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## Research Article

# Needs Analysis of Digital-Based Nanny Care Services to Improve the Quality of Maternal and Child Health Services

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## ABSTRACT

High morbidity rate among mothers and children remains a significant issue requiring special attention. Nanny care is a professional caregiving service provided by trained individuals to care for children in the household. This research adopted a quantitative analytical design utilizing a cross-sectional methodology. The study population comprised all individuals who accessed maternal and child health services at a designated Mother and Child Hospital in the Surabaya region. A total of 50 respondents were selected through probability sampling employing a simple random technique. Data were collected using a modified version of the Family Needs Questionnaire. The sample specifically included mothers receiving antenatal and postnatal care services. Analytical procedures included frequency distributions and correlation analyses to examine the relationship between perceived care needs and the demand for nanny care services, employing the chi-square test with  $\alpha = 0.05$ . There was a significant relationship between maternal and child care needs and the availability of support in nanny care services ( $p = 0.04$ ,  $\alpha = 0.05$ ). In conclusion, Digital nanny services can be integrated into Maternal and Child Health (MCH) systems by connecting real-time monitoring, health education, and personalized support for mothers and children. This integration enhances early detection of health issues, improves care coordination, and supports data-driven decision-making within MCH programs.



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## INTRODUCTION

Changes in modern society, marked by increased mobility and the growing participation of women in the workforce, have driven demand for reliable childcare services. Many families, particularly in urban areas, face time constraints that prevent them from fully accompanying their children, making the presence of a nanny or childcare provider a common solution. However, problems arise when parents struggle to find caregivers who meet competency standards, have a clear track record, and can provide safe, high-quality childcare. Dependence on traditional systems such as word-of-mouth recommendations or conventional labor agencies does not fully address the need for transparency and security.

According to ACOG, at least 40% of women do not seek postpartum care. Several factors contribute to this trend, including cultural differences, lack of insurance, inadequate family support, low socioeconomic status, poor anticipatory guidance, racial disparities, poor transitional care management, and limited access to home visits. Based on maternal and child health research data, during the first week of the postnatal period, severe hypertension, heavy bleeding, and infections are the most common contributors to maternal deaths, while cardiovascular causes are the leading causes of late maternal mortality (Lopez-Gonzalez & Kopparapu, 2022). Early postpartum visits are mandatory to evaluate the resolution of postpartum blues and other chronic medical conditions, such as hypertension and diabetes, as well as to reduce maternal and neonatal morbidity and mortality.

This situation is further complicated by employment data showing that most of Indonesia's workforce remains in the informal sector. According to the Central

Bureau of Statistics (BPS, 2025) in February 2025, 59.40% of Indonesian workers, around 86.58 million people, were employed in the informal sector, including domestic workers and childcare providers (Kusumawati, 2024). This indicates that the majority of caregivers working in households are not part of the formal employment system, making them vulnerable to issues such as a lack of legal protection, limited training, and the absence of standardized quality benchmarks. These conditions directly impact the quality of childcare provided and parents' sense of security in entrusting their children to caregivers.

The implications of these challenges are significant. Children cared for by unqualified caregivers may experience delays in growth and development, inadequate educational stimulation, and even risks of neglect or abuse. For parents, uncertainty about caregiver quality leads to worry and anxiety, which can also affect work productivity. On the other hand, caregivers who lack systematic support in the form of training or monitoring face difficulties in improving their professionalism, perpetuating this cycle of problems (Reddit, 2024)

In the context of technological advancement, digitalization emerges as an innovative solution to address these challenges. The use of digital platforms allows families to access nanny care services more easily and efficiently. Through online systems, parents can assess prospective caregivers' track records, monitor children's activities, and communicate directly with caregivers at any time. Meanwhile, for caregivers, digital platforms provide opportunities to enhance competencies through online training and to obtain stronger protection (McDonald et al., 2021)

Several studies have shown that the use of digital platforms in childcare services enables more transparent and measurable recruitment



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and training processes (Orth & Baum, 2024). In addition, parents can monitor children's activities and verify caregivers' backgrounds in real-time through features such as profile verification and digital track records (Andrisano Ruggieri et al., 2024). Some similar service models have also been developed at the regional level, offering app-based nanny services with verification and training mechanisms (Rahman et al., 2022) noted that specific innovative digital systems can assist parents in monitoring their children's development.

