Research Article

Internet Based Infertility Information in Bahasa Indonesia Quality Survey

Survei Kualitas Informasi Infertilitas pada Situs Internet Berbahasa Indonesia

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Abstract

Objective: To assess the quality of websites providing information on infertility and its management in Bahasa.

Methods: Differences between website types and affiliates were assessed for the credibility, accuracy and ease of navigation using predefined criteria. We used Google search engine with the keyword "infertilitas" and we assessed 50 websites in Bahasa that relates with infertility.

Results: The content credibility for most of the sites has adequate score with range of score 60 to 80 for 68% sites. Content accuracy for most of the sites have scores more than 60, with 24% or 12 sites with scores 60 to 80 and 44% or 22 sites have scores above 80. The ease of navigation for most of the sites, 47 sites or 94% has scores more than 60.

Conclusion: The quality of internet based infertility information in Bahasa is adequate for category credibility, accuracy and ease of navigation.

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Keywords: bahasa, infertility, information, internet, quality

Abstrak

Tujuan: *Untuk mengetahui gambaran kualitas isi informasi di internet mengenai infertilitas pada situs berbahasa Indonesia.*

Metode: *Penelitian ini menggunakan desain potong lintang. Melalui mesin pencari Google dengan kata kunci infertilitas, kemudian dipilih lima puluh teratas situs internet berbahasa Indonesia. Kemudian dilakukan identifikasi dan dikelompokkan berdasarkan kategori penulis, domain dan komersialisasi. Situs kemudian dilakukan telaah mengenai kredibilitas, akurasi dan kemudahan navigasi sesuai dengan criteria pada definisi operasional.*

Hasil: *Kredibilitas konten tentang infertilitas pada studi ini didapatkan sebagian besar situs yang dilakukan survei memiliki nilai skor kredibilitas yang memadai dengan rentang skor kredibilitas 60 hingga 80 pada 68% situs. Akurasi konten tentang infertilitas pada studi ini didapatkan sebagian besar situs memiliki skor akurasi yang baik yaitu sebanyak 12 situs atau 24% dengan skor 60 hingga 80 dan 22 situs atau 44% dengan nilai skor di atas 80. Kemudahan navigasi pada situs internet berbahasa Indonesia mengenai infertilitas, pada studi ini didapatkan sebagian besar situs memiliki navigasi yang mudah dengan skor total kemudahan navigasi di atas nilai 60 sebanyak 94% atau 47 situs.*

Kesimpulan: *Sebaran kualitas isi informasi mengenai infertilitas pada situs internet berbahasa Indonesia memadai dari aspek kredibilitas, akurasi dan kemudahan navigasi.*

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Kata kunci: *bahasa, infertilitas, informasi, internet, kualitas*

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INTRODUCTION

Infertility in Indonesia is a unique and complex problem as it involves various cultural backgrounds and beliefs in the society. Information related to infertility is a sensitive and personal issue due to negative stigma to infertile partners. Thus, the access and reliability of the information related to infertility becomes paramount.[1]

There is no difference between the infertile couples and other Internet users. A survey conducted to 200 infertile couples showed that some of these couples utilized the Internet to obtain more information related to infertility. In addition, two third of female users were highly influenced by the information that they got from the Internet to find a solution to infertility.[2]

Nowadays, the Internet is a part of everyone's life. Many information could be easily accessed through the Internet including health topics. A study conducted by the Internet World Statistics (2007) revealed that two third of the UK population used the Internet. Meanwhile, a survey conducted by the Harris Poll Group (2007) suggested that 60-80% of Internet users search

information related to their health and the management choices to refer to.[3] There were 91% of infertile couples that searched informations related to their conditions from the search engine. Information related to infertility can be accessed through search engine such as Google™ and Yahoo™.

In Indonesia, studies related to the health information quality from the Internet, especially those that are related to infertility, have never been conducted. On the other hand, cyberspace through social media today is used as source of information especially for adolescences and those in reproductive ages.[4] Therefore, there is a need on conducting researches related to the quality of information provided in Bahasa Indonesia from the Internet.

METHODS

This was a cross-sectional study. Using the keyword "infertility" through Google™ as the search engine, fifty Indonesian language websites are included. Subsequently, further identification and cluster on the websites were conducted based on the categories of the writers, domains and commercial purposes. This study was continued to comprehend the credibility, accuracy and ease on navigation on the basis of the criteria in relation to the operational definition.

RESULTS AND DISCUSSION

A total of 60 patients were recruited in this study. Data collection was conducted during the period of January 1st, 2016 to April 1st, 2016. The study was managed through Google with the keyword "infertilitas". In this study, we found fifty websites in Bahasa Indonesia with the topic of infertility. These websites were grouped based on the category of the writers that were written by individuals, health organization and non-health organization. The sites were managed based on the domain types, including .com, ac.id, .org, .blog, .co and .net. Further classification was also conducted based on commercial and non-commercial purposes. (Table 1) From Google as the search engine and the keyword "infertility", first website to appear was a non-commercial website followed by commercial website as the third rank.

