



Designing Mobile-Based App to Facilitate Mother and Children Homecare Services in Indonesia

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Abstract. There are various types of homecare-based health service providers and one of the most popular is homecare services for maternal and child health. In Indonesia, there is no special platform, especially mobile-based app, to find and order homecare services for mothers and children. Most mothers still order using WhatsApp by looking for the provider's contact through social media. This paper aims to describe the user needs related to mobile-based mother and children homecare service applications along with the details of the proposed design. Needs analysis is done by distributing questionnaires and the application design is made using figma. A design prototype of mobile-based app has been produced to facilitate seekers and providers of homecare services for mothers and children in Indonesia. The evaluation results show that most respondents are satisfied with the design that has been made although there are few notes related to the simplicity of the user interface.

Keywords: design · mobile app · homecare · mother · children

1 Introduction

The results of basic health research, which are carried out routinely in Indonesia, show an increase in maternal health levels from 2013 to 2018. One indicator is the increasing proportion of antenatal care from 95.2% to 96.1%. In addition, the proportion of deliveries in health facilities also increased from 66.7% in 2013 to 79.3% in 2018 [1].

One of the factors that can reduce maternal mortality and infant mortality is by increasing public access to healthcare deliveries by trained medical personnel provided by health care facilities [2]. In addition, it takes the participation and awareness of mothers on the importance of antenatal care in health facilities. Antenatal care examination is a pregnancy examination that aims to optimally improve the physical and mental health of pregnant women, so that they can face the period of childbirth, postpartum, preparation for exclusive breastfeeding, and the return of normal reproductive health [3].

Postnatal care is important for the health of mothers and babies, therefore mothers and babies need postnatal check-ups and care [4]. There are various kinds of health services, some are provided by health facilities such as hospitals, some are provided by health professionals by coming to the patient's home or commonly referred to as

homecare services [5]. One of the reasons for the existence of homecare services is to make it easier for mothers and babies to get treatment and checkups without the need to go to health facilities [6].

With the development of information technology, access to homecare services can be made easier. The level of smartphone use is also increasing, especially related to the search for health information [7]. There have been many health applications for postnatal care on the market, but those that specifically provide and facilitate homecare services are still very rare [8]. It needs to design a mobile-based app to facilitate mother and children homecare services to be further developed and implemented in Indonesia. This paper aims to describe the user's needs for a mobile-based mother and children homecare service application along with the details of the proposed design.

2 Methods

Needs analysis was carried out by distributing online questionnaires to prospective users related to the features needed in the mobile-based mother and children homecare service application as well as to capture the willingness of respondents to become research participants with the following criteria:

- 1) Active smartphone users
- 2) Mothers who have children and have used mother and children homecare services
- 3) Pregnant women who have used homecare services
- 4) Homecare service providers

There are 34 respondents (30 homecare service users, 4 homecare service providers) who are willing to be research participants starting from the needs analysis phase to the design evaluation phase. The results of the needs analysis are used as the basis for designing the mobile app. The results of the design are then submitted to the respondents in the form of a video walkthrough and each respondent then asked for feedback. Video walkthrough is one way to provide an overview of the form and function of a health mobile application that is being developed [9].

3 Results and Discussion

There are various methods and media used by respondents in ordering homecare services as shown in Fig. 1.

From this data, in Indonesia there is no special platform to find and order homecare services for mothers and children. The majority still order using whatsapp by looking for their contacts through social media. Whatsapp is one of the platforms that can be used as a medium of health communication in areas with limited infrastructure [10]. Homecare service providers have started to use social media such as Instagram to promote their services. Instagram is a suitable platform for promoting health content, of course with the appropriate communication strategy [11]. Although there are various communication tools and social media, a special platform that can bring together mother and children homecare service seekers and providers is needed. The current system generally only

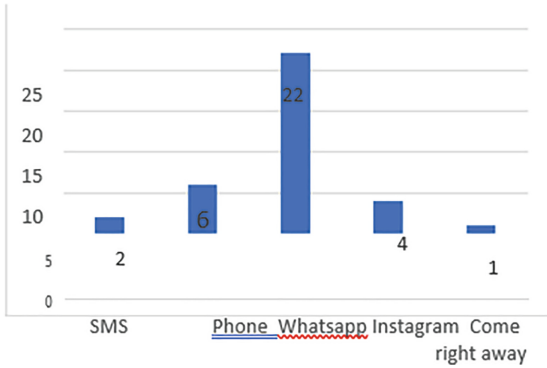


Fig. 1. Media for ordering mother and children homecare services

supports the management side of homecare service providers, does not cover the side of homecare service seekers [12].

Various types of homecare services are also transacted between users and service providers as shown in Fig. 2. There are at least fourteen types of homecare services for mothers and children with the most widely used service being baby massage.

Based on the results of the needs analysis, the features needed by users of the mother and children homecare service application consist of:

- 1) Home
Displays the main menu icons that can be accessed by the user when opening the application for the first time.
- 2) Profile
Displays data related to the identity of mothers and children that are useful as initial information for homecare service providers who will provide services.
- 3) Homecare providers
Displays homecare service provider data along with data related to the distance from the customer to the location and reviews of services provided.