Therefore, analyzing the needs for digital-based nanny care is crucial. Such analysis will provide insights into the types of services required by the community, the most relevant features to address parental concerns, and strategies to enhance caregiver professionalism. The results of this analysis are expected to serve as the foundation for developing innovative digital nanny care systems that not only improve accessibility but also enhance the quality of childcare and family security in the digital transformation era.

## METHODS

This study was a quantitative research employing an analytical design with a cross-sectional approach. The study aimed to provide an overview of the utilization of digital nanny care and to examine the relationship between family needs and child care. The population consisted of all users of maternal and child health

services at a Mother and Child Hospital in the Surabaya area. The sample was selected using probability sampling with a random sampling, involving 50 respondents. The sample criteria were mothers undergoing antenatal or postnatal check-ups. The instrument used was a modified Family Needs Questionnaire to identify maternal and child care needs. The questionnaire used in this study was adapted from the *Family Needs Questionnaire* (FNQ) developed by Barnett et al. (1992), originally designed to identify family needs for children with special conditions. The adaptation contextualized the items to assess family needs in using digital caregiving services. Several original items related to professional support and information needs were modified to evaluate the "digital nanny care". The *nanny care service* was operationalized through three key dimensions: **monitoring and safety, information and guidance, and emotional and convenience support**. The instrument had been tested for validity (0.8) and reliability (0.85). The questionnaire consisted of 15 closed-ended questions covering demographic aspects of family needs for nanny care. The analysis of nanny care needs was carried out using frequency distribution and Spearman correlation analysis with an alpha level of 0.05 to determine the relationship between care needs and the demand for nanny care services. This study has obtained ethical clearance as stated in the Ethical Clearance Certificate No. 151/EC/LPPM/STIKES/KH/IX/2025



## RESULTS

**Table 1.** Respondent Characteristics

Characteristics		N	%
Age (years)	20-25	17	34
	26-31	23	46
	32-37	10	20
		50	100
Level of Education		N	
	Elementary school	0	0
	Junior high school	7	14
	Senior high school	26	52
	Diploma/ Bachelor	17	34
		50	100
Employment status		N	%
	Employed	29	58
	Unemployed	21	42
		50	100
Need for maternal and child care		N	%
	Less needed (partial need)	6	12
	Highly needed (total need)	44	88
		50	100
Availability of nanny care support in the family		N	%
	Instrumental support	28	56
	Emotional support	16	32
	Informational support	6	12
		50	100
Consumer considerations in choosing a nanny care system		N	%



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Systematized (digital platform)	35	70
	15	30
Manual	50	100

**Table 2:** Respondents' opinions on Nany's service needs at home

	Strongly Disagree		Disagree		Strongly Agree		Agree		Total
	N	%	N	%	N	%	N	%	
1 Professional and integrated nanny care services in mother and child hospitals (MCHs) are highly needed.	2	4	8	16	35	70	5	10	100
2 Nanny care can complement the needs of mothers and families.	6	12	4	8	35	70	5	10	100
3 The availability of nanny care services in hospitals becomes an attractive option for consumers.	2	4	4	8	36	72	8	16	100
4 Nanny care services are very helpful in providing maternal and child care.	3	6	2	4	6	12	39	78	100
5 Nanny care services can provide a sense of safety and comfort for both mothers and children.	6	12	4	8	38	76	2	4	100
6 Service users believe that nanny care can help stimulate child growth and development.	4	8	2	4	10	20	34	68	100
7 Consumers are willing to pay for nanny care services that are high-quality and reliable.	1	2	2	4	6	12	41	82	100
8 Customers recommend nanny care services to friends or family members in need.	8	16	2	4	38	76	2	4	100





