Decision Fatigue Among Surgeons at the National Orthopaedic Hospital Dala, Kano, Nigeria

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Abstract:

- *Background:*

Decision fatigue refers to the progressive deterioration in the quality of decisions after a prolonged period of decision-making. Surgeons, who face high-stakes, repetitive intraoperative choices, are particularly vulnerable. This study assessed the prevalence and perceived impact of decision fatigue among surgeons at the National Orthopaedic Hospital Dala (NOHD), Kano.

- *Methods:*

A descriptive cross-sectional study was conducted among all 20 surgeons (4 spine surgeons, 16 orthopaedic surgeons) at NOHD between January and March 2026. A structured, self-administered questionnaire assessed awareness of decision fatigue, intraoperative decision load, perceived decline in decision quality during prolonged lists, influence of time-of-day on judgment, and self-attributed clinical errors or near-misses. Responses were recorded on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Data were analysed using descriptive statistics.

- *Results:*

All 20 surgeons (100% response) participated. Mean age was 44.8±8.2 years; all were male. Awareness of decision fatigue was high (90% agreed/strongly agreed). Intraoperative decision load was rated as very high by 80% of respondents. Decline in decision quality during the latter half of prolonged surgical lists was reported by 75%. Time-of-day influence on clinical judgment was acknowledged by 70%. Moreover, 60% attributed at least one clinical error or near-miss to decision fatigue in the preceding 12 months. The mean overall perception score across domains was 4.1±0.7 (scale 1–5). Spine surgeons reported slightly higher scores than orthopaedic surgeons (4.3 vs 4.0, p>0.05).

- *Conclusion:*

Decision fatigue is highly prevalent among surgeons at NOHD Kano and is perceived to adversely affect clinical judgment and patient safety. Despite universal recognition of the problem, no institutional mitigation strategies exist. Structured breaks, workload distribution, and cognitive offloading strategies are urgently needed.

Keywords: *Decision Fatigue, Surgeon Burnout, Patient Safety, Nigeria.*

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I. INTRODUCTION

Decision fatigue is a psychological phenomenon characterised by the progressive depletion of cognitive resources after a sustained period of decision-making, leading to a decline in the quality of subsequent decisions [1]. In high-stakes environments such as the operating theatre, surgeons face prolonged sequences of complex, time-pressured decisions with immediate consequences for patient outcomes [2]. Unlike physical fatigue, decision fatigue manifests as subtle shifts in clinical judgment, risk tolerance, and diagnostic accuracy [3].

The existing literature has produced mixed findings. A 2021 meta-analysis by Koda and colleagues found that surgeon fatigue did not significantly affect postoperative mortality or complication rates [4]. However, decision fatigue is distinct from physical exhaustion. A 2019 study by Persson et al.

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demonstrated that the odds of orthopaedic surgeons offering surgery to a patient fell by 10.5% with each additional patient seen during a clinic, and patients seen at the end of a shift were 33 percentage points less likely to be offered surgery than those seen first [5]. A 2025 systematic review of 82 studies found that 45% of quantitative studies supported the decision fatigue hypothesis, with effects manifesting as deterioration in diagnostic accuracy, treatment selection, and efficiency [6].

In Nigeria, the burden of surgeon fatigue and burnout is increasingly recognised. A 2012 study of orthopaedic surgeons in Lagos reported a burnout prevalence of 51.7%, with 37.9% scoring high on depersonalisation [7]. However, no study has specifically assessed decision fatigue among surgeons in a Nigerian tertiary orthopaedic hospital. This study aimed to determine the prevalence and perceived impact of decision fatigue among surgeons at the National Orthopaedic Hospital Dala, Kano.

II. METHODOLOGY

A descriptive cross-sectional study was conducted at the National Orthopaedic Hospital Dala (NOHD), Kano, Nigeria, between October and December 2025. NOHD is a 250-bed tertiary referral centre serving northwestern Nigeria.

All surgeons actively performing surgery at NOHD during the study period were included. This comprised 20 consultant surgeons: 4 spine surgeons and 16 orthopaedic surgeons (all male). Total population enumeration was used; no sampling was required. Ethical approval was obtained from the NOHD Health Research Ethics Committee and written informed consent was obtained from all participants.

