

NEEDS ANALYSIS FOR THE DEVELOPMENT OF AN ANDROID-BASED POSTPARTUM FITNESS APPLICATION

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ABSTRACT

The postnatal period means a very important and sensitive time for mothers and newborns. There is a growing body of evidence that increasingly points to app interventions as a potential tool to increase the use of maternal and child health services, including postnatal care. This can promote maternal and infant health during this sensitive period. The purpose of this study was to analyze the need for the development of an android-based postnatal fitness application, because seeing more and more android users so that the development of this application is useful for midwifery, especially the physical and psychological health of postpartum women. This type of research is descriptive quantitative. By using the Survey method. The research time was held in February - July 2022. This research instrument is a survey using google form as a data collection tool..The conclusion of this study is that the needs analysis on the development of postpartum fitness applications is stated to need to be developed, based on this analysis, further research is needed to develop android-based postpartum fitness applications. The implication of this research is as a foundation that research on the development of android-based postpartum fitness applications needs to be continued at the next stage. Postpartum fitness knowledge must continue to be improved by using various media, one of which is the Edugarlin application

Keywords: *application; android based; fitness; postpartum*

INTRODUCTION

The postnatal period poses numerous challenges for new parents. Various educational programs are available to support new parents during this stressful period. However, the usefulness of educational programs must be evaluated to ascertain their credibility. This period lasts about 6-8 weeks after birth. In addition to the physical condition, the psychological condition of the postpartum mother should also be monitored and supported. Not a few mentally impaired conditions can be one of the decreasing conditions of the mother that affects death. Complications that occur during the period of respiration are one of the causes of mother death

in Indonesia. Bleeding and infection are the most common complications during the period of respiration. (Putri, Hilmanto and Zulvayanti, 2021)

The postnatal period is a trying period for new parents as they adapt to the rigorous demands of parenthood. During this period, parents seek to acquire new skills and find new ways of restoring balance in their lives. Mothers experience challenging issues relating to health of the baby, breastfeeding, and varied sleeping patterns, which may lead to a myriad of emotions comprising self-doubt, anxiety disorders, and postpartum depression. Although maternal morbidities have been extensively documented, fathers also experience high levels of stress while caring for the baby and adapting to their new role as a father. Ineffective management of these stress levels could lead to depression which may have adverse implications on child development, mother-infant interaction, as well as conjugal and family relationships. Therefore, mitigating the development of such affective conditions in new parents through effective postnatal care and support is important (Hunter, Rychnovsky and Yount, 2009)

The policy of nifas services is carried out as many as 3 times, namely, the first nifas service (KF1) is performed by the mother-in-law while the mother nifas is still in-faxes, the second nifas (Kf2) and third nifas-service (kf3) are performed with re-visits or home visits according to the schedule, but it has not been performed optimally. Riskesdas data 2018 the average coverage of first nifas services KF1 (93.3%), KF 2 (66.9%) and KF 3 (45,2%). This shows that the service of nifas in Indonesia is still far from the national target. The various policies and interventions of KIA programs are still ongoing. Until now, the number of deaths of mothers and babies is still a health problem. According to WHO data, the cause of mother death is due to pregnancy complications that are not handled properly and in a timely manner. About 75% of pregnancy complications are due to bleeding and postpartum infections, hypotension during pregnancies, long-term partures and unsafe abortions. (Kemenkes RI, 2018). The province of DKI Jakarta has the highest completed nifas visit (KF3) achievement followed by West Java. The maternal death rate in Indonesia is 359 per 100,000 live births. AKI is an indicator of mother's health, especially the risk of death for mothers during pregnancy and childbirth. Most maternal deaths occur in the first two days after childbirth and post-partum services are needed to deal with postpartum complications.(Pamungkas, Suryawati and Kartini, 2019).

