



Puzzle Out the Reason behind Prolonged Hospital Stay among Children

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Authors' contributions

This work was carried out in collaboration among all authors. Authors BS and SG designed the study, performed the statistical analysis and wrote the protocol, author AK wrote the first draft of the manuscript. Authors MK and FM managed the analyses of the study. Author TK managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To find out the reasons behind prolonged hospital stay among children.

Study Design: Descriptive cross-sectional

Place and Duration of Study: Study was conducted at the People university of medical and health sciences hospital during the period of November 2020 to April 2021.

Methodology: All the children between the age group of 1 year to 12 years, who were admitted in pediatric ward of the hospital for any reason, were included in the study. Prolonged hospital stay was labelled when it exceeded above 7 days. A self-designed proforma was made which consisted of demographic data, total duration of stay and the most probable cause of stay. Data was analyzed by using the Statistical Package for the Social Sciences (SPSS) version 20. p-value less

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than 0.05 was considered as significant

Results: The mean age of the study participants with standard deviation was 6.8 ± 2.3 years. Half of the participants (50.9%) admitted in hospital for prolonged duration were from the age group of ≤ 5 years. About 55.7% of the participants were female and majority were from the lower socioeconomic class (53.8%) Mean and standard deviation of duration of hospital stay was 11.85 ± 2.29 . In majority of cases (n=80) there was delay in consulting a physician which was followed by resistant to the therapy and acquiring nosocomial infection while very few of the cases were having some invasive procedure done so increased duration of stay.

Conclusion: It can be concluded that the younger age group that is less than 5 years is the most significant risk factor while the most common reason is the delayed consultation to the physician.

Keywords: Prolonged duration of hospital stay; pediatric health status; socioeconomic burden.

1. INTRODUCTION

There is higher prevalence of morbidity among the pediatric age group especially the burden of infections and allergies because of their weak immune system leading to frequent hospitalization as compare to adult age group. Due to increased rate of hospitalization, they are more prone to get the nosocomial infections which lead to increased duration of hospital admission [1-2]. Globally there is higher prevalence of nosocomial infections leading to prolonged hospitalization especially in the developing countries where poverty and low socioeconomic status play a major role [3-4].

There are multiple factors which can increase the duration of hospital admission which include nosocomial infections like respiratory infections including pneumonia, gut disturbances and urinary tract infections while other include allergies, delay in consulting a physician, prematurity, parents want to stay till their child get recovered, resistant to medical treatment, delay in diagnosis or any invasive procedure was performed [3, 5-7].

In developing countries like Pakistan, prolonged duration of hospital stay creates a socio-cognitive problem to the child, financial and social burden for the parents and burden for the hospital as well [8]. Very few of the data has been available to identify the risk factors that lead to prolonged hospital admission while in current setup, to the best of our knowledge, none of the study has been done to estimate the burden of factors that can be improved to minimize the duration of hospital stay. So the aim of current study was to find out the reasons behind prolonged hospital stay among children.

2. METHODOLOGY

A descriptive cross-sectional study was conducted at the People university of medical

and health sciences hospital during the period of November 2020 to April 2021. It is a government tertiary care hospital where the patients from all areas of interior Sindh are referred. All the children between the age group of 1 year to 12 years, who were admitted in pediatric ward of the hospital for any reason, were included in the study. Informed assent was taken from the parents/guardian. On the basis of age, children were categorized into three groups including ≤ 5 years, 6-8 years and 9-12 years, to find out the most affected age group and the reason behind prolonged hospital stay. Prolonged hospital stay was labelled when it exceeded above 7 days. A self-designed proforma was made which consisted of demographic data, total duration of stay and the most probable cause of stay.

Data was analyzed by using the Statistical Package for the Social Sciences (SPSS) version 20. All the numerical variables were mentioned as mean and standard deviation while the categorical data as frequency and percentage. Association between the variables were calculated by using the chi-square test. p-value less than 0.05 was considered as significant.

3. RESULTS

About 210 children were enrolled in the study who were admitted in hospital for prolonged duration as per inclusion criteria of the study. The mean age of the study participants with standard deviation was 6.8 ± 2.3 years. Participants were divided into three groups on the basis of their age, half of the participants (50.9%) admitted in hospital for prolonged duration were from the age group of ≤ 5 years and having significant association with the duration of stay. About 55.7% of the participants were female as compared to their male counterparts but the association was non-significant. Majority of participants were from the lower socioeconomic class (53.8%) followed by the middle class

(37.6%) while the mothers of majority of participants were uneducated and both the socioeconomic class and mother education were strongly associated with the prolonged hospital stay. Mean and standard deviation of duration of hospital stay was 11.85 ± 2.29 . The demographic data and their association with the duration of hospital stay is mentioned in Table 1.

Finding out the most common risk factor for prolonged hospital stay, it was noted that in majority of cases (n=80) there was delay in

consulting a physician while having significant p-value. There were also many cases (n=42) who were resistant to the therapy, some of them (n=36) got hospital acquired infection which lead to prolonged hospital stay and both the factors reported highly significant p-value. Very few of the cases (n=13) were having some invasive procedure done so increased duration of stay as mentioned in Fig. 1. The association of risk factors with the duration of hospital stay along with p-values are presented in Table 2.