A structured, self-administered questionnaire was developed based on literature review and adapted from existing cognitive load assessment tools [8,9]. The questionnaire comprised:

- Section A: Demographic and professional data (age, subspecialty, years of experience, average weekly operating hours)
- Section B: Perceptions of decision fatigue across five domains (5-point Likert scale: 1=strongly disagree to 5=strongly agree):
- Awareness of decision fatigue phenomenon
- Intraoperative decision load (frequency and density of decisions)
- Perceived decline in decision quality during prolonged surgical lists
- Influence of time-of-day on clinical judgment
- Self-reported clinical errors or near-misses attributed to decision fatigue (past 12 months)

The questionnaire was pre-tested on 2 Orthopaedic surgeons from a similar institution and modified for clarity. Cronbach's alpha for internal consistency was 0.86.

Questionnaires were distributed in person during a weekly departmental meeting and collected within 48 hours. Anonymity was assured.

Data were entered into Microsoft Excel and analysed using SPSS version 26. Descriptive statistics were expressed as frequencies/percentages for categorical variables and mean ± standard deviation (SD) for Likert scale responses. No inferential statistics were required for this descriptive study.

III. RESULTS

All 20 eligible surgeons completed the questionnaire (100% response rate). Table 1 summarises their demographic and professional characteristics.

Table 2 presents the mean scores and proportions of surgeons who agreed or strongly agreed with each domain. The mean overall perception score across all domains was 4.1 ± 0.7 (scale 1–5). No significant differences were observed between spine surgeons and orthopaedic surgeons, though spine surgeons reported slightly higher mean scores (4.3 ± 0.6 vs 4.0 ± 0.7, $p=0.08$).

IV. DISCUSSION

This study provides the first formal assessment of decision fatigue among surgeons at the National Orthopaedic Hospital Dala, Kano. The findings reveal near-universal recognition of the phenomenon (90%), high perceived intraoperative decision load (80%), and concerning rates of self-attributed clinical errors or near-misses (60%). Despite this awareness, no institutional mechanisms exist to mitigate decision fatigue.

The high level of awareness (90%) and the mean perception score of 4.1 ± 0.7 indicate that decision fatigue is a lived experience for surgeons at NOHD. The 2025 systematic review found that 45% of quantitative studies supported the decision fatigue hypothesis, with effects most pronounced during prolonged work periods [6]. Our findings suggest that the prevalence in resource-constrained settings may be even higher, where work hours are extended and recovery opportunities are limited.

The 80% of surgeons rating intraoperative decision load as very high reflects the reality of modern surgical practice. A systematic review of intraoperative stressors identified technical factors as the most frequently examined stressor, followed by individual, environmental, and organisational factors [10]. The cumulative effect of these stressors across a prolonged surgical list likely accelerates cognitive resource depletion, contributing to decision fatigue.

The 60% of surgeons attributing clinical errors or near-misses to decision fatigue is concerning. While the meta-analysis by Koda et al. found no significant association between surgeon fatigue and postoperative mortality or

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complication rates [4], decision fatigue may affect non-technical aspects of surgical performance—clinical judgment, risk assessment, and decision-making—rather than technical execution [3]. The Flush model, a novel framework for managing surgeons' mental fatigue, conceptualises mental fatigue through the analogy of a water tank, emphasising maintaining a cognitive safety reserve to safeguard against errors during critical surgical phases [11].

Implications for practice shows that urgent interventions are needed:

- Structured intraoperative breaks: The Flush model recommends microbreaks, brief mindfulness interventions, and cognitive offloading to facilitate fatigue recovery during prolonged procedures [11].
- Workload distribution: Rotating surgeons through shorter operative blocks could distribute decision load across multiple providers.
- Cognitive aids: Standardised checklists and decision-support tools can reduce extraneous cognitive load, preserving mental resources for critical decisions [12].
- Institutional awareness: Incorporating decision fatigue into quality improvement discussions and surgical training curricula would normalise the phenomenon and encourage mitigation strategies.

This study has several limitations. The small sample size (n=20) from a single centre limits generalisability. The cross-sectional design captures perceptions at one time point rather than longitudinal trends. Self-reported errors may be subject to recall and social desirability bias. All participants were male, reflecting the current composition of the surgical team; findings may not generalise to teams with female surgeons.

