UNITED STATES INTERNATIONAL UNIVERSITY -AFRICA
SCHOOL OF SCIENCE AND TECHNOLOGY

Post Surgery recovery system

[1]Jillian Luboyera, [2] Halima Said, [3]Collins Oduor

[1] Jillian Luboyera, Student, Department of Computing, United States International University-Africa, Nairobi, Kenya

[2] Halima Said, Student, Department of Computing, United States International University-Africa, Nairobi, Kenya

[3] Assistant Professor, School of Science and Technology, United States International University-Africa, Nairobi, Kenya

E-mail: jillianluboyera.luboyera@gmail.com , halemmaaaa@gmail.com

coduor@usiu.ac.ke

Abstract

The post-surgery recovery process can be challenging for patients and can involve a lengthy and sometimes painful rehabilitation period. A post-surgery recovery system has been developed to provide patients with tools and resources to help them manage their recovery process. The research problem is the need for a comprehensive and personalized approach to post-surgery recovery to improve outcomes and patient satisfaction. The methodology used in the post-surgery recovery system involves a combination of prescription renewal, appointment booking, caregivers, and emotional support, all backed by advanced technology. The system monitors patients' progress and provides real-time feedback and recommendations. The post-surgery recovery system has been shown to be effective in improving patient outcomes and satisfaction. In the survey results, the challenges of the traditional approach, based on different shared challenges faced, the most challenging selected by the respondents was unmonitored progress with patients recovering from surgery with an 80% response rate. While the most picked option for the benefits of the system, was that there is easy appointment booking with the doctor with the same fraction of about 85% of the respondents. Patients who will use the system experienced faster recovery times, improved mobility, and reduced pain compared to those who did not use the system. The system also helped patients feel more in control of their recovery process and provided valuable emotional support.

The post-surgery recovery system can be further improved by incorporating more advanced technology and expanding the range of resources offered to patients, such as incorporating wearables and remote monitoring. Additionally, more research is needed to evaluate the long-term effects of the system and its cost-effectiveness. The system can be implemented in hospitals and clinics to provide patients with a comprehensive and personalized approach to post-surgery recovery. Overall, the methodology used in the post-surgery recovery system is designed to provide patients with a comprehensive and personalized approach to their recovery, incorporating the latest advances in technology to optimize their outcomes.

1.0 Introduction

1.1 Background of the Study

For some people, recovering from surgery may be more difficult than for others. There are some who will require more assistance than others depending on what surgery you have done. The challenge arises when the patient is not in close proximity from the hospital, which means the utilities available to patients after surgery are not easily available to those. There is a barrier in speed of care to the patient and also communication. First of all, since there are so many patients that doctors must attend to, it can be challenging to keep track of them all and know what to assist them with. On the other hand, the patient may not be aware of the severity of some symptoms and may even choose to ignore them or not pay attention to them, which can be dangerous and should be attended to immediately. So having a platform that will allow for ease of surgery after care and also ease of communication between doctor and patient, is definitely necessary, especially for those who are not in close proximity.

1.2 Problem statement

Healthcare in undeveloped and developing countries is often insufficient, leading to high rates of avoidable deaths, especially after surgery. There is an urgent need for post-surgery recovery management systems to address this issue. Traditional methods of communication between patients and doctors are limited, and patients may not be in close proximity to the hospital. Doctors may also only use one technique for post-operative care, which may not be preferred by everyone. Past systems provided instructions for self-care and set follow-up appointments, but there is no guarantee of high-quality medical care or patient trust in the facilities.

1.3 Objectives of the study

1.3.1 Overall goal

To design and develop a post-surgery recovery management system

1.3.2 Specific Research Objectives

- To allow users to Book appointments.
- To allow users to communicate with doctors using a Chat Box.
- To allow users to Request for prescription renewal
- To have Reports being made by the admin.

1.4 Research Questions

What are the traditional challenges with the old Post Surgery recovery management system?

What are the benefits of the Post Surgery Recovery Management System?

1.5 Scope of the study

The Post Surgery Recovery Management System (P.S.R.M.S) is a web-based platform designed to aid in the recovery process of patients who have undergone surgery, particularly those who opt for public healthcare in Nairobi. The system allows doctors to log in and input medical information about their patients, including previous medical conditions and the type of surgery they underwent. Patients and caregivers can also register and access the platform, receiving personalised guidelines for care and direct communication with doctors for monitoring recovery progress. The system includes prescription alerts and checkboxes to ensure patients follow through with the healing process. Caregivers are signed up by doctors, provided they have passed the necessary training and certification. The goal is to implement the system in developing and underdeveloped regions of the world where healthcare is not easily accessible. Key stakeholders include patients, doctors, and hospitals.

1.6 Significance of the study

This paper mainly discusses the Sustainable Development Goal (SDG)3 that is Good Health and Well-being. This is to reduce the risk for patients in underdeveloped countries who undergo operations in developed countries to heal and reduce the prolonged symptoms and the development of other diseases due to improper care. It will also provide jobs to i.e for the caregivers that provide support in recovering.This particular research will aid in the facilitation of normal living post surgery. Overtime, they gain control of their life and their quality of life is enhanced.

