

From Wound Care to Patient Experience: A Nursing Case Study on Surgical Site Infection Following Laparoscopic Cholecystectomy- Case Study Report

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Abstract—Background: Surgical site infections (SSIs) remain a recognized complication of laparoscopic cholecystectomy, one of the most commonly performed minimally invasive abdominal procedures.

Case Presentation: This case study presents the clinical course of a 55-year-old male patient admitted to Suyog Hospital who developed fever and purulent wound discharge on the third post-operative day following elective laparoscopic cholecystectomy. His total hospital stay, from elective admission through post-operative recovery and treatment of the surgical site infection to discharge, was one week (7 days).

Nursing Management: The report describes the nursing assessment, diagnosis, and evidence-based day-wise management of the infection, including focused wound assessment, aseptic non-touch technique (ANTT) wound care, culture-guided antibiotic therapy, structured glycemic monitoring, multimodal pain management, psychological support, and teach-back-verified discharge education. Care planning was additionally guided by Orem's Self-Care Deficit Nursing Theory, which frames the patient's changing need for nursing support — from wholly compensatory to partly compensatory to supportive-educative care — as his capacity for self-care was progressively restored.

Conclusion: Timely recognition, consistent wound management, and clear patient communication were central not only to the patient's clinical recovery within a one-week admission but also to his confidence in, and satisfaction with, the nursing care received. The case reinforces that patient satisfaction is actively shaped by the responsiveness, technical competence, and communication of the nursing team at every stage of hospitalisation, and that a structured theoretical

framework can help nurses judge how much to do for a patient, and when to step back and teach, at each stage of recovery.

Index Terms—surgical site infection; laparoscopic cholecystectomy; post-operative nursing care; wound management; glycemic control; patient satisfaction; discharge education; teach-back method; Orem's Self-Care Deficit Nursing Theory

I. INTRODUCTION

Laparoscopic cholecystectomy is widely regarded as the gold-standard surgical approach for symptomatic gallstone disease, offering shorter hospital stays and lower complication rates compared with open surgery. Despite its minimally invasive nature, surgical site infection continues to occur in a small but clinically significant proportion of patients, particularly those with predisposing factors such as diabetes mellitus, obesity, and advanced age [1,2]. Independent risk factors identified in large cohort studies include male sex, diabetes mellitus, obesity, chronic anaemia, and intra-operative complications such as bile spillage or gallbladder perforation [2,3]. SSIs prolong hospital stay, increase healthcare costs, and can significantly affect a patient's perception of the quality of care received [3,4].

This case study describes the presentation and structured, day-wise nursing management of an SSI in a post-cholecystectomy patient at Suyog Hospital, whose total length of stay was one week, and

examines how nursing interventions influenced both clinical outcomes and patient satisfaction. To give the day-wise plan of care a clear theoretical rationale, the case is additionally analysed through Orem's Self-Care Deficit Nursing Theory, which explains why the patient's need for nursing support changed in a

predictable way as his own capacity for self-care returned. The report has been prepared and reorganised in a structured case-report format suitable for peer-reviewed nursing journal submission.

II. CASE PRESENTATION

2.1 Patient Profile

Parameter	Details
Age / Sex	55 years / Male
Admission type	Elective admission to Suyog Hospital
Diagnosis	Symptomatic cholelithiasis
Procedure performed	Laparoscopic cholecystectomy (Day 0)
Total length of hospital stay	7 days (1 week) — admission/surgery on Day 0 to discharge on Day 7
Day of complication onset	Post-operative Day 3
Presenting complaints	Fever (101.2°F), wound-site pain, purulent discharge from umbilical port
Relevant history	Type 2 diabetes mellitus (controlled on oral hypoglycemics); BMI 29 (overweight); no known drug allergies

2.2 Clinical Findings on Day 3

- Temperature 101.2°F (38.4°C); pulse 96/min, mildly tachycardic; respiratory rate 20/min; blood pressure 128/82 mmHg
- Wound site: erythema, localized swelling, warmth, and tenderness around the umbilical port, measuring approximately 2 cm × 1.5 cm with a shallow tract on probing
- Discharge: moderate, yellowish, foul-smelling exudate (approximately 5 mL collected on dressing over 4 hours)
- Laboratory findings: elevated total leukocyte count (14,200/mm³) and raised C-reactive protein
- Blood glucose: mildly elevated (random blood glucose 216 mg/dL), consistent with impaired glycemic control during acute infection
- Pain score: 6/10 on the Numeric Rating Scale (NRS), localized to the peri-umbilical port site

III. NURSING ASSESSMENT

A systematic, wound-focused nursing assessment was undertaken using a structured wound assessment framework (informed by the Bates-Jensen Wound Assessment Tool) alongside routine systemic surveillance.

