Assessing the Impact of Discharge Planning on the Value Equation: Downstream Cost and Patient-Reported Outcomes

INTRODUCTION

Hospital discharge is a complex, critical process ensuring successful patient care transition. For patients it is often a time fraught with anxiety at their most vulnerable moment during the patient journey. Good discharge planning and communication is associated with lower readmission rates, higher treatment regimen adherence and greater patient satisfaction[1]. Despite this, patients' understanding of discharge information[2 3] and discharge planning[4 5] remains poor. This study applies an LMIC lens exploring the impact of patients' experience of discharge planning on downstream healthcare costs, and their self-reported physical and mental wellbeing post-discharge.

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METHOD

A retrospective quantitative study was conducted. Insight's "Voice of the Patient" was used to collect HCAHPS survey data from 26 846 patients over a 5-year period, belonging to one of the five largest open medical schemes in South Africa.

Patients were categorised into two cohorts: optimal and compromised discharge planning. The optimal cohort met optimal discharge criteria in three of the four discharge questions (**table 1**).

Statistical tests (K-S test, Welsch, and Student T-test) were applied to the discharge groups to determine whether there were significant differences in post-discharge metrics. The post-discharge metrics include all-cause readmission rates (RR), all-cause claim amounts, HCAHPS self-reported mental and overall health, and Case Mix Adjusted (CMA) metrics. The CMA metrics are calculated as the difference between the actual values and expected value.

The analysis was conducted on the overall population and four subpopulations: spinal disorders, childbirth, cardiac interventions, hip and knee arthroplasty.

RESULTS

Demographics had no meaningful impact on patient perceived discharge quality. Of the optimal discharge group 58% reported "excellent" or "very good" mental health, compared to 46% in the compromised group (**figure 1**). Similarly, 46.8% of the optimal discharge group reported "excellent" or "very good" overall health, compared to 32.9% of their compromised counterparts (**figure 2**). The optimal discharge group had a 1.2% lower 90-day RR. For cost efficiency measures the optimal discharge group had a 90-day CMA cost difference of R396.05. The statistical significance of these differences (**table 2**) showed that self-reported mental and overall health differed significantly ($p<0.05$) across the full population and all subgroups, with the optimal discharge group scoring higher than compromised peers. Arthroplasty patients with optimal discharge experienced statistically significant decreases in the mean RR and 90-day readmission cost.

Although not a primary study objective, logistic regression revealed that "Discharge2" was the strongest predictor of optimal discharge ($\beta = 1.88$).

CONCLUSION

Previous studies reporting on the importance of discharge planning, largely focussed on its impact on cost efficiencies and proxy quality measures. Findings from this study underline the importance of discharge planning in the context of improved patient-reported overall and mental health. It underscores discharge planning as an important contributor to not only cost savings benefits, but also in achieving patient-centered, value-based care. For this reason, hospitals, payers and policymakers need to pay greater attention to improving this often-neglected part of the patient journey.

Although not the primary objective, key aspects of the discharge planning process with the greatest potential for improving patient experience are highlighted, providing guidance toward targeted solutions.

Table 1: Discharge quality questions and criteria

Question Label	Question Detail	Response Options	Optimal Discharge Criterion
Discharge1	During this hospital stay, did the doctors, nurses or other hospital staff talk to you about whether you would have the help you needed when you left the hospital?	Y / N	Y
Discharge2	Did you get information in writing about the symptoms or health problems to look out for after you left the hospital?	Y / N	Y
Discharge3	I had a good understanding of what I was responsible for in terms of managing my health, when I was discharged from the hospital.	1 – 4	≥ 3
Discharge4	When I was discharged from hospital, I understood the reason for taking each of my medicines.	1 – 4	≥ 3