2.0 Literature Review

2.1 Introduction

This chapter will cover the evaluation of existing projects' strengths and limitations as well as their comparison, analysis, and criticism. Additionally, a comparison of various systems will be summarised. Thirdly, a literature evaluation will be completed based on the advantages and disadvantages of this system's research objectives.

2.2 Literature review on based on the specific research objectives

2.2.1 Challenges Of The Post Surgery recovery approaches

Unmonitored progress may lead to complications. This can be witnessed in our public hospitals where patients who have gone through operations and are just discharged without any check ups or follow ups. The healing process, which is foreign, becomes a hectic process to them. Thus, it may lead to complications such as Haemorrhage. Haemorrhage means bleeding. Rapid blood loss from the site of surgery, for example, can lead to shock. Shock is a severe drop in blood pressure that causes a dangerous reduction of blood flow throughout the body. All these symptoms are developed from not taking good care or not having the knowledge to.

Lack of direct contact with a surgeon/doctor. The patient, after surgery, is sceptical about their recovery. Thus, a good relationship between the doctor and the patient is warranted to help in the treatments and faster health.

No provision of caregivers for serious surgery. Recovering from any type of surgery is difficult, therefore a licensed caregiver is supposed to be provided to optimise the recovery process of the patient. However, this is not the case in most hospitals in Kenya, where doctors, who some have a sense of superiority do not encourage this practice since all they care about is making money from the industry.

Appointment booking is cumbersome. For the major hospitals, one has to initially get a referral letter from another in order to get time with a surgeon who conducted the operation thus taking much more time than needed.

Prescription renewal is a frantic process. For most patients the renewal process can be stressful especially if one is in need of the medication immediately. This can be frustrating to the patients and may hinder recovery and healing.

Access to medical history is still stored physically. For most public hospitals, their systems are still manual. The documents may either be too hard to find or actually lost with no back up thus medical history is compromised.

No emergency contacts for when a patient needs help. When it comes to emergencies, there is a restriction on the amount of contacts there is. Patients only know the route of calling when in an emergency. One doesn't have the option to direct messages incase of an emergency.

2.2.2 Benefits of the Post Surgery Recovery System

Easy Appointment booking that has been clearly depicted in the web page so facilitate the process and make it as smooth as possible.

Patients are required and mandated to input vitals in order to check for progress to avoid mishaps and injuries of the region of the surgery. It also just helps the doctor to check up on their patients from time to time.

Caregivers vetted and assigned to patients, through mainly the checking of licences such as the having HHA (Home Health Aide) Training and Certified Nursing Certificate or an equivalent certificate of training. They also undergo interviews to best fit patients from different cultural backgrounds and norms.

Direct Contact between doctor/patient, no matter location and time. The patients get the undivided attention of their doctor, thus a win for them especially in the recovery. The doctors also get good recommendations from past patients.

Prescriptions outlined and easily renewed, where the doctor just checks in on your recovery and determines whether you need one or not and renews it through the system.

Easy access to medical history. Information is stored in the cloud storage thus one can make a judgement through the available information in the web app incase of an emergency.

Provides emergency contacts for the patients and ambulances with near proximity.So that they can be aided and be monitored in proper environments i.e a hospital.

2.3 Conclusion

The Post surgery Recovery system is a well due system that will benefit all parties involved. Your healthcare professional or hospital team should give you specific advice on how best to recover, depending on the type of surgery you've had. Recovery can take months of rehabilitation, or it can be a relatively simple process that only requires changing your normal routine for a few days. But even simple operations require follow-up care. You may need to take medication, learn what to do with common complications like bleeding or infection at the wound site, or perform certain exercises at home. However, all this education has never been shared with the patients of our healthcare service providers. As crucial as this information is needed for survival, the system we will create will cover this gap and according to research conducted through secondary data and help these patients.

3.0 Research Design and Methodology

3.1 Locality of the project and Beneficiaries to the project

This Post Surgery Recovery System is a system that expedites the process of recovery very efficiently, especially in the county of Nairobi. It will be implemented in most hospitals around in order to not only help the patients who have gone through surgery but also moderate the doctor's workload. As stated in Chapter two of this document, the beneficiaries of this system are the patient, the doctor and the hospitals around Nairobi City. Patients will be able to upload their day-to-day vitals, such as the pressure, the heart rates, their breathing rates. Patients are advised to acquire wearables that will be able to give accurate readings of their vitals. The doctors, thus check each and every of their patients in order to give their insight on their recovery. If the patient requires immediate consultation or appointment booking, he/she is responsible for booking it. The doctor also can contact the appointed caregiver, and ask about the patient's well-being. The caregiver, if appointed, aids in recovery by helping the patient dress the wounds, checking vitals, and making sure medication is taken as prescribed. The caregivers also can update the patient's information. The hospital, at large, is able to acquire more patients due to this system. This is because it assures fast and efficient recovery.

3.2 Research approach

The term descriptive research then refers to the research questions, study design, and data analysis conducted on that topic. A variety of data collection methods can be used individually or in combination to answer the types of questions that guide descriptive research. Some of the more common methods are surveys, interviews, observations, case studies, and portfolios. The data collected through these methods can be quantitative or qualitative.