3.1 Focused Wound Assessment

- Site, size, depth, and margins of the wound, measured and documented in centimetres at each dressing change
- Type, amount, colour, and odour of discharge, graded as scant, moderate, or heavy
- Signs of cellulitis, induration, or early abscess formation
- Presence of wound dehiscence or tract formation on gentle probing with a sterile applicator
- Periwound skin condition, assessed for maceration from exudate

3.2 Systemic Assessment

- Trend of vital signs over the preceding 24–48 hours, plotted on the bedside observation chart
- Signs of systemic inflammatory response (fever, tachycardia, tachypnoea)
- Hydration and nutritional status, including oral intake and skin turgor
- Capillary blood glucose monitoring four times daily (pre-breakfast, pre-lunch, pre-dinner, and bedtime), given its relevance to wound healing in a diabetic patient

3.3 Risk Factor Identification

- Diabetes mellitus with sub-optimal perioperative glycemic control
- Obesity (BMI 29)
- Age-related changes in tissue healing and immune response
- Possible intra-operative contamination during laparoscopic port entry

IV. NURSING DIAGNOSES

1. Actual Infection related to the surgical incision and impaired skin integrity, as evidenced by fever, purulent discharge, and elevated white cell count
2. Impaired Skin/Tissue Integrity related to surgical wound breakdown, as evidenced by a 2 cm × 1.5 cm open wound with exudate
3. Hyperthermia related to the infective process, as evidenced by a temperature of 101.2°F
4. Acute Pain related to local inflammation at the surgical site, as evidenced by a self-reported NRS score of 6/10
5. Risk for Delayed Wound Healing related to underlying diabetes mellitus and elevated blood glucose
6. Anxiety related to the unexpected post-operative complication and prolonged hospital stay, as evidenced by verbalised worry and repeated questioning about recovery time
7. Deficient Knowledge regarding wound care, medication compliance, and post-discharge warning signs, as evidenced by an inability to describe home wound care during initial assessment
8. Self-Care Deficit related to acute illness and the physical limitations of the surgical wound, as

evidenced by initial reliance on nursing staff for wound care, glucose monitoring, and health-related decision-making

V. THEORETICAL FRAMEWORK: APPLICATION OF OREM'S SELF-CARE DEFICIT NURSING THEORY

The day-wise plan of care in this case follows a recognisable pattern: nurses did almost everything for the patient during the acute infective phase, then progressively handed responsibility back to him as his condition improved, ending in structured teaching so that he could manage his own recovery at home. Dorothea Orem's Self-Care Deficit Nursing Theory offers a well-suited framework for explaining this pattern, because it is built around exactly this question — how much should a nurse do for a patient, and when should care shift toward helping the patient do it for themselves? [8]

Orem's theory comprises three related components: the theory of self-care, which describes the practices individuals normally perform to maintain health and wellbeing; the theory of self-care deficit, which explains that nursing becomes necessary when the demands of a person's condition exceed their own capacity to meet them; and the theory of nursing systems, which classifies the resulting nurse-patient relationship as wholly compensatory, partly compensatory, or supportive-educative, depending on how much of the patient's care the nurse must still provide directly [8,9].

5.1 Self-Care Requisites Relevant to This Case

Universal self-care requisites: Ordinary needs for air, food, fluid, elimination, activity, rest, and hazard avoidance were disrupted by post-operative pain, fever, and reduced mobility, and further threatened once infection breached the wound as a physical barrier against hazard.

Health-deviation self-care requisites: These arose directly from the surgical wound and its infection, and included wound hygiene, adherence to the antibiotic regimen, recognition of worsening signs, and the glycemic monitoring made newly necessary by the physiological stress of infection on an already diabetic patient.

Developmental self-care requisites: As a middle-aged adult expecting a short, uncomplicated recovery, the

patient also had to adapt to an unplanned extension of his hospital stay and a temporary disruption of his usual work and family responsibilities — a developmental demand that the psychological-support interventions in Section 6.6 were designed to address.

