

Influence of Demographic Factors Associated with Psychological Effects of Caesarean Section on Mothers Delivered at Kenyatta National Hospital

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ABSTRACT

The rate of Caesarean section delivery being undertaken is rising both locally and internationally. Though Caesarean Section is aimed at ensuring safe deliveries in complicated conditions, the exact post effect it has on the mother's psychology is not well established by the existing literature. Caesarean birth may be experienced as a traumatic encounter for the mother resulting in both immediate and long term consequences. Despite some mothers recovering fully, others still face psychological difficulties and this raises much concern. This study sought to determine the demographic factors associated with psychological effects of caesarean section. This was a descriptive cross-sectional research study conducted at Kenyatta National Hospital postnatal wards on mothers who had had caesarean section delivery. Qualitative data was analyzed using content analysis while quantitative data was analyzed through descriptive and inferential analysis. SPSS was applied in quantitative data entry and analysis. Findings were presented in tables and figures. 61.8 % of 217 (n=134) of the mothers experienced psychological effects of caesarean section; majority reporting having experienced numerous effects. The study found that women who were 20 years or less were slightly more than 3 times likely to experience psychological effects of caesarean section compared to those who were above 40 years old, (OR 3.324 p= 0.041). Other demographic factors found to be associated with psychological effects of caesarean section included; fewer number of living children (OR 2.720 p= 0.007) and low parity (OR 2.612 p= 0.001). The study concludes that majority of mothers experience psychological effects as a result of caesarean section delivery, in addition, some experience more than one of the effects. The findings may be used by the hospital's administration to evaluate the protocols on post caesarean section care and psychological management. It also contributes to the body of knowledge on psychological effects of caesarean section and can be utilized by other researchers.

Key Words: *Caesarean Section rates, Demographic factors, Caesarean Section, Psychological effects*

1. INTRODUCTION

Caesarean birth is considered to be an easy and safer way of giving birth and has many advantages for both the mother and the baby. In the medical profession caesarean section is considered to be a safe, quick and routine surgery (Mazzoni, Althabe, and Gutierrez, 2016). However, Caesarean birth may be experienced as a traumatic encounter for the mother resulting in both immediate and long term consequences. This is attributed to the fact that it's abrupt and leads to interruption of the biologically programmed vaginal birth process. (Garcia, de Koning Gans, and Verdult, 2014). The rate of Caesarean section delivery being undertaken is in the rising trend in the recent past, surpassing the recommended rate of 15% of all deliveries by WHO. Specifically in Kenyatta National Hospital, the caesarean deliveries have been on a steady increase in the last three decades. This increase has generally been attributed to the fact that KNH being a teaching and referral

hospital handles high-risk pregnancies that are more likely to end up with caesarean delivery (Hyde, 2011). Though the hospital has well established obstetric wards, the effect of Caesarean section on the women after they have been discharged still remains unanswered.

Empirically, studies have been done both locally and internationally pertaining to the psychological effects of Caesarean Section on mothers. Verdult, (2014) established that proper preparation and counselling is necessary in order to prevent mothers from suffering from a traumatic birth. Wangui (2015) found out that the psychological depression was a common phenomenon on mothers delivered through an emergency caesarean. This concurs with studies conducted by Merry, and Gagnon, 2016. On the other hand, Juma, Nyambati, Karama, Githuku, and Gura, 2017 found out that this tends to contradict Jahonga who investigated the caesarean deliveries at MP Shah Hospital-Nairobi established minimal psychological effects of mothers delivered by caesarean section. This shows that although caesarean birth has physical disadvantages and risks, the possible traumatic aspects of Caesarean section birth in mothers are ignored and denied in most research work. The studies conducted have mainly concentrated on the indicators of Caesarean Section with uniformity in the physiological aspect of it. Moreover, the available theoretical framework is not sufficient in explaining the relationship that exists. Understanding this is imperative in accessing how Caesarean section may impact on mothers psychologically and how this may be controlled. It's against this backdrop that this current study was conducted.