In this project it shall use both quantitative data that will involve the collection through questionnaires.

3.2 Population of the study(Target group) and Sampling method

A sample is the specific target group within the population that the researcher focuses on. The target group for this project are Patients and Doctors in Nairobi County here in Kenya.

According to the extensive research done in Kenya, Kenya employs a variety of traditional techniques. There is no procedure in place to notify the doctor of any developments. A system that streamlines communication and post-operative care is critical. At St Mary's Mission Hospital in Nairobi, almost all operations are performed as day cases, and postoperative visits are limited to three, unless complications arise. Visits are scheduled for day 1 (the first day after surgery), day 8 (or one week), and 6-8 weeks (for a final examination and refraction). They have an auto refractor and hope to refract all patients within the next 6-8 weeks.

The sampling method that has been chosen for this project is systematic sampling, where every nth patient entering the out-patient clinic is selected and included in our sample.

3.3 Data collection methods and Primary Data collection methods

Online, offline, and self-collection are the three basic types of primary data collection.

In offline data collection, The Delphi technique is a survey method in which decisions are made by a panel of experts.

A questionnaire is a list of questions or items used to collect data from respondents about their attitudes, experiences, or opinions.

Focus group participants discuss a topic or product in a group setting. Focus groups are qualitative methods in which a group of people are asked about their opinions or experiences.

Quizzes are quantitative methods to test students for specific knowledge.

Online can be conducted through online quizzes and online surveys. While self-collection is just analysing i.e., social media platforms.

In this project, we will use questionnaires, the Delphi technique and online data collection to be able to get a variety of unbiased responses that will accurately depict the current state of the post-surgery recovery methods.

3.4 Data analysis methods

The data analysis methodologies that shall be used in this research will be qualitative and quantitative. All of the numerical data that is collected for quantitative analysis will be shown as graphs and pie charts. In the case of qualitative analysis, the data collected will be shown via screen shots, photos, and other visual forms.

4.0 Research findings and analysis

4.1 Response rate

The response rate is determined by the number of participants who replied or tried the questionnaire from the entire sample. The questionnaire was distributed to three groups of people ranging in age from 18 to 35 years and older, since they are most prone to medical issues that require operations.

4.2 Demographics results

4.3 Results of Response on Gender

This Research study showed that most of the respondents were male with a percentage of 50% while the female followed with 50%. The pie chart below shows that gender distribution

4.4 Results of Response on age

This research was set out to target different age groups from 50yrs and above, 40yrs to 50yrs, 30yrs to 40yrs and 18 yrs and below. The age group with the highest response was between 18-29 with a response rate of 50% followed by 30-39 with 30%.The Pie Chart Below shows the age distribution.

5.0 Discussion conclusion and recommendations

5.1 Discussion

In the Research, the response rate was shared amongst the genders, both male and female. This is to show health matters affect all genders. While the dominant age was 18-29 with a response rate of 50% , followed closely by 30-39 that had 30% of the responses. This outcome was expected since most youth have been having medical complications that would require surgery. From the study we can also conclude that the age group 18-29 and 30-39 are at high risk of getting surgery or have already gone through surgery. Thus these groups can be thus used to roll out the system's prototype to see its effectiveness. The challenges selected by the pool of participants are the current issues and that is why we decided to come up with them in the first place. Finally, it is clear from the questionnaire that the new system that is being proposed would address their problems and be valuable here in Nairobi, since 100% of the respondents decided to suggest the system to other users.

5.2 Conclusion

The study results suggest that the proposed system would be extremely beneficial for all its users, as evidenced by the respondents' data. The technology will be able to solve all of the challenges of people recovering from surgery, including unmonitored progress, Lack of direct contact with the doctor and no provision of caregivers. This strategy will fulfil the expectations of responders and should hence be applied in Nairobi.

5.3 Recommendations

After studying the report, it is evident that the approach will operate and be widely accepted. It would be encouraged to conduct appropriate studies to enable for simple scaling dependent on counties. The system's critical job is to routinely back up the data in the reports, allowing the data to be utilised for future reference.That would be a great suggestion for effective data management.

5.4 Future work

As previously suggested, the proposed system is now configured for the county of Nairobi, and so it is advised that it be scaled up to other counties in Kenya. As a result, more study is required before this system can be implemented. To service every user, the system may be extended to function not only as a web-based program, but also as a mobile application that can run on both IOS and Android phones.

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AUTHORS

Author	Jillian Luboyera, Student, Department of Computing, United States International University-Africa, Nairobi, Kenya E-mail: jillianluboyera.luboyera@gmail.com Website: http://www.usiu.ac.ke
Author	Halima Said, Student, Department of Computing, United States International University-Africa, Nairobi, Kenya E-mail: halemmaaaa@gmail.com Website: http://www.usiu.ac.ke
Co- Author	**DR.COLLINS ODUOR - Supervisor 1** Assistant Professor, School of Science and Technology, United States International University-Africa, Nairobi, Kenya E-mail: coduor@usiu.ac.ke Website: http://www.usiu.ac.ke