Birth is a happy moment, it can also be confusing along with a number of new behaviors and various challenges such as breastfeeding, caring for the baby, postnatal fatigue. Postpartum mothers during the period of breathing have a variety of obstacles, including the presence of

perceptions that are not consistent with their health, as well as physical complaints and physical changes that cause a decrease in their physical and emotional health.(Triana Septianti, Nuryani, 2018)

The principles in the practice of maternal and breast-feeding emphasize that the postpartum mother is a healthy mother and is a physiological event, so that the service activities carried out by the midwife in the form of mother-centered maternal care. this means considering mother-and-baby care from a holistic perspective, both physical, emotional, psychological, spiritual, social and cultural contexts as well as respecting the rights or choices of women, ensuring that women know the given care. The postpartum service is an advanced model of continuous maternity care (CoMc) after pregnancy and childbirth. (El *et al.*, 2022)

The postpartum period is a good time to take advantage of health education. (Olajubu *et al.*, 2020) the various barriers experienced by the postpartum mother should be communicated with the mother-in-law as an orphan or service provider to women. This service should be easily accessible quickly so that the confusion of the mother can be overcome immediately. (Widyastutik *et al.*, 2021).

The smartphone app allows mothers to access the health services they need, help first aid and contact health professionals and help users to respond to complaints about pregnancy and postnatal care. (Dianti *et al.*, 2021).

The results of the study (Putri, Hilmanto and Zulvayanti, 2021) that there was an effect of improving the skills and increasing the percentage of knowledge of mothers after using the mommy niphass app. The results of the study showed that most mothers after giving birth were looking for information about breastfeeding techniques and baby development through apps on their smartphones. This suggests that respondents will also access their other mental health care information via smartphones. Similarly shown by research conducted by Oktalia, 2020 emphasizes the use of digital diaries can help pregnant mothers in improving knowledge, attitudes and behaviors about preparation for childbirth and preparation to be parents. Currently, there are several applications, but there are not many specific applications for the improvement of postpartum fitness Based on the situation, so in order to develop a strategy for the provision of media for post-saline fitness education, the research team designed the creation of an application media called "Edugarlin Application". This app utilizes Android-based smartphone technology as a more practical guide that can be used by mother nifas in improving postpartum fitness. The current era of digital technology development especially in the world has had a pretty good impact on mother nifas. Android-based fitness application is made with a design of

an online guide to accompany mothers in living a new phase of life that can be installed on mobile phones equipped with the interaction of mother and mother. To supplement the needs of features that exist in the fitness application post-saline, the need for application analysis is carried out by conducting a survey on the user, namely the mother of nifas. The results of this first-stage research aim to dig information from potential users first about the needs of features on the postpartum fitness application

METHOD

The method used in this research is a descriptive method with a survey approach using a google form that aims to know the analysis picture of the need to build a post-salinb fitness application based on android at the Depok Jaya Primary Care Clinic and PMB Iis Sulistyowati Jakarta East. The population of the study was pregnant mothers, breastfeeding mothers and nursing mothers who made visits to both pregnancy visits and breastfeed visits in both nursery practices in February – July 2022 The research subjects were determined based on inclusion and exclusion criteria. Respondents were recruited based on: no history of complications in pregnant mothers, have an Android-based HP that can install applications and are ready to be the subject of research. From the inclusion and inclusion criteria, then the population members who are included in the research criteria the number of samples were calculated using the application of the Raosoft formula by taking into account the margin error of 5%, confidence Level 95% so that from the total population of 154 mother nifas a sample of 108 samples was obtained. Research has been conducted in the ethics committee of the University of Respati Indonesia by applying the principle of ethics beneficiality, appreciation of human rights and informed consent to candidate research respondents with the letter number Number 632 / SK.KEPK / UNR / X / 2022

RESULTS AND DISCUSSION

Table 1. Characteristics of respondents based on mother status

Variable	Frequency (n)	Percentage (%)
Status of Mother		
a. Pregnant Mother	27	25
b. Postpartum mother	50	46,3
c. Breastfeeding mother (< 1 years)	31	28,7
Mothers age	0	0
a. < 20 years	103	95,4
b. 20-25 years	5	4,6
c. > 35 years		

Mother's work		
a. The housewife	53	49,1
b. Private Employees	23	21,3
c. Civil servant	9	8,3
d. Other	23	21,3
Education of Mother		
a. Elementary school	1	0,9
b. Junior high school	5	4,6
c. Senior high school	21	19,4
d. Diploma	48	44,4
e. Bachelor	29	26,9
f. Magister	4	3,7

Table 1 shows the characteristics of respondents: the status of pregnant mothers was 27 (25%), postpartum mothers of 50 (46.3%) and mothers breastfeeding with children under 1 year as 31 (38.7%). The majority of respondents aged 20-35 years were 103 people (95.4%). The majority of the respondents' jobs were housekeepers of 53 people (49.1%), the education of the most respondents of graduates of 48 people.