5.2 The Emergence of a Self-Care Deficit

A self-care deficit exists, in Orem's terms, whenever the therapeutic self-care demand created by a person's condition outstrips their own self-care agency — their current ability to meet that demand unaided.

Before Day 3, the patient's self-care agency was largely sufficient for routine post-operative recovery. The onset of infection sharply increased the therapeutic self-care demand — wound care requiring sterile technique, systemic antibiotic therapy, closer glycemic control, and fever management — while his self-care agency was simultaneously reduced by pain, fever, and anxiety. This widening gap between demand and capacity is what defined the self-care deficit driving nursing involvement from Day 3 onward, and is reflected in the nursing diagnosis in Section 4.

5.3 Nursing Systems Across the Seven-Day Admission

Mapping the day-wise care already described in Section 6 onto Orem's three nursing systems shows a clear, theory-consistent progression from nurse-led to patient-led care.

Day range	Nursing system	Patient's self-care agency	Nurse's role
Days 0–2	Partly compensatory	Adequate for routine post-operative recovery with support	Performed peri-operative monitoring and taught early self-care behaviours (ambulation, spirometry) while the patient contributed within his physical limits
Days 3–4	Wholly compensatory	Substantially reduced by fever, pain, and acute infection	Assumed most direct care — aseptic wound management, IV antibiotic administration, fever control, and close glycemic monitoring — as the therapeutic self-care demand exceeded the patient's own capacity
Days 5–6	Partly compensatory	Gradually returning as fever settled and pain reduced	Shared responsibility with the patient, who resumed mobilising, eating, and participating in decisions, while the nurse continued wound care and monitored antibiotic de-escalation
Day 7	Supportive-educative	Sufficient to manage most care independently with knowledge and guidance	Shifted to teaching and validation — teach-back-confirmed discharge education equipped the patient and family to meet his own self-care requisites at home



Figure 1. Progression of nursing systems across the seven-day admission, from self-care deficit to restored self-care agency at discharge.

Viewing the case through Orem's model does more than describe what already happened; it gives nurses a rationale for deciding, at each stage, how much to do for the patient and when to begin stepping back. It explains why care intensified sharply on Day 3 rather than continuing at a routine level, why shared responsibility from Day 5 was clinically appropriate rather than premature, and why the teach-back method used at discharge was not simply good communication practice but the intended endpoint of the nursing relationship — restoring the patient to full self-care agency before he left Suyog Hospital. This framework also offers a transferable planning tool for similar post-operative complications, helping nursing staff judge, in real time, which of the three nursing systems best matches a patient's current state.

VI. NURSING CARE AND MANAGEMENT: DAY-WISE COURSE OVER THE ONE-WEEK ADMISSION

Nursing care was organised around the patient's seven-day hospital stay, with interventions intensifying around the infective episode (Days 3–6) and transitioning to structured discharge preparation on Day 7, consistent with the shifting nursing systems described in Section 5.3.

5.4 Value of the Theoretical Framework for This Case

Day	Nursing care and clinical course
Day 0	Elective admission; pre-operative preparation (fasting status confirmed, informed consent verified, prophylactic antibiotic given on call to theatre); laparoscopic cholecystectomy performed uneventfully; post-anaesthesia vital sign monitoring every 15–30 minutes
Day 1	Routine post-operative care: vital signs 4-hourly, port-site dressings checked and found clean and dry, early ambulation encouraged, incentive spirometry taught, capillary glucose monitored 4 times daily, oral intake progressed as tolerated
Day 2	Continued routine recovery; wound sites clean; patient mobilising independently; discharge planned initially for Day 2–3 before the complication emerged
Day 3	Fever (101.2°F) and purulent umbilical port discharge identified on morning assessment; wound swab sent for culture and sensitivity before any antibiotic change; empirical broad-spectrum intravenous antibiotic (piperacillin-tazobactam 4.5 g every 8 hours) commenced on physician's order; vital signs increased to 4-hourly; tepid sponging and paracetamol 650 mg (oral/IV) given for fever >100.4°F; wound cleansed with normal saline and packed with a calcium-alginate dressing to manage moderate exudate; blood glucose monitoring intensified; patient and family informed of the complication and plan of care