2. PROBLEM STATEMENT

A caesarean section is medically indicated when a significant risk of adverse outcome for mother or baby is present if the operation is not performed at a given time Mofubelu, (2017). Caesarean section (CS) is essential in life-threatening situations pertaining to both the mother and the fetal complications (Fadhley, 2014). The process thus aims to ensure safely delivery to both the mother and the child. The importance of Caesarean Section is estimated to prevent complications and ensure safe delivery in about 5 - 15 percent of pregnancies (Lee *et al*, 2011). This has seen its uptake increase drastically in the recent past and gaining popularity amongst most mothers. It has been documented however, that mothers undergoing delivery through Caesarean sections can experience increased incidence of postnatal depression. They have also been established to undergo significant psychological trauma and ongoing birth-related post-traumatic stress. Sam McCulloh (2016) in his study also named some of the common challenging emotions as low self-esteem, guilt, loss, shock, anger, trauma, resentment and failure which are felt after caesarean delivery. C-section women report experiencing psychological changes such as, a sense of loss, interrupted relationship with mother-feelings of detachment from her baby and altered identity, intimidations of mortality, feelings of violation, anger at caregivers, dissociation, humiliation and also posttraumatic stress disorder symptoms (Segen, 2012). This might affect them greatly to the extent of not wanting to undergo any other delivery (Fadhley, 2014). Women who have had cesareans have higher rates of voluntary secondary infertility, purposely preventing another pregnancy. These psychological changes are however not well put across by the available literature and this study aimed at shedding more light into this.

3. RESEARCH OBJECTIVE

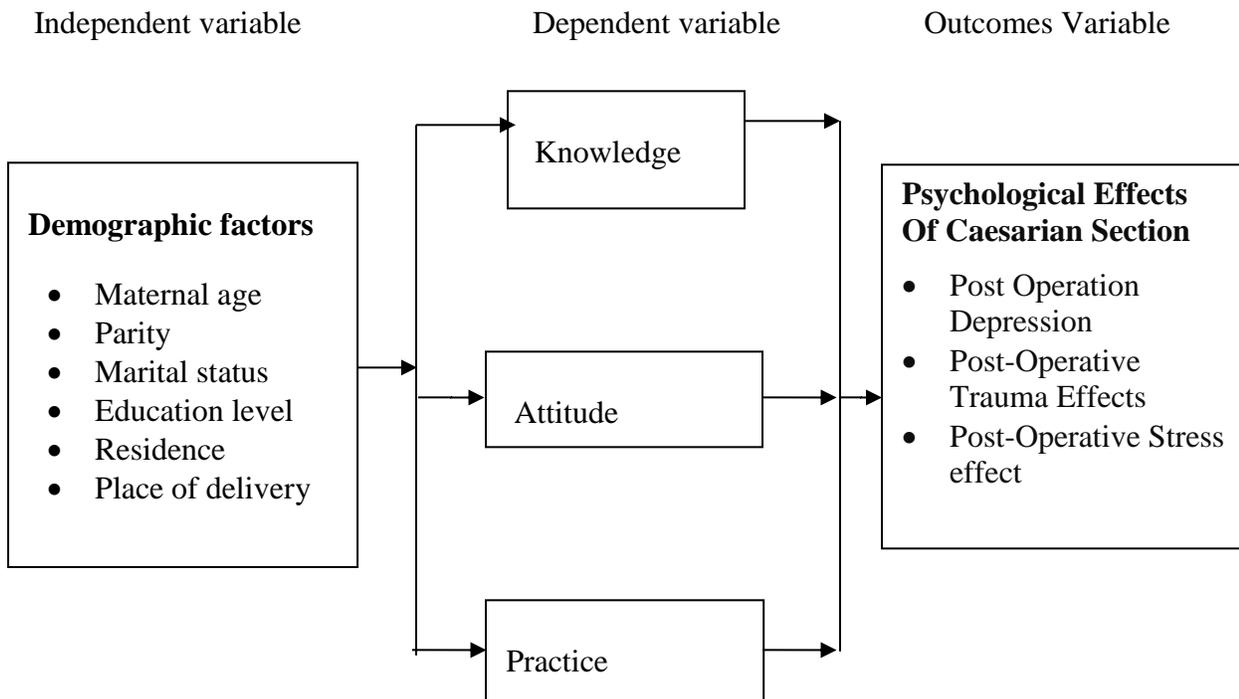
To determine the demographic factors associated with psychological effects of caesarean section on mothers who have delivered through C- section at postnatal wards in KNH.