Table 2. Level of knowledge of postpartum fitness

Variable	Frequency (n)	Percentage (%)
Level of knowledge.		
a. Low knowledge.	2	2
b. Knowledge is sufficient	13	18
c. Good knowledge	93	80

Table 2 shows the level of knowledge of the respondents about postpartum fitness most, which is in the good category of 93 people (80%)

Table 3. Respondent's opinion if there is an Android-based app that can improve postpartum fitness

Variable	Frequency (n)	Percentage (%)
Respondents opinion		
a. Agree	108	100
b. Don't agree	0	0

Tabel 3. Showing the opinion of respondents if there is an Android-based app that can improve postpartum fitness of 108 people (100%) agreed.

Table 4. Features that are expected to be in the postpartum fitness application

Variable	Frequency (n)	Percentage (%)
Features that are expected		
a. Hazard sign postpartum	62	57,4
b. Nutrition fulfillment	48	44,4
c. Postpartum mother's physical adaptation	56	51,9
d. the process of achieving the role of motherhood	51	47,2
e. Preparation for Breastfeeding and Exclusive Breastfeeding	45	41,7
f. Adaptation to parenthood	47	43,5
g. Health promotion for healthy living behavior, prevention of diseases and low postpartum complications	78	72,3
h. family planning	76	72,2
i. Physical Exercise and Sports during the puerperium	82	80
j. Online Consultation with Midwives	82	80

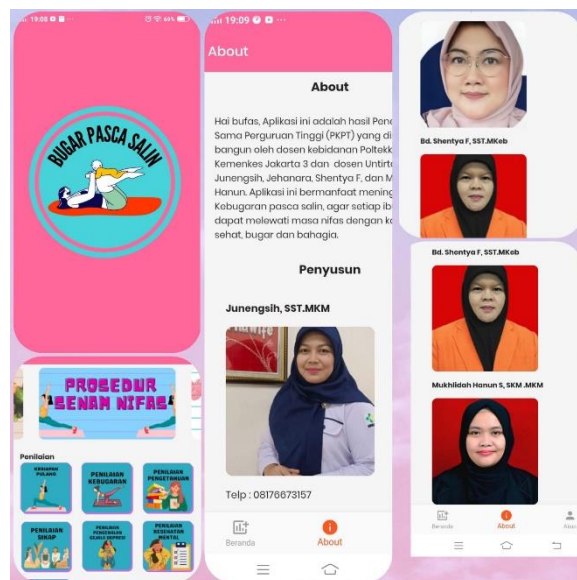
Based on Table 4. Showing the features expected in the development of Android-based apps to improve post-partum fitness: 62 people (57.4%), nutritional fulfillment of 48 people (44.4%), breastfeeding and exclusive breast-feeding adaptation of 45 people (41.7%), adaptation to be a parent of 47 people (43.5%), health promotion for healthy lifestyle behavior, disease prevention and low respiratory complications of 78 people (72.3%), family planning of 76 people (72.2%), physical exercise and sports during the nits and online consultation with a midwife of 82 people (80%)

Table 5. Satisfaction Analysis of Applications

Variable	Frequency (n)	Percentage (%)
Diversity of information presented interesting		
a. not satisfied	11	10
b. Ordinary only	11	10
c. satisfied	48	45
d. Very satisfied	38	35
Text, Language displayed is easy to read and understand		
a. Not satisfied	5	5
b. Ordinary only	16	15
c. Satisfied	65	60
d. Very satisfied	22	20
Images, colors, types of letters are applied interesting, relevant to the material and easy to understand		
a. Not satisfied	11	10
b. Ordinary only	5	5
c. satisfied	65	60
d. Very satisfied	27	25