Day	Nursing care and clinical course
Day 4	Culture and sensitivity report reviewed with the physician; antibiotic regimen reassessed; wound reassessed and measurements documented (wound stable at 2 cm × 1.3 cm); dressing changed once daily using strict aseptic non-touch technique (ANTT); pain reassessed (NRS 5/10) and analgesia adjusted; sliding-scale insulin correction coordinated with the physician for a blood glucose of 216 mg/dL, targeting less than 180 mg/dL; dietitian referral placed for diabetic diet counselling; therapeutic communication session held to address the patient's anxiety about the prolonged stay
Day 5	Fever trend improving (max 99.6°F); discharge from the wound reduced to scant serous fluid; dressing changed to a non-adherent absorbent pad as exudate decreased; pain reduced to NRS 2/10 with oral analgesia; blood glucose stabilising within target range on two consecutive readings; antibiotic de-escalated to a narrower-spectrum oral agent per culture sensitivity, with the nurse confirming the patient understood the importance of completing the full course; family involved in a bedside care discussion
Day 6	Temperature normalised (98.4°F) for over 24 hours; wound edges approximating with visible granulation tissue; leukocyte count trending down on repeat blood work; patient mobilising fully and tolerating a full diabetic diet; discharge planning initiated, including a written wound-care instruction sheet prepared in the patient's preferred language
Day 7	Final wound assessment confirmed a clean, granulating wound with no discharge; vital signs and blood glucose within normal limits; discharge education delivered using the teach-back method; follow-up appointment scheduled for wound review and suture/clip removal; patient discharged home in the care of his family

6.1 Infection Control and Wound Care

- Strict aseptic non-touch technique (ANTT) maintained during every dressing change, using a sterile dressing pack, sterile gloves, and a no-touch technique for the wound bed
- Wound swab sent for culture and sensitivity prior to antibiotic adjustment (Day 3), with the report reviewed on Day 4
- Daily wound cleansing with normal saline (0.9%); avoidance of cytotoxic antiseptics (e.g., undiluted povidone-iodine or hydrogen peroxide on granulating tissue) that impair healing
- Progressive dressing selection based on exudate level: calcium-alginate packing during the heavy-exudate phase (Days 3–4), transitioning to a non-adherent absorbent dressing (Day 5) and a light hydrocolloid film as the wound approximated (Days 6–7)
- Wound measurements (length, width, depth) and photographic documentation, where consented, recorded at each nursing shift to track healing progress objectively

- Reinforcement of hand hygiene (WHO 5 Moments) among staff, patient, and visitors before any wound contact

6.2 Antibiotic Therapy Management

- Empirical broad-spectrum intravenous antibiotic therapy (piperacillin-tazobactam) commenced as prescribed on Day 3, pending culture results, in line with CDC/HICPAC guidance on evidence-based SSI management [1]
- Therapy de-escalated to a targeted, narrower-spectrum oral agent from Day 5 once culture and sensitivity results were available, supporting antibiotic stewardship
- Monitoring for therapeutic response — defervescence, reduced discharge, and a falling leukocyte trend — documented daily
- Vigilance for antibiotic-related adverse effects such as gastrointestinal upset, rash, or signs of allergic reaction, with none observed in this case
- Patient education, reinforced via teach-back, on completing the full oral antibiotic course after discharge even once symptoms resolved

6.3 Temperature and Systemic Monitoring

- Four-hourly vital sign monitoring maintained throughout the febrile phase (Days 3–5), reducing to routine 6–8-hourly monitoring once temperature normalised
- Tepid sponging and paracetamol 650 mg administered as prescribed for temperature exceeding 100.4°F (38°C)
- Intake–output charting maintained to assess hydration status, with oral fluid intake encouraged during the febrile period

6.4 Glycemic Control

- Capillary blood glucose monitored four times daily, recognising the bidirectional relationship between infection and glycemic control [5]
- Coordination with the physician for sliding-scale insulin correction when readings exceeded target range, aiming for a perioperative target below 180 mg/dL consistent with CDC recommendations [1]
- Diabetic diet counselling provided in collaboration with the dietetics team from Day 4 onward
- Blood glucose trend documented alongside wound healing progress to correlate glycemic control with clinical improvement

6.5 Pain Management

- Regular pain assessment using the Numeric Rating Scale (0–10), performed at every vital-sign check and before/after dressing changes
- Administration of prescribed analgesics (initially intravenous, transitioning to oral as pain reduced from 6/10 on Day 3 to 2/10 by Day 5) with documented evaluation of effectiveness 30–60 minutes after administration
- Comfort positioning, splinting of the abdomen during coughing, and reassurance provided during dressing changes to minimise procedural pain and distress