Table 1. Websites Charateristics in Bahasa Indonesia

Characteristic	**N (%)**
Category of writers	
Individual	11 (22)
Health organization	30 (60)
Non-health organization	9 (18)
Type of domain	
.com	22 (50)
.ac.id	4 (8)
.blog	14 (28)
.co	4 (8)
.net	5 (10)
.org	1 (2)
Commercial purposes	
Commercial	11 (22)
Non-commercial	39 (78)

Generaly, the websites appraisal related to their credibility and accuracy could be improved, but the user-friendly navigation of the sites had good scores. In the credibility category, all groups performed good scores referring to six criteria including authors, an up to date information, statements, peer-reviewers, and commercial purposes by having advertisements and sponsors. Name of the authors were found in 58% or 29 sites, while 54% (29 websites) were found to be updated related to infertility information. In general, scores of other categories such as statements and peer-reviewer were low by only 4% (2 sites) in combination. On the other hand, there were 60% (30 sites) that had commercial on their sites, while 24% (12 sites) with sponsors.

Appraisal in relation to the accuracy of the sites includes two categories, which are coherency and references. Overall, there were 22 sites (44%) following the guideline, whereas only 10 sites (20%) that put the references. Ease of site navigation consist of six categories, including internal and external links, links to external website, feedback form, frequently asked questions, sitemaps and built-in search engine. There were 96% (48 sites) have internal and external links and sitemaps. Moreover, 76% (38 sites) had built-in search engines, 58% (29 sites) had feedback form, 8% (4 sites) including frequently asked questions, and only 6% (3 sites) have external directed links. (Table 2)

Table 2. Websites Charateristics of Credibility, Accuracy and Ease to Navigate

Characteristics	N (%)
Credibility	
Author	44 (88)
Update information	42 (84)
Statements	27 (54)
Peer-review	31 (62)
Advertisements	40 (80)
Sponsors	36 (72)
Accuracy	
Guidelines	38 (76)
Reference	34 (68)
Ease to navigate	
Internal and external links	49 (98)
Redirect link	28 (56)
Feedback	35 (70)
Frequently asked questions	30 (60)
Sitemaps	50 (100)
Search engine	46 (92)

Medical information in regard infertility were classified to eight topics, which were definition, causes of infertility, pathogenesis of infertility, diagnosis of infertility, medical treatment, procedural management, prevention and psychological aspects of infertility. (Table 3)

Table 3. Websites Characteristics based on Medical Information Contain

Characteristic	N (%)
Definition	50 (100)
Cause	49 (98)
Pathogenesis	21 (42)
Diagnosis	36 (72)
Medical treatment	37 (74)
Procedural management	16 (32)
Prevention	17 (34)
Psychological management	16 (32)

Internet Site Score in Bahasa Indonesia

Overall score from three categories above (credibility, accuracy and ease to navigate) are above 60 in total. The scores of credibility from 34 sites were in the range of 60 to 80, while six sites had the score of 80 to 100. The last ten sites scores were below 60.

In this category of accuracy, there were 12 sites which obtained total score of 60 to 80 and 22 sites obtained total score of 80 to 100. 16 of the sites obtained total score of less than 60.

In this ease of navigation category, there are some sites with ease of navigation score above 60. There were 22 sites which obtained score of 60 to 80 and 25 sites which obtained total score of 80 to 100. Only minority of the sites (5 of them) obtained total score of less than 60.

Comparison of Total Average Score

Total Average Score Comparisons

There is not much difference in total average score of credibility and accuracy categories between websites that come from medical organizations and non-medical organizations. Statistically, there were not much of substantial difference between the three categories of average score of credibility ($p=0.550$), accuracy, ($p=0.563$), and ease of navigation ($p=0.305$) within both groups. There were significant differences in average score of accuracy and navigation between .com sites and ac.id sites. In the category of credibility, there are not much considerable differences with score of $p > 0.05$. On the other hand, in the category of accuracy and navigation there were substantial differences with each having score of $p < 0.01$ in the category of accuracy and $p = 0.047$ for the ease of navigation. Both categories of accuracy and navigation. For both categories of accuracy and navigation, there were not much differences with each having score of $p < 0.01$ in accuracy and $p = 0.047$ for ease of navigation. There were not much differences in total score of accuracy and navigation categories with the score of $p > 0.05$. In the category of credibility, there was noticeable difference statistically between commercial and noncommercial websites with $p = 0.002$.