Easy to acces and allows recap dan recall		
a. Not satisfied	5	5
b. Ordinary only	22	20
c. Satisfied	27	25
d. Very satisfied	54	50
Good informastional resource		
a. Satisfied	32	30
b. Very satisfied	76	70
User satisfaction of the application		
a. Satisfied	16	15
b. Not satisfied	92	65

Based on the above table, 45% of users said they were satisfied with the diversity of information presented in an exciting app, and a majority of 60% of users expressed their satisfaction with the text and language displayed easily read and understandable. 60% of users stated that they were satisfied with the image, color, type of letter applied to the material, half of users or as much as 50% of users said the app was easy to operate and use, and the majority of users 70%, said they were very happy with the information on the app as needed and positive. As well as a majority or as much as 65% of users stated satisfaction with the postpartum fitness app.



Picture 1. Display of “EDUGARLIN” postpartum fitness app

Respondent characteristics are used to know the diversity of respondents based on mother status, age, employment, education. It provides a fairly clear picture of the respondent's condition and its relationship to the problem and purpose of the research. In this Covid-19 pandemic situation, many restrictions apply to almost all routine services including maternal and neonatal health services. As a pregnant mother becomes reluctant to puskesmas or other health care facilities because of fear of being infected, there is a delay in pregnancy examination and pregnant woman's class as well as a visit if there are no complaints, and the presence of unprepared services in terms of energy and facilities including Self-Protection Equipment. Therefore, health care, as well as the part of education, the involvement of husbands and roles and families need to be enhanced and enhanced to carry out sustainable maternity care in the nifty period, there is a Covid-19 pandemic era, one of which uses online or remote methods according to the health protocol of the Ministry of Health(El *et al.*, 2022)

Based on the characteristics of the status of the mother, it was obtained that the respondents consisted of pregnant mothers, breastfeeding mothers and nursing mothers with children under 1 year. To improve postpartum fitness especially during the pandemic covid 19 period there is this pandemical period Pregnant and breastfeeding mothers enter the category that is susceptible to coronavirus infection Covid-19. One reason is that they have low immunity due to hormonal changes during pregnancy and breastfeeding. Therefore, pregnant and nursing mothers need to know how to properly protect during this pandemic. Several studies have been conducted on Covid-19. Pregnant and nursing mothers have changes in the body that can increase the risk of some infections, including coronavirus(Kemenkes RI, 2020)

Efforts to prevent complications in the respiratory mother and improve the health of the mother and the newborn are one of the important components in the period of respiratory care, the fact that at present there are still 58,5% of mothers with less knowledge and poor practices about respiratory treatment. The short duration of the mother and baby's stay after childbirth in a health facility, and the lack of information during pregnancy about how postpartum care leads to a lack of reception of respiratory care information. This suggests that the treatment in pregnancy is more accepted by women than the postpartum treatment. (kemenkes, 2020)

The results of research conducted by Oktalia, 2020 emphasize the use of digital diaries can help pregnant women in improving knowledge, attitudes and behaviors about preparation for childbirth and preparation to become parents. The results of the study of Krisdian (2019) referred to the compliance of the return visit on the mother's nifas almost complete visit to the

second after being given a reminder application of compliance with the re-visit of the mother post partum with the reminder of postpartum mothers. This reinforces the development of reminiscent apps on Android-based mobile devices, enhances the benefits of mobile devices in healthcare and motivates respondents to learn anytime and anywhere. Currently, there are several nifas applications such as Nifas smart care, Smart mother nifas, Healthy nifas, E NIFAS, but there are not many special applications for improving postpartum fitness.

Based on the age characteristics of the respondents, it shows that the majority of respondents are in the range of 20-35 years, most mothers have a diploma education status and most of the work of the mother is the housewife. The level of education of a person also determines the ease of absorption and understanding of knowledge about postpartum fitness, the higher a person's education, the more quality of knowledge and the more mature intellectual. They tend to pay more attention to their health and their family.