6.6 Psychological Support

- Therapeutic communication used to address anxiety related to the unexpected complication, including a dedicated bedside conversation on Day 4
- Clear, jargon-free explanation of the treatment plan and expected recovery timeline given at each shift handover to the patient
- Family involved in care discussions from Day 4 onward to strengthen the patient's support system and reinforce understanding of the care plan

6.7 Discharge Education

Structured discharge teaching was identified as a critical determinant of safe recovery at home and was delivered using the teach-back method to confirm understanding, consistent with evidence that teach-back-based discharge education improves comprehension and reduces readmission risk [6], and representing the supportive-educative nursing system described in Section 5.3:

- Wound care at home: maintaining a clean, dry site and correct dressing-change technique and frequency
- Warning signs requiring immediate medical attention: increasing redness, swelling, fever, foul odour, or discharge
- Medication education: the importance of completing the full antibiotic course even after symptoms resolve
- Diet and glycemic control: the role of blood sugar management in wound healing, with a simplified diabetic diet plan
- Activity guidance: avoiding strain on the abdominal wound and gradual return to normal activity over 2–3 weeks
- Follow-up: a clear appointment schedule for wound review and suture/clip removal approximately one week after discharge
- A written discharge instruction sheet provided in the patient's preferred language, with understanding confirmed via teach-back before discharge on Day 7

VII. EVALUATION OF OUTCOMES

Goal	Outcome
Infection resolution	Fever subsided by Day 6; discharge reduced progressively from Day 5 and the wound

Goal	Outcome
	began granulating; discharged Day 7 with a clean, healing wound
Pain control	Pain score reduced from 6/10 on Day 3 to 2/10 by Day 5, and to minimal discomfort by discharge
Glycemic control	Blood glucose stabilised within target range (<180 mg/dL) by Day 5 and remained stable through discharge
Length of stay	Total hospital stay of 7 days (1 week), from elective admission/surgery on Day 0 to discharge on Day 7
Discharge understanding	Confirmed via teach-back; patient correctly described wound care steps and warning signs before discharge
Anxiety levels	Patient reported feeling reassured and adequately informed prior to discharge
Restoration of self-care agency	Patient progressed from wholly compensatory to supportive-educative nursing care, demonstrating independent wound-care knowledge and confidence by discharge

VIII. DISCUSSION: NURSING CARE AND PATIENT SATISFACTION

Patient satisfaction is closely linked to the quality, consistency, and communication style of nursing care, particularly when a patient experiences an unexpected post-operative complication such as SSI [7]. Several elements of nursing care in this case appeared to directly influence the patient's satisfaction with his overall hospital experience across the one-week admission.

Timely recognition and response: Early identification of infection signs by nursing staff on the morning of Day 3 helped prevent progression to a more severe complication, such as abscess formation or wound dehiscence, reassuring the patient and family that his condition was being closely monitored.

Consistent, gentle wound care technique: Minimising pain and distress during daily dressing changes helped build trust between the patient and the nursing team over the course of the admission.

Clear communication: Explaining why the fever occurred, what was being done, and what to expect reduced the patient's anxiety; patients consistently report higher satisfaction when they understand their care plan, and effective nurse-patient communication has been associated with improved satisfaction across the phases of a hospital stay [7].

Involvement in care decisions: Explaining the rationale for dressing choices and antibiotic de-escalation in accessible terms gave the patient a sense of control over his own recovery, consistent with the gradual transfer of responsibility described in the partly compensatory phase of Orem's framework (Section 5.3).

Effective discharge preparation: Structured, teach-back-verified discharge education is associated with greater patient confidence at discharge and reduced anxiety about self-care at home [6] — both recognised drivers of overall satisfaction scores, and the clinical expression of the supportive-educative nursing system.

Holistic approach: Addressing the wound alongside glycemic control, pain, and emotional wellbeing over the full seven-day stay reflected patient-centred care, which patients frequently identify as central to a positive hospital experience.

