

Educative Virtual Technology about Renal Failure for Patients Undergoing Hemodialysis

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Abstract

The objective was to evaluate virtual educational technology in a *blog* format called "Kidney Health" on renal failure for patients undergoing hemodialysis. This is an action research conducted in the month of November, 2015 in a hemodialysis clinic. Participated 56 registered users who answered a questionnaire to evaluate the technology, made available through smartphones, tablets and computers. The history of the disease and socioeconomic factors were also investigated. For data analysis, we used average, absolute and relative frequency descriptive statistics. Ethical aspects have been respected. Among the subjects, there was predominance of males (64.28%) and age over 50 (19.64%). Regarding technology evaluation, 53 subjects (94.64%) would recommend the blog to friends and family. The items considered most enlightening were "Healthy eating" (46.43%) and also "What is transplantation?" and "On the kidneys" (33.93%). The evaluation of the blog confirmed its viability as a means of effective health education to clarify the most varied health issues in the scenario of renal failure.

Keywords: Nursing in nephrology; Health education; Social media

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Introduction

Health education is one of the main nursing activities, so, it must use strategies that serve as change to overcoming difficulties, and obtaining autonomy and increased life quality [1]. We have in this professional, adequate capacity and training for developing and utilization of various educational technologies for hemodialysis patients.

Most of time, people with conditions of chronic bearer of some disease, like renal insufficiency (RI) patient, has little or none information about the disease, which can negatively influence treatment adherence [2]. Given this context, educational actions on health are efficient tools to inform patients and relatives about their new condition, treatment length and side effects, always respecting autonomy and dignity of each, their singularities, knowing that this experience must be assisted from a horizontal educational process, with emphasis on dialogue [3].

Health education is a multifaceted field, which the concept of health promotion is superimposed, as a larger definition of a process which covers individual's participation on context about his everyday life independent from his health condition. This idea takes to an extended health concept, considered as a dynamic state in which even chronic disease carrier people should look for

welfare and quality of life, integrating with mental and physical aspects, environmental and emotional [4].

Researches point that regarding health education, technologies can be used by health professionals [5]. Confirming this information, there are on literature educational technologies which can be interviews, video simulation, counseling, slides, annotation booklets, educational games, websites, spelling

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books, active methodologies, among them, theater, collage and software [6]. Among software which could be provided as technology on health there is the *blog*.

Blog is the short form for *web blog* and consists in an electronic record; it differentiates from a conventional web site by its straightforwardness for updating and maintenance of texts, sparing advanced knowledge in computing [7]. It is easily accessible, through any internet connected device - *smartphones, tablets and laptops*.

Many health professionals have been using digital universe, as an adding tool, making themselves appropriate for patient education, not being necessary the nursing professional presence on this resources utilization by the patient [7].

Blog's utilization, besides facilitating comprehension of present clinical conditions, can bring the patient to share information to other people, help informing family, increase relationship with others health professionals and expand knowledge horizons.

Before this scenario, this study has the objective to evaluate educational technology in *blog* format denominated "Kidney Health" (Saúde dos Rins) about RI for patients undergoing hemodialytic treatment during their permanence time on treatment.

Methodology

This study is characterized as action-research, given it intervened into practice to seek the solution for information shortage about RI for its bearers. This way, action-research methodology is considered an open system, as many different ways can be chosen during its development [8].

For *blog's* development it was used free plan of *wordpress* platform and its contents were taken from researches published on scientific databases, websites about RI, and explanatory videos for grounding regarding computing aspects.

With title: "Kidney Health", on its homepage greets the user and explains the motivation for its creation. On the page's left side, there is a navigation bar where are exposed topics about the themes inside, there is a space for comments, that allows registration for the person which allows to post directly on the homepage, suggestions, questions, and commendations. Also contains an electronic address to facilitate contact with researchers.