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**Table 3.** Availability of support in nanny care services

Availability of support in nanny care services						
Consumer needs for maternal and child care	Instrumental support		Emotional support		Informational support	
	N	%	N	%	N	%
Total needs	28	56	10	20	6	12
Partial needs	0		6	12		
	28	56	16	32	6	12

p=0.04 (alpha <0.05), the chi-square analysis

According to the survey results, 35 respondents (70%) stated that they needed nanny care services, and a similar number (35 respondents, 70%) also noted that such services could complement their needs in caring for mothers and children. Furthermore, 36 respondents (72%) considered the availability of nanny care services in hospitals as an attractive innovation with the potential to become a consumer appeal. Support for this service was also reflected in the responses of 39 participants (78%) who stated that nanny care was beneficial for maternal and child care, and 38 respondents (76%) who felt that the service provided a sense of security. In addition, 34 respondents (68%) believed that nanny care could help stimulate a child's growth and development. High confidence in this service was also evident: 41 respondents (82%) were willing to pay for high-quality, reliable nanny care, and 38 respondents (76%) were ready to recommend the service to friends or family in need. These findings indicate that nanny care services have significant potential to be developed as part of holistic, sustainable healthcare services.

Based on Table 3, respondents with total care needs mainly required instrumental support (28 respondents, 56%), while those with partial needs primarily required emotional support. Statistical analysis using the chi-square test revealed a significant relationship between consumer needs and the availability of support in nanny care services in the Surabaya area.

## DISCUSSION

Based on the data presented in Table 1, the respondents' characteristics indicate a strong need for nanny care services. The majority of respondents were in the 26–31-year age group (46%), representing young adults in the process of building families and actively engaged in the workforce. This age is often a transitional stage for individuals who have recently become parents, making them more likely to seek support in caring for their children. (Wiliyanarti, 2025) noted that psychosocial development at this stage is marked by the challenge of “intimacy vs. isolation,” where individuals need to establish healthy relationships within their personal and family lives. The demand for nanny care is highly relevant at this point, as it provides support in parenting roles and helps create balance between work and family responsibilities.



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In terms of education, 26 respondents (52%) had completed senior high school, while 17 respondents (34%) held a diploma or bachelor's degree. This indicates that most respondents possessed a relatively good educational background, which is likely associated with increased awareness of the importance of knowledge-based parenting. According to Piaget's theory of cognitive development, parents with adequate knowledge of child development tend to better understand their children's needs at various developmental stages. Consequently, they are more open to using services such as nanny care, which can offer additional information and direct assistance in childcare.

Employment status further highlights this need, with 29 respondents (58%) working, suggesting a greater demand for additional childcare support. Maslow's hierarchy of needs explains that at the level of safety and security needs, working individuals are more likely to seek ways to ensure their families' fundamental well-being, including the care and safety of their children. Nanny care services thus become an attractive solution for working families, providing assurance that children receive adequate attention even when their parents are away.

Additionally, the data show that 44 respondents (88%) expressed a strong need for information regarding child development and care. This reflects a high level of parental awareness of the importance of knowledge in supporting healthy child growth. Early cognitive and emotional stimulation significantly influences children's intellectual development. Therefore, nanny care services that not only provide caregiving but also deliver education on child development are highly sought after by parents who want to ensure their children's optimal growth.

Regarding the types of support needed, the

majority of respondents preferred instrumental support (56%), indicating that parents place greater value on direct assistance with daily childcare tasks, such as feeding, bathing, or putting children to sleep. While emotional and informational support remain important, concrete actions in childcare are the top priority for most families. Emotional support, however, remains vital, as it fosters a sense of safety and comfort in children, which, in turn, supports their emotional development.

