.who.int/iris/handle/10665/204871%0Ahttp://www.who.int
4. National Institute of Health Research and Development IM of H. Basic Health Research. Jakarta; 2018.
5. Soelistijo Soebagijo Adi, Suastika K, Lindarto D, Decroli E, Permana H, Sucipto KW, et al. Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia. Jakarta: Perkumpulan Endokrinologi Indonesia; 2021.
6. Hyder KM, Mohan J, Varma V, Ponnusankar S, Raja D. Impact of prediabetes education program on Knowledge, attitude and practice among prediabetic population of south India. Preventive Medicine Reports. 2021 Sep 1;23:101395.
7. Vanoh D, Shahar S, Razali R, Ali NM, Manaf ZA, Mohd Noah SA, et al. The Effectiveness of a Web-Based Health Education Tool, WESIHAT 2.0, among Older Adults: A Randomized Controlled Trial. J Alzheimers Dis [Internet]. 2019 [cited 2021 Feb 20];70(s1):S255–70. Available from: https://pubmed.ncbi.nlm.nih.gov/31256116/
8. Supranto J. Pengukuran Tingkat Kepuasan Pelanggan Untuk Meningkatkan Pangsa Pasar [Internet]. Rineka Cipta. Jakarta: Rineka Cipta; 2006 [cited 2021 Jan 20]. Available from: http://library.fis.uny.ac.id/opac/index.php?p=show_detail&id=2190
9. Asosiasi Penyelenggara Jasa Internet Indonesia. Laporan Survei Internet APJII 2019 – 2020 (Q2).
10. Ek S. Gender differences in health information behaviour: a Finnish population-based survey. Health Promot Int [Internet]. 2015 Sep 1 [cited 2021 Jan 20];30(3):736–45. Available from:

https://pubmed.ncbi.nlm.nih.gov/23985248/

11. Gavgani VZ, Qeisari E, Jafarabadi MA. Health information seeking behavior (HISB): a study of a developing country [Internet]. Library Philosophy and Practice. 2013 [cited 2021 Apr 20]. Available from: https://www.academia.edu/48219165/Health_information_seeking_behavior_HISB_a_study_of_a_developing_country
12. Kemenkes RI. FactSheet Obesitas (Kit Informasi Obesitas). 2018.
13. Tjiptono F. Service management : mewujudkan layanan prima [Internet]. 3rd ed. Yogyakarta: Andi; 2017 [cited 2021 Apr 20]. Available from: https://opac.perpusnas.go.id/DetailOpac.aspx?id=1110819
14. Khai NTN, Van NTX. The effects of website quality on customer satisfaction and loyalty to online travel agencies in Vietnam. HCMCOUJS - Economics and Business Administration. 2020 Apr 14;8(2):115–31.
15. Roz K. Analisis Pengaruh Website Quality terhadap Kepuasan Pengguna dengan Menggunakan Metode WebQual 4.0. Jurnal Manajemen dan Kewirausahaan [Internet]. 2020 [cited 2022 Feb 11];8(1):41–9. Available from: https://www.researchgate.net/publication/342267410