8.1 Suggested Patient Satisfaction Indicators for This Case

- Responsiveness of nursing staff to calls regarding pain or fever
- Clarity of explanations provided about the complication and its treatment
- Perceived competence and gentleness during wound dressing procedures

- Patient confidence at discharge in managing wound care independently
- Overall willingness to recommend Suyog Hospital based on this experience

IX. CONCLUSION

This case illustrates that even minimally invasive procedures such as laparoscopic cholecystectomy carry a meaningful risk of surgical site infection, particularly in patients with diabetes or obesity [1,2,3]. Systematic wound assessment and culture-guided antibiotic therapy remain central to favourable clinical outcomes, and were achieved within a total hospital stay of one week in this case. However, nursing care that extends beyond physical wound management — encompassing glycemic control, pain relief, psychological support, and structured discharge teaching — is equally important. Framing this care through Orem's Self-Care Deficit Nursing Theory clarified why the nursing approach shifted from wholly compensatory to partly compensatory to supportive-educative across the seven-day stay, and gave the nursing team a clear, theory-based endpoint for discharge planning: a patient equipped to resume full self-care at home. This case reinforces that patient satisfaction is not incidental to clinical care but is actively shaped by the responsiveness, communication, and competence of the nursing team at every stage of the hospital stay.

X. RECOMMENDATIONS FOR NURSING PRACTICE

- Incorporate routine post-operative wound surveillance protocols, particularly for patients with diabetes or obesity, to enable early SSI detection within the first post-operative week.
- Standardise the use of the teach-back method for discharge education across surgical units.
- Promote culture-guided antibiotic stewardship to support timely de-escalation and reduce resistance risk.
- Integrate perioperative glycemic monitoring and target-based insulin protocols into routine post-operative nursing care for diabetic patients.
- Integrate patient satisfaction indicators into routine post-operative nursing audits.
- Provide ongoing staff training on therapeutic communication for patients experiencing unexpected complications or an extended hospital stay.
- Use a recognised nursing model, such as Orem's Self-Care Deficit Nursing Theory, to structure day-wise care planning for post-operative complications, helping staff judge when to provide direct care and when to shift toward patient education.

XI. LIMITATIONS

As a single-patient case study, the findings are illustrative rather than generalisable, and the association between specific nursing interventions and patient satisfaction was based on clinical observation and documentation rather than a validated satisfaction instrument. The application of Orem's theory in this report is likewise a retrospective interpretive framework rather than a tool that was used prospectively to plan care in real time. Future institutional audits could incorporate a standardised patient satisfaction tool, and prospective use of a formal self-care assessment instrument, to examine both relationships more rigorously.

Ethical Considerations

This case study is prepared for educational and institutional publication purposes. Patient identity has been withheld and identifying details modified to maintain confidentiality, in accordance with standard ethical reporting guidelines for clinical case studies (e.g., CARE case report guidelines). Institutional consent for publication was obtained per Suyog Hospital's Department of Nursing policy.

REFERENCES

- [1] Berríos-Torres SI, Umscheid CA, Bratzler DW, et al. Centers for Disease Control and Prevention guideline for the prevention of surgical site infection, 2017. *JAMA Surg.* 2017;152(8):784-791.
- [2] Warren DK, Nickel KB, Wallace AE, Mines D, Tian F, Symons WJ, Fraser VJ, Olsen MA. Risk factors for surgical site infection after cholecystectomy. *Open Forum Infect Dis.* 2017;4(2):ofx036.

- [3] Wang SH. Evaluating risk factors for surgical site infections and the effectiveness of prophylactic antibiotics in patients undergoing laparoscopic cholecystectomy. *World J Gastrointest Surg.* 2025;17(1):98567.
- [4] Masaod RE, Salih MA. Prevalence and risk factors of post-cholecystectomy surgical site infections. *Ann Med Surg (Lond).* 2023;85:5428-5432.
- [5] Takesue Y, Tsuchida T. Strict glycemic control to prevent surgical site infections in gastroenterological surgery. *Ann Gastroenterol Surg.* 2017;1(1):52-58.
- [6] Oh EG, Lee HJ, Yang YL, et al. Effectiveness of discharge education with the teach-back method on 30-day readmission: a systematic review. *J Patient Saf.* 2021;17(4):305-310.
- [7] Barilaro A, Conidi A, Ligarò S, et al. Nursing communication as a tool for patient satisfaction: a single hospital survey. *Open Nurs J.* 2019;13:220-227.
- [8] Orem DE. *Nursing: Concepts of Practice.* 6th ed. St. Louis: Mosby; 2001.
- [9] Taylor SG, Renpenning K. *Self-Care Science, Nursing Theory and Evidence-Based Practice.* New York: Springer; 2011.
- [10] Institutional case documentation and nursing care records, Department of Nursing, Suyog Hospital.