Table 1. Demographic variables of study participants and their association with prolonged hospital stay

Variables	n= 210 (%)	p-value
Age groups		0.002
≤ 5 years	107 (50.9%)	
6-8 years	68 (32.4%)	
9-12 years	35 (16.7%)	
Gender		0.62
Male	93 (44.3%)	
Female	117 (55.7%)	
Socioeconomic status		0.001
Upper	18 (8.6%)	
Middle	79 (37.6%)	
Lower	113 (53.8%)	
Mother education		0.04
Non-educated	66 (31.4%)	
Primary	59 (28.1%)	
Secondary and Higher secondary	47 (22.4%)	
Graduated or above	38 (18.1%)	

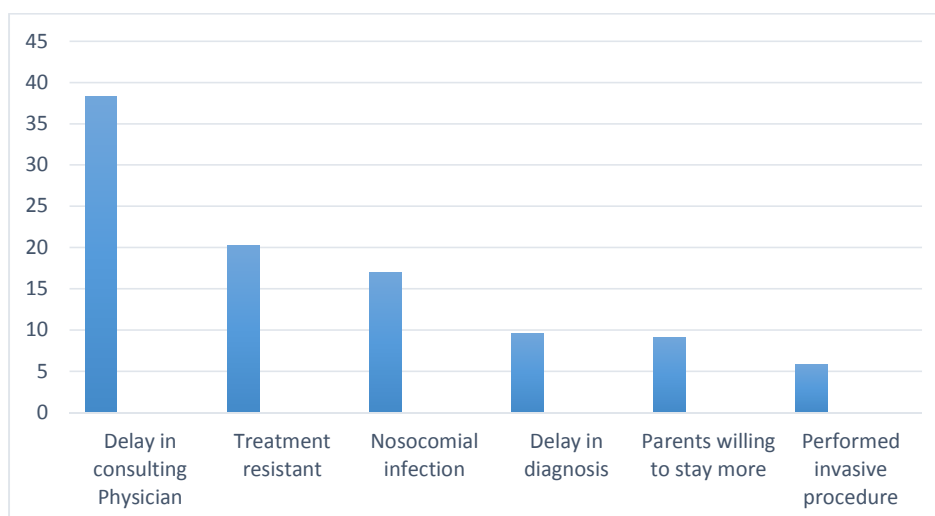


Fig. 1. Risk factors associated with prolong hospital stay

Table 2. Association of risk factors with prolonged hospital stay

Risk factors	Prolonged hospital stay (Mean)	p-value
Delay in consulting physician	11.01	0.04
Treatment resistant	9.11	0.02
Nosocomial infection	8.99	0.01
Delay in diagnosis	7.92	0.36
Parents willing to stay more	7.05	0.52
Performed invasive procedure	5.49	0.69

4. DISCUSSION

It has been estimated that about 4.6-16% of cases admitted in hospital have increased duration of admission [9,10]. Literature revealed that there are multiple factors that are responsible for prolonged hospital stay among children especially, including nosocomial infections like respiratory tract infection, pneumonia, gastric disturbances and urinary tract infections, other factors including parents want to stay until the child get recovered, prematurity, resistant to medical treatment and the delay in diagnosis [3,11-14]. Current study reported that majority of the cases were from the younger age group that is less than 5 years, same is favored by a study conducted in Nigeria [8] the reasons may be the decrease immunity and increased risk of acquiring infections and they need prolonged admission either because of developed complications as presented to physician late or need some invasive procedure, or more prone to develop hospital acquired infections, the facts are also supported by literature as well [5,15]. A study conducted in United states reported nosocomial infection as the leading cause of prolong admission in hospital among pediatric age group and is associated with high mortality rates [16].

A study conducted in Nigeria reported that duration of hospital admission can be minimized by early presenting the child to the physician [8] and the current study support it by reporting 38% of cases whose duration of admission increased because of complications which were developed due to delayed consultation to the physician. Current study also found that about 9.04% of parents were willing to stay in hospital till their child get fully recovered, this is also an important reason for prolonged duration of stay, so Baker et.al recommended a standardized discharge process on the basis of interdisciplinary decision making and a collaborative care plan [17].

As the current study was conducted in a government tertiary care hospital of interior Sindh

so the majority of participants were from the lower socioeconomic class which may be a risk factor because of lack of maintenance of hygiene, overcrowding, unavailability of health services and consulting to the physician after developing complications. A study conducted by Heather et.al also found that poverty itself is an independent risk factor for prolonged hospital stay [18]. It has been also found that household wealth and mother education has a great influence on child health [19] and in the current study majority of mothers were uneducated, having poor sense of hygiene and health related negligence.

5. CONCLUSION

It can be concluded that the younger age group that is less than 5 years is the most significant risk factor while the prolonged duration of hospital stay is multifactorial but the most common reason is the delayed consultation to the physician. It is very important to take step and manage the cause by the Government to minimize the duration of hospital stay.

CONSENT

As per international standard, parental written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study got ethical approval from the concerned institute.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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