4. THEORETICAL FRAMEWORK

This study was based on the Health Belief Model (HBM) proposed by Rosentock, Hochbaum and Kegels in 1952 (Becker, 1974; Janz and Becker, 1984). The HBM states that “the perception of a personal health behavior threat is itself influenced by at least three factors: general health values, which include interest and concern about health; specific health beliefs about vulnerability to a particular health threat; and beliefs about the consequences of the health problem. Once an individual perceives a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweighs his/her perceived risks, then that individual is most likely to undertake the recommended preventive health action. There may be some variables (demographic, socio-psychological, and structural) that can influence an individual's decision (Grissette, Spratling, and Aycock, 2018). In this study, perception of mothers on the psychological effects of caesarean section has been decided on as the desirable outcome for evaluation and directly reflects on mothers’ perception. The theoretical model has thus been modified to suit the purposes of this study as cited from literature review relationships. All modifications are as shown in the conceptual framework with indications of the appropriate relationships drawn from literature review.

5. CONCEPTUAL FRAMEWORK

Figure 1: Conceptual Frameworks for this Study was derived from the study variables as shown below.



6. RESEARCH METHODOLOGY

This was a descriptive cross sectional qualitative and quantitative study to determine psychological effects of caesarean section on mothers at obstetric wards in Kenyatta national hospital. This design was chosen because the researcher was seeking information from a large population within

a short period of time. Secondly, the researcher had limited resources to her disposal, dictating that the time, materials and research assistants be quite minimal. The study was conducted at postnatal wards in KNH. This is one of the post-operative wards of the hospital where all mothers who have undergone caesarean section and other obstetrical operations are attended to. It is the main obstetrical admitting ward. The ward operates under the management of the division of reproductive health in the hospital.

All caesarean section mothers admitted and managed in KNH obstetric ward formed the target population for this study. The targeted CS mothers in the reproductive age between 15 and 49 years were interviewed. Furthermore, the study targeted the nurse managers and staff nurses at the obstetric ward for Key informant interview (KII). The study included mothers who had undergone CS and admitted in postnatal ward for management before discharge. All mothers who had undergone CS and gave informed consent were included. Mothers who had delivered through CS but did not give informed consent and also all mothers who delivered through CS but not within the designated age range were excluded from the research study.

The Fischer's formula illustrated below was used to determine the sample size for the participants.

$$n = \frac{Z^2 P(1 - P)}{I^2}$$

Where:

n = Sample size [where population > 10,000]

Z = Normal standard deviation at the desired confidence interval. In this case it will be taken at 95% confidence interval giving a **Z** value of 1.96.

P = Proportion of the population with the desired characteristic.

1- p = Proportion of the population without the desired characteristic.

I² = Degree of precision at 95% confidence interval which is 0.5

Since the proportion of the population with the characteristic is not known, 50% will be used.

$$\text{Therefore } n = \frac{1.96 [0.5] [0.5]}{[0.05][0.05]} = 384$$

Since the target population at postnatal ward in KNH was <10,000, the alternative formula was applied using the following formula.

Where:

nf = the desired sample size for population <10,000

N = total study population which is 500 per month

n = the calculated sample size.

$nf=384$

1.768

=~217

The targeted sample size was therefore 217 mothers. Simple random sampling method was used. Each participant in the study population had equal likelihood of being selected to participate in the study. A list of all mothers was serialized on day 1 of the study. A table of random numbers was used to select the first mother. Every 2nd mother was then included in the study until the sample size was obtained. A pre-tested semi-structured questionnaire was administered by research assistants to collect data. Pre-testing was done at KNH obstetric wards. Two research assistants were selected from among the Bachelor of Science Nursing (BSN) students of the school of nursing, college of health sciences, University of Nairobi who were trained for one week. Field questionnaires were checked for completeness and information entered into SPSS computer systems for analysis at the end of the study. The questionnaire interview was conducted in English. Whenever necessary it was translated by the research assistants into Swahili. Key informants interview guide was also used to obtain qualitative data. Quantitative data analysis was done using descriptive statistics such as pie charts, bar charts, Histograms, bar graphs and measurements of central tendency (mean, mode, median). Inferential statistics, such as test of significance and coefficient correlations, were used to compare variables. Frequencies for the numerical variables including age, level of education, parity, marital status, residence, family size, average monthly income and working experience were presented in frequency tables. Presentation of qualitative data was done in themes and verbatim reporting. Thematic analysis was used to analyse qualitative data, this was done by putting together findings under common items into groups for easily analysis and interpretation.