Based on the results of the study showed the level of knowledge of respondents about postpartum fitness is the most in the good category. Based on the results of research characteristics obtained the most education of the mother is a diploma. This can be the reason for a good mother's level of knowledge. It is also revealed by Hawari that the level of education of a person will influence the process and ability to think so that it is able to capture new information. It supports the occurrence of the process of providing health information through the provision of continuous and continuous health education aimed at providing knowledge and understanding of health, understanding and acceptance of information of a person related to the level of education this means the higher education a person then the easier and more knowledge is possessed. In addition, education is also associated with the behavior shown by a person from the knowledge acquired.(Putri, Hilmanto and Zulvayanti, 2021)

The results of the study showed that the totality of respondents expressed their agreement if there were technological innovations in the form of Android apps in improving the fitness for respondents. The need of the current era of technology 4.0 in the educational process of course requires media that are practical and easy to use and digested by the user.

The postnatal period is portrayed as a critical phase in both the lives of the mother and the newborn infant. Yet, the care provided during this period is the most neglected area in the health care delivery system. Mobile technology can play a prominent role to improve the quality and the accessibility of the postnatal care. In this respect, the present study aimed to evaluate the relevance of the functionalities and features offered by the postnatal care apps available in Android and iOS app repositories(Sardi *et al.*, 2020)

Mobile health (mHealth) has great potential in addressing disruptive issues in healthcare, given the ubiquity of mobile devices around the world and the unique aspects of mobile technology including its high reach, cost-effectiveness, and relative simplicity to use. The arrival of internet and smartphones has indeed revolutionized mobile health technology. Smartphones are considered powerful devices that typically combine the conventional features of a mobile phone with sophisticated processing and computing capabilities enabling users to access and run a myriad of mobile applications, commonly called 'apps'. The application of information technology in enhancing an individual's access to health care has been regarded as a promising innovation that might revolutionize health care (Olajubu *et al.*, 2020)

According to the parents, the mHealth app-based educational program was helpful in supporting sample of parents during the postnatal period. This insight indicates that the program could be implemented in a wide community of parents in the postnatal period. The helpfulness of the educational program is a testament of the potential benefits of using telemedicine among new parents postnatally. Resources can also be dedicated toward extending the duration of access to the app beyond 1 month and developing relevant content for parents across the perinatal period.

The features of the application of postpartum fitness should have a major impact on socialization and education programs. The selection and setting of features should be based on the results of evidence based both in the form of articles already existing as well as direct survey of user. Most of the parents found that the mHealth app was a good informational resource that catered to the local context and new-generation parents, and that the information provided was tailored to individualized needs, easy to access, and allowed the recap of information.(Dianti *et al.*, 2021)

The results of the research showed mostly expressed agreement with the availability of features Signs of Dangerous Breathing, nutritional fulfillment, physical adaptation of the breathing mother, the process of achieving the role of motherhood, preparation for breastfeeding and exclusive breast-feeding, adaptation to becoming a parent, health promotion for healthy life behavior, prevention of disease and low breathtaking complications, family planning, physical exercise and exercise during breathe, online consultation with midwife. The participants underlined the advice given by the midwife to be reliable, reassuring, prompt, and that it also facilitated their decision-making process

The app was also beneficial in creating a community in which parents could learn from the issues and concerns brought up by other parents as well as receive advice from those with experience.

As previously noted mothers found sharing their experiences with one another and gaining reassurance and support beneficial.(Shorey, Yang and Dennis, 2018)

CONCLUSION

The conclusion of this study is that the needs analysis on the development of postpartum fitness applications is stated to need to be developed, based on this analysis, further research is needed to develop android-based postpartum fitness applications. The implication of this research is as a foundation that research on the development of android-based post-saline fitness applications needs to be continued at the next stage. This insight indicates that the program could be implemented in a wide community of parents in the postnatal period. Resources can also be dedicated toward extending the duration of access to the app beyond 1 month and developing relevant content for parents across the perinatal period. Postpartum fitness knowledge should be continuously improved by using various media one of them with Edugarlin application

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