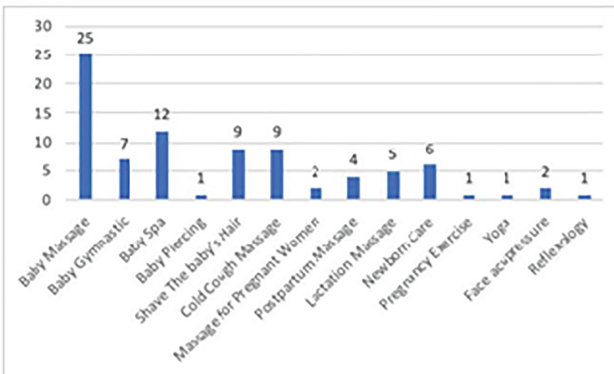


Fig. 2. Types of home care services for mothers and children

- 4) Homecare service
Displays the types of homecare services provided along with complete information about the service providers along with data related to the distance from the customer to the location and a review of the services provided.
- 5) Immunization service
Displays the type of immunization service provided along with complete information about the service provider along with data related to the distance from the customer to the location and a review of the services provided.
- 6) Maternal and child health consultation
Displays data on homecare service providers who provide online maternal and child health consultation services.
- 7) Contraceptive consultation
Displays data on homecare service providers who provide online contraceptive consultation services.
- 8) Breastfeeding consultation
Displays data on homecare service providers who provide online breastfeeding consultation services.
- 9) Recipes for complementary foods for breast milk
Display recipe data for making complementary foods for babies.
- 10) Purchase of mother and child equipment
Displays products for mother and child needs provided by partners and can be purchased through the application.

Based on the results of the needs analysis, a design for home care services for mothers and children is then made using Figma (<https://www.figma.com/>). Figma was chosen and used because it can produce designs in the form of prototypes so that respondents seem to be able to interact with the application design that has been made like the actual application [13]. The link from the design prototype that has been made is then sent to respondents to get feedback regarding the design prototype that has been made. A screenshot of the design prototype that has been made can be seen in Fig. 3.

Define Each respondent then asked to fill out an initial evaluation questionnaire of the prototype design that had been made. An important evaluation is carried out as a cycle to refine the design [14]. The results of the evaluation can be seen in Table 1.

From Table 1, most respondents agreed and strongly agreed with the given evaluation statement items. This shows that respondents are satisfied with the design that has been produced. There are 21.4% of respondents who disagree with the simplicity of the application design. The simplicity of the user interface is the key in the smooth use of the application [15]. This will be input for the next development phase to make the user interface simpler and easier to understand by users.

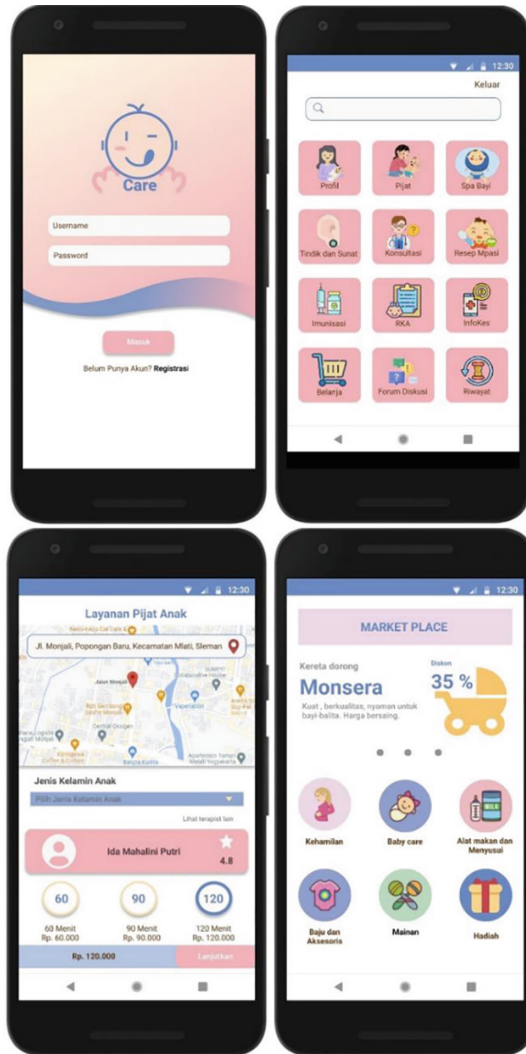


Fig. 3. Design of mother and children homecare service application

Table 1. Evaluation of Respondents

No	Statement items	Strongly Disagree	Disagree	Agree	Strongly Agree
1	Navigation on this application is easy to understand	0.0	0.0	28.6	71.4
2	Application provides relevant information	0.0	14.3	50.0	35.7
3	The coloring technique on the interface of the application is not boring	0.0	0.0	42.9	57.1
4	The text on the application can be read clearly	0.0	7.1	28.6	64.3
5	The grammar used in this application is easy to understand	0.0	0.0	42.9	57.1
6	No difficulty in understanding how to use the application	0.0	14.3	21.4	64.3
7	Purpose of this app's Content is easy to understand	0.0	0.0	28.6	71.4
8	Easy to find the information in the application	0.0	7.1	50.0	42.9
9	The interface design of the application is simple and attractive	0.0	21.4	50.0	28.6
10	The design and features of the application meet the expectations	0.0	0.0	64.3	35.7

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