The *blog* is hosted on the following electronic address: <https://saudedosrins.wordpress.com/>. Topics covered were arranged on the following: About kidneys, diseases that attack kidneys, Caring and preventing, Hemodialysis functioning, What is dialysis, What is renal transplantation, Healthy eating, Self-esteem and Sexuality.

The research was done on November's 2015 in a clinic for hemodialysis treatment that attends on three shifts. The place has three rooms: one large room available for 60 users from Sistema Único de Saúde (SUS), another one which attends 52 health insurance users and a third room that serves 40 more users from SUS. Total, 17 professionals, consisting on medics, nurses and nursing technician, divided on the three rooms of SUS and health insurance on the day, afternoon and night shifts.

Date collection, occurred on the clinic's three operating shifts, until collection of complete subjects samples whose were in treatment period, fulfilled three times a week on average.

Altogether, 152 patients were invited to participate for complying with inclusion criteria of: spontaneous interest manifestation in participating the study after explanation and signing of Informed Consent Form (ICF), having clinical diagnosis on CRF, showing clinical stability on the interview's moment, having registered on clinic and being on hemodialytic treatment at the time of data gathering. From this total, 56 individuals constituted the final sample, respecting the exclusion criteria, those who not desired to participate in the study or those who showed clinical conditions that would have made participation impracticable like: neurological compromising which makes unfeasible to answer the questionnaire.

The tool used for data collection for subject characterization and pre analysis for technology was based on *Short Form 36 (SF-36)*, a multidimensional form created by Ware and Sherburne initially in English, translated to 40 languages, largely used in the entire world for its characteristics that allows validity and adaptations, having eight dimensions of life quality, one of them being about social aspects, which contributed to characterization of clinic's patients [9].

Blog's exhibition occurred by means of *smartphones, tablets* and personal computers owned by the interviewers, on which were showed the content, by means of videos and explanatory texts confirming the topics chosen by the research participants. Participants have chosen the topics which draws most attention or which were source for most doubts, assessing only the ones chosen. During *blog's* exhibition, explanations about content and evaluation lasted fifteen to twenty minutes on average. For tabulation and analysis of collected data was used descriptive statistics resources average, frequencies, absolute and relative.

Every subject who has agreed to participate on the research after invitation has signed the Free Consenting Statement and was clarified that accordingly to Resolution 466/12 that confirms consent of participant from research and/or from its legal representative about its participation [10]. After these procedures, the survey was performed amongst patients. It is emphasized that this research was approved by Ethical and Research Committee from Centro Universitário Estácio do Ceará, with number 1.274.191.

Results

Results are organized in tables, distributed on thematics related to evaluated subjects characterization as well as *blog* evaluation.

Table 1 show subjects characterization results. As seen on **Table 1**, there was predominance of male (64.28%), and ages above 50 (19.64%). Regarding treatment time, 38 people (67.86%), where on hemodialysis for a three year period. Six patients (10.71%) were on a 4 to 6 year treatment period. While 10 (17.86%) patients already did the treatment for a 7 to 9 years period, and lastly, 2 (3.57%) had the treatment for longer than ten years.

Regarding arteriovenous fistula presence (AVF), 48 of interviewed (85.71%) presented this segment. regarding work situation, most

of interviewed (48.21%) is retired or receives benefits or pension from Instituto Nacional de Seguridade Social (INSS) (37.5%) Three people (5.36%) reported succeed in conciliate work time.

Table 2 shows individual's evaluation about the *blog's* recommendations to another users and topics considered clarifying.

According to **Table 2**, 53 subjects (94.64%) would recommend the *blog* to familiars and friends. Also, it was verified that majority (46.43%) appointed the Healthy Feeding item as the most clarifying theme, followed by "What is Organ Transplantation?" and "About Kidneys", that received the same evaluation (33.93%). The item with least evaluation is "Sexuality".

Some topics where mentioned equally: 19 participants (33.93%) demonstrated curiosity on kidneys functioning, showing little or none information about the subject, and 19 (33.93%) showed interest on acquire more knowledge about kidney transplant.