These findings suggest that nanny care services hold great potential among young families, particularly those who work and are highly conscious of child development. Service providers should consider recruiting caregivers who are not only skilled in childcare but also knowledgeable about child development and child psychology. Continuous training and certification for caregivers can serve as essential quality standards to maintain consumer trust. The findings highlight the importance of digital nanny care as an innovative approach to enhancing child care more effectively and efficiently, while also supporting the development of professional, well-trained nannies.

It is also crucial for nanny care providers to go beyond direct caregiving and offer parents the information they need about child development. This approach would create more holistic services capable of meeting diverse family needs. Integrating nanny care into health or early childhood education systems could be a long-term strategy to support modern families in addressing childcare challenges.

The study further revealed that 35 respondents (70%) preferred to access nanny care services digitally. This finding aligns with the growing influence of digital technology in various aspects of life, including public health. Governments and related institutions aim to



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protect and enhance public health, and in the digital era, technology strengthens services through improved efficiency, accessibility, and quality (Fahey & Hino, 2020). Ease of access has become a key consumer preference, particularly for mothers with health concerns who seek immediate services.

As social status improves, so does the demand for comprehensive, high-quality services, including home care that ensures continuity of health services. The ultimate goal is better health outcomes with patient satisfaction at the center, as satisfaction is closely tied to individuals' perceptions of the quality of services received. Patient perception is, therefore, a critical factor in evaluating the effectiveness of healthcare services. Efforts to enhance service quality and performance ultimately aim to improve both patient satisfaction and overall health standards.

Based on Table 3, most respondents with comprehensive care needs reported the highest demand for instrumental support (28, 56%). Conversely, respondents with partial needs tended to prioritize emotional support. Statistical analysis using the chi-square test confirmed a significant relationship between consumer needs and the availability of nanny care services in Surabaya.

The results demonstrate that instrumental support, including practical assistance, labor, and care facilities, is the primary need for families with high care demands. This underscores instrumental support as a vital element in maintaining continuity of maternal and child care, especially in situations where families face time and resource limitations. These findings are consistent with Chen et al. (Chen et al., 2021), who emphasized the central role of practical support in ensuring the success of family care services.

On the other hand, families with partial needs placed greater importance on emotional support. This indicates that nanny care is not limited to meeting physical needs but also addresses psychosocial aspects, such as providing comfort, reassurance, and confidence for parents. This aligns with (Rahman et al., 2022), who found that emotional support significantly influences family satisfaction with childcare services.

Statistical analysis using the chi-square test further reinforced the understanding that consumer needs for nanny care services are closely related to the type of support available. The more complex the care needs, the greater the reliance on instrumental support, while partial needs are more strongly associated with emotional support (Organization, 2021).

In light of these findings, the development of nanny care systems, particularly those delivered digitally, should adopt an approach that integrates both dimensions of support. Combining effective instrumental services with adaptive emotional support will make nanny care more responsive to the diverse needs of families in Surabaya.

The findings of this study have policy and implementation implications, suggesting that digital nanny care platforms can be integrated with Maternal and Child Health Information Systems to improve care coordination, facilitate data-driven decision-making, and support evidence-based policies for enhancing maternal and child health services.

The limitation of this study lies in its implementation within a limited hospital setting, with the advantages of digital nanny care still requiring further development to comprehensively meet maternal and child healthcare needs. Future studies are recommended to enhance the generalizability of the findings by using a broader sample and incorporating qualitative research approaches,





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as well as testing a digital nanny app prototype to gain deeper insights into user needs and system effectiveness.

## CONCLUSION

Digital platform-based Nanny Care services have become a popular choice for families, offering ease of access and flexibility. The need for maternal and child care is closely linked to the availability of support services, which can improve the overall health status of mothers and children. The use of digital technology, in the form of health platforms, has been proven to expand service coverage, enhance accessibility, and deliver tangible benefits in efforts to improve public health.

## DECLARATION OF CONFLICTING INTERESTS

Declaration of Conflicting Interests The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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