7. DATA ANALYSIS RESULTS

The study sought to demographic factors associated with psychological effects of caesarean section on mothers who have delivered through C- section at postnatal wards in KNH. The findings obtained are shown by Table 1 and 2.

Table 1 Distribution of demographic factors of the respondents

Demographic factor	Frequency (n)	Percentage (%)
Age		
Below 20 years	59	27.2
20-30 years	73	33.6
31-40 years	53	24.4
More than 40 years	32	14.7
Level of education (complete)		
No formal education.	8	3.7
Primary school	29	13.4
Secondary school	113	52.1
College/university	67	30.9
Marital status		
Married	117	53.9
Single/separated/widowed/divorced	100	46.1

Number of live children		
1	120	55.3
1-3	44	20.3
>3	53	24.4
Number of deliveries		
1	106	48.8
2-3	58	26.7
>3	53	24.4
Place of residence		
Few kilometers from the hospital	160	73.7
Far from the hospital	57	26.3

As shown, the numbers of mothers who were below 20 years old were 59 (27.2 %), those between 20 and 30 years were 73 (33.6 %), while those between 31 and 40 years were 53 (24.4 %). It was also shown that women who were 20 years and below were slightly more than 3 times likely to have experienced psychological effects of caesarean section than women above 40 years old (ODDS RATIO (OR) 3.324, $p= 0.041$). Only 8 (3.69 %) and 29 (13.4 %) of the respondents had no formal education or had primary school education, respectively. The respondents who had attained tertiary level education were 67 (30.9 %) while those who had attained secondary school education were in majority, 113 (52.1 %). Table 2 shows that there was not a statistically significant relationship between level of education and psychological effects of caesarean section, ($p= 0.845$). Most of the respondents, 117 (53.9 %) were married. Those who were either single, separated or widowed combined were 100 (46.1 %). Table 2 shows that there was no statistically significant relationship between a mother's marital status and psychological effects of caesarean section ($p= 0.107$).

Majority of the respondents, 120 (55.3 %) had one child while 53 (24.4 %) had more than three children. The respondents with two or three children were 44 (20.3 %). Table 2 shows that there was a statistically significant relationship between number of living children the respondents had and their experiencing of psychological effects of caesarean section. Those with 1 living child were 3 times more likely to experience psychological effects of caesarean section compared to those with more than 3 living children (OR 2.720 $p= 0.007$).

Majority of the mothers, 106 (49.0%) had delivered only one child, 59 (27.0 %) had delivered more than three children while the rest 52 (24.0 %) had delivered 2-3 children. Table 2 shows that there was a statistically significant relationship between a respondent's parity and her experiencing psychological effects of caesarean section. Mothers who had only delivered once were slightly more than 2.5 times likely to experience psychological effects of caesarean section compared to those who had borne more than 3 children (OR 2.612 $p= 0.001$).

Majority of the participants, 160 (73.7 %) indicated that they stayed a few (0.5) kilometers from the hospital while a few 37 (26.3 %) noted that they stayed far from the hospital. Table 2 shows that there was no statistically significant relationship between place of residence and likelihood of experiencing psychological effects of caesarean section ($p= 0.950$).

Table 2 Relationship between demographic factors of the respondents and psychological effects of caesarean section

Demographic factor	Experienced psychological effects after CS.		χ^2	Odds ratio	P-value
	Yes N (%).	No N (%).			
Age					
Below 20 years	44(74.6)	15(25.4)		3.324	
20-30 years	46(63.0)	27(37.0)	8.267	1.931	0.041
31-40 years	29(54.7)	24(45.3)		1.369	
>40 years	15(46.9)	17(53.1)		1	
Level of education (complete)					
Primary school	19(65.5)	10(34.5)		1.900	
Secondary school	71(62.8)	42(37.2)	0.817	1.690	0.845
College/university	40(59.7)	27(40.3)		1.481	
No formal education.	4(50.0)	4 (50.0)		1	
Marital status					
Married	78(66.7)	39(33.3)	2.597	1.571	0.107
Single/separated/widowed/divorced	56(56.0)	44(44.0)		1	
Number of live children					
0-1	85(70.8)	35(29.2)		2.720	
2-3	24(54.5)	20(45.5)	9.929	1.344	0.007
>3	25(47.2)	28(52.8)		1	
Number of deliveries					
1	79(74.5)	27(25.5)		2.612	
2-3	27(46.6)	31(53.4)	14.786	0.778	0.001
>3	28(52.8)	25(47.2)		1	
Place of residence					
Within Nairobi	99(61.9)	61(38.1)	0.004	1.020	0.950
Outside Nairobi	35(61.4)	22(38.6)		1	
Family size					
1-3 people	25(64.1)	14(35.9)		1.367	
4-6 people	45(69.2)	20(30.8)	2.882	1.723	0.237
>6 people	64(56.6)	49(43.4)		1	