Regarding care and preventing, 12 (21.42%) subjects did not comprehend that some diseases, when not treated or controlled, could affect other organs leading them to malfunctioning.

Item "What is dialysis?", explains types of dialysis to chronic kidney diseases and there was curiosity in knowing what is peritoneal

Table 1 Characterization accordingly to sex variables, age group, hemodialysis time, vascular access and work situation (Fortaleza).

Sex	N	%	Average
Male	36	64.28	-
Female	20	35.71	-
Total	56	100	-
Age	N	%	Average
11-20 years old	1	1.8	15.5
21-30 years old	6	10.71	25.5
31-40 years old	9	16.07	35.5
41-50 years old	9	16.07	45.5
51-60 years old	11	19.64	65.5
61-70 years old	10	17.86	55.5
71-80 years old	10	17.86	75.5
Total	56	100	-
Hemodialysis treatment time	N	%	Average
1-3 years old	38	67.86	2
4-6 years old	6	10.71	5
7-9 years old	10	17.86	8
10-12 years old	2	3.57	11
Vascular access	N	%	Average
Fistula	48	85.71	-
Permanent catheter	4	7.14	-
Temporary catheter	4	7.14	-
Work situation	N	%	Average
Retired	27	48.21	-
Instituto Nacional de Seguridade Social (INSS) beneficiary or pensioner	21	37.5	-
Housewife	5	8.93	-
Employed	3	5.36	-
Total	56	100	-

Source: Research data

Table 2 Evaluation of individuals regarding *blog's* recommendation variables to other people and clarifying topics (Fortaleza).

Would you recommend the blog to other people?	N	%
Yes	53	94.64
No	3	5.36
Blog topics considered clarifying	N	%
Healthy eating	26	46.43
What is organ transplantation?	19	33.93
About kidneys	19	33.93
Caring and preventing	12	21.42
Diseases that attack kidneys	11	19.64
Self esteem	11	19.64
What is dialysis?	10	17.86
Hemodialysis functioning	6	10.71
Sexuality	5	8.93
Total	56	100

dialysis (PD), since it consists on a modality, which depending on case, can be realized in home. Therefore 10 (17.86%) participants asked about the possibility of treatment modification.

Regarding the item Diseases that attack kidneys, 11 (19.64%) subjects related that have some of the pathologies listed on the *blog* whose are: nephritis, urinary tract infection, renal calculus, urinary obstruction, renal tumors, toxic nephropathies, multisystem diseases, congenital and hereditary diseases. The self-esteem topic deserves highlight, 11 (19.64%), for being chosen only by women. Regarding hemodialysis process, 10.71% of patients have already received orientation during meetings provided by the institution before beginning of treatment. The theme sexuality was mentioned by only five subjects (8.93%).

Despite most of subjects satisfactory evaluation on the technology, it was requested some topic which was missed in the electronic page, therefore users suggestions emphasize regarding the topics which could be described in the *blog*, namely: "How the kidney transplant process occurs", "Highlight others diseases and anomalies which attack kidneys (lupus, diabetes, renal cyst)", "Laws and rights of hemodialysis patients", "Treatment adhesion importance".

Discussion

Subject characterization revealed that there are most males under hemodialysis treatment (64.28%), confirming the studies from 2014 census from SBN, prevalence from male people in treatment is 58% greater than women's on average, therefore, one man each four women, this fact reveals that the low search for health care by men, makes them more vulnerable to degenerative chronic diseases and consequently to chronic renal failure (CRF) [11,12]. Other authors also expose male sex prevalence in hemodialysis evidencing susceptibility this public has to develop chronic diseases, especially arterial hypertension and mellitus diabetes, main risk factors to CRF [11,13,14].