Figure 1: Mental Health Response by Discharge Quailty

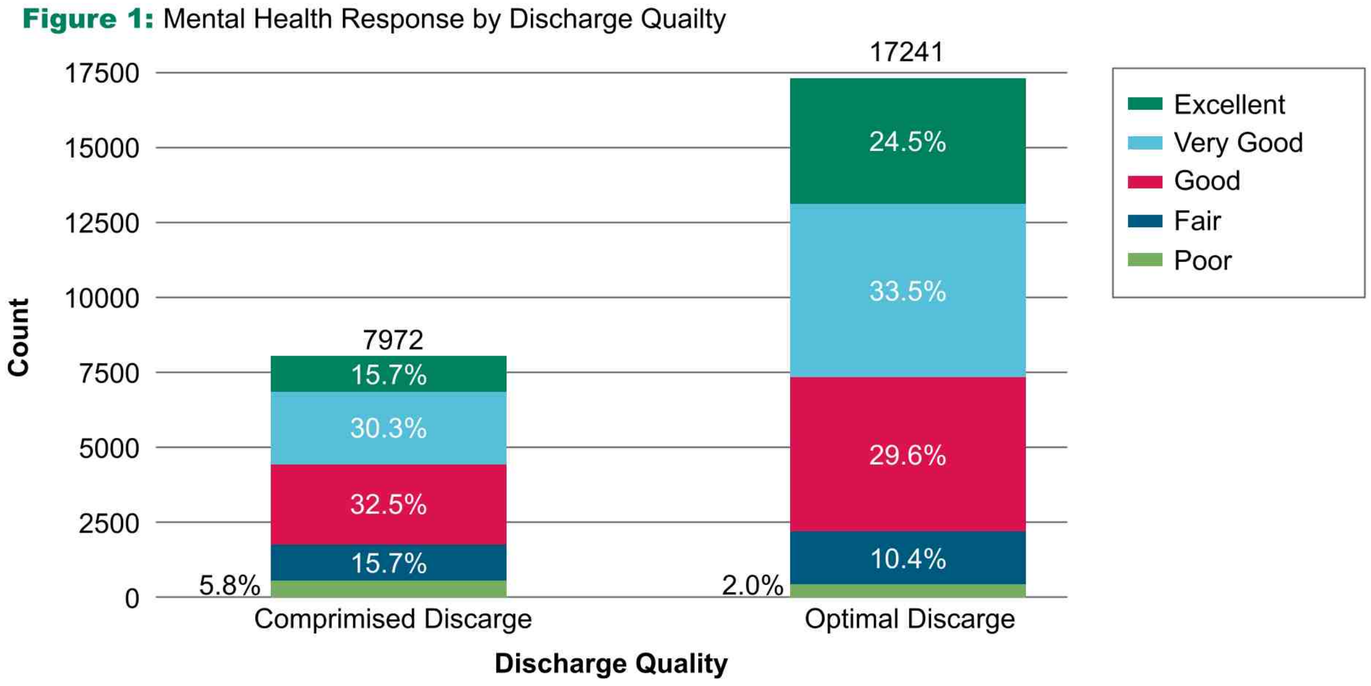

Figure 2: Overall Health Response by Discharge Quality

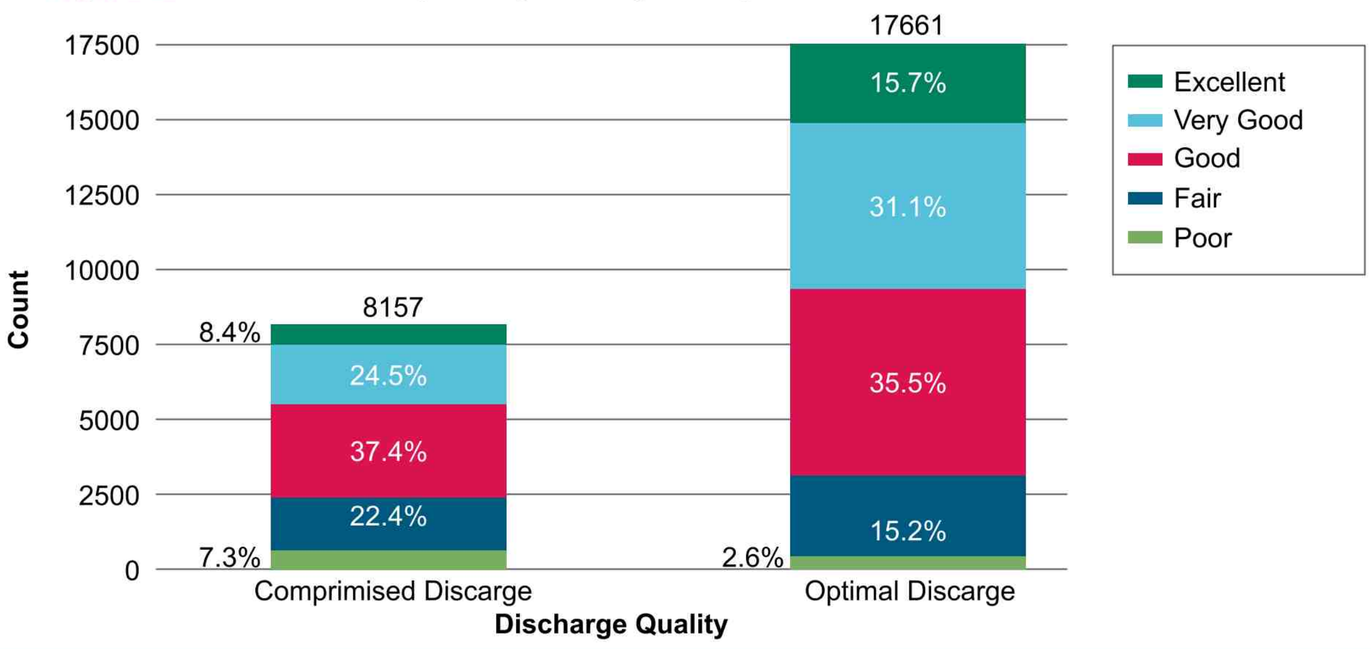

Table 2: Statistical significance of discharge metrics by population group.

Population	Metric	Mean p-value	KS p-value	Finding
Full	90 day CMA LOS	–	0.0199	D
	30 day RR	0.0290	–	M
	90 day RR	0.0013	0.0486	M & D
	30 day CMA Claim Amounts	–	0.000015	D
	90 day CMA Claim Amounts	–	0.00166	D
	Mental Health Self- Assessment	$< 1 \times 10^{-11}$ [6]	$< 1 \times 10^{-68}$	M & D
	Overall Health Self-Assessment	$< 1 \times 10^{-16}$	$< 1 \times 10^{-94}$	M & D
Spinal Disorders	Mental Health Self- Assessment	0.0495	–	M
	Overall Health Self- Assessment	0.000017	0.00171	M & D
Deliveries Childbirth	30 day CMA LOS	0.0209	0.00165	M & D
	30 day CMA Claim Amounts	–	0.00492	D
	Mental Health Self Assessment	$< 4 \times 10^{-20}$	$< 1.9 \times 10^{-12}$	M & D
	Overall Health Self Assessment	$< 2 \times 10^{-16}$	$< 5.4 \times 10^{-9}$	M & D
Cardiac Interventions	90 day CMA Claim Amounts	–	0.0438	D
	Mental Health Self Assessment	0.0000019	0.00276	M & D
	Overall Health Self Assessment	$< 2 \times 10^{-10}$	$< 7.4 \times 10^{-6}$	M & D
Hip and Knee Arthroplasty	30 day RR	0.00851	–	M
	90 day RR	0.00564	–	M
	90 day CMA Claim Amounts	0.0228	–	M
	Mental Health Self Assessment	$< 2 \times 10^{-10}$	$< 7.4 \times 10^{-8}$	M & D
	Overall Health Self Assessment	$< 5 \times 10^{-11}$	$< 7.7 \times 10^{-6}$	M & D

Statistically significant Mean (M) or Distribution (D) difference

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