Results from focused group discussion and key informers showed that marital status, family size and place of residence did not influence the prevalence of psychological effects of caesarean section among mothers who had undergone caesarean section. In terms of parity and number of live children, a nurses from the key informers said; *'the primiparous women and those women with fewer number of living children are more likely to experience psychological effects of caesarean section one reason being fear for the next pregnancy.'*

The nurses also agreed that mothers who were young were more likely to experience psychological effects of caesarean section compared to older women citing lack of experience and fear for next pregnancies as they are more likely to have more children in the future compared to older women.

Psychological effects of caesarean section

According to Figure 1, The most commonly reported psychological effects of caesarean section was anxiety (96.4 %), fear of next pregnancy (89.9 %), post-operative trauma effects (79.8 %),

post-operative stress effect (68.2 %), fear (59.7 %) and depression (55.0 %). Other experienced effects included disappointment with mode of delivery (48.1 %), hate for hospital delivery (37.2 %), post operation depression (30.2 %), failure to have normal birth (24.0 %), feeling of social stigma (14.0 %) and feeling of not suffering enough for the baby (7.0 %).

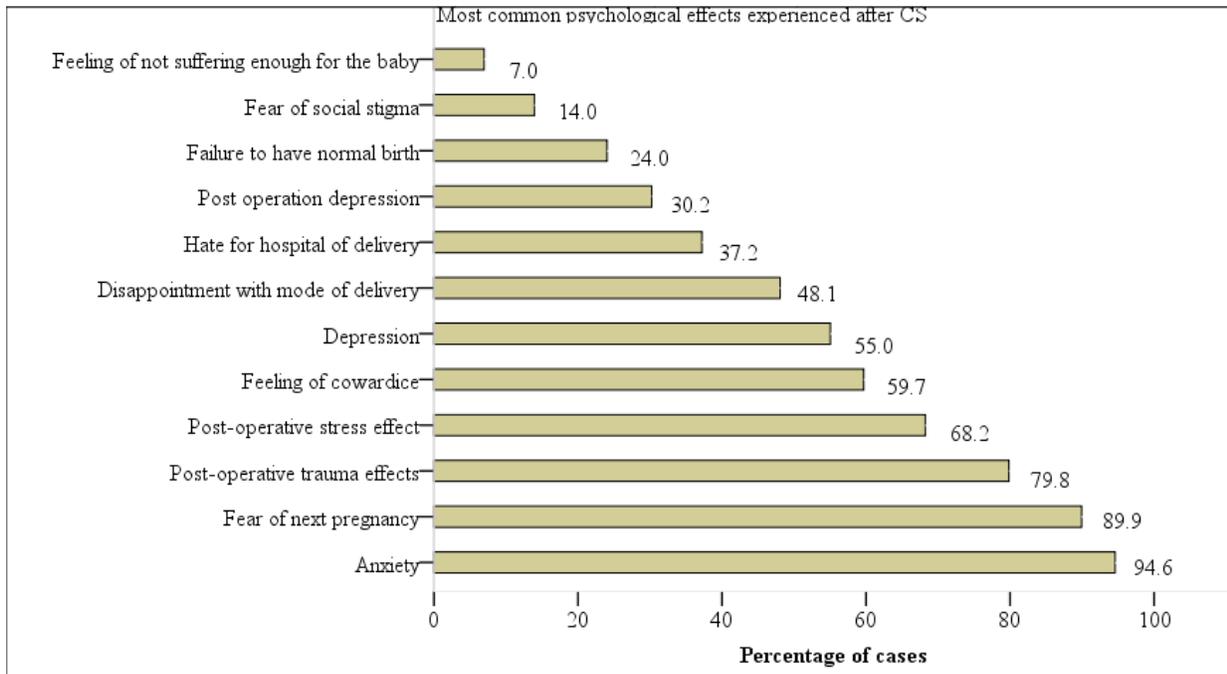


Figure 2: Common psychological effects of caesarean section experienced

8. DISCUSSION

This section puts our empirical findings into a broader context and compares them to other findings in the literature. The caesarean section delivery being an extremely uncomfortable procedure, it is bound to put a permanent emotional scar on those involved. Sam McCulloh (2016), in his study, emotional scars after caesarean delivery named the followings as common challenging emotions: guilt, trauma, anger, resentment, shock, loss, detachment, failure and low self-esteem. With regards to this, this study found that a larger percentage of the mothers, (61.8 % n= 134) had experienced psychological effects after having caesarean birth. The study revealed that women who were 20 years or less were more than 3 times likely to experience psychological effects of caesarean section compared to those who were above 40 years old, (OR 3.324 p= 0.041). This could be attributed to the low experience of younger women on matters of childbirth and also for the fear of the next pregnancies as caesarean section would come with complications restricting the number of pregnancies to come. This finding contradicted that of Murray *et al.*, (2015) that there was no difference in terms of age in prevalence of the psychological effects.

Number of living children was also found to have an impact on the psychological status of women after having caesarean section. Those with 0-1 living children were nearly 3 times more likely to experience psychological effects after caesarean section compared to those with more than 3 living children, (OR 2.720 p= 0.007). This could be due to fear for the next pregnancies as caesarean section may restrict number of next pregnancies to come. The finding also revealed that women's parity has a relationship with psychological effects of caesarean section. The primiparous were slightly 2.5 times likely to experience