Regarding the age factor, it is possible to infer that's about a disease which attacks aged people more frequently, and that incidence increases with age group. This factor can be explained as being the result of inadequate feeding habits and lack of physical

activities practice throughout life, beyond genetic aspects, stress, and other determinant factors [15].

Time under treatment variable, also analyzed in this research, it is relevant since scholars report that insufficient adherence can be factor to many complications, therefore, nursing professionals should have use of tools like the *blog* which increases the acquaintance [16]. Therefore HD time is a determinant factor to comprehension that the disease is chronic and adherence factor is indispensable.

Regarding work questions, most of patients is retired or receive benefits from Instituto Nacional de Seguridade Social (INSS). Probably, this condition is due to the time spent on HD, as the patient needs to perform the treatment procedures about three times a week, each being about four hours per session [17].

Regarding *blog* evaluation, almost all subjects would recommend this technology to friends and family. These results indicates new possibilities whose digital media shows pedagogical practices and impetrates various knowledge building based on collaborative learning, using technological tools that brings to teaching and learning process new ways to communicate and share knowledge [18].

About the evaluation presented on the *blog*, Healthy eating was the most chosen item. Rigorous controls of eating and hydric restraint are aspects that contribute to difficulties in treatment adherence [19]. Therefore, the education activities about health are fundamental to changes on life style, adoption of habits and healthy behaviors, that are stimulated by means of the nurse acting, which stands out for developing integrative and interactive practices allowing individual's co-responsibility in caring process.

After we request the topic participants wanted to see, some topics were mentioned equally, 19 participants respectively demonstrated curiosity about kidneys functioning, showing little or none information about the subject, and the other group showed interest on acquiring new learnings about kidney transplantation, revealing many doubts for which they didn't had referral for the process, and how it goes after surgical procedure. However, even transplant is increasing patient survival in comparison with dialytic treatment, the surgical challenges, immunosuppressant and donated organ shortage decrease significantly number of receivers [20].

During technology analysis, subjects demonstrated knowledge about pathologies which can attack kidneys, like mellitus diabetes and arterial hypertension being one of most prevalent causes for CRI, as they're silent diseases and many bearer's don't know they

carry them [21]. On this perspective, the *blog* brought thinking that early lesion identification in target organs can initiate RI.

Peritoneal dialysis (PD) mentioned on topical "What is dialysis" there is self-explanatory videos covering the entire peritoneal dialysis process. This kind of treatment can foster freedom to the patient, however when warned about the dangers and disadvantages of PD themselves related insecurity for being responsible for their own treatment. Abiding participants request on survey application moment, it were provided orientation, individually, about main PD complications which are: peritonitis and catheter infection, with peritonitis being the most common cause of catheter withdrawal and return to hemodialysis treatment [22].

Sexuality topic was mentioned by a small portion of participants; probably due to the fact this theme provokes discomfort among people, irrespective of age once the taboos culture imposes the subject influence seamlessly the feeling about sexuality [23].

During the *blog's* presentation to patients, it was observed that they were open and comfortable to suggest more topics that should be in the *blog*, among these suggestions, deserves highlight solicitations to add information about transplant and other diseases and anomalies that attacks kidneys like systemic lupus erythematosus (SLE) diabetes and renal cysts. It is inferred that this suggestion comes from the fact that they are informed that this pathologies, frequently, takes to kidney impairment.

Final Considerations

Before the context described above, we observe that technology grew interest on interviewed subjects, as the *blog* can be accessed from any internet connect device, facilitating access to treatment relevant information, helping to treatment adherence and at the same time to life quality. Many patients reported this technological tool relevance, not only for themselves, but for information of relatives and friends. This information makes itself relevant because of website page hits since its application.

Research limitations included restrain to Internet access in one of the rooms, fact that decreased participant's number; clinical conditions of some candidates which prevented participation. For future expectation, it is believed on necessity to realize a survey by numbers statically significant of subjects undergoing hemodialytic treatment for greater technology enhancement and its posterior propagation on environments related to health and kidney patient.

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