The accuracy of information in websites about infertility is one of issues which are now the topic of discussion.[5] Nevertheless, with this research, there are 16 sites that have total accuracy score of less than 60. This research is different with earlier Studies by Jain and Barbieri regarding the quality of information about infertility on the Internet, especially regarding the accuracy of presented information.[5,6] The difference is perhaps connected to the criteria of accuracy measurement used in this study is different with previous studies.[7] in this study, the criteria of accuracy used are when there are matches between provided information with clinical guide and the displaying of library resources.[8] Other than that, the limit of the score used in this study was 60, the difference in appraisal of information from the websites could also be caused by the difference in limit of score provided between the studies.[9]

Related to the accuracy of information in the websites, there are very few sites that display the study of a library resources.[10] while the process mentioned is critical to determine whether a publicized study is suitable to use as a resource.[11] This shows that minimal regulation related to publication will affect the credibility of the information. Thus may lead the website users to wrong decision related to their infertility. Comparing all category, ease to navigate received the highest score with most websites (47 sites) in above 60.[12] There were only three sites graded below 60. The result of this study is in line with previous study by Eipstein and Rosenberg, 2005, who stated the ease to navigate of a website will increase the accuracy and credibility of the information.[13,14]

In this study, there were more websites written by health organization (60% or 30 websites) compared to individual (11 websites) or non-health organization (9 websites). Moreover, from top 50 search by Google, websites from health organization were dominating the outcome. On the other hand, a study conducted by Marriot et al, 2008, showed different result with the users or the site were mainly non-health organization.

From the domain types, measuring from category of accuracy and ease to navigate, there was a significant difference between .com domain and ac.id domain. The .com domain had lower mean score for both measurement mentioned. The reason behind is because those websites are mostly from non-health organization and commercialized compared to the ac.id domain.[15] This same result was showed by a research by Huang et al, 2005 and Selman et al, 2006 that stated the websites from non-health organization had lower credibility and accuracy compared to the websites written by health organization.[2,15] Based on these studies, the information from the health organization websites were more comprehensive, thus more helpful for the readers. Moreover, non-commercial websites had lower mean scores compared to commercial websites, measured from three categories (credibility, accuracy and navigation). There was a significant difference in the website credibility category.

Based on the studies by Huang et al, 2005 and Jain and Barbieri, 2005, readers were having their concern related to the content quality from commercial websites. Therefore, it affects the overall content of the sites.[16,17] These differences will have impacts on the credibility and accuracy of infertility information. A study by Marriot found that websites from health organization were less accessible compared to those from non-health organization despite of specific keywords entered.[18] In this study, the key word used was "infertility", therefore websites that appear in top 50 mainly came from healthcare organizations. The word infertility was more popular in the field of medicine compared to other phrases like "intrusion of fertility". The influence of choosing the keyword in regards to searching for websites was apparently significant in the results of the websites and the source of the websites, thus the choice of keywords is critical to assess the credibility and the accuracy of the websites. The study by Ellsworth and Ellsworth in 1996 says that websites from healthcare organizations fail to fulfil the strategy of electronic commerce which leads to websites from medical organizations lacking popularity the findings are similar with the result of the study by Theodosiou and Green 2003 along with Selman and friends, 2006.[5,19] This fact is surely being one of the causes of websites from non-medical organizations are more well-known compared to websites from medical organizations. Contrary to this study, websites that came from medical organizations earned higher sum and higher ranking compared to websites from non-medical organizations. This might be due to less information in websites from non-medical organizations regarding to infertility. Thus, more

websites from medical organizations were more popular compared to non-medical organizations.[20] We found that there were not much of substantial differences statistically between the categories of credibility, accuracy and ease of navigation from the type of writers on websites which were divided into writers that come from medical organizations and writers that come from non-medical organizations.[21]

Another study by Marriot, 2008, found that health organization credibility score was better compared to non-health organization. The possible underlying factor is the number of individual writers from the non-health organization have good credibility and accuracy score. Therefore, the difference between health and non-health organization websites did not show any significant difference.

CONCLUSION

There is a moderate quality of infertility websites information in Bahasa Indonesia analyzed from aspects of credibility, accuracy and ease to navigate. However, there were difficulties in assessing the quality content by using the current scoring criteria.[22] Although the scoring criteria is comprehensive, it is only an indirect measurement of the websites content.[23] In the future, we expect better scoring system that can represent three aspects for the assessment.

RECOMMENDATION

Moreover, further study needs to be conducted to have better quality assessment for the weight of score for each criterion. Hereinafter, there should be an assurance of the credibility and accuracy of information related to infertility provided in Bahasa Indonesia. For further research, we suggest that health resources to advices to the readers to browse a credible and accurate websites in Bahasa Indonesia based on the criteria that was previously accepted.[24]

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