psychological effects after having caesarean section compared to multiparous, (OR 2.612 p= 0.001). These findings were supported by the results from the key informers; both nurses and doctors said that mothers who were young were more likely to experience psychological effects of caesarean section compared to older women citing lack of experience and need for more children by the young mothers. In addition, a nurse reported 'that primiparous women and those women with less number of children are more likely to experience psychological effects after having caesarean section because on fear for the next pregnancy. Level of education (p= 0.845), marital status (p= 0.107) and place of residence (p= 0.950) were some of the demographic factors that were not associated with psychological effects of caesarean section. However, this does not completely rule out their influence on psychological effects of caesarean section, for instance, (Bernazzani et al., 2014) realized that highly educated women healed faster and experienced less psychological effects of caesarean section compared to their counterparts who had low levels of formal education. Also Behague *et al*, (2012) in their study concluded that the wealthy and educated women were most likely to go for Caesarean sections and attend antenatal clinic so they were well informed and had less psychological effects.

9. CONCLUSIONS AND RECOMMENDATIONS

The study concludes that majority of mothers experience the psychological effects as a result of the caesarean section delivery, in addition, some experience a more than one of the effects. Demographic characteristics such as younger age, fewer numbers of living children as well as low parity of the mother are associated with psychological effects of caesarean section. Based on the study findings which found a statistical significant psychological effect caused by caesarean section on mothers, the study hypothesis, "the Null Hypothesis" ('there is no significant psychological effect caused by caesarean section on mothers') is rejected. The study therefore recommends that the department of reproductive unit in the hospital to strive to reduce the prevalence of psychological effects of caesarean section (from 61.8 %) among the mothers by revising or amending the policy on the protocol on management of women who undergo caesarean section. The hospital management should ensure midwives, obstetricians and psychologists counsel mothers on the possible caesarean section associated psychological effects prior and after the surgery. Nurses and other health care workers in the unit to advice mothers should observe strict adherence to the antenatal visit schedule as the hospital is where they are extensively enlightened on issues of caesarean section. The study also recommends that nurses and other healthcare workers in the unit to educate mothers on various aspects of caesarean section including the possible outcome and the associated psychological effects, to boost their pool of knowledge concerning caesarean section and improve their attitude towards it. The study further recommends that the government, through the ministry of health and the hospital management to avail adequate health service providers to be availed who will be accessible to the patient at all times throughout the patient's hospital stay.

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