Decision fatigue is highly prevalent among surgeons at the National Orthopaedic Hospital Dala, Kano. All 20 surgeons acknowledged the phenomenon, with 90% aware of decision fatigue, 80% rating intraoperative decision load as very high, and 60% attributing at least one clinical error or near-miss to decision fatigue in the preceding 12 months. The mean overall perception score of 4.1 ± 0.7 (scale 1–5) indicates strong consensus regarding the significance of the problem. Despite universal recognition, no institutional mechanisms exist to mitigate decision fatigue. Targeted interventions—including structured breaks, workload distribution, cognitive offloading strategies, and institutional awareness programmes—are urgently needed to preserve decision quality and patient safety.

REFERENCES

[1]. Ijaz M, Whiteway S. Does decision fatigue impact on surgical outcomes? – A scoping review. Br J Surg. 2024;111(Supplement_6). doi:10.1093/bjs/znae163.757

[2]. Lee A, Torkamani-Azar M, Zheng B, Bednarik R. Unpacking the broad landscape of intraoperative stressors for clinical personnel: a mixed-methods systematic review. J Multidiscip Healthc. 2023;16:1953-1977.

[3]. Whelehan DF. To survive or to thrive: an investigation into fatigue and associated factors on surgical performance. Doctoral dissertation. Trinity College Dublin; 2021.

[4]. Koda N, et al. Surgeon fatigue does not affect surgical outcomes: a systematic review and meta-analysis. Surg Today. 2021;51(5):659-668.

[5]. Persson E, Barrafrem K, Meunier A, Tinghög G. The effect of decision fatigue on surgeons' clinical decision making. Health Econ. 2019;28(10):1194-1203.

[6]. Systematic review of the effects of decision fatigue in healthcare professionals on medical decision-making. Health Psychol Rev. 2025;19(2):1-22.

[7]. Coker AO, Adewole OA, Shoga MO, Uzodimma CC. Burnout syndrome among orthopaedic surgeons in Lagos, Nigeria. East Cent Afr J Surg. 2012;17(2):13-17.

[8]. Hart SG, Staveland LE. Development of NASA-TLX (Task Load Index): results of empirical and theoretical research. Adv Psychol. 1988;52:139-183.

[9]. Wilson MR, Poolton JM, Malhotra N, Ngo K, Bright E, Masters RS. Development and validation of a surgical workload measure: the surgery task load index (SURG-TLX). World J Surg. 2011;35(9):1961-1969.

[10]. Arora S, Sevdalis N, Nestel D, Woloshynowych M, Darzi A, Kneebone R. The impact of stress on surgical performance: a systematic review of the literature. Surgery. 2010;147(3):318-330.

[11]. Flush model: a novel framework to manage surgeons' mental fatigue and cognitive load. Ann Surg Open. 2025;6(2):e581.

[12]. Whelehan DF, Brown DJ. Fatigued surgeons: a thematic analysis of the causes, effects and opportunities for fatigue mitigation in surgery. Br J Surg. 2021;108(9): e289-e290.

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TABLES

Table 1: Demographic and Professional Characteristics of Respondents (n=20)

Characteristic	Category n (%)
Age (years) mean ± SD	44.8 ± 8.2
Gender Male	20 (100)
Subspecialty Spine surgery	4 (20.0)
Orthopaedic surgery (non-spine)	16 (80.0)
Years of surgical experience	
<10 years	6 (30.0)
10–20 years	9 (45.0)
20 years	5 (25.0)
Average weekly operating hours	
<20 hours	4 (20.0)
20–30 hours	10 (50.0)
30 hours	6 (30.0)

Table 2: Perceptions of Decision Fatigue Across Domains (n=20)

Domain	Mean ± SD	Median	Agree/Strongly Agree n (%)
Awareness of decision fatigue phenomenon	4.5 ± 0.6	5.0	18 (90.0)
Intraoperative decision load is very high	4.4 ± 0.7	5.0	16 (80.0)
Decision quality declines during latter half of surgical lists	4.1 ± 0.8	4.0	15 (75.0)
Time-of-day influences clinical judgment	4.0 ± 0.9	4.0	14 (70.0)
Attributed ≥1 clinical error/near-miss to decision fatigue (past 12 months)	3.9 ± 0.9